

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Sirius XM Radio Inc.**  
**VERNON VLY, NJ**  
**(7.2 Meter)**  
**E080185**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
January 04, 2012

## TABLE OF CONTENTS

1. CONCLUSIONS .....	3
2. SUMMARY OF RESULTS .....	4
3. SUPPLEMENTAL SHOWING .....	5
4. EARTH STATION COORDINATION DATA.....	8
5. CERTIFICATION.....	12

## 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.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses are considered on the interfering paths, sufficient blockage exists to negate harmful interference from occurring with the proposed transmit-only earth station.

### Company

FOX TELEVISION STATIONS, INC.  
NEXSTAR BROADCASTING, INC.

No other carriers reported potential interference cases.

### 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 11/30/2011.

Company

3G Wireless, LLC  
AERIAL VIDEO SYSTEMS  
ALASCOM, INC.  
AT&T California  
American Broadcasting Companies, Inc.  
Ascent Media Network Services, LLC  
BFI Licenses, LLC  
BROADCAST COMMUNICATIONS INC  
Bellsouth Telecommunications, Inc.  
Borgeson, Tom R.  
Broadcast Sports Inc.  
CBS Broadcasting Inc  
CNG Communications, Inc.  
CNN America, Inc.  
Carolina Telephone and Telegraph Co  
Casper, John  
CenturyTel of the Southwest, Inc.  
Chicago Comnet Corp  
Cincinnati Bell Wireless LLC  
Citywide News Network, Inc.  
Cohen, Elana  
Cowboys Stadium LP  
DCI II, INC.  
Direct Broadcast Services, Inc.  
FOX TELEVISION STATIONS, INC.  
FOX TELEVISION STATIONS, INC.  
Fox Television Stations Inc  
GOODYEAR TIRE AND RUBBER COMPANY  
GSN New, Inc  
HF Enterprises, Inc  
Hallco Unlimited, Inc.  
Hawaiian Telcom, Inc.  
Heiden Mr., William  
INDIANA BELL TELEPHONE COMPANY INC  
Illinois Bell Telephone Company  
Information & Display Systems, Inc.  
Information Super Station, LLC  
International Communications Group, Inc.  
Kentucky RSA #3 Cellular General Partner  
Kentucky RSA #4 Cellular General Partner

Local TV Pennsylvania License, LLC  
MARANATHA BROADCASTING COMPANY  
MERCURY COMMUNICATIONS  
Metro Networks Communications, Inc.  
Michigan Bell Telephone Company  
Moreen, Steven K  
NBC TELEMUNDO LICENSE LLC  
NEW ENGLAND DIGITAL DISTRIBUTION, INC.  
NEW ENGLAND SATELLITE SYSTEMS INC  
NEW JERSEY PUBLIC BROADCASTING AUTHORITY  
NEXSTAR BROADCASTING, INC.  
NSM Surveillance  
Navajo Communications Company  
NorthWest Suburbs Community Access Corp  
Ohio Bell Telephone Company  
On Scene Video Production  
Onboard Images  
Penn Service Microwave Co., Inc.  
Plateau Telecommunications, Inc.  
Plum TV, LLC  
Production & Satellite Services, Inc.  
Public Television Communications Center  
QUICK LINK CONNECTIONS INC  
QWEST CORPORATION  
RCC Minnesota Inc. - MN NE ND SD  
REMOTE FACILITIES CONSULTING SERVICES  
RF Central, LLC  
RF Film, Inc  
Radiofone, Inc.  
Rainbow News 12 Company  
Randy Hermes Production  
Regulus Media Services, Inc.  
Remote Broadcasts, Inc.  
Southwestern Bell Telephone L.P.  
Speedshotz, Inc  
Time Warner Entertainment Company L.P.  
Total RF Marketing Inc  
Trinity Broadcasting of New York  
Unisat, Inc.  
United Telephone - Southeast  
Univision of New York  
VERIZON SOUTH INC.  
Verizon California Inc.  
Verizon Maryland, Inc.  
Verizon New England Inc.  
Verizon New Jersey, Inc.  
Verizon New York, Inc.  
Verizon North Inc.  
Verizon Northwest Inc.  
Verizon Pennsylvania, Inc.  
Verizon Virginia, Inc.  
Verizon Washington DC, Inc.  
Village Video Productions Inc  
Vyvx, LLC  
WNET  
WPIX, INC.

WRNN License Company, LLC  
WTVE License Company, LLC  
WXTV License Partnership, G.P.  
Westar Satellite Services LP  
Western Technical Services  
Wexler Video, Inc.  
Winged Vision  
Wisconsin Bell, Inc.  
Wolfe Air Aviation

## **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: 01/03/2012  
Job Number: 111130COMSGE05

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### Administrative Information

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

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### Site Information

**VERNON VLY, 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

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 80° W to 120° West Longitude  
Azimuth Range 188.3° to 237.1°  
Corresponding Elevation Angles 42.0° / 23.9°  
Antenna Centerline (AGL) 3.66 m / 12.0 ft

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### Antenna Information

	<b>Receive - FCC32</b>	<b>Transmit - FCC32</b>
Manufacturer	General Dynamics	General Dynamics
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	1.30° / 2.60°	0.40° / 0.84°
Max Available RF Power (dBW/4 kHz)		5.5
(dBW/MHz)		29.5
Maximum EIRP (dBW/4 kHz)		56.0
(dBW/MHz)		80.0
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%

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### Frequency Information

	<b>Receive 2.0 GHz</b>	<b>Transmit 7.0 GHz</b>
Emission / Frequency Range (MHz)	1M00F1D - 4M00G7E / 2320.0 – 2332.5 2320.0 – 2345.0	1M00F1D - 4M00G7E / 7040.0 - 7075.0
Max Great Circle Coordination Distance	273.0 km / 169.6 mi	186.0 km / 115.6 mi
Precipitation Scatter Contour Radius	497.1 km / 308.9 mi	316.4 km / 196.6 mi

# COMSEARCH

## Earth Station Data Sheet

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### 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 General Dynamics 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 5.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 2.0 GHz		Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	1.96	120.28	-10.00	195.56	-10.00	120.03
5	2.32	124.86	-10.00	187.29	-10.00	112.84
10	2.34	129.31	-10.00	186.66	-10.00	112.30
15	1.32	133.27	-10.00	210.52	-10.00	134.43
20	1.17	137.39	-10.00	215.17	-10.00	138.60
25	1.68	136.88	-10.00	203.22	-10.00	126.90
30	1.17	134.65	-10.00	214.93	-10.00	138.38
35	1.19	132.52	-10.00	214.47	-10.00	137.97
40	1.77	130.49	-10.00	200.71	-10.00	124.62
45	2.07	127.93	-10.00	192.95	-10.00	117.73
50	2.30	125.05	-10.00	187.71	-10.00	113.20
55	2.84	122.12	-10.00	175.23	-10.00	102.78
60	3.36	118.95	-10.00	161.29	-10.00	100.00
65	3.98	115.63	-10.00	148.24	-10.00	100.00
70	4.08	111.96	-10.00	146.70	-10.00	100.00
75	2.89	107.88	-10.00	173.97	-10.00	101.76
80	2.27	103.98	-10.00	188.32	-10.00	113.72
85	3.29	100.35	-10.00	163.03	-10.00	100.00
90	3.73	96.52	-10.00	153.29	-10.00	100.00
95	4.14	92.62	-10.00	145.70	-10.00	100.00
100	4.21	88.67	-10.00	144.61	-10.00	100.00
105	4.34	84.72	-10.00	142.70	-10.00	100.00
110	4.71	80.74	-10.00	137.44	-10.00	100.00
115	5.30	76.70	-10.00	131.90	-10.00	100.00
120	5.50	72.73	-10.00	130.00	-10.00	100.00
125	4.97	69.01	-10.00	134.01	-10.00	100.00
130	4.91	65.25	-10.00	134.84	-10.00	100.00
135	5.42	61.35	-10.00	130.76	-10.00	100.00
140	5.34	57.78	-10.00	131.51	-10.00	100.00
145	4.88	54.56	-10.00	135.15	-10.00	100.00
150	4.44	51.56	-10.00	141.20	-10.00	100.00
155	4.62	48.42	-10.00	138.69	-10.00	100.00
160	4.46	45.76	-9.51	143.03	-9.51	100.00
165	3.81	43.83	-9.04	156.31	-9.04	100.00
170	3.91	41.69	-8.50	156.92	-8.50	100.00
175	3.34	40.58	-8.21	172.75	-8.21	100.01
180	3.84	38.96	-7.76	162.05	-7.76	100.00
185	4.30	37.86	-7.45	155.12	-7.45	100.00

# COMSEARCH

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### Coordination Values

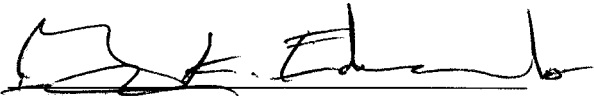
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Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%  
Max Available RF Power 5.5 (dBW/4 kHz)

Azimuth (°)	Receive 2.0 GHz		Transmit 7.0 GHz			
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	4.38	37.15	-7.25	154.83	-7.25	100.00
195	4.32	36.16	-6.96	157.36	-6.96	100.00
200	4.09	34.93	-6.58	163.14	-6.58	100.00
205	2.98	34.10	-6.32	190.56	-6.32	113.94
210	2.22	32.56	-5.82	206.91	-5.82	130.21
215	1.74	30.45	-5.09	223.06	-5.09	142.51
220	0.70	28.50	-4.37	271.63	-4.37	186.04
225	0.79	25.90	-3.33	272.80	-3.33	186.00
230	0.87	24.01	-2.51	272.99	-2.51	185.31
235	1.25	22.71	-1.91	259.12	-1.91	173.15
240	1.70	22.35	-1.73	244.22	-1.73	158.30
245	1.83	23.35	-2.21	236.87	-2.21	152.31
250	2.29	24.99	-2.94	220.02	-2.94	138.46
255	3.15	27.13	-3.84	199.17	-3.84	120.34
260	3.12	30.53	-5.12	193.42	-5.12	115.90
265	3.97	33.81	-6.23	169.03	-6.23	100.00
270	4.30	37.73	-7.42	155.43	-7.42	100.00
275	4.17	42.04	-8.59	151.74	-8.59	100.00
280	3.63	46.60	-9.71	156.98	-9.71	100.00
285	5.61	50.47	-10.00	128.97	-10.00	100.00
290	5.50	55.09	-10.00	129.98	-10.00	100.00
295	5.79	59.67	-10.00	127.23	-10.00	100.00
300	5.81	64.35	-10.00	126.99	-10.00	100.00
305	5.35	69.12	-10.00	131.45	-10.00	100.00
310	5.37	73.83	-10.00	131.30	-10.00	100.00
315	5.83	78.52	-10.00	126.85	-10.00	100.00
320	5.65	83.28	-10.00	128.59	-10.00	100.00
325	4.91	88.03	-10.00	134.82	-10.00	100.00
330	4.86	92.76	-10.00	135.47	-10.00	100.00
335	5.11	97.50	-10.00	133.79	-10.00	100.00
340	4.53	102.18	-10.00	140.03	-10.00	100.00
345	4.41	106.86	-10.00	141.73	-10.00	100.00
350	3.22	111.37	-10.00	164.46	-10.00	100.00
355	2.83	115.91	-10.00	175.37	-10.00	102.89

## 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  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: January 04, 2012