Application for Part 5 Experimental Special Temporary Authority

Sirius XM Radio Inc. ("Sirius XM"), pursuant to Section 5.61 of the Commission's rules, 47 C.F.R. § 5.61, hereby requests Special Temporary Authority ("STA") for a 30-day period commencing August 3, 2009 to conduct tests using the 7064.5-7068.0 MHz X-band and the 2324.5-2328.0 MHz S-band frequencies with the Sirius FM-5 satellite (call sign S2710) at 96.0° W.L. and the earth station in Vernon, NJ (call sign E080185).

Description of Operation

Sirius XM desires to conduct tests to verify system transmission parameters of the Sirius FM-5 satellite, which was launched on June 30, 2009. Testing frequencies and monitoring power levels using the Sirius FM-5 satellite and Sirius XM's earth station in Vernon, New Jersey may allow for future improvements in satellite radio performance.

Technical Information

Classes of stations

The Sirius FM-5 satellite (call sign S2710) is a geostationary satellite located at 96.0° W.L.[1]

The antenna in Vernon, NJ (call sign E080185) is a fixed earth station.

Proposed Location

Sirius will use the earth station in Vernon, New Jersey to communicate with the Sirius FM-5 satellite at the 96.0° W.L. orbital location.

- Vernon, New Jersey (call sign E080185)
  - Latitude: 41° 12' 45.0" N
  - Longitude: 74° 29' 39.0" W

Frequencies Desired

Sirius XM proposes to use the following frequencies for the tests:

2324.5-2328.0 MHz (Space-to Earth)
7064.5-7068.0 MHz (Earth-to-Space)

The 2324.5-2328.0 MHz frequencies are part of the S-band spectrum to which Sirius XM won exclusive rights at auction and which are typically used by Sirius XM terrestrial repeaters for

[1] The Sirius FM-5 satellite has been authorized by the FCC. *See Policy Branch Information; Actions Taken*, Report No. SAT-00438, File No. SAT-LOA-20060901-00096 (effective Apr. 16, 2007, issued Apr. 20, 2007) (Public Notice). Consequently, pursuant to Section 5.63(e) of the Commission's rules, 47 C.F.R. § 5.63(e), no orbital debris information is required in connection with this application.

distribution of satellite radio programming. As shown in Attachment A, the Sirius FM-5 Payload Simplified Block Diagram, the Sirius FM-5 satellite is capable of transmitting in these S-band frequencies.[2]

Power Limits

The maximum earth station uplink EIRP for these tests will be 75.0 dBW/MHz at X-band. As demonstrated in Attachment B, COMSEARCH has conducted frequency coordination to ensure that Sirius XM can conduct the requested earth station operations without interference to other users of the X-band spectrum.

The satellite downlink pdf for the tests will be no more than -119 dBW/m^2/4kHz in S-band in Canada, which complies with the United States' coordination agreements with Canada.[3] The proposed downlink pfd along the U.S. border with Mexico will not exceed -122 dBw/m2/4kHz. The United States' coordination agreement with Mexico does not contain a U.S. satellite downlink power limit in the 2324.5-2328.0 MHz frequencies because of the historic intent to accommodate future Mexican satellite digital audio radio service and legacy terrestrial facilities.[4] However, Sirius XM's proposed test cannot cause harmful interference because Mexico has not licensed or implemented a Mexican satellite digital audio radio service and the legacy Mexican terrestrial facilities operating in the band are already coordinated for a -122 dBw/m2/4kHz pfd limit from U.S. geostationary satellites in both adjacent portions of the S-band.

In the unlikely event that harmful interference occurs, Sirius XM will take all necessary steps to eliminate such interference.

Emission Designator

The emission designator for the tests will be 4M50G7E. The testing will employ circular polarization.

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[2] The technical specifications for these frequencies were not set forth in the Sirius FM-5 application and thus are not included in the Sirius FM-5 authorization since there are no plans to use them operationally. *See* Sirius Satellite Radio Inc., File No. SAT-LOA-20060901-00096, Call Sign S2710 (grant stamp with conditions, Apr. 16, 2007) (authorizing the operation of Sirius FM-5 "using the frequency bands 2320.0-2332.5 MHz (space-to-Earth) and 7050-7072.5 MHz (Earth-to-Space), in accordance with the technical specifications set forth in its application…").

[3] *Concerning the Coordination Between U.S. Satellite Digital Audio Radio Service and Canadian Fixed Service and Mobile Aeronautical Telemetry Service in the band 2320-2345 MHz*, Aug. 25-28, 1998, available at http://www.fcc.gov/ib/sand/agree/files/can-bc/can-dars.pdf.

[4] *The Agreement Between the Government of the United States of America and the Government of the United Mexican States Concerning the Use of the 2310-2360 MHz Band*, July 24, 2000, available at http://www.fcc.gov/ib/sand/agree/files/mex-nb/usmexdars.pdf.

Antenna Height

The antenna in Vernon, NJ that will be used to conduct testing is part of a licensed facility, and is not subject to FAA notification.[5]

[5] *See Satellite Communications Services Information; Actions Taken*, Report No. SES-01077, File Nos. SES-LIC-20080814-01063, SES-AMD-20080825-01095, Call Sign E080185 (Oct. 15, 2008).

ATTACHMENT A

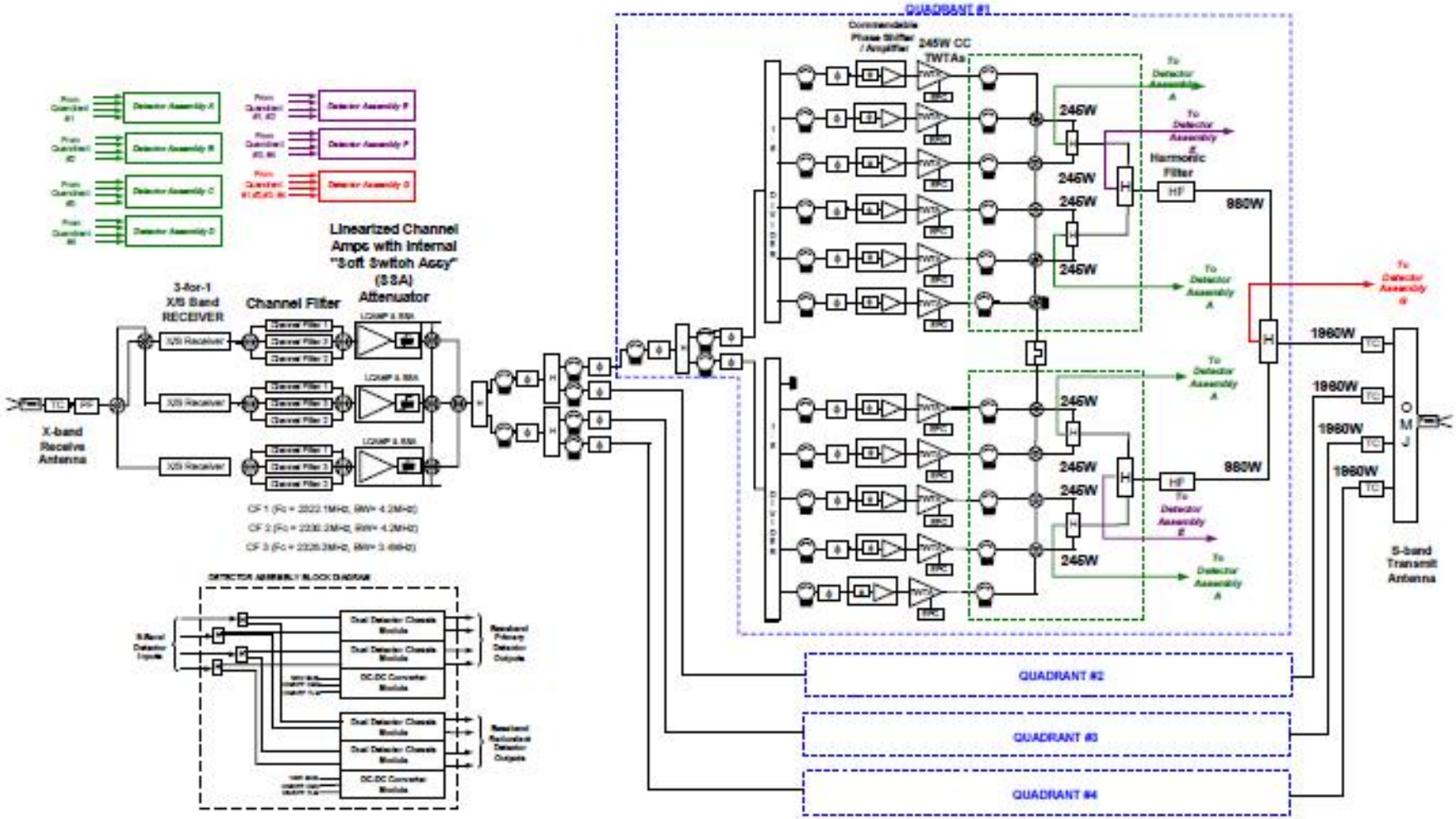

Figure 6. Sirius FM-5 Payload Simplified Block Diagram

ATTACHMENT B

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Sirius XM Radio Inc.
VERNON VALLEY, NJ
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
May 5, 2009

TABLE OF CONTENTS

1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

2. SUMMARY OF RESULTS

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Coordination data for this earth station was sent to the below listed carriers with a letter dated 03/30/2009.

Company
American Broadcasting Companies, Inc.
Ascent Media Network Services, Inc.
CBS Broadcasting Inc
Cable News Network LP, LLP
Connecticut Public Broadcasting Inc
EDUCATIONAL BROADCASTING CORPORATION
FOX TELEVISION STATIONS, INC.
Fox Television Stations Inc
Local TV Pennsylvania License, LLC
MARANATHA BROADCASTING COMPANY
NBC TELEMUNDO LICENSE CO.
NBC Telemundo License Company
NEW JERSEY PUBLIC BROADCASTING AUTHORITY
NEXSTAR BROADCASTING, INC.
Rainbow News 12 Company
Time Warner Entertainment Company L.P.
Trinity Broadcasting of New York
UNIVISION NEW YORK LLC
WPIX, INC.
WRNN License Company, LLC

3G Wireless, LLC
Broadcast Sports Corp
Broadcast Sports Enterprises Inc.
Casper, John
Citywide News Network, Inc.
Cohen, Elana
FISHMAN BROTHERS ENTERPRISES
GOODYEAR TIRE AND RUBBER COMPANY
Heiden Mr, William
Information Super Station LLC
NSM Surveillance
Onboard Images
Production & Satellite Services, Inc.
Regulus Media Services, Inc.
REMOTE FACILITIES CONSULTING SERVICES
RF Film, Inc
RF Technology, LLC
Total RF Marketing Inc
Universal Satellite Communications Inc.

Village Video Productions Inc
WOLFE AIR AVIATION
Wexler Video, Inc.
Winged Vision Inc

4. EARTH STATION COORDINATION DATA

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Date:	04/29/2009
Job Number:	090330COMSGE02

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	E080185
Licensee Code	SIRSAT
Licensee Name	Sirius XM Radio Inc.

Site Information — VERNON VALLEY, NJ

Venue Name	
Latitude (NAD 83)	41° 12' 45.0" N
Longitude (NAD 83)	74° 29' 39.0" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	128.63 m / 422.0 ft

Link Information

Satellite Type	Geostationary
Mode	T/R - Transmit-Receive
Modulation	Digital
Satellite Arc	96° W to 96° West Longitude
Azimuth Range	209.6° to 212.2°
Corresponding Elevation Angles	37.9° / 37.1°
Antenna Centerline (AGL)	3.66 m / 12.0 ft

Antenna Information		Receive - FCC32		Transmit - FCC32	
Manufacturer		GD Satcom Technologies		GD Satcom Technologies	
Model		7.2 Meter		7.2 Meter	
Gain / Diameter		42.2 dBi / 7.2 m		50.5 dBi / 7.2 m	
3-dB / 15-dB Beamwidth		1.50° / 3.20°		0.40° / 0.84°	
Max Available RF Power	(dBW/4 kHz)			(1) 0.5	(2) -6.0
	(dBW/MHz)			24.5	18.0
Maximum EIRP	(dBW/4 kHz)			51.0	44.5
	(dBW/MHz)			75.0	68.5
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%

Frequency Information	Receive 2.0 GHz	Transmit 7.0 GHz
Emission / Frequency Range (MHz)	300KG1D / 2320.0 - 2332.5 4M50G7E / 2320.0 - 2332.5	(1) 1M00F1D / 7051.5 - 7052.5 (1) 1M00F1D / 7055.5 - 7056.5 (1) 4M00G7E / 7064.5 - 7068.0 (2) 4M50G7E / 7060.0 - 7064.5 (2) 4M50G7E / 7068.0 - 7072.5
Max Great Circle Coordination Distance	252.3 km / 156.7 mi	149.1 km / 92.7 mi
Precipitation Scatter Contour Radius	484.4 km / 301.0 mi	171.4 km / 106.5 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Coordination Values	**VERNON VLY, NJ**			
Licensee Name	Sirius XM Radio Inc.			
Latitude (NAD 83)	41° 12' 45.0" N			
Longitude (NAD 83)	74° 29' 39.0" W			
Ground Elevation (AMSL)	128.63 m / 422.0 ft			
Antenna Centerline (AGL)	3.66 m / 12.0 ft			
Antenna Model	GD Satcom 7.2 meter			
Antenna Mode	Receive 2.0 GHz		Transmit 7.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power			0.5 (dBW/4 kHz)	

			Receive 2.0 GHz		Transmit 7.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	1.96	134.27	-10.00	195.60	-10.00	102.99
5	2.31	137.31	-10.00	187.33	-10.00	100.00
10	2.34	139.78	-10.00	186.68	-10.00	100.00
15	1.32	140.90	-10.00	210.55	-10.00	118.92
20	1.17	142.26	-10.00	215.18	-10.00	122.98
25	1.68	143.73	-10.00	203.21	-10.00	109.94
30	1.17	143.63	-10.00	214.94	-10.00	122.78
35	1.19	143.46	-10.00	214.44	-10.00	122.35
40	1.77	143.24	-10.00	200.81	-10.00	107.72
45	2.07	142.17	-10.00	192.96	-10.00	100.62
50	2.30	140.51	-10.00	187.66	-10.00	100.00
55	2.84	138.62	-10.00	175.30	-10.00	100.00
60	3.36	136.28	-10.00	161.38	-10.00	100.00
65	3.98	133.62	-10.00	148.39	-10.00	100.00
70	4.06	130.33	-10.00	146.91	-10.00	100.00
75	2.88	126.20	-10.00	174.19	-10.00	100.00
80	2.27	122.30	-10.00	188.44	-10.00	100.00
85	3.28	118.97	-10.00	163.23	-10.00	100.00
90	3.74	115.25	-10.00	153.20	-10.00	100.00
95	4.13	111.37	-10.00	145.87	-10.00	100.00
100	4.20	107.32	-10.00	144.76	-10.00	100.00
105	4.34	103.24	-10.00	142.80	-10.00	100.00
110	4.64	99.12	-10.00	138.48	-10.00	100.00
115	5.29	94.97	-10.00	132.01	-10.00	100.00
120	5.49	90.75	-10.00	130.08	-10.00	100.00
125	4.95	86.53	-10.00	134.24	-10.00	100.00
130	4.89	82.33	-10.00	134.97	-10.00	100.00
135	5.55	78.06	-10.00	129.50	-10.00	100.00
140	5.34	73.91	-10.00	131.55	-10.00	100.00
145	5.00	69.85	-10.00	134.85	-10.00	100.00
150	4.44	65.94	-10.00	141.27	-10.00	100.00
155	4.63	61.90	-10.00	138.61	-10.00	100.00
160	4.47	58.08	-10.00	140.91	-10.00	100.00
165	3.81	54.62	-10.00	151.78	-10.00	100.00
170	3.91	50.98	-10.00	149.80	-10.00	100.00
175	3.34	47.92	-10.00	161.81	-10.00	100.00
180	3.84	44.43	-9.19	154.98	-9.19	100.00
185	4.30	41.19	-8.37	150.75	-8.37	100.00

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

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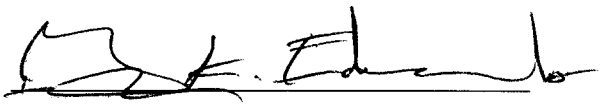
Antenna Model	GD Satcom 7.2 meter			
Antenna Mode	Receive 2.0 GHz		Transmit 7.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%
Max Available RF Power			0.5 (dBW/4 kHz)	

			Receive 2.0 GHz		Transmit 7.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	4.38	38.53	-7.65	152.91	-7.65	100.00
195	4.29	36.44	-7.04	157.39	-7.04	100.00
200	4.09	34.97	-6.59	163.06	-6.59	100.00
205	2.98	34.99	-6.60	189.10	-6.60	100.00
210	2.21	35.33	-6.70	205.18	-6.70	108.80
215	1.74	35.99	-6.91	213.47	-6.91	118.58
220	0.70	37.79	-7.43	252.26	-7.43	149.14
225	0.79	39.01	-7.78	244.67	-7.78	143.34
230	0.87	40.72	-8.25	237.19	-8.25	137.75
235	1.26	42.62	-8.74	218.45	-8.74	124.41
240	1.69	44.91	-9.31	205.89	-9.31	111.67
245	1.94	47.69	-9.96	196.31	-9.96	103.58
250	2.29	50.68	-10.00	187.98	-10.00	100.00
255	3.15	53.67	-10.00	166.29	-10.00	100.00
260	3.11	57.32	-10.00	168.80	-10.00	100.00
265	3.84	60.81	-10.00	151.13	-10.00	100.00
270	4.26	64.59	-10.00	144.00	-10.00	100.00
275	4.11	68.64	-10.00	146.21	-10.00	100.00
280	3.71	72.78	-10.00	153.86	-10.00	100.00
285	5.59	76.57	-10.00	129.14	-10.00	100.00
290	5.48	80.79	-10.00	130.16	-10.00	100.00
295	5.78	85.00	-10.00	127.33	-10.00	100.00
300	5.81	89.25	-10.00	127.06	-10.00	100.00
305	5.44	93.49	-10.00	130.63	-10.00	100.00
310	5.37	97.71	-10.00	131.25	-10.00	100.00
315	5.74	101.97	-10.00	127.74	-10.00	100.00
320	5.64	106.15	-10.00	128.70	-10.00	100.00
325	4.91	110.13	-10.00	134.77	-10.00	100.00
330	4.86	114.18	-10.00	135.50	-10.00	100.00
335	5.11	118.26	-10.00	133.77	-10.00	100.00
340	4.82	122.06	-10.00	136.02	-10.00	100.00
345	4.61	125.76	-10.00	138.85	-10.00	100.00
350	3.22	128.65	-10.00	164.48	-10.00	100.00
355	2.83	131.77	-10.00	175.42	-10.00	100.00

5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: _ 

Gary K. Edwards
Senior Manager
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DATED: May 5, 2009