

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Intelsat License LLC
HAGERSTOWN, MD
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
March 06, 2017

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

Maryland Public Broadcasting Commission

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 02/17/2017.

Company

3G Wireless, LLC
ACC License, LLC
AERIAL VIDEO SYSTEMS
Alascom Inc
American Broadcasting Companies, Inc.
Antietam Cable Television
Ascent Media Network Services, LLC
Bellsouth Telecommunications, Inc.
Borgeson, Tom R.
Broadcast Sports Inc.
C-SPAN
CBS TELEVISION LICENSES LLC
CNN America, Inc.
CTVN HARRISBURG, LLC
Carolina Telephone and Telegraph Co
Casper, John
CenturyTel of the Southwest, Inc.
Channel Communications, LLC (WHVL)
Chicago Comnet Corp
Cincinnati Bell Wireless LLC
Citywide News Network, Inc.
Cohen, Elena
Cowboys Stadium LP
DCI II, INC.
Direct Broadcast Services, Inc.
F Corporation
GEORGE MASON UNIVERSITY INSTR FNDTION
Global Telecom & Technology Americas, In
Goodyear Tire & Rubber Company
HF Enterprises, Inc
HOWARD UNIVERSITY TELEVISION - (WHUT-TV)
Hallco Unlimited, Inc.
Hawaiian Telcom, Inc.
Heiden, William
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
Maryland Public Broadcasting Commission
Media General Communications Holdings, L
Michigan Bell Telephone Company
Moreen, Steven K
Multimedia Holdings Corporation
NBC Telemundo License LLC
NEW ENGLAND DIGITAL DISTRIBUTION, INC.
NEW ENGLAND SATELLITE SYSTEMS INC
NEXSTAR BROADCASTING, INC.
NSM Surveillance
National Cable Satellite Corporation
Navajo Communications Company
NorthWest Suburbs Community Access Corp
OHIO BELL TELEPHONE COMPANY
Onboard Images
Pacific Bell Tel Com dba AT&T California
Penn Service Microwave Co., Inc.
Pennsylvania Educational Comm Systems
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.
Southwestern Bell Telephone L.P.
Speedshotz, Inc
TTWN Networks, LLC
Unisat, Inc.
United Telephone - Southeast
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
WBAL HEARST-ARGYLE TV, INC. (CA CORP.)
WDCW, LLC
WHP Licensee, LLC
WITF Inc.
WJAC Licensee, LLC
WUSA-TV, Inc

West Virginia Educational Broadcasting
Westar Satellite Services LP
Western Technical Services
Wexler Video, Inc.
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: 03/06/2017
Job Number: 170217COMSGE01

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign:
Licensee Code: INTELS
Licensee Name: Intelsat License LLC

Site Information HAGERSTOWN, MD

Venue Name:
Latitude (NAD 83): 39° 35' 53.1" N
Longitude (NAD 83): 77° 45' 22.3" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 170.22 m / 558.5 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 6° W to 149° West Longitude
Azimuth Range: 101.9° to 257.8°
Corresponding Elevation Angles: 5.3° / 5.7°
Antenna Centerline (AGL): 5.49 m / 18.0 ft

Antenna Information

	Receive - FCC32	Transmit - FCC32
Manufacturer	ViaSat	ViaSat
Model	13.5 Meter	13.5 Meter
Gain / Diameter	62.1 dBi / 13.5 m	64.0 dBi / 13.5 m
3-dB / 15-dB Beamwidth	0.10° / 0.26°	0.12° / 0.24°
Max Available RF Power (dBW/4 kHz)		(1) -4.3 (2) 0.0
(dBW/MHz)		19.7 24.0
Maximum EIRP (dBW/4 kHz)		59.7 64.0
(dBW/MHz)		83.7 88.0
Interference Objectives:		
Long Term	-156.0 dBW/MHz 20%	-151.0 dBW/4 kHz 20%
Short Term	-146.0 dBW/MHz 0.01%	-128.0 dBW/4 kHz 0.0025%

Frequency Information

	Receive 11.0 GHz	Transmit 14.0 GHz
Emission / Frequency Range (MHz)	1M00G7W - 62M5G7W / 11459.2 - 11720.0 1M00G7W - 62M5G7W / 11832.2 - 11943.5	(1) 1M00G7W - 62M5G7W / 12750.0 - 13250.0 (2) 1M00G7D 13249.5 (center)
Max Great Circle Coordination Distance	698.9 km / 434.2 mi	410.5 km / 255.0 mi
Precipitation Scatter Contour Radius	602.2 km / 374.1 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

HAGERSTOWN, MD

Licensee Name Intelsat License LLC
Latitude (NAD 83) 39° 35' 53.1" N
Longitude (NAD 83) 77° 45' 22.3" W
Ground Elevation (AMSL) 170.22 m / 558.5 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model ViaSat 13.5 meter
Antenna Mode Receive 11.0 GHz Transmit 14.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -151.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -128.0 dBW/4 kHz 0.0025%
Max Available RF Power -4.3 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	43.16	-8.88	236.35	-8.88	143.81
195	0.00	41.93	-8.56	237.77	-8.56	144.82
200	0.00	40.26	-8.12	239.78	-8.12	146.26
205	0.00	38.20	-7.55	242.41	-7.55	148.15
210	0.00	35.81	-6.85	245.83	-6.85	150.53
215	0.22	32.97	-5.95	248.06	-5.95	151.60
220	0.00	30.22	-5.01	254.75	-5.01	157.06
225	0.21	26.96	-3.77	259.87	-3.77	160.55
230	0.00	23.83	-2.43	267.87	-2.43	168.28
235	0.00	20.42	-0.75	276.80	-0.75	174.66
240	0.00	16.89	1.31	288.19	1.31	182.49
245	0.00	13.28	3.92	300.44	3.92	192.42
250	0.00	9.59	7.46	324.54	7.46	205.04
255	0.00	6.33	11.96	486.38	11.96	282.70
260	0.00	6.10	12.36	671.29	12.36	393.14
265	0.00	9.18	7.93	328.08	7.93	206.88
270	0.23	13.36	3.85	296.94	3.85	189.48
275	0.25	18.03	0.60	278.41	0.60	174.18
280	0.29	22.83	-1.96	260.40	-1.96	158.46
285	0.21	27.72	-4.07	258.45	-4.07	159.53
290	0.00	32.66	-5.85	250.63	-5.85	154.03
295	0.00	37.59	-7.38	243.24	-7.38	148.74
300	0.00	42.53	-8.72	237.07	-8.72	144.33
305	0.00	47.48	-9.91	231.75	-9.91	140.57
310	0.23	52.42	-10.00	227.97	-10.00	137.17
315	0.00	57.40	-10.00	231.37	-10.00	140.30
320	0.00	62.36	-10.00	231.37	-10.00	140.30
325	0.00	67.33	-10.00	231.37	-10.00	140.30
330	0.00	72.31	-10.00	231.37	-10.00	140.30
335	0.21	77.27	-10.00	230.47	-10.00	139.47
340	0.23	82.25	-10.00	228.07	-10.00	137.26
345	0.25	87.23	-10.00	226.37	-10.00	135.71
350	0.00	92.20	-10.00	231.37	-10.00	140.30
355	0.31	97.18	-10.00	220.76	-10.00	130.72

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: March 06, 2017