

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
XM Radio LLC
ELLENWOOD, GA
E040204
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
January 19, 2022

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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 11/18/2021.

Company

3G Wireless, LLC
Aerial Video Systems
Alascom Inc
Ascent Media Network Services, LLC
Atlanta Television Station Wupa Inc.
Bellsouth Telecommunications, Inc.
Borgeson, Tom R.
Broadcast Sports Inc.
Carolina Telephone and Telegraph Co
Casper, John
CenturyTel of the Southwest, Inc.
Chicago Comnet Corp
Christian Television Network, Inc.
Cincinnati Bell Wireless LLC
Citywide News Network, Inc.
Community Television, Inc.
Cowboys Stadium LP
DCI II, INC.
Direct Broadcast Services, Inc.
Frontier California Inc.
Georgia Television Company
Global Telecom & Technology Americas, In
Gray Television Licensee, LLC
Gray Television Licensee, LLC
HF Enterprises, Inc
Hallco Unlimited, Inc.
Hawaiian Telecom Inc.
Heiden, William
ION Television License, LLC
Illinois Bell Telephone Company
Indiana 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
MERCURY COMMUNICATIONS
Marquee Broadcasting Georgia, Inc
Marquee Broadcasting Georgia, Inc.
Meredith Corporation - WGCL

Michigan Bell Telephone Company
Moreen, Steven K
Morris Network, Inc.
NEW ENGLAND DIGITAL DISTRIBUTION, INC.
NSM Surveillance
Navajo Communications Company
New World Communications of Atlanta, Inc
Nexstar Media Inc.
NorthWest Suburbs Community Access Corp
Ohio Bell GTelephone Company
Onboard Images
Pacific Bell Tel Com dba AT&T California
Pacific and Southern, LLC
Penn Service Microwave Co., Inc.
Plateau Telecommunications, Inc.
Plum TV, LLC
Production & Satellite Services, Inc.
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.
Randy Hermes Production
Remote Broadcasts, Inc.
Sagamorehill of Columbus GA, LLC
SBE coordinator
South Carolina Educational TV Commission
Southwestern Bell Telephone L.P.
Speedshotz, Inc
TTWN Networks, LLC
The Corporation of Mercer University
Unisat, Inc.
United Telephone - Southeast
Univision Atlanta, LLC
VERIZON SOUTH INC.
VYVX, LLC
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.
WGXA Licensee, LLC
Westar Satellite Services LP
Winged Vision Inc
Wisconsin Bell Telephone Company
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: 01/19/2022
Job Number: 211118COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E040204
Licensee Code XMRAD
Licensee Name XM Radio LLC

Site Information ELLENWOOD, GA

Venue Name
Latitude (NAD 83) 33° 39' 51.0" N
Longitude (NAD 83) 84° 16' 24.0" W
Climate Zone A
Rain Zone 1
Ground Elevation (AMSL) 242.32 m / 795.0 ft

Link Information

Satellite Type Geostationary
Mode TO - Transmit-Only
Modulation Digital
Satellite Arc 80° W to 120° West Longitude
Azimuth Range 172.3° to 232.4°
Corresponding Elevation Angles 50.6° / 35.4°
Antenna Centerline (AGL) 4.57 m / 15.0 ft

Antenna Information Transmit - FCC32

Manufacturer Vertex
Model 7.2 meter
Gain / Diameter 52.4 dBi / 7.2 m
3-dB / 15-dB Beamwidth 0.40° / 0.80°

Max Available RF Power (dBW/4 kHz) 4.6
(dBW/MHz) 28.6

Maximum EIRP (dBW/4 kHz) 57.0
(dBW/MHz) 81.0

Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%

Frequency Information Transmit 7.0 GHz

Emission / Frequency Range (MHz) 800KF2D – 12M5G1E / 7025.0 - 7075.0

Max Great Circle Coordination Distance 208.7 km / 129.6 mi
Precipitation Scatter Contour Radius 303.7 km / 188.7 mi

COMSEARCH

Earth Station Data Sheet

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Coordination Values

ELLENWOOD, GA

Licensee Name XM Radio LLC
Latitude (NAD 83) 33° 39' 51.0" N
Longitude (NAD 83) 84° 16' 24.0" W
Ground Elevation (AMSL) 242.32 m / 795.0 ft
Antenna Centerline (AGL) 4.57 m / 15.0 ft
Antenna Model Vertex 7.2 meter
Antenna Mode Transmit 7.0 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power 4.6 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	5.40	121.91	-10.00	100.00
5	4.82	125.65	-10.00	100.00
10	4.20	129.18	-10.00	100.00
15	3.25	128.70	-10.00	100.00
20	2.35	126.14	-10.00	111.53
25	1.63	123.55	-10.00	127.20
30	0.97	120.85	-10.00	142.64
35	0.37	118.07	-10.00	184.03
40	0.36	115.51	-10.00	185.88
45	0.40	112.84	-10.00	181.66
50	0.45	110.04	-10.00	176.89
55	0.56	107.15	-10.00	167.88
60	0.55	104.12	-10.00	168.29
65	0.48	101.01	-10.00	173.46
70	0.33	97.84	-10.00	188.32
75	0.29	94.67	-10.00	192.45
80	0.26	91.48	-10.00	195.32
85	0.63	88.28	-10.00	161.24
90	0.95	85.04	-10.00	143.96
95	1.04	81.82	-10.00	140.18
100	1.06	78.63	-10.00	139.64
105	0.93	75.55	-10.00	144.93
110	0.87	72.53	-10.00	147.95
115	0.93	69.54	-10.00	144.66
120	1.14	66.59	-10.00	137.63
125	1.14	63.85	-10.00	137.56
130	1.24	61.21	-10.00	134.86
135	1.95	58.30	-10.00	119.53
140	2.59	55.57	-10.00	106.82
145	1.91	54.09	-10.00	120.49
150	1.35	52.84	-10.00	133.79
155	1.15	51.62	-10.00	137.15
160	1.05	50.65	-10.00	139.96
165	1.00	49.99	-10.00	141.45
170	1.06	49.57	-10.00	139.73
175	0.73	49.91	-10.00	155.51
180	0.63	50.23	-10.00	160.99
185	0.56	49.99	-10.00	167.42

COMSEARCH

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Coordination Values

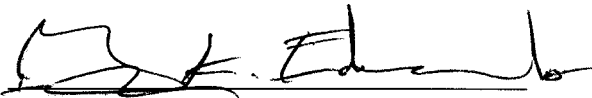
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Max Available RF Power 4.6 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	0.64	49.00	-10.00	160.34
195	0.71	47.48	-9.91	156.91
200	1.03	45.24	-9.39	142.85
205	0.85	42.99	-8.83	153.49
210	0.91	40.37	-8.15	153.71
215	0.52	38.50	-7.64	180.62
220	0.50	36.80	-7.15	184.27
225	0.40	35.70	-6.82	194.74
230	0.39	35.11	-6.63	196.03
235	0.33	35.19	-6.66	202.09
240	0.30	35.84	-6.86	203.61
245	0.21	37.14	-7.25	208.66
250	0.78	38.37	-7.60	163.40
255	1.09	40.34	-8.14	146.19
260	1.49	42.69	-8.76	133.14
265	1.24	45.84	-9.53	136.53
270	1.14	49.12	-10.00	137.47
275	1.25	52.50	-10.00	134.63
280	1.47	56.01	-10.00	130.99
285	1.63	59.70	-10.00	126.99
290	1.77	63.53	-10.00	123.83
295	2.24	67.37	-10.00	113.57
300	2.92	71.27	-10.00	100.43
305	3.44	75.33	-10.00	100.00
310	4.46	79.41	-10.00	100.00
315	5.69	83.60	-10.00	100.00
320	6.95	87.91	-10.00	100.00
325	7.62	92.32	-10.00	100.00
330	8.36	96.78	-10.00	100.00
335	8.34	101.22	-10.00	100.00
340	8.02	105.59	-10.00	100.00
345	7.26	109.82	-10.00	100.00
350	6.67	113.98	-10.00	100.00
355	6.20	118.06	-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: January 19, 2022