

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Globecomm License Sub LLC
LAUREL, MD
(3.8 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

ACC License, LLC
Adams County Department of Emergency Svc
Affiniti PA, LLC
Albemarle, County of, Virginia
Allegany County Government
Allfirst Bank
Altius Communications
American Broadcasting Companies, Inc.
Antietam Cable Television
AQ2AT LLC
Argos Engineering, LLC
AT&T Wireless Services 3 LLC - NM
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
Calvert, County of
Cape May County, MIS Department
Capitol Region Airport Commission
Caroline County, VA
CBS Radio of Maryland, LLC
CBS Radio WLIF, LLC
CBS Television Licenses LLC
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region
Central Virginia Electric Cooperative

Chester, County of
Chesterfield, County of
City of Bethlehem
City of Laurel
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 Culpeper
County of Louisa, VA
County of Mercer
County of Westmoreland
County of York
County of York (VA)
C-Span
CTI Networks, Inc
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.
Franklin County Dept. of Emergency Servi
Fulton County PA
Fundamental Broadcasting LLC
Garden State Transmissions
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.
GWETA, 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
iSignal
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
Maryland Port Administration
Maryland Public Broadcasting Commission
Maryland Public Broadcasting Commission
Maryland State Highway Administration
Maryland, State of - Dept.of Info & Tech
Maryland, State of - DNR
Maryland, State of - MDOT-MTA
Maryland-National Capital Park & Plannin
Mifflin County
Millersburg Area School District
MIT Lincoln Laboratory
Montgomery County Of
Montgomery, County of
Morgan, County of
Mountain View Communications, LLC
National Cable Satellite Corporation
NBC Telemundo License 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
Novac Solutions, Inc
NSAC, LLC
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.
Pocahontas County Commission
Pontis Communications, Inc.
Port Networks, Inc
Prince William, County of
Public Broadcasting Service
R. Fritz Enterprises Inc
Radio License Holding CBC, LLC
Radio One Inc
Radio One, Inc. - MD
RapidDSL & Wireless, Inc.
Rappahannock Electric Cooperative
RCTC Wholesale Corporation
Richmond, City of
Rockbridge Reg. Pub Safety Comm Ctr
Rural Broadband Network Services LLC
Salem County Information Technology
Schuylkill, County of
SCS Broadband
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 Information Technolog
Sussex County
Sussex County Government
Telecom Transport Management, Inc
Telegia Communications Inc.
Thought Transmissions, LLC

T-Mobile License LLC
Towerstream Corp.
Townsquare Media Atlantic City III Licen
Townsquare Media Monmouth-Ocean License
Transwave Communication Systems, Inc.
Two Way Radio Inc.
Union, County Of
Uniti Fiber PEG, LLC
USCOC of Cumberland, Inc.
USCOC of Virginia RSA #3, Inc.
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
Warren County, VA
Warrenton Fauquier Joint Communications
Washington County Board of Education
Washington County Public Schools
Washington Gas Light Company
Washington Suburban Sanitary Commission
WBAL Hearst-Argyle TV, Inc. (CA Corp.)
WDCW, LLC
Weblin Holdings LLC
West Virginia Radio Corporation
WHYY, Inc.
Wicomico Board of Education
Wicomico County
Williamson Enterprise LLC
Winchester, City of
Wireless Internetnetwork LLC
World Class Wireless, LLC
WUSA-TV, Inc
WV DHHR BPH, Office of Ems, Com. Div.
XO Communications, LLC

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: 180813COMSGE08

Administrative Information

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

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

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

Antenna Information

	Receive - P80381	Transmit - P90381
Manufacturer	PRODELIN CORPORATION	PRODELIN CORPORATION
Model	1383	1383
Gain / Diameter	51.7 dBi / 3.8 m	53.2 dBi / 3.8 m
3-dB / 15-dB Beamwidth	0.44° / 0.88°	0.40° / 0.80°
Max Available RF Power (dBW/4 kHz)		-14.0
(dBW/MHz)		10.0
Maximum EIRP (dBW/4 kHz)		39.2
(dBW/MHz)		63.2
Interference Objectives:		
Long Term	-156.0 dBW/MHz 20%	-151.0 dBW/4 kHz 20%
Short Term	-144.0 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)	51K2G7W - 36M0G7W / 10950.0 - 11200.0 51K2G7W - 36M0G7W / 11450.0 - 12750.0	51K2G7W - 36M0G7W / 14000.0 - 14500.0
Max Great Circle Coordination Distance	339.5 km / 210.9 mi	159.0 km / 98.8 mi
Precipitation Scatter Contour Radius	542.3 km / 336.9 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 PRODELIN CORPORATION 1383
 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 -144.0 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	-10.30	196.51	-9.80	100.00
5	0.46	103.33	-10.30	201.11	-9.80	100.00
10	0.32	98.45	-10.30	210.99	-9.80	107.28
15	0.27	93.58	-10.30	215.05	-9.80	110.78
20	0.00	88.70	-10.30	221.65	-9.80	116.30
25	0.29	83.82	-10.30	213.46	-9.80	109.42
30	0.00	78.96	-10.30	221.65	-9.80	116.30
35	0.00	74.10	-10.30	221.65	-9.80	116.30
40	0.00	69.24	-10.30	221.65	-9.80	116.30
45	0.00	64.39	-10.30	221.65	-9.80	116.30
50	0.00	59.56	-10.30	221.65	-9.80	116.30
55	0.00	54.74	-10.30	221.65	-9.80	116.30
60	0.00	49.95	-10.29	221.69	-9.80	116.30
65	0.00	45.19	-9.34	225.64	-9.80	116.30
70	0.00	40.47	-8.39	229.66	-7.99	120.84
75	0.00	35.82	-6.63	237.48	-6.96	123.44
80	0.00	31.25	-5.55	242.42	-5.30	127.69
85	0.00	26.83	-4.03	249.76	-3.53	131.05
90	0.00	22.62	-1.87	260.44	-1.85	135.71
95	0.00	18.78	0.43	272.40	-0.07	141.01
100	0.00	15.59	2.34	282.79	1.84	147.14
105	0.25	13.27	3.70	285.13	3.93	149.40
110	0.00	13.08	3.70	290.39	4.12	155.00
115	0.00	14.45	3.25	287.86	2.75	150.20
120	0.00	17.19	1.39	277.53	0.89	144.01
125	0.00	20.67	-0.70	266.45	-1.07	137.99
130	0.21	23.97	-2.68	255.73	-2.39	133.65
135	0.00	27.43	-4.27	248.60	-3.77	130.41
140	0.28	30.37	-5.37	235.29	-4.95	122.30
145	0.00	33.53	-6.01	240.32	-6.21	125.36
150	0.00	36.23	-6.79	236.72	-7.05	123.22
155	0.00	38.65	-7.76	232.41	-7.53	121.99
160	0.00	40.74	-8.45	229.42	-8.10	120.57
165	0.00	42.43	-8.79	227.97	-8.77	118.87
170	0.00	43.69	-9.04	226.90	-9.27	117.61
175	0.00	44.46	-9.19	226.25	-9.58	116.84
180	0.00	44.72	-9.24	226.03	-9.69	116.58
185	0.00	44.46	-9.19	226.25	-9.58	116.84

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Coordination Values

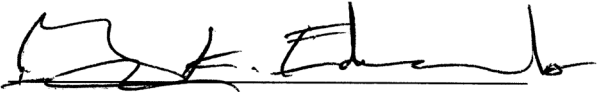
LAUREL, MD

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	PRODELIN CORPORATION 1383			
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	-144.0 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	-9.04	226.90	-9.28	117.61
195	0.00	42.43	-8.79	227.97	-8.77	118.87
200	0.00	40.74	-8.45	229.43	-8.10	120.57
205	0.00	38.65	-7.76	232.41	-7.53	122.00
210	0.00	36.23	-6.79	236.72	-7.05	123.22
215	0.00	33.53	-6.01	240.31	-6.21	125.35
220	0.00	30.58	-5.42	243.05	-5.03	128.39
225	0.00	27.43	-4.27	248.59	-3.77	130.41
230	0.00	24.12	-2.77	255.93	-2.45	134.01
235	0.00	20.67	-0.70	266.44	-1.07	137.99
240	0.00	17.11	1.43	277.78	0.93	144.16
245	0.27	13.30	3.70	282.50	3.90	146.92
250	0.31	10.37	6.33	293.43	6.83	153.29
255	0.46	9.25	7.45	339.47	7.95	158.97
260	0.45	10.79	5.91	277.08	6.41	139.45
265	0.51	13.97	3.70	258.63	3.23	126.47
270	0.48	18.04	0.88	246.69	0.38	120.95
275	0.46	22.47	-1.78	235.31	-1.79	116.84
280	0.47	27.08	-4.13	222.82	-3.63	110.78
285	0.55	31.78	-5.66	211.20	-5.51	101.65
290	0.49	36.59	-6.94	209.12	-7.12	100.47
295	0.47	41.43	-8.59	204.43	-8.37	100.00
300	0.60	46.28	-9.56	195.54	-9.80	100.00
305	0.65	51.16	-10.30	190.14	-9.80	100.00
310	0.51	56.08	-10.30	197.30	-9.80	100.00
315	0.40	61.00	-10.30	203.82	-9.80	100.92
320	0.51	65.91	-10.30	197.13	-9.80	100.00
325	0.54	70.83	-10.30	195.86	-9.80	100.00
330	0.71	75.75	-10.30	187.09	-9.80	100.00
335	0.67	80.69	-10.30	189.24	-9.80	100.00
340	0.93	85.63	-10.30	174.37	-9.80	100.00
345	0.84	90.57	-10.30	179.70	-9.80	100.00
350	0.58	95.50	-10.30	193.88	-9.80	100.00
355	0.56	100.44	-10.30	194.94	-9.80	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