

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Intelsat License LLC  
Hagerstown, Maryland**

**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Virginia 20147  
September 26, 2014

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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-only earth station.

Company

None

No 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 with a letter dated June 4, 2014. Expedited revised coordination data was emailed and sent to the below listed carriers on September 5, 2014.

#### Company

3G Wireless, LLC  
ACC License, LLC  
AERIAL VIDEO SYSTEMS  
AT&T California  
Alascom Inc  
American Broadcasting Companies, Inc.  
Antietam Cable Television  
Ascent Media Network Services, LLC  
Bellsouth Telecommunications, Inc.  
Borgeson, Tom R.  
Broadcast Sports Inc.  
CBS TELEVISION LICENSES LLC  
CNG Communications, Inc.  
CTVN HARRISBURG, LLC  
Carolina Telephone and Telegraph Co  
Casper, John  
CenturyTel of the Southwest, Inc.  
Chicago Comnet Corp  
Cincinnati Bell Wireless LLC  
Citywide News Network, Inc.  
Cohen, Elena  
Cowboys Stadium LP  
DCI II, INC.  
Detroit Free Press, Inc.  
Direct Broadcast Services, Inc.  
Entravision Holdings, LLC  
F Corporation  
GEORGE MASON UNIVERSITY INSTR FNDTION  
GOODYEAR TIRE AND RUBBER COMPANY  
GSN New, Inc  
Global Microwave Systems Inc  
HF Enterprises, Inc  
HOWARD UNIVERSITY TELEVISION - (WHUT-TV)  
Hallco Unlimited, Inc.  
Hawaiian Telcom, Inc.  
Heiden, William

## Company (Continued)

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  
Metro Networks Communications, Inc.  
Michigan Bell Telephone Company  
Moreen, Steven K  
Multimedia Holdings Corporation  
NBC Telemundo License LLC  
NEW ENGLAND DIGITAL DISTRIBUTION, INC.  
NEW ENGLAND SATELLITE SYSTEMS INC  
NSM Surveillance  
National Cable Satellite Corporation  
Navajo Communications Company  
NorthWest Suburbs Community Access Corp  
Ohio Bell Telephone Company  
On Scene Video Production  
Onboard Images  
Pacific and Southern Company, Inc.  
Penn Service Microwave Co., Inc.  
Pennsylvania Educational Comm Systems  
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.  
Randy Hermes Production  
Regulus Media Services, Inc.  
Remote Broadcasts, Inc.  
Southwestern Bell Telephone L.P.  
Speedshotz, Inc  
Total RF Marketing Inc  
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.

Company (Continued)

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  
WGAL Hearst Television, Inc  
WMTM, LLC  
Westar Satellite Services LP  
Western Technical Services  
Wexler Video, Inc.  
Winged Vision Inc  
Wisconsin Bell, Inc.  
Wolfe Air Aviation

Society of Broadcast Engineers' Coordinators

District of Columbia:

Maryland: Entire State

Pennsylvania: So. Central Region  
Western/Pittsburgh Region

Virginia: DC Area Region

West Virginia: Entire State

## **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: 09/26/2014  
Job Number: 140905COMSJC02

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### Administrative Information

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

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### Site Information HAGERSTOWN, MARYLAND

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) 170.08 m / 558.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TO - Transmit-Only  
Modulation Digital  
Satellite Arc 50° W to 51° West Longitude  
Azimuth Range 140.5° to 141.7°  
Corresponding Elevation Angles 36.0° / 36.5°  
Antenna Centerline (AGL) 8.66 m / 28.4 ft

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### Antenna Information

#### Transmit

Manufacturer Vertex/RSI  
Model 13.1 Meter  
Gain / Diameter 62.7 dBi / 13.1 m  
3-dB / 15-dB Beamwidth 0.11° / 0.23°

2M00G7W to 40M0G7W

Max Available RF Power (dBW/4 kHz) -29.0 -29.0  
(dBW/MHz) -5.0 -5.0

Maximum EIRP (dBW/4 kHz) 33.7 33.7  
(dBW/MHz) 57.7 57.7  
(dBW) 60.7 73.7

Interference Objectives: Long Term -151.0 dBW/4 kHz 20%  
Short Term -128.0 dBW/4 kHz 0.0025%

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### Frequency Information

#### Transmit 13.0 GHz

Emission / Frequency Range (MHz) 2M00G7W - 40M0G7W / 12825.0 - 13250.0

Max Great Circle Coordination Distance 100.0 km / 62.1 mi  
Precipitation Scatter Contour Radius 100.0 km / 62.1 mi

# COMSEARCH

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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)		170.08 m / 558.0 ft
Antenna Centerline (AGL)		8.66 m / 28.4 ft
Antenna Model		Vertex/RSI 13.1 Meter
Antenna Mode		Transmit 13.0 GHz
Interference Objectives: Long Term	-151.0 dBW/4 kHz	20%
Short Term	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power	-29.0 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	128.62	-10.00	100.00
5	0.00	125.23	-10.00	100.00
10	0.00	121.68	-10.00	100.00
15	0.00	118.01	-10.00	100.00
20	0.00	114.22	-10.00	100.00
25	0.00	110.36	-10.00	100.00
30	0.00	106.43	-10.00	100.00
35	0.00	102.46	-10.00	100.00
40	0.00	98.45	-10.00	100.00
45	0.00	94.42	-10.00	100.00
50	0.00	90.37	-10.00	100.00
55	0.00	86.32	-10.00	100.00
60	0.00	82.29	-10.00	100.00
65	0.00	78.27	-10.00	100.00
70	0.00	74.29	-10.00	100.00
75	0.00	70.35	-10.00	100.00
80	0.00	66.48	-10.00	100.00
85	0.00	62.68	-10.00	100.00
90	0.00	58.98	-10.00	100.00
95	0.00	55.41	-10.00	100.00
100	0.00	51.98	-10.00	100.00
105	0.00	48.75	-10.00	100.00
110	0.00	45.75	-9.51	100.00
115	0.00	43.04	-8.85	100.00
120	0.00	40.68	-8.23	100.00
125	0.00	38.73	-7.70	100.00
130	0.00	37.25	-7.28	100.00
135	0.00	36.32	-7.00	100.00
140	0.00	35.96	-6.90	100.00
145	0.00	36.21	-6.97	100.00
150	0.00	37.04	-7.22	100.00
155	0.00	38.42	-7.61	100.00
160	0.00	40.26	-8.12	100.00
165	0.00	42.43	-8.69	100.00
170	0.00	44.96	-9.32	100.00
175	0.00	47.81	-9.99	100.00
180	0.00	50.91	-10.00	100.00
185	0.00	54.22	-10.00	100.00

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Antenna Model	Vertex/RSI 13.1 Meter
Antenna Mode	Transmit 13.0 GHz
Interference Objectives: Long Term	-151.0 dBW/4 kHz 20%
Short Term	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power	-29.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	57.70	-10.00	100.00
195	0.00	61.32	-10.00	100.00
200	0.00	65.04	-10.00	100.00
205	0.00	68.86	-10.00	100.00
210	0.00	72.74	-10.00	100.00
215	0.00	76.68	-10.00	100.00
220	0.00	80.65	-10.00	100.00
225	0.00	84.65	-10.00	100.00
230	0.00	88.67	-10.00	100.00
235	0.00	92.69	-10.00	100.00
240	0.00	96.70	-10.00	100.00
245	0.00	100.69	-10.00	100.00
250	0.00	104.65	-10.00	100.00
255	0.00	108.57	-10.00	100.00
260	0.00	112.44	-10.00	100.00
265	0.00	116.22	-10.00	100.00
270	0.00	119.92	-10.00	100.00
275	0.00	123.49	-10.00	100.00
280	0.00	126.92	-10.00	100.00
285	0.00	130.16	-10.00	100.00
290	0.00	133.18	-10.00	100.00
295	0.00	135.93	-10.00	100.00
300	0.00	138.35	-10.00	100.00
305	0.00	140.37	-10.00	100.00
310	0.00	141.94	-10.00	100.00
315	0.00	142.99	-10.00	100.00
320	0.00	143.48	-10.00	100.00
325	0.00	143.38	-10.00	100.00
330	0.00	142.70	-10.00	100.00
335	0.00	141.47	-10.00	100.00
340	0.00	139.71	-10.00	100.00
345	0.00	137.42	-10.00	100.00
350	0.00	134.77	-10.00	100.00
355	0.24	131.97	-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.



Jeffrey E. Cowles  
Engineer III, Telecommunications  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Va. 20147

DATED: September 26, 2014