FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

NBC Telemundo License LLC
Washington, DC
(4.6 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.
Thought Transmissions, LLC

Company (Continued)

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
Webline 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:	141203COMSJC04

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' 23.5" N
Longitude (NAD 83)	77° 4' 54.1" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	116.74 m / 383.0 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)	4.57 m / 15.0 ft

Antenna Information	Receive	Transmit
Manufacturer	Andrew Corporation	Andrew Corporation
Model	4.6 Meter	4.6 Meter
Gain / Diameter	53.8 dBi / 4.6 m	55.1 dBi / 4.6 m
3-dB / 15-dB Beamwidth	0.35° / 0.66°	0.30° / 0.58°

				500KG7W to 36M0G7W	
Max Available RF Power	(dBW/4 kHz)			-14.0	-19.0
	(dBW/MHz)			10.0	5.0
Maximum EIRP	(dBW/4 kHz)			41.1	36.1
	(dBW/MHz)			65.1	60.1
	(dBW)			62.1	75.6
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

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Coordination Values	**WASHINGTON, DC**			
Licensee Name	NBC Telemundo License LLC			
Latitude (NAD 83)	38° 56' 23.5" N			
Longitude (NAD 83)	77° 4' 54.1" W			
Ground Elevation (AMSL)	116.74 m / 383.0 ft			
Antenna Centerline (AGL)	4.57 m / 15.0 ft			
Antenna Model	Andrew Corporation 4.6 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)	

			Receive 11.0 GHz		Transmit 14.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.31	107.96	-10.00	221.08	-10.00	107.45
5	0.22	103.09	-10.00	229.08	-10.00	113.98
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	282.59	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	302.00	4.17	155.18
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	249.04	-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	238.98	-8.30	120.06
165	0.00	42.61	-8.74	236.97	-8.74	118.95
170	0.00	43.88	-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

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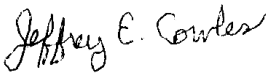
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power			-14.0 (dBW/4 kHz)	

			Receive 11.0 GHz		Transmit 14.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	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	-9.06	235.55	-9.06	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	123.28
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	259.79	-4.00	129.81
230	0.00	24.22	-2.60	266.96	-2.60	133.58
235	0.00	20.76	-0.93	275.82	-0.93	138.40
240	0.00	17.27	1.07	286.83	1.07	144.60
245	0.00	14.50	2.97	294.69	2.97	150.94
250	0.00	13.08	4.08	301.43	4.08	154.85
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	31.13	-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	0.35	103.21	-10.00	217.48	-10.00	104.44

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