

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**NBC Telemundo License LLC  
Washington, DC  
(5.6 Meter)**

**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Virginia 20147  
December 22, 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-receive 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.

Expedited coordination data for this earth station was emailed and sent to the below listed carriers with a letter dated December 3, 2014.

#### Company

256Q Networks  
ALLEGANY COLLEGE OF MARYLAND  
AT&T COMMUNICATIONS OF MARYLAND INC  
AT&T Corporation  
Adams County Department of Emergency Svc  
Affiniti PA, LLC  
Airband Communications Inc  
Albermarle, County of, Virginia  
Allentown SMSA Limited Partnership  
Alltel Communications LLC-Southern VA  
Alltel Communications of Petersburg Inc  
Atlantic Broadband (Penn), LLC  
Atlantic, County of  
BALTIMORE CITY DEPARTMENT OF PUBLIC WORK  
BAY BROADBAND COMMUNICATIONS LLC  
BLAIR COUNTY 911  
Baltimore County of Maryland  
Baltimore Gas and Electric Company  
Bedford, County of  
Believe Wireless, LLC  
Berks County Department of Emergency Ser  
Blaze Broadband  
Blue Ridge Carriers  
Blueline Communications  
Buckeye Partners  
Bucks County Dept. of Emergency Communic  
Buggs Island Telephone Cooperative, Inc.  
CBS Communication Services Inc  
Cambria, County of  
Cape May County Municipal Utilities Auth  
Cape May County, MIS Department  
Caroline County Public Works  
Cellco Partnership - Bridgeville, PA/WV  
Cellco Partnership - Southern Virginia  
Cellco Partnership- PA Region  
Cellco Prtnrshp - Phil. Tri-State Rgn

Company (Continued)

Central Virginia Electric Cooperative  
Chester, County of  
Chester, County of  
Chesterfield, County of  
City of Hampton, Virginia  
City of Laurel  
City of Ocean City, MD  
Citynet  
Clearwire Spectrum Holdings II, LLC  
Clearwire Spectrum Holdings III, LLC  
Clearwire Spectrum Holdings LLC  
Columbia, County  
Commonwealth of Pennsylvania-Radio Proj.  
Comprehensive Wireless LLC  
Conterra Ultra Broadband, LLC  
Converge Towers LLC  
Coralinks  
County of Burlington  
County of Burlington, Public Safety Cntr  
County of Camden  
County of Dinwiddie, Virginia  
County of York  
Cumberland, County of  
D&E Communications, Inc.  
DAUPHIN COUNTY EMERGENCY MANAGEMENT  
Delaware County (PA) Emergency Services  
Delaware Division of Communications  
ECW Wireless, LLC  
Eduro Networks LLC  
Egg Harbor Township Board of Education  
Enoch Pratt Free Library  
Exelon Generation Company, LLC  
FELHC  
FiberTower Network Services Corp.-DIP  
Franklin County Dept. of Emergency Servi  
Frederick County  
Fundamental Broadcasting LLC  
GEORGE MASON UNIVERSITY INSTR FNDTION  
GETWIRELESS.NET  
GWETA, Inc.  
Garden State Transmissions  
Geodesic Networks LLC  
Globecomm License Sub LLC  
Gloucester Township  
Gloucester, County of  
Grant, County of  
Gray Television Licensee LLC (Gray TV)  
Gray Television Licensee, LLC  
Greater Philadelphia Radio, Inc.  
HENRICO COUNTY  
Hampton Roads Planning District Commissi

## Company (Continued)

Hanover, County of  
Hardy Cellular Telephone Company  
Hardy Telecommunications  
Harrisonburg-Rockingham ECC  
High Voltage Communications LLC  
Huntingdon County of  
Isle of Wight, County of  
Jefferson Microwave, LLC  
Juniata County Emergency Services  
Kent County Levy Court  
King George County  
Kryptick Technologies  
LOWER SHORE BROADBAND COOPERATIVE  
Lancaster County-Wide Communications  
Lehigh, County of  
Limitless Mobile Holdings, LLC  
Local Media TV Philadelphia  
Loudoun County Public Schools  
Loudoun Wireless LLC  
Loudoun, County of  
M&T Bank  
MIT LINCOLN LABORATORY  
MLS Engineering  
MVC Research. LLC  
Maryland Port Administration  
Maryland Public Broadcasting Commission  
Maryland State Highway Administration  
Maryland, State of - Dept.of Info & Tech  
Middle East Broadcasting Networks, Inc.  
Mifflin County  
Mifflin Mobilecom  
Millersburg Area School District  
Montgomery County Of  
Montgomery, County of  
Motorola Solutions, Inc.  
NORFOLK, CITY OF  
NOROC Broadband LLC  
National Tower Company 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 - VA  
New Cingular Wireless PCS LLC- WV/NC/SC  
New Cingular Wireless PCS LLC-DE/NH/RI  
New Cingular Wireless PCS, LLC - PA  
New Jersey State Police  
New Jersey Turnpike Authority-Pkwy Div  
New Jersey, State of -NJ Transit

Company (Continued)

New Kent County  
Nextlink Wireless, LLC  
Norfolk Southern Railway  
Northern Virginia Electric Cooperative  
Northumberland, County of  
Old Dominion LLC  
PEG Bandwidth, LLC  
Page County Broadband Authority  
Peco Energy Company  
Pennsylvania Sports Entertainment Netwo.  
Pennsylvania Turnpike Commission  
Petersburg Cellular Partnership  
Petersburg Police Department  
PhillieCo, L.P.  
Philly Sports Wireless  
Pitt Power  
Pontis Communications, Inc.  
Port Networks, LLC  
Prince William, County of  
Public Broadcasting Service  
QUALCOMM INC.  
RADIO ONE, INC - MD  
RAYTHEON COMPANY  
RCTC Wholesale Corporation  
Radio One Inc  
RapidDSL & Wireless, Inc.  
Rendezvous Communications LLC  
Rural Broadband Network Services LLC  
SCHUYLKILL, COUNTY OF  
SCTF NET  
SECOM NET  
SOMERSET COUNTY  
Salem County Information Technology  
Shenandoah Personal Communications, LLC  
Somerset County, Maryland  
Southeastern Pennsylvania Transit Auth  
Southern Maryland Electric Cooperative I  
Spotsylvania, County of  
Sprint Spectrum L.P.  
Sprintcom, Inc  
Stafford, County of  
Standard Backhaul Communications LLC  
State of Maryland, MIEMSS  
State of New Jersey  
Sussex County Council  
Synergy Telecommunications Corp  
T-Mobile License LLC  
TWO WAY RADIO INC.  
Telecom Transport Management, Inc  
Telegia Communications Inc.



## Company (Continued)

Thought Transmissions, LLC  
Townsquare Media Atlantic City III Licen  
Turtle Networks 6559  
Turtle Networks 6562  
USCOC of Cumberland, Inc.  
USCOC of Virginia RSA #2, Inc.  
USCOC of Virginia RSA #3, Inc.  
Union, County Of  
Valley Rural Electric Cooperative, Inc.  
Velox Networks 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 Broadband, LLC  
Virginia Department of State Police  
Virginia Electric & Power Company  
Virginia Everywhere, LLC  
Virginia PCS Alliance, L.C.  
Virginia Region 2000 Local Govt Council  
Virginia Tech Foundation , Inc.  
WEST VIRGINIA RADIO CORPORATION  
WHYY, Inc.  
WICOMICO BOARD OF EDUCATION  
WV DHHR BPH, Office of EMS, Com. Div.  
Warrenton Fauquier Joint Communications  
Washington County Public Schools  
Washington Gas Light Company  
Washington Suburban Sanitary Commission  
Weblin Holdings LLC  
West Virginia PCS Alliance, L.C.  
Western PA Internet Access, Inc.  
Wireless Internetwork LLC  
World Class Wireless, LLC  
York County  
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: 12/22/2014  
Job Number: 141203COMSJC03

### Administrative Information

Status: ENGINEER PROPOSAL  
Call Sign:  
Licensee Code: NBCTEL  
Licensee Name: NBC Telemundo License LLC

### Site Information WASHINGTON, DC

Venue Name:  
Latitude (NAD 83): 38° 56' 27.2" N  
Longitude (NAD 83): 77° 4' 54.7" W  
Climate Zone: A  
Rain Zone: 2  
Ground Elevation (AMSL): 119.48 m / 392.0 ft

### Link Information

Satellite Type: Geostationary  
Mode: TR - Transmit-Receive  
Modulation: Digital  
Satellite Arc: 15° W to 139° West Longitude  
Azimuth Range: 108.4° to 251.5°  
Corresponding Elevation Angles: 12.9° / 13.0°  
Antenna Centerline (AGL): 4.72 m / 15.5 ft

### Antenna Information

	Receive	Transmit
Manufacturer	Andrew Corporation	Andrew Corporation
Model	5.6 Meter	5.6 Meter
Gain / Diameter	55.5 dBi / 5.6 m	57.0 dBi / 5.6 m
3-dB / 15-dB Beamwidth	0.29° / 0.56°	0.24° / 0.46°

500KG7W to 36M0G7W

Max Available RF Power	(dBW/4 kHz)	-14.0	-14.0		
	(dBW/MHz)	10.0	10.0		
Maximum EIRP	(dBW/4 kHz)	43.0	43.0		
	(dBW/MHz)	67.0	67.0		
	(dBW)	64.0	82.5		
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)	500KG7W - 36M0G7W / 10950.0 - 11200.0 500KG7W - 36M0G7W / 11450.0 - 11700.0 500KG7W - 36M0G7W / 11700.0 - 12200.0	500KG7W - 36M0G7W / 13750.0 - 14000.0 500KG7W - 36M0G7W / 14000.0 - 14500.0

Max Great Circle Coordination Distance	302.0 km / 187.6 mi	155.2 km / 96.4 mi
Precipitation Scatter Contour Radius	518.2 km / 321.9 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

### WASHINGTON, DC

Licensee Name NBC Telemundo License LLC  
Latitude (NAD 83) 38° 56' 27.2" N  
Longitude (NAD 83) 77° 4' 54.7" W  
Ground Elevation (AMSL) 119.48 m / 392.0 ft  
Antenna Centerline (AGL) 4.72 m / 15.5 ft  
Antenna Model Andrew Corporation 5.6 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	0.00	107.94	-10.00	231.37	-10.00	115.80
5	0.00	103.08	-10.00	231.37	-10.00	115.80
10	0.00	98.21	-10.00	231.37	-10.00	115.80
15	0.00	93.34	-10.00	231.37	-10.00	115.80
20	0.00	88.46	-10.00	231.37	-10.00	115.80
25	0.00	83.59	-10.00	231.37	-10.00	115.80
30	0.00	78.72	-10.00	231.37	-10.00	115.80
35	0.00	73.85	-10.00	231.37	-10.00	115.80
40	0.00	68.99	-10.00	231.37	-10.00	115.80
45	0.00	64.14	-10.00	231.37	-10.00	115.80
50	0.00	59.30	-10.00	231.37	-10.00	115.80
55	0.00	54.48	-10.00	231.37	-10.00	115.80
60	0.00	49.69	-10.00	231.37	-10.00	115.80
65	0.00	44.92	-9.31	234.40	-9.31	117.52
70	0.00	40.20	-8.11	239.85	-8.11	120.54
75	0.00	35.55	-6.77	246.22	-6.77	123.93
80	0.00	30.98	-5.28	253.43	-5.28	127.75
85	0.00	26.55	-3.60	261.81	-3.60	130.86
90	0.00	22.35	-1.73	271.54	-1.73	136.05
95	0.00	18.52	0.31	282.60	0.31	142.19
100	0.00	15.35	2.35	294.09	2.35	148.82
105	0.00	13.32	3.89	300.23	3.89	154.17
110	0.00	12.97	4.17	302.01	4.17	155.19
115	0.00	14.44	3.01	294.95	3.01	151.10
120	0.00	17.25	1.08	286.88	1.08	144.63
125	0.00	20.76	-0.93	275.82	-0.93	138.40
130	0.00	24.22	-2.60	266.96	-2.60	133.58
135	0.00	27.54	-4.00	259.79	-4.00	129.81
140	0.00	30.70	-5.18	253.91	-5.18	128.00
145	0.00	33.66	-6.18	249.05	-6.18	125.44
150	0.00	36.38	-7.02	245.02	-7.02	123.28
155	0.00	38.81	-7.72	241.61	-7.72	121.50
160	0.00	40.91	-8.30	238.99	-8.30	120.07
165	0.00	42.61	-8.74	236.97	-8.74	118.95
170	0.00	43.87	-9.06	235.55	-9.06	118.16
175	0.00	44.65	-9.25	234.70	-9.25	117.68
180	0.00	44.91	-9.31	234.41	-9.31	117.52

# COMSEARCH

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### Coordination Values

### WASHINGTON, DC

Licensee Name	NBC Telemundo License LLC			
Latitude (NAD 83)	38° 56' 27.2" N			
Longitude (NAD 83)	77° 4' 54.7" W			
Ground Elevation (AMSL)	119.48 m / 392.0 ft			
Antenna Centerline (AGL)	4.72 m / 15.5 ft			
Antenna Model	Andrew Corporation 5.6 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)
185	0.00	44.65	-9.25	234.70	-9.25	117.68
190	0.00	43.87	-9.05	235.55	-9.05	118.16
195	0.00	42.61	-8.74	236.97	-8.74	118.95
200	0.00	40.91	-8.30	238.98	-8.30	120.06
205	0.00	38.81	-7.72	241.61	-7.72	121.50
210	0.00	36.38	-7.02	245.03	-7.02	123.29
215	0.00	33.66	-6.18	249.05	-6.18	125.44
220	0.00	30.71	-5.18	253.91	-5.18	128.00
225	0.00	27.54	-4.00	259.80	-4.00	129.81
230	0.00	24.22	-2.60	266.96	-2.60	133.58
235	0.00	20.76	-0.93	275.83	-0.93	138.40
240	0.00	17.27	1.07	286.83	1.07	144.61
245	0.00	14.49	2.97	294.69	2.97	150.94
250	0.00	13.08	4.08	301.43	4.08	154.86
255	0.00	13.47	3.77	299.48	3.77	153.73
260	0.00	15.52	2.23	293.41	2.23	148.42
265	0.00	18.69	0.21	282.05	0.21	141.88
270	0.00	22.51	-1.81	271.12	-1.81	135.82
275	0.00	26.71	-3.67	261.48	-3.67	130.68
280	0.00	31.14	-5.33	253.17	-5.33	127.61
285	0.00	35.70	-6.82	246.00	-6.82	123.81
290	0.00	40.35	-8.15	239.67	-8.15	120.44
295	0.00	45.07	-9.35	234.25	-9.35	117.43
300	0.00	49.83	-10.00	231.37	-10.00	115.80
305	0.00	54.62	-10.00	231.37	-10.00	115.80
310	0.00	59.44	-10.00	231.37	-10.00	115.80
315	0.00	64.27	-10.00	231.37	-10.00	115.80
320	0.00	69.12	-10.00	231.37	-10.00	115.80
325	0.00	73.97	-10.00	231.37	-10.00	115.80
330	0.00	78.84	-10.00	231.37	-10.00	115.80
335	0.00	83.71	-10.00	231.37	-10.00	115.80
340	0.00	88.58	-10.00	231.37	-10.00	115.80
345	0.00	93.45	-10.00	231.37	-10.00	115.80
350	0.00	98.32	-10.00	231.37	-10.00	115.80
355	0.00	103.19	-10.00	231.37	-10.00	115.80

## 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: December 22, 2014