

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Radiant Life Ministries, Inc.
Akron, Ohio**

Satellite Earth Station

Prepared By:
COMSEARCH

19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
May 30, 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

New Par – Ohio Region

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 March 31, 2014.

Company

256Q Networks
AB Services LLC
AT&T Communications of Pennsylvania, Inc
AWC Networks
Alltel Communications LLC - Ohio Region
Alltel Communications LLC-E OH WV
Appalachian Broadcasting
Appalachian Power Company
Auburn Data Systems, LLC
Blackwater Telecom
Blue Chip Broadcasting Licenses LTD
Blue Ridge Carriers
Blueline Communications
CNG Transmission Corporation
China Cat Productions LLC
City of Cleveland, OH
Commonwealth of Pennsylvania-Radio Proj.
Comprehensive Wireless LLC
Converge Towers LLC
Coralinks
ECW Wireless, LLC
EG Broadcast Newco Corp
East Ohio Gas Company
Electric Railroad, LLC
FELHC
Firstlevel Networks
Geauga, County of
High Voltage Communications LLC
Jefferson Microwave, LLC
Kryptic Technologies
Lake County of - Radio Department
MVC Research. LLC
Mifflin Mobilecom
National Tower Company LLC

Company (Continued)

New Cingular Wireless PCS LLC - Ohio
New Cingular Wireless PCS LLC- WV/NC/SC
New Cingular Wireless PCS, LLC
New Cingular Wireless PCS, LLC - PA
New Par - Ohio Region
OHIO RSA 6 LIMITED PARTNERSHIP-AWCC
Ohio Networks
Ohio RSA 2 Limited Partnership
Ohio RSA 5 Limited Partnership-AWCC
Ohio Turnpike Commission
Old Dominion LLC
Open Line Communications
PA Communications
PEG Bandwidth, LLC
PENNSYLVANIA TURNPIKE COMMISSION
Pitt Power
SUMMIT, COUNTY OF
SW Networks
Standard Backhaul Communications LLC
TRF SERVICES LLC
Velox Networks LLC
Verizon Wireless (VAW) LLC - Ohio
WV DHHR BPH, Office of EMS, Com. Div.
Weblin Holdings LLC
Winston World Wide
Wireless Internetwork LLC
Wireless World Enterprises, LLC
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: 05/30/2014
Job Number: 140331COMSJC03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code RADLIF
Licensee Name Radiant Life Ministries, Inc.

Site Information

AKRON, OHIO

Venue Name
Latitude (NAD 83) 41° 6' 55.2" N
Longitude (NAD 83) 81° 27' 53.7" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 352.96 m / 1158.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 61° W to 137° West Longitude
Azimuth Range 150.4° to 245.7°
Corresponding Elevation Angles 38.1° / 16.9°
Antenna Centerline (AGL) 3.66 m / 12.0 ft

Antenna Information

Receive

Manufacturer Comtech Ant. Systems
Model 5.5 Meter
Gain / Diameter 42.0 dBi / 5.5 m
3-dB / 15-dB Beamwidth 1.00° / 2.00°

Transmit

Comtech Ant. Systems
5.5 Meter
45.9 dBi / 5.5 m
0.65° / 1.30°

6M60G7W to 10M0G7W

Max Available RF Power	(dBW/4 kHz)	-21.1	-21.6		
	(dBW/MHz)	2.9	2.4		
Maximum EIRP	(dBW/4 kHz)	24.8	24.3		
	(dBW/MHz)	48.8	48.3		
	(dBW)	57.0	58.3		
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

Receive 4.0 GHz

Emission / Frequency Range (MHz) 6M60G7W - 10M0G7W / 3700.0 - 4200.0

Transmit 6.1 GHz

6M60G7W - 10M0G7W / 5925.0 - 6240.4
6M60G7W - 10M0G7W / 6302.6 - 6425.0

Max Great Circle Coordination Distance 314.4 km / 195.4 mi 120.7 km / 75.0 mi
Precipitation Scatter Contour Radius 512.3 km / 318.3 mi 100.0 km / 62.1 mi

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Coordination Values

AKRON, OH

Licensee Name Radiant Life Ministries, Inc.
Latitude (NAD 83) 41° 6' 55.2" N
Longitude (NAD 83) 81° 27' 53.7" W
Ground Elevation (AMSL) 352.96 m / 1158.0 ft
Antenna Centerline (AGL) 3.66 m / 12.0 ft
Antenna Model Comtech Ant. Systems 5.5 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 -21.1 (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	0.00	113.18	-10.00	285.28	-10.00	114.25
5	0.00	117.91	-10.00	285.28	-10.00	114.25
10	0.00	122.62	-10.00	285.28	-10.00	114.25
15	0.00	124.12	-10.00	285.28	-10.00	114.25
20	0.00	120.70	-10.00	285.28	-10.00	114.25
25	0.00	117.16	-10.00	285.28	-10.00	114.25
30	0.00	113.50	-10.00	285.28	-10.00	114.25
35	0.00	109.76	-10.00	285.28	-10.00	114.25
40	0.00	105.95	-10.00	285.28	-10.00	114.25
45	0.00	102.09	-10.00	285.28	-10.00	114.25
50	0.00	98.19	-10.00	285.28	-10.00	114.25
55	0.00	94.27	-10.00	285.28	-10.00	114.25
60	0.00	90.34	-10.00	285.28	-10.00	114.25
65	0.00	86.40	-10.00	285.28	-10.00	114.25
70	0.00	82.48	-10.00	285.28	-10.00	114.25
75	0.24	78.53	-10.00	279.85	-10.00	110.79
80	0.00	74.71	-10.00	285.28	-10.00	114.25
85	0.20	70.83	-10.00	284.85	-10.00	113.98
90	0.00	67.13	-10.00	285.28	-10.00	114.25
95	0.00	63.46	-10.00	285.28	-10.00	114.25
100	0.00	59.89	-10.00	285.28	-10.00	114.25
105	0.00	56.45	-10.00	285.28	-10.00	114.25
110	0.00	53.17	-10.00	285.28	-10.00	114.25
115	0.00	50.09	-10.00	285.28	-10.00	114.25
120	0.00	47.24	-9.86	286.19	-9.86	114.61
125	0.00	44.68	-9.25	290.08	-9.25	116.16
130	0.00	42.45	-8.70	293.70	-8.70	117.59
135	0.00	40.62	-8.22	296.86	-8.22	118.82
140	0.00	39.25	-7.85	299.35	-7.85	119.78
145	0.00	38.39	-7.60	300.98	-7.60	120.41
150	0.00	38.06	-7.51	301.60	-7.51	120.65
155	0.00	38.29	-7.58	301.16	-7.58	120.48
160	0.00	39.07	-7.80	299.69	-7.80	119.92
165	0.00	40.34	-8.14	297.36	-8.14	119.01
170	0.00	41.52	-8.46	295.29	-8.46	118.21
175	0.00	42.24	-8.64	294.06	-8.64	117.73
180	0.67	41.81	-8.53	247.19	-8.53	100.00
185	0.65	41.60	-8.48	249.16	-8.48	100.00

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Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -21.1 (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)
190	0.57	40.97	-8.31	255.34	-8.31	100.00
195	0.58	39.80	-8.00	256.37	-8.00	100.00
200	0.52	38.29	-7.58	263.06	-7.58	100.00
205	0.44	36.41	-7.03	274.91	-7.03	102.73
210	0.39	34.17	-6.34	285.27	-6.34	108.31
215	0.43	31.58	-5.49	286.42	-5.49	107.56
220	0.53	28.71	-4.45	282.77	-4.45	103.32
225	0.53	25.70	-3.25	290.78	-3.25	106.26
230	0.51	22.55	-1.83	302.83	-1.83	111.20
235	0.63	19.41	-0.20	306.17	-0.20	110.00
240	0.73	17.14	1.15	309.46	1.15	109.15
245	0.73	16.20	1.76	314.44	1.76	110.53
250	0.75	16.71	1.42	309.99	1.42	108.88
255	0.76	18.58	0.27	300.47	0.27	105.35
260	0.73	21.47	-1.29	290.72	-1.29	102.38
265	0.72	24.99	-2.95	280.07	-2.95	100.00
270	0.72	28.92	-4.53	269.37	-4.53	100.00
275	0.70	33.13	-6.01	261.32	-6.01	100.00
280	0.68	37.51	-7.35	253.63	-7.35	100.00
285	0.69	42.01	-8.58	245.95	-8.58	100.00
290	0.65	46.60	-9.71	241.87	-9.71	100.00
295	0.49	51.28	-10.00	250.50	-10.00	100.00
300	0.40	55.98	-10.00	261.17	-10.00	100.00
305	0.31	60.70	-10.00	271.93	-10.00	105.66
310	0.29	65.44	-10.00	273.65	-10.00	106.79
315	0.34	70.19	-10.00	268.29	-10.00	103.28
320	0.45	74.95	-10.00	255.20	-10.00	100.00
325	0.51	79.74	-10.00	249.33	-10.00	100.00
330	0.53	84.53	-10.00	248.03	-10.00	100.00
335	0.54	89.32	-10.00	246.98	-10.00	100.00
340	0.49	94.12	-10.00	250.73	-10.00	100.00
345	0.00	98.89	-10.00	285.28	-10.00	114.25
350	0.00	103.66	-10.00	285.28	-10.00	114.25
355	0.00	108.43	-10.00	285.28	-10.00	114.25

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: May 30, 2014