

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Globecomm License Sub LLC**  
**LAUREL, MD**  
**(4 meter)**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
September 05, 2018

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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

Clearwire Spectrum Holdings LLC  
Sprint Spectrum L.P.

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 08/13/2018.

Company

AQ2AT LLC  
AT&T Wireless Services 3 LLC - NM  
Adams County Department of Emergency Svc  
Affiniti PA, LLC  
Albemarle, County of, Virginia  
Allegany County Government  
Allfirst Bank  
Altius Communications  
Argos Engineering, LLC  
Atlantic Broadband (Penn), LLC  
Atlantic, County of  
Baltimore City Department of Public Work  
Baltimore County of Maryland  
Baltimore Gas and Electric Company  
Beasley Media Group, LLC  
Bedford County of  
Believe Wireless, LLC  
Benedictine Society of Baltimore City  
Berkeley, County of  
Berks County Department of Emergency Ser  
Blair County 911  
Blaze Broadband  
Blue Ridge Carriers  
Blueline Communications  
Buckeye Partners  
Bucks County Dept. of Emergency Comm  
Buggs Island Telephone Cooperative, Inc.  
Business Only Broadband, LLC  
CBS Radio WLIF, LLC  
CBS Radio of Maryland, LLC  
CTI Networks, Inc  
Calvert, County of  
Cambria, County of  
Cape May County, MIS Department  
Capitol Region Airport Commission  
Carbon, County of 911 Center  
Caroline County, VA  
Cellco Partnership - Southern Virginia  
Cellco Partnership- PA Region  
Central Virginia Electric Cooperative  
Chester, County of

Chesterfield, County of  
City of Bethlehem  
City of Hampton, Virginia  
City of Laurel  
City of Newport News Information Tech  
City of Ocean City, MD  
Citynet, LLC  
Citywisper LLC  
Clair Global  
Clearwire Spectrum Holdings II, LLC  
Clearwire Spectrum Holdings III, LLC  
Clearwire Spectrum Holdings LLC  
Comcast of Southeast Pennsylvania, Inc.  
Commonwealth of Pennsylvania-Radio Proj.  
Comprehensive Wireless LLC  
Consult Dynamics, Inc  
Conterra Ultra Broadband, LLC  
Conxx, Inc.  
County of Burlington  
County of Burlington, Public Safety Cntr  
County of Camden  
County of Centre  
County of Culpeper  
County of Hunterdon  
County of Louisa, VA  
County of Mercer  
County of Westmoreland  
County of York  
County of York (VA)  
Cumberland, County of (PA)  
D&E Communications, Inc.  
Dauphin County Emergency Management  
Delaware County (PA) Emergency Services  
Delaware Division of Communications  
ECW Wireless, LLC  
Enoch Pratt Free Library  
Exelon Generation Company, LLC  
FELHC, Inc.  
Flashpoint ISP, Inc  
Franklin County Dept. of Emergency Servi  
Fulton County PA  
Fundamental Broadcasting LLC  
GTT America LLC  
GWETA, Inc.  
Garden State Transmissions  
Getwireless.Net  
Global Telecom & Technology Americas  
Globecomm License Sub LLC  
Gloucester Township  
Gloucester, County of  
Goochland, County of  
Grant, County of  
Gray Television Licensee LLC (Gray TV)  
Gray Television Licensee, LLC  
Greater Boston Radio Inc.  
Hamilton, Township of

Hampton Road Sanitation District  
Hampton Roads Planning District Comm  
Hanover, County of  
Hardy Cellular Telephone Company  
Hardy Telecommunications  
Harrisonburg-Rockingham ECC  
Hearst Properties Inc  
Henrico County  
High Mountain Farm, LLC  
High Voltage Communications LLC (CFN)  
Hilltower Tower Leasing, Inc  
Huntingdon, County of  
In The Stix Broadband LLC  
Jefferson Microwave, LLC  
Jlink, Inc  
Juniata County Emergency Services  
King George County  
Kryptick Technologies  
Lancaster County-Wide Communications  
Learning Tree Farms  
Lehigh, County of  
Local Media TV Philadelphia  
Loudoun County Public Schools  
Loudoun, County of  
MIT Lincoln Laboratory  
Manchester, Township of  
Maryland Port Administration  
Maryland Public Broadcasting Commission  
Maryland State Highway Administration  
Maryland, State of - DNR  
Maryland, State of - Dept.of Info & Tech  
Maryland, State of - MDOT-MTA  
Maryland-National Capital Park & Plannin  
Micrologic, Inc  
Mifflin County  
Millersburg Area School District  
Montgomery County Of  
Montgomery, County of  
Morgan, County of  
Mountain View Communications, LLC  
Nelson, County of  
Netrepid, Inc.  
New Cingular Wireless PCS LLC - NJ  
New Cingular Wireless PCS - Maryland  
New Cingular Wireless PCS LLC - DC  
New Cingular Wireless PCS LLC - Georgia  
New Cingular Wireless PCS LLC - N CAL  
New Cingular Wireless PCS LLC - VA  
New Cingular Wireless PCS LLC - WV,NC,SC  
New Cingular Wireless PCS LLC-DE/NH/RI  
New Cingular Wireless PCS of PA LLC  
New Cingular Wireless PCS, LLC - PA  
New Jersey State Police  
New Jersey Turnpike Authority-Pkwy Div  
New Jersey, State of -NJ Transit  
New Kent County

New Line Networks, LLC  
NewConnect  
Norfolk Southern Railway  
Noroc Broadband LLC  
Northern Virginia Electric Cooperative  
Northumberland County DPS/911  
Novec Solutions, Inc  
Ocean City, City of  
Ocean County of - Div of Wireless Tech.  
Page County Broadband Authority  
Peco Energy Company  
Pennsylvania Sports Entertainment Netwo.  
Pennsylvania Turnpike Commission  
Perry, County of  
Petersburg Cellular Partnership  
Petersburg Police Department  
PhillieCo, L.P.  
Pierce Broadband, LLC  
Pocahontas County Commission  
Pontis Communications, Inc.  
Port Networks, Inc  
Prince William, County of  
Public Broadcasting Service  
R. Fritz Enterprises Inc  
RCTC Wholesale Corporation  
Radio License Holding CBC, LLC  
Radio One Inc  
Radio One, Inc. - MD  
RapidDSL & Wireless, Inc.  
Rappahannock Electric Cooperative  
Richmond, City of  
River Valley Internet LLC  
Rockbridge Reg. Pub Safety Comm Ctr  
Rural Broadband Network Services LLC  
SCS Broadband  
Salem County Information Technology  
Schuylkill, County of  
Secom Net  
Shenandoah Personal Communications, LLC  
Snyder, County of  
Somerset County, Maryland  
South Central Task Force (SCTFNET)  
South Western School District  
Southeastern Pennsylvania Transit Auth  
Southern Maryland Electric Cooperative I  
Southside Electric Cooperative  
Spotsylvania, County of  
Sprint Spectrum L.P.  
Sprintcom, Inc  
St. Mary's County of (MD)  
Stafford, County of  
Standard Backhaul Communications LLC  
State of Maryland, MIEMSS  
State of New Jersey  
State of New Jersey Infomation Technolog  
Sussex County



Sussex County Government  
T-Mobile License LLC  
Telecom Transport Management, Inc  
Telegia Communications Inc.  
Thought Transmissions, LLC  
Towerstream Corp.  
Townsquare Media Atlantic City III Licen  
Townsquare Media Monmouth-Ocean License  
Transwave Communication Systems, Inc.  
Two Way Radio Inc.  
USCOC of Cumberland, Inc.  
USCOC of Virginia RSA #3, Inc.  
Union, County Of  
Uniti Fiber PEG, LLC  
Valley Rural Electric Cooperative, Inc.  
Vector Data Systems, LLC  
Verizon New Jersey, Inc.  
Verizon Virginia, Inc.  
Verizon Wireless (VAW) LLC - Maryland  
Verizon Wireless (VAW) LLC - W/B/V Mkts  
Verizon Wireless (VAW) LLC-Pennsylvania  
Verizon Wireless VAW LLC-Southern VA  
Virginia Air Networks, LLC  
Virginia Broadband, LLC  
Virginia Department of State Police  
Virginia Electric & Power Company  
Virginia Everywhere, LLC  
Virginia Tech Foundation , Inc.  
Visual Link Internet LLC  
WHYY, Inc.  
WV DHHR BPH, Office of Ems, Com. Div.  
Warren County, VA  
Warrenton Fauquier Joint Communications  
Washington County Board of Education  
Washington County Public Schools  
Washington Gas Light Company  
Washington Suburban Sanitary Commission  
Weblin Holdings LLC  
West Virginia Radio Corporation  
Wicomico Board of Education  
Wicomico County  
Williamson Enterprise LLC  
Winchester, City of  
Wireless Internetwork LLC  
World Class Wireless, LLC  
XO Communications, LLC  
iSignal

## **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: 09/05/2018  
Job Number: 180813COMSGE09

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E020288  
Licensee Code SWSITE  
Licensee Name Globecom License Sub LLC

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### Site Information LAUREL, MD

Venue Name  
Latitude (NAD 83) 39° 6' 45.5" N  
Longitude (NAD 83) 76° 49' 58.0" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 72.42 m / 237.6 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 15° W to 143° West Longitude  
Azimuth Range 108.7° to 254.4°  
Corresponding Elevation Angles 13.0° / 9.7°  
Antenna Centerline (AGL) 2.74 m / 9.0 ft

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### Antenna Information

	Receive - FCC32	Transmit - FCC32
Manufacturer	ASC Signal	ASC Signal
Model	4 meter	4 meter
Gain / Diameter	49.0 dBi / 4.0 m	51.2 dBi / 4.0 m
3-dB / 15-dB Beamwidth	0.43° / 0.86°	0.35° / 0.70°
Max Available RF Power (dBW/4 kHz)		-14.0
(dBW/MHz)		10.0
Maximum EIRP (dBW/4 kHz)		37.2
(dBW/MHz)		61.2
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%

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### Frequency Information

	Receive 11.0 GHz	Transmit 14.0 GHz
Emission / Frequency Range (MHz)	51K2G7W - 36M0G7W / 10950.0 - 11200.0 51K2G7W - 36M0G7W / 11450.0 - 12750.0	51K2G7W - 36M0G7W / 13750.0 - 14500.0
Max Great Circle Coordination Distance	352.2 km / 218.8 mi	158.7 km / 98.6 mi
Precipitation Scatter Contour Radius	534.2 km / 331.9 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**
**LAUREL, MD**

Licensee Name	Globecomm License Sub LLC		
Latitude (NAD 83)	39° 6' 45.5" N		
Longitude (NAD 83)	76° 49' 58.0" W		
Ground Elevation (AMSL)	72.42 m / 237.6 ft		
Antenna Centerline (AGL)	2.74 m / 9.0 ft		
Antenna Model	ASC Signal 4 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		-14.0 (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)
0	0.53	105.37	-10.00	203.17	-10.00	100.00
5	0.46	103.33	-10.00	207.58	-10.00	100.00
10	0.32	98.45	-10.00	220.29	-10.00	106.80
15	0.27	93.58	-10.00	224.52	-10.00	110.29
20	0.00	88.70	-10.00	231.37	-10.00	115.80
25	0.29	83.82	-10.00	222.87	-10.00	108.93
30	0.00	78.96	-10.00	231.37	-10.00	115.80
35	0.00	74.10	-10.00	231.37	-10.00	115.80
40	0.00	69.24	-10.00	231.37	-10.00	115.80
45	0.00	64.39	-10.00	231.37	-10.00	115.80
50	0.00	59.56	-10.00	231.37	-10.00	115.80
55	0.00	54.74	-10.00	231.37	-10.00	115.80
60	0.00	49.95	-10.00	231.37	-10.00	115.80
65	0.00	45.19	-9.38	234.12	-9.38	117.36
70	0.00	40.47	-8.18	239.52	-8.18	120.36
75	0.00	35.82	-6.85	245.83	-6.85	123.72
80	0.00	31.25	-5.37	252.97	-5.37	127.51
85	0.00	26.83	-3.71	261.24	-3.71	130.56
90	0.00	22.62	-1.86	270.85	-1.86	135.67
95	0.00	18.78	0.15	281.74	0.15	141.71
100	0.00	15.59	2.18	293.11	2.18	148.25
105	0.25	13.27	3.93	294.98	3.93	149.40
110	0.00	13.08	4.09	301.46	4.09	154.87
115	0.00	14.45	3.01	294.90	3.01	151.07
120	0.00	17.19	1.12	287.10	1.12	144.76
125	0.00	20.67	-0.88	276.08	-0.88	138.54
130	0.21	23.97	-2.49	266.89	-2.49	133.36
135	0.00	27.43	-3.96	260.02	-3.96	129.93
140	0.28	30.37	-5.06	246.34	-5.06	122.01
145	0.00	33.53	-6.13	249.26	-6.13	125.55
150	0.00	36.23	-6.98	245.24	-6.98	123.40
155	0.00	38.65	-7.68	241.82	-7.68	121.62
160	0.00	40.74	-8.25	239.19	-8.25	120.18
165	0.00	42.43	-8.69	237.18	-8.69	119.07
170	0.00	43.69	-9.01	235.76	-9.01	118.27
175	0.00	44.46	-9.20	234.90	-9.20	117.80
180	0.00	44.72	-9.26	234.62	-9.26	117.64
185	0.00	44.46	-9.20	234.90	-9.20	117.80

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

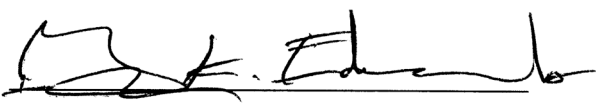
### LAUREL, MD

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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			-14.0 (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	43.69	-9.01	235.75	-9.01	118.27
195	0.00	42.43	-8.69	237.18	-8.69	119.07
200	0.00	40.74	-8.25	239.19	-8.25	120.18
205	0.00	38.65	-7.68	241.82	-7.68	121.62
210	0.00	36.23	-6.98	245.23	-6.98	123.40
215	0.00	33.53	-6.14	249.26	-6.14	125.55
220	0.00	30.58	-5.14	254.13	-5.14	128.12
225	0.00	27.43	-3.96	260.02	-3.96	129.92
230	0.00	24.12	-2.56	267.19	-2.56	133.70
235	0.00	20.67	-0.88	276.07	-0.88	138.53
240	0.00	17.11	1.17	287.37	1.17	144.92
245	0.27	13.30	3.90	295.18	3.90	146.93
250	0.31	10.37	6.61	304.54	6.61	152.48
255	0.46	9.25	7.84	352.21	7.84	158.73
260	0.45	10.79	6.17	290.42	6.17	138.69
265	0.51	13.97	3.37	267.84	3.37	126.87
270	0.48	18.04	0.59	255.62	0.59	121.53
275	0.46	22.47	-1.79	245.28	-1.79	116.84
280	0.47	27.08	-3.82	233.53	-3.82	110.31
285	0.55	31.78	-5.56	220.24	-5.56	101.55
290	0.49	36.59	-7.08	216.83	-7.08	100.55
295	0.47	41.43	-8.43	213.02	-8.43	100.00
300	0.60	46.28	-9.63	203.24	-9.63	100.00
305	0.65	51.16	-10.00	199.66	-10.00	100.00
310	0.51	56.08	-10.00	203.91	-10.00	100.00
315	0.40	61.00	-10.00	212.78	-10.00	100.44
320	0.51	65.91	-10.00	203.75	-10.00	100.00
325	0.54	70.83	-10.00	204.94	-10.00	100.00
330	0.71	75.75	-10.00	196.84	-10.00	100.00
335	0.67	80.69	-10.00	198.83	-10.00	100.00
340	0.93	85.63	-10.00	185.08	-10.00	100.00
345	0.84	90.57	-10.00	190.02	-10.00	100.00
350	0.58	95.50	-10.00	203.12	-10.00	100.00
355	0.56	100.44	-10.00	204.09	-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: September 05, 2018