

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
August 18, 2010

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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-receive earth station.

Company

COMMONWEALTH OF PENNSYLVANIA,RADIO PROJ.
MONROE COUNTY CONTROL CENTER

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 07/27/2010.

Company

ALGONQUIN GAS TRANSMISSION CO
Allentown SMSA Limited Partnership
Ascent Media Network Services, Inc.
COMMONWEALTH OF PENNSYLVANIA,RADIO PROJ.
CONSOLIDATED EDISON COMPANY OF NEW YORK
Cellco Partnership - (W-NY)
Cellco Partnership-Newark-Dallas Verizon
Cellco Prtnrshp - Phil. Tri-State Rgn
Conterra Ultra Broadband, LLC
County of Warren
Direct Broadcast Services, Inc.
EASTERN PENNSYLVANIA EMS COUNCIL
EMS OF NORTHEAST PENNSYLVANIA
FELHC, Inc.
Goosetown Network Services, LLC
MCI Communications Services Inc.
METROPOLITAN AREA NETWORKS, INC.
MONROE COUNTY CONTROL CENTER
NBC TELEMUNDO LICENSE CO.
NEW JERSEY TRANSIT RAIL OPERATIONS,INC
NEW YORK CITY POLICE DEPARTMENT
NORTHEAST UTILITIES SERVICE COMPANY
Nassau County Police Department
New Cingular Wireless PCS LLC -NJ
New Cingular Wireless PCS LLC -NE Reg
New Cingular Wireless PCS of PA LLC
New Cingular Wireless PCS, LLC - NY
New Cingular Wireless PCS, LLC - PA
New Jersey, State of -NJ Transit
New York, City of
Northeast Pennsylvania SMSA LTD Prtnrsh
Open Range Communications
Orange Poughkeepsie SMSA LTD Partnership
Orange and Rockland Utilities, Inc.
PENNSYLVANIA TURNPIKE COMMISSION
PSEG Services Corporation
Penn Service Microwave Co., Inc.
SBA Broadband Services
South Canaan Cellular Communications Co.
Stevens Institute of Technology
Texas Eastern Communications, 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: 08/18/2010
Job Number: 100727COMSGE01

Administrative Information

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

Site Information

Venue Name **VERNON VALLEY, NJ**
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 TR - Transmit-Receive
Modulation Digital
Satellite Arc 52° W to 139° West Longitude
Azimuth Range 147.9° to 252.6°
Corresponding Elevation Angles 37.1° / 10.3°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		Andrew		Andrew	
Model		ES37K-CLP2		ES37K-CLP2	
Gain / Diameter		42.5 dBi / 3.7 m		45.3 dBi / 3.7 m	
3-dB / 15-dB Beamwidth		1.20° / 4.20°		0.80° / 2.20°	
Max Available RF Power	(dBW/4 kHz)			-18.5	
	(dBW/MHz)			5.5	
Maximum EIRP	(dBW/4 kHz)			26.8	
	(dBW/MHz)			50.8	
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 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	125KG7D / 3700.0 - 4200.0	125KG7D / 5925.0 - 6425.0
Max Great Circle Coordination Distance	330.6 km / 205.4 mi	110.7 km / 68.8 mi
Precipitation Scatter Contour Radius	538.4 km / 334.5 mi	100.0 km / 62.1 mi

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Coordination Values

VERNON VALLEY, 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) 2.74 m / 9.0 ft
Antenna Model Andrew 3.7 Meter
Antenna Mode Receive 4.0 GHz Transmit 6.1 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 -18.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	1.98	107.25	-10.00	195.16	-10.00	100.00
5	2.34	112.21	-10.00	186.83	-10.00	100.00
10	2.36	117.16	-10.00	186.21	-10.00	100.00
15	1.34	122.00	-10.00	210.08	-10.00	100.00
20	1.24	119.82	-10.00	212.95	-10.00	100.00
25	1.75	116.26	-10.00	201.20	-10.00	100.00
30	1.25	112.25	-10.00	212.73	-10.00	100.00
35	1.32	108.36	-10.00	210.79	-10.00	100.00
40	1.89	104.51	-10.00	197.45	-10.00	100.00
45	2.19	100.51	-10.00	190.13	-10.00	100.00
50	2.42	96.45	-10.00	184.80	-10.00	100.00
55	2.96	92.36	-10.00	172.40	-10.00	100.00
60	3.48	88.21	-10.00	158.63	-10.00	100.00
65	4.10	84.01	-10.00	146.36	-10.00	100.00
70	4.19	79.83	-10.00	145.02	-10.00	100.00
75	3.01	75.87	-10.00	171.30	-10.00	100.00
80	2.39	71.95	-10.00	185.59	-10.00	100.00
85	3.29	67.72	-10.00	162.96	-10.00	100.00
90	3.75	63.61	-10.00	152.95	-10.00	100.00
95	4.15	59.56	-10.00	145.67	-10.00	100.00
100	4.22	55.70	-10.00	144.54	-10.00	100.00
105	4.35	51.94	-10.00	142.58	-10.00	100.00
110	4.65	48.22	-10.00	138.27	-10.00	100.00
115	5.31	44.44	-9.19	135.03	-9.19	100.00
120	5.51	41.14	-8.36	135.17	-8.36	100.00
125	4.97	38.71	-7.70	143.70	-7.70	100.00
130	4.91	36.34	-7.01	147.68	-7.01	100.00
135	5.57	33.80	-6.22	143.76	-6.22	100.00
140	5.36	32.60	-5.83	147.92	-5.83	100.00
145	5.02	32.20	-5.70	152.48	-5.70	100.00
150	4.46	32.71	-5.87	160.65	-5.87	100.00
155	4.64	33.16	-6.01	156.81	-6.01	100.00
160	4.48	34.58	-6.47	157.16	-6.47	100.00
165	3.82	36.64	-7.10	166.04	-7.10	100.00
170	3.92	37.60	-7.38	162.34	-7.38	100.00
175	3.35	38.81	-7.72	175.06	-7.72	100.00
180	3.85	38.52	-7.64	162.42	-7.64	100.00
185	4.31	37.85	-7.45	154.96	-7.45	100.00

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Coordination Values

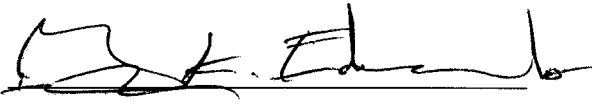
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Max Available RF Power -18.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	4.40	37.13	-7.24	154.63	-7.24	100.00
195	4.31	36.18	-6.96	157.55	-6.96	100.00
200	4.11	34.92	-6.58	162.92	-6.58	100.00
205	2.99	34.09	-6.32	190.23	-6.32	100.00
210	2.22	32.56	-5.82	206.77	-5.82	100.00
215	1.75	30.44	-5.08	222.68	-5.08	100.00
220	0.72	28.48	-4.37	270.05	-4.37	101.50
225	0.86	25.39	-3.12	269.35	-3.12	100.00
230	0.94	22.17	-1.65	274.15	-1.65	100.00
235	1.27	18.64	0.24	273.03	0.24	100.00
240	1.70	14.92	2.65	274.47	2.65	100.00
245	2.00	11.23	5.74	287.41	5.74	100.00
250	2.30	8.43	8.86	304.29	8.86	100.00
255	3.16	7.58	10.01	330.65	10.01	110.73
260	3.13	10.35	6.63	261.74	6.63	100.00
265	3.86	14.01	3.34	220.74	3.34	100.00
270	4.27	18.44	0.36	199.16	0.36	100.00
275	4.13	23.24	-2.16	188.05	-2.16	100.00
280	3.73	28.17	-4.24	184.95	-4.24	100.00
285	5.62	32.75	-5.88	144.83	-5.88	100.00
290	5.51	37.71	-7.41	139.09	-7.41	100.00
295	5.81	42.64	-8.75	132.02	-8.75	100.00
300	5.84	47.61	-9.94	127.02	-9.94	100.00
305	5.46	52.60	-10.00	130.35	-10.00	100.00
310	5.40	57.58	-10.00	130.95	-10.00	100.00
315	5.76	62.54	-10.00	127.49	-10.00	100.00
320	5.66	67.52	-10.00	128.43	-10.00	100.00
325	4.94	72.52	-10.00	134.42	-10.00	100.00
330	4.88	77.50	-10.00	135.12	-10.00	100.00
335	5.14	82.48	-10.00	133.49	-10.00	100.00
340	4.84	87.46	-10.00	135.64	-10.00	100.00
345	4.64	92.43	-10.00	138.48	-10.00	100.00
350	3.25	97.39	-10.00	163.87	-10.00	100.00
355	2.86	102.34	-10.00	174.80	-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
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: August 18, 2010