

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

AMC Networks Broadcasting & Technology LLC
Bethpage, New York

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
November 21, 2014

TABLE OF CONTENTS

1. CONCLUSIONS	3
2. SUMMARY OF RESULTS	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA.....	8
5. CERTIFICATION.....	12

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 based upon the restrictions noted in the Summary of Results (Section 2).

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 most cases.

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 and frequency separation are considered on the interfering paths, sufficient losses exist to negate harmful interference from occurring with the proposed transmit-receive earth station. Further the transmit band will be restricted to frequencies 5925.0 to 6038.0 MHz and 6088.0 to 6425 MHz.

Company

Capital Communications of America
Coralinks
CTAB Holdings LLC
Eastern MLG LLC
ECW Wireless, LLC
High Voltage Communications LLC
New York, City of
Port Authority of New York & New Jersey
Rendezvous Communications LLC
SCS Networks
Texas Eastern Communications, LLC
Weblines Holdings LLC

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 October 3, 2014.

Company

256Q Networks
AB Services LLC
ALGONQUIN GAS TRANSMISSION, LLC
AT&T Corporation
AWC Networks
Allentown SMSA Limited Partnership
Appalachian Broadcasting
Atlantic City Electric Company
Auburn Data Systems, LLC
BFI Licenses, LLC
Berks County Department of Emergency Ser
Bucks County Dept. of Emergency Communic
CONSOLIDATED EDISON COMPANY OF NEW YORK
CTAB Holdings LLC
Capital Communications of America
Capstar TX LLC
Carbon, County of 911 Center
Cellco Partnership - (W-NY)
Cellco Partnership - CT, W-MA, VT
Cellco Partnership - E-MA, NH, RI
Cellco Partnership- PA Region
Cellco Prtnrshp - Phil. Tri-State Rgn
Central Hudson Gas & Electric Corp.
Chester, County of
Chester, County of
China Cat Productions LLC
City of New York
Commonwealth of Pennsylvania-Radio Proj.
Comprehensive Wireless LLC
Connecticut State Police Department
Converge Towers LLC
Coral Reef Technologies Ltd
Coralinks
County of Burlington, Public Safety Cntr
County of Camden
County of Warren, NJ
County of York

Company (Continued)

Delaware County (PA) Emergency Services
Delmarva Power and Light Company
Direct Broadcast Services, Inc.
ECW Wireless, LLC
EG Broadcast Newco Corp
Eastern MLG LLC
Eastern Pennsylvania EMS Council
Electric Railroad, LLC
Essex County Sheriff's Office (NJ)
Exelon Generation Company, LLC
FELHC
Firstlevel Networks
Fundamental Broadcasting LLC
Garden State Transmissions
Geodesic Networks LLC
Gloucester, County of
Goosetown Network Services, LLC
High Voltage Communications LLC
Highway Networks, LLC
Jefferson Microwave, LLC
Kryptick Technologies
Lackawanna, County of
Lancaster County-Wide Communications
MONMOUTH, COUNTY OF
MVC Research. LLC
Mahwah Communications
Mifflin Mobilecom
Monroe County Control Center (PA)
Montgomery County Of
Morris, County of
Nassau County Police Department
NeXXCom Wireless LLC
New Cingular Wireless PCS LLC -NJ
New Cingular Wireless PCS LLC - CT
New Cingular Wireless PCS LLC - MA
New Cingular Wireless PCS LLC-DE/NH/RI
New Cingular Wireless PCS of PA LLC
New Cingular Wireless PCS, LLC (NY)
New Cingular Wireless PCS, LLC - PA
New Jersey State Police
New Jersey Transit Rail Operations, Inc.
New Jersey Turnpike Authority-Pkwy Div
New Jersey, State of -NJ Transit
New York Communications Co., Inc
New York, City of
Newgig Networks, LLC
Norfolk Southern Railway
Northeast Pennsylvania SMSA LTD Prtnrsh
Northeast Utilities Service Company
OCEAN, COUNTY OF
Ocean, County of - Div of Wireless Tech.

Company (Continued)

Office of Emergency Telecom Services, NJ
Open Line Communications
Orange Poughkeepsie SMSA LTD Partnership
Orange and Rockland Utilities, Inc.
PEG Bandwidth, LLC
PSEG Services Corporation
Peco Energy Company
Penn Service Microwave Co., Inc.
Pennsylvania Turnpike Commission
Pike, County of PA
Pitt Power
Port Authority of New York & New Jersey
Qoncept Holdings LLC
Rendezvous Communications LLC
SCS Networks
SCTF NET
SW Networks
Stevens Institute of Technology
Suffolk, County of
Texas Eastern Communications, LLC
Thought Transmissions, LLC
Turtle Networks 6559
Turtle Networks 6562
Velox Networks LLC
Verizon New England Inc.
Verizon Wireless (VAW) LLC - Delaware/NJ
Verizon Wireless (VAW) LLC-Pennsylvania
Weblin Holdings LLC
White Rabbit Networks
Wireless Internetwork LLC
Wireless Internetwork II
World Class Wireless, LLC
Zen Networks, Inc
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: 11/21/2014
Job Number: 141003COMSJC02

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: E040445
Licensee Code: RAINC
Licensee Name: AMC Networks Broadcasting & Technology LLC

Site Information

BETHPAGE, NEW YORK
Venue Name
Latitude (NAD 83): 40° 44' 39.1" N
Longitude (NAD 83): 73° 29' 37.9" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 32.0 m / 105.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Analog and Digital
Satellite Arc: 30° W to 143° West Longitude
Azimuth Range: 124.5° to 256.3°
Corresponding Elevation Angles: 25.5° / 6.7°
Antenna Centerline (AGL): 6.1 m / 20.0 ft

Antenna Information

Receive
Manufacturer: Vertex Corporation
Model: 9.3 Meter
Gain / Diameter: 50.5 dBi / 9.3 m
3-dB / 15-dB Beamwidth: 0.51° / 1.07°

Transmit

Vertex Corporation
9.3 Meter
53.8 dBi / 9.3 m
0.34° / 0.71°

		36M0F8F	36M0G7F		
Max Available RF Power	(dBW/4 kHz)	-2.8	-12.5		
	(dBW/MHz)	21.2	11.5		
Maximum EIRP	(dBW/4 kHz)	51.0	41.3		
	(dBW/MHz)	75.0	65.3		
	(dBW)	78.0	80.8		
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%

Frequency Information

Emission / Frequency Range (MHz)

Receive 4.0 GHz

36M0F8F / 3700.0 - 4200.0
36M0G7F / 3700.0 - 4200.0

Transmit 6.1 GHz

36M0F8F / 5925.0 - 6038.0
36M0G7F / 5925.0 - 6038.0
36M0F8F / 6088.0 - 6425.0
36M0G7F / 6088.0 - 6425.0

Max Great Circle Coordination Distance: 532.7 km / 330.9 mi 304.2 km / 189.0 mi
Precipitation Scatter Contour Radius: 585.3 km / 363.6 mi 100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values

BETHPAGE, NY

Licensee Name AMC Networks Broadcasting & Technology LLC
Latitude (NAD 83) 40° 44' 39.1" N
Longitude (NAD 83) 73° 29' 37.9" W
Ground Elevation (AMSL) 32.0 m / 105.0 ft
Antenna Centerline (AGL) 6.1 m / 20.0 ft
Antenna Model Vertex Corporation 9.3 Meter
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -2.8 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.23	103.62	-10.00	281.35	-10.00	165.21
5	0.31	108.59	-10.00	271.48	-10.00	156.66
10	0.23	112.05	-10.00	281.21	-10.00	165.08
15	0.29	107.60	-10.00	273.86	-10.00	158.70
20	0.42	103.13	-10.00	259.05	-10.00	146.33
25	0.41	98.62	-10.00	260.05	-10.00	147.15
30	0.37	94.10	-10.00	263.99	-10.00	150.38
35	0.35	89.57	-10.00	266.71	-10.00	152.64
40	0.36	85.05	-10.00	265.39	-10.00	151.54
45	0.35	80.53	-10.00	266.70	-10.00	152.63
50	0.36	76.02	-10.00	265.96	-10.00	152.01
55	0.32	71.55	-10.00	270.60	-10.00	155.92
60	0.28	67.10	-10.00	275.75	-10.00	160.32
65	0.00	62.76	-10.00	285.28	-10.00	170.27
70	0.00	58.41	-10.00	285.28	-10.00	170.27
75	0.00	54.14	-10.00	285.28	-10.00	170.27
80	0.00	49.95	-10.00	285.28	-10.00	170.27
85	0.00	45.88	-9.54	288.22	-9.54	172.06
90	0.00	41.96	-8.57	294.53	-8.57	175.82
95	0.00	38.24	-7.56	301.25	-7.56	179.72
100	0.00	34.80	-6.54	308.25	-6.54	183.68
105	0.00	31.71	-5.53	315.92	-5.53	187.57
110	0.00	29.10	-4.60	322.55	-4.60	191.15
115	0.00	27.11	-3.83	328.10	-3.83	194.11
120	0.00	25.87	-3.32	331.79	-3.32	196.05
125	0.00	25.50	-3.16	332.92	-3.16	196.65
130	0.00	26.04	-3.39	331.27	-3.39	195.78
135	0.00	27.43	-3.96	327.17	-3.96	193.62
140	0.00	29.55	-4.76	321.36	-4.76	190.51
145	0.00	32.23	-5.71	314.69	-5.71	186.90
150	0.00	34.82	-6.55	308.20	-6.55	183.65
155	0.00	37.14	-7.24	303.41	-7.24	180.96
160	0.00	39.12	-7.81	299.59	-7.81	178.77
165	0.00	40.73	-8.25	296.67	-8.25	177.07
170	0.00	41.92	-8.56	294.60	-8.56	175.86
175	0.00	42.65	-8.75	293.37	-8.75	175.13
180	0.00	42.90	-8.81	292.96	-8.81	174.89

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Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -2.8 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
185	0.00	42.65	-8.75	293.37	-8.75	175.13
190	0.00	41.92	-8.56	294.60	-8.56	175.86
195	0.00	40.73	-8.25	296.67	-8.25	177.07
200	0.00	39.12	-7.81	299.59	-7.81	178.77
205	0.00	37.14	-7.24	303.41	-7.24	180.96
210	0.00	34.82	-6.55	308.20	-6.55	183.65
215	0.00	32.23	-5.71	314.69	-5.71	186.90
220	0.00	29.39	-4.70	321.79	-4.70	190.75
225	0.00	26.35	-3.52	330.32	-3.52	195.28
230	0.00	23.15	-2.11	340.67	-2.11	200.67
235	0.00	19.81	-0.42	353.40	-0.42	205.49
240	0.00	16.36	1.66	369.45	1.66	213.70
245	0.00	12.81	4.32	390.06	4.32	224.97
250	0.00	9.21	7.89	420.24	7.89	241.48
255	0.00	6.87	11.08	532.66	11.08	304.21
260	0.00	7.69	9.85	437.59	9.85	250.52
265	0.00	11.00	5.96	403.72	5.96	232.39
270	0.00	15.25	2.42	375.44	2.42	216.84
275	0.00	19.85	-0.44	353.22	-0.44	205.40
280	0.00	24.60	-2.77	335.79	-2.77	198.14
285	0.00	29.43	-4.72	321.68	-4.72	190.69
290	0.00	34.30	-6.38	309.33	-6.38	184.28
295	0.00	39.20	-7.83	299.44	-7.83	178.68
300	0.00	44.12	-9.12	290.96	-9.12	173.70
305	0.00	49.06	-10.00	285.28	-10.00	170.27
310	0.00	54.00	-10.00	285.28	-10.00	170.27
315	0.23	58.94	-10.00	282.08	-10.00	165.84
320	0.21	63.90	-10.00	283.73	-10.00	168.92
325	0.23	68.86	-10.00	282.01	-10.00	165.79
330	0.30	73.82	-10.00	273.01	-10.00	157.97
335	0.29	78.78	-10.00	273.61	-10.00	158.48
340	0.43	83.75	-10.00	257.90	-10.00	145.39
345	0.20	88.72	-10.00	284.66	-10.00	169.73
350	0.00	93.69	-10.00	285.28	-10.00	170.27
355	0.00	98.65	-10.00	285.28	-10.00	170.27

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: November 21, 2014