

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**West Virginia Educational Broadcasting Authority
Charleston, West Virginia
(Call Sign: E050283)**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
January 22, 2015

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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, 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 existing transmit-receive earth station. Further, the transmit spectrum will be restricted to frequencies 5925.0 to 6048.0 MHz, 6079.0 to 6211.0 MHz, and 6242.0 to 6425.0 MHz.

Company

Alltel Communications, LLC – E. OH, WV
AT&T Corporation
Columbia Gas Transmission Corporation
New Cingular Wireless PCS LLC – WV/NC/SC
WV DHHR BPH, Office of EMS Com. Div.

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.

Expedited coordination data for this earth station was emailed and sent to the below listed carriers with a letter dated December 16, 2014.

Company

AT&T COMMUNICATIONS OF WEST VIRGINIA
AT&T Corporation
Alltel Communications LLC - Ohio Region
Alltel Communications LLC-E OH WV
Alltel Communications LLC-TriState Rgn
American Electric Power Service Co
Columbia Gas Transmission Corporation
East Kentucky LLC dba Appalachian Wirele
General Dynamics - OTS, Inc.
Hardy Cellular Telephone Company
KENTUCKY POWER COMPANY
New Cingular Wireless PCS LLC - KY
New Cingular Wireless PCS LLC - Ohio
New Cingular Wireless PCS LLC- WV/NC/SC
Norfolk Southern Railway
OHIO VALLEY ELECTRIC COMPANY
Texas Eastern Communications, LLC
Verizon Wireless VAW LLC - West Virginia
WV DHHR BPH, Office of EMS, Com. Div.
West Virginia Educational Broadcasting
West Virginia Media Holdings, 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: 01/22/2015
Job Number: 141216COMSJC01

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: E050283
Licensee Code: S16663
Licensee Name: West Virginia Educational Broadcasting Authority

Site Information CHARLESTON, WEST VIRGINIA

Venue Name
Latitude (NAD 83): 38° 21' 9.0" N
Longitude (NAD 83): 81° 37' 46.0" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 182.88 m / 600.0 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 99° W to 99° West Longitude
Azimuth Range: 206.8° to 206.8°
Corresponding Elevation Angles: 42.0° / 42.0°
Antenna Centerline (AGL): 18.29 m / 60.0 ft

Antenna Information

Manufacturer: Prodelin
Model: 3.8 Meter
Gain / Diameter: 42.0 dBi / 3.8 m
3-dB / 15-dB Beamwidth: 1.40° / 3.20°

Receive

Prodelin
3.8 Meter
42.0 dBi / 3.8 m
1.40° / 3.20°

Transmit

Prodelin
3.8 Meter
45.9 dBi / 3.8 m
0.60° / 1.60°

51K2G7W to 36M0G7W

Max Available RF Power (dBW/4 kHz)
(dBW/MHz)

-14.0 -14.0
10.0 10.0

Maximum EIRP (dBW/4 kHz)
(dBW/MHz)
(dBW)

31.9 31.9
55.9 55.9
42.97 71.44

Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

-154.0 dBW/4 kHz 20%
-131.0 dBW/4 kHz 0.0025%

Frequency Information

Emission / Frequency Range (MHz) 51K2G7W - 36M0G7W / 3700.0 - 4200.0

Receive 4.0 GHz

Transmit 6.1 GHz

51K2G7W - 36M0G7W / 5925.0 - 6048.0
51K2G7W - 36M0G7W / 6079.0 - 6211.0
51K2G7W - 36M0G7W / 6242.0 - 6425.0

Max Great Circle Coordination Distance: 285.3 km / 177.2 mi
Precipitation Scatter Contour Radius: 100.0 km / 62.1 mi

132.8 km / 82.5 mi
100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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Coordination Values

CHARLESTON, WV

Licensee Name	West Virginia Educational Broadcasting Authority				
Latitude (NAD 83)	38° 21' 9.0" N				
Longitude (NAD 83)	81° 37' 46.0" W				
Ground Elevation (AMSL)	182.88 m / 600.0 ft				
Antenna Centerline (AGL)	18.29 m / 60.0 ft				
Antenna Model	Prodelin 3.8 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			-14.0 (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	2.42	133.49	-10.00	184.89	-10.00	100.00
5	2.31	135.61	-10.00	187.54	-10.00	100.00
10	2.19	137.35	-10.00	190.13	-10.00	100.00
15	2.73	139.28	-10.00	177.77	-10.00	100.00
20	2.93	140.43	-10.00	173.20	-10.00	100.00
25	3.30	141.26	-10.00	162.83	-10.00	100.00
30	3.16	141.04	-10.00	166.03	-10.00	100.00
35	2.24	139.53	-10.00	189.01	-10.00	100.00
40	1.45	137.70	-10.00	206.90	-10.00	100.00
45	3.59	138.09	-10.00	156.33	-10.00	100.00
50	2.65	135.27	-10.00	179.54	-10.00	100.00
55	2.73	133.00	-10.00	177.75	-10.00	100.00
60	3.98	131.21	-10.00	148.39	-10.00	100.00
65	4.84	128.74	-10.00	135.75	-10.00	100.00
70	5.86	126.03	-10.00	126.53	-10.00	100.00
75	5.72	122.46	-10.00	127.93	-10.00	100.00
80	5.27	118.65	-10.00	132.23	-10.00	100.00
85	4.75	114.76	-10.00	136.95	-10.00	100.00
90	4.30	110.86	-10.00	143.39	-10.00	100.00
95	4.32	107.05	-10.00	143.00	-10.00	100.00
100	3.23	102.99	-10.00	164.41	-10.00	100.00
105	2.64	99.06	-10.00	179.82	-10.00	100.00
110	3.25	95.26	-10.00	163.91	-10.00	100.00
115	2.77	91.36	-10.00	176.72	-10.00	100.00
120	2.54	87.49	-10.00	182.15	-10.00	100.00
125	2.76	83.62	-10.00	177.12	-10.00	100.00
130	0.00	80.19	-10.00	285.28	-10.00	132.84
135	1.04	76.32	-10.00	219.18	-10.00	100.00
140	1.67	72.49	-10.00	203.55	-10.00	100.00
145	1.90	68.78	-10.00	197.28	-10.00	100.00
150	1.97	65.18	-10.00	195.36	-10.00	100.00
155	2.35	61.54	-10.00	186.62	-10.00	100.00
160	2.39	58.14	-10.00	185.57	-10.00	100.00
165	2.29	54.98	-10.00	187.80	-10.00	100.00
170	1.84	52.24	-10.00	198.83	-10.00	100.00
175	2.15	49.25	-10.00	191.17	-10.00	100.00
180	2.70	46.29	-9.64	180.24	-9.64	100.00

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Antenna Model		Prodelin 3.8 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				-14.0 (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	2.64	44.11	-9.11	184.33	-9.11	100.00
190	2.39	42.46	-8.70	191.79	-8.70	100.00
195	2.26	41.17	-8.36	196.42	-8.36	100.00
200	3.11	39.38	-7.88	179.66	-7.88	100.00
205	2.83	39.20	-7.83	186.17	-7.83	100.00
210	2.62	39.49	-7.91	190.46	-7.91	100.00
215	2.63	40.09	-8.08	189.57	-8.08	100.00
220	2.96	40.89	-8.29	181.14	-8.29	100.00
225	2.51	42.87	-8.80	188.64	-8.80	100.00
230	3.18	44.29	-9.16	171.64	-9.16	100.00
235	3.31	46.56	-9.70	163.99	-9.70	100.00
240	2.50	49.82	-10.00	183.18	-10.00	100.00
245	2.20	52.89	-10.00	189.95	-10.00	100.00
250	2.46	55.83	-10.00	183.91	-10.00	100.00
255	2.26	59.20	-10.00	188.55	-10.00	100.00
260	2.15	62.65	-10.00	191.01	-10.00	100.00
265	1.91	66.26	-10.00	196.87	-10.00	100.00
270	2.58	69.65	-10.00	181.19	-10.00	100.00
275	1.64	73.60	-10.00	204.16	-10.00	100.00
280	1.43	77.35	-10.00	207.52	-10.00	100.00
285	0.50	81.23	-10.00	249.83	-10.00	108.82
290	0.00	84.99	-10.00	285.28	-10.00	132.84
295	0.66	88.68	-10.00	239.64	-10.00	101.40
300	0.87	92.45	-10.00	227.16	-10.00	100.00
305	0.70	96.19	-10.00	237.19	-10.00	100.00
310	0.80	99.93	-10.00	231.30	-10.00	100.00
315	1.25	103.72	-10.00	212.80	-10.00	100.00
320	1.45	107.45	-10.00	206.97	-10.00	100.00
325	1.69	111.16	-10.00	202.77	-10.00	100.00
330	1.77	114.74	-10.00	200.69	-10.00	100.00
335	1.76	118.20	-10.00	201.00	-10.00	100.00
340	2.25	121.79	-10.00	188.72	-10.00	100.00
345	3.22	125.56	-10.00	164.48	-10.00	100.00
350	2.62	128.26	-10.00	180.38	-10.00	100.00
355	2.96	131.33	-10.00	172.51	-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.



Jeffrey E. Cowles
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19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: January 22, 2015