

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
XM RADIO, INC
WASHINGTON, DC
(Call Sign E000158)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
October 22, 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.

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 09/17/2010.

Company

American Broadcasting Companies, Inc.
BALTIMORE (WNUV-TV) LICENSEE, INC.
C-SPAN
CBS Broadcasting Inc
CBS Corporation
COMMONWEALTH PUBLIC BROADCASTING
COMMUNITY TV OF VIRGINIA LICENSE, LLC
Community Television of Alabama License
DELAWARE CITIZENS COMMITTEE
Delmarva Broadcast Service
Detroit Free Press, Inc.
ENTRAVISION HOLDINGS, LLC
FOX TELEVISION STATIONS, INC.
GRAY TELEVISION LICENSEE, INC (WHSV)
Hampton Roads Educational Telecommunicat
JLA MEDIA AND PUBLICATIONS, LLC
Maryland Public Broadcasting Commission
NATIONAL CABLE SATELLITE CORPORATION
NBC TELEMUNDO LICENSE CO.
SHENANDOAH VALLEY EDUCATIONAL TV CORP
SIGNAL ABOVE LLC
SOUTHEASTERN MEDIA HOLDINGS, INC.
Scripps Media, Inc. - WMAR TV
VIRGINIA BROADCASTING CORPORATION
WBOC, INC.
WEST VIRGINIA EDUCATIONAL BROADCASTING
WRLH Licensee, LLC
Young Broadcasting-WRIC-TV (PTP) DIP
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: 10/15/2010
Job Number: 100917COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E000158
Licensee Code XMSRAD
Licensee Name XM RADIO, INC

Site Information WASHINGTON, DC

Venue Name
Latitude (NAD 83) 38° 54' 36.4" N
Longitude (NAD 83) 77° 0' 19.9" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 21.33 m / 70.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 85° W to 120° West Longitude
Azimuth Range 192.6° to 236.0°
Corresponding Elevation Angles 44.2° / 26.9°
Antenna Centerline (AGL) 8.99 m / 29.5 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	RSI Satcom	RSI Satcom	
Model	7.0 Meter	7.0 Meter	
Gain / Diameter	41.8 dBi / 7.0 m	52.3 dBi / 7.0 m	
3-dB / 15-dB Beamwidth	0.50° / 1.00°	0.24° / 0.48°	
Max Available RF Power (dBW/4 kHz)		-0.4	
(dBW/MHz)		23.6	
Maximum EIRP (dBW/4 kHz)		51.9	
(dBW/MHz)		75.9	
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)	100KG2D / 2344.5	800KF2D / 7074.0
	100KG2D / 2344.0	1M84G1W / 7056.8450 – 7074.8690
	100KG2D / 2339.7	800KF2D / 7049.0
	100KG2D / 2339.2	
	1M84G1W / 2332.5 – 2345.0	

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Coordination Values

WASHINGTON, DC

Licensee Name	XM RADIO, INC				
Latitude (NAD 83)	38° 54' 36.4" N				
Longitude (NAD 83)	77° 0' 19.9" W				
Ground Elevation (AMSL)	21.33 m / 70.0 ft				
Antenna Centerline (AGL)	8.99 m / 29.5 ft				
Antenna Model	RSI Satcom 7 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					-0.4 (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	1.65	120.34	-10.00	204.08	-10.00	107.99
5	1.66	124.66	-10.00	203.72	-10.00	107.65
10	1.71	128.91	-10.00	202.28	-10.00	106.31
15	1.71	133.03	-10.00	202.26	-10.00	106.30
20	0.98	136.30	-10.00	221.20	-10.00	125.32
25	0.84	135.26	-10.00	229.14	-10.00	131.74
30	0.61	133.74	-10.00	242.67	-10.00	141.24
35	0.57	132.02	-10.00	245.46	-10.00	143.53
40	0.81	130.19	-10.00	230.99	-10.00	133.20
45	0.60	127.71	-10.00	243.67	-10.00	142.06
50	0.57	125.11	-10.00	245.36	-10.00	143.45
55	0.71	122.41	-10.00	236.72	-10.00	136.44
60	0.84	119.49	-10.00	229.29	-10.00	131.86
65	0.32	116.10	-10.00	270.36	-10.00	164.92
70	0.25	112.83	-10.00	278.40	-10.00	173.68
75	0.83	109.69	-10.00	229.51	-10.00	132.04
80	1.23	106.34	-10.00	213.28	-10.00	118.58
85	1.00	102.74	-10.00	220.18	-10.00	124.47
90	0.64	99.10	-10.00	241.03	-10.00	139.90
95	0.58	95.50	-10.00	244.89	-10.00	143.06
100	0.00	91.87	-10.00	285.28	-10.00	179.58
105	0.22	88.27	-10.00	282.34	-10.00	177.09
110	0.00	84.70	-10.00	285.28	-10.00	179.58
115	0.22	81.11	-10.00	282.18	-10.00	176.95
120	0.37	77.54	-10.00	264.73	-10.00	159.91
125	0.42	74.03	-10.00	258.73	-10.00	154.66
130	0.46	70.57	-10.00	254.48	-10.00	151.00
135	0.48	67.21	-10.00	251.96	-10.00	148.86
140	0.44	63.97	-10.00	256.07	-10.00	152.36
145	0.49	60.82	-10.00	251.00	-10.00	148.05
150	0.46	57.86	-10.00	254.00	-10.00	150.60
155	0.47	55.06	-10.00	253.42	-10.00	150.10
160	0.44	52.51	-10.00	256.71	-10.00	152.92
165	0.20	50.38	-10.00	284.98	-10.00	179.33
170	0.00	48.54	-10.00	285.28	-10.00	179.58
175	0.00	46.88	-9.77	286.72	-9.77	180.46
180	0.00	45.58	-9.47	288.67	-9.47	181.63
185	0.00	44.70	-9.26	290.05	-9.26	182.46

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Coordination Values

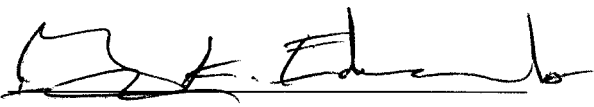
WASHINGTON, DC

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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			-0.4 (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)
190	0.00	43.91	-9.06	291.31	-9.06	183.20
195	0.00	42.64	-8.75	293.38	-8.75	184.43
200	0.00	40.94	-8.30	296.30	-8.30	186.13
205	0.00	38.84	-7.73	300.11	-7.73	188.33
210	0.00	36.41	-7.03	304.87	-7.03	191.03
215	0.00	33.69	-6.19	310.70	-6.19	194.27
220	0.00	31.04	-5.30	317.56	-5.30	197.66
225	0.00	28.96	-4.54	322.94	-4.54	200.55
230	0.00	27.56	-4.01	326.80	-4.01	202.59
235	0.23	26.73	-3.68	325.48	-3.68	201.15
240	0.23	26.98	-3.78	323.91	-3.78	200.14
245	0.31	28.00	-4.18	310.79	-4.18	191.38
250	0.33	29.82	-4.86	303.13	-4.86	186.45
255	0.31	32.29	-5.73	299.26	-5.73	184.65
260	0.00	35.45	-6.74	306.85	-6.74	192.14
265	0.00	38.75	-7.71	300.29	-7.71	188.43
270	0.25	42.19	-8.63	288.05	-8.63	179.84
275	0.36	45.95	-9.56	267.87	-9.56	162.03
280	0.57	49.85	-10.00	245.18	-10.00	143.30
285	0.68	53.94	-10.00	238.70	-10.00	138.02
290	0.78	58.13	-10.00	232.38	-10.00	133.03
295	0.80	62.43	-10.00	231.26	-10.00	133.41
300	0.68	66.82	-10.00	238.22	-10.00	137.64
305	0.70	71.22	-10.00	237.30	-10.00	136.90
310	0.58	75.68	-10.00	244.87	-10.00	143.05
315	0.66	80.12	-10.00	239.51	-10.00	138.67
320	0.74	84.59	-10.00	234.81	-10.00	134.93
325	0.63	89.08	-10.00	241.42	-10.00	140.22
330	0.84	93.56	-10.00	229.14	-10.00	131.74
335	0.71	98.04	-10.00	236.81	-10.00	136.51
340	0.83	102.52	-10.00	229.76	-10.00	132.23
345	1.13	107.02	-10.00	216.21	-10.00	121.11
350	1.41	111.50	-10.00	208.22	-10.00	114.06
355	1.60	115.96	-10.00	205.34	-10.00	109.17

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: October 22, 2010