

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**RCN License Subsidiary, Inc.**  
**CICERO, IL**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
March 19, 2018

## 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. 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.

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.

Coordination data a minor change was for this earth station was sent to the below listed carriers with a letter dated 03/19/2018.

#### Company

AB Services LLC  
AT&T Mobility Spectrum LLC - MI  
AT&T Mobility Spectrum LLC -IL/WI Mkts  
Addison Consolidated Dispatch  
Aether Group LLC  
Ameren Services Company  
ArcelorMittal USA Inc.  
Argos Engineering, LLC  
BNSF Railway Company  
Big Radio  
Blackwater Telecom  
Blast Communications, Inc.  
Blueline Communications  
Broadband Heaven Inc.  
Cellco Partnership - Indiana/Illinois  
Chicago SMSA Limited Partnership  
Clear Spiral LLC  
ComEd a.k.a. Commonwealth Edison  
Commercial Broadband Solutions, Inc.  
Community Foundation of NW Indiana  
ConVergence Technologies, Inc  
Cook, County of  
Coralinks  
County of Lake  
Cyberlink Inc.  
DSRC Networks  
E-Vergent.com LLC  
ECW Wireless, LLC  
Eastern MLG LLC  
Electric Railroad, LLC  
Elgin, City of  
Essex Telcom, Inc.  
Everywhere Wireless, LLC  
FbN Indiana Inc.  
Fourway Computer Products, Inc.  
Fundamental Broadcasting LLC  
GTT America LLC  
Glts  
Green Line Networks  
Grundy County E.T.S.B.

High Voltage Communications LLC (CFN)  
Illinois Central Railroad  
Illinois Department of Transportation  
Illinois RSA #1 Limited Partnership  
Illinois State Toll Highway Authority  
Illinois Valley Cellular RSA #2-11  
Illinois Valley Cellular RSA #2-I  
Indiana Dept of Transportation Toll Road  
Indiana Michigan Power Company  
Indiana RSA #1 Limited Partnership  
Indiana, State of (IPSC)  
Jefferson Microwave, LLC  
KN Telecommunications, Inc.  
Kenosha Cellular Telephone, Lp  
Kenosha County of  
Kryptick Technologies  
LaSalle County Sheriff  
Lake County Indiana 911  
Michigan, State Of  
National Tower Company II, LLC  
National Tower Company LLC  
New Cingular Wireless PCS LLC - Indiana  
New Cingular Wireless PCS, LLC - IL  
New Line Networks, LLC  
Norfolk Southern Railway  
North Central Tower Co, LLC  
NorthShore Health Centers  
Northeast Illinois Reg Commuter Railroad  
Northern Border Pipeline Company  
Northern Indiana Public Service Company  
Racine Cellular Telephone Co  
Racine Water & Wastewater Utilities  
Rendezvous Communications LLC  
SW Networks  
Southwest Central Dispatch  
Spectrum Holding Company LLC  
Sprint Spectrum L.P.  
Sprintcom, Inc  
St. Joseph County Government  
Surf Air Wireless, LLC  
Torelco LLC  
Transworld Network Corp  
US Cellular Operating Company, LLC (WI)  
USCOC of Central Illinois, LLC  
Uniti Fiber PEG, LLC  
Verizon Wireless (VAW) LLC - IA/IL/WI  
Verizon Wireless (VAW) LLC- IN & KY Mkt  
W.A.T.C.H. TV Company Inc.  
Waterleaf International LLC  
Waubonsee Community College  
Waukesha, County of  
Weblin Holdings LLC  
Weigel Broadcasting Company  
Wireless Internetwork LLC  
World Class Wireless, LLC  
XL Broadband

xWave Engineering 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: 03/19/2018  
Job Number: 180319COMSTC03

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### Administrative Information

Call Sign E030057  
Licensee Code RCNJVZ  
Licensee Name RCN License Subsidiary, Inc.

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### Site Information

**CICERO, IL**  
Venue Name  
Latitude (NAD 83) 41° 49' 40.5" N  
Longitude (NAD 83) 87° 45' 8.6" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 183.18 m / 601.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 60° W to 139° West Longitude  
Azimuth Range 141.7° to 241.8°  
Corresponding Elevation Angles 34.1° / 19.6°  
Antenna Centerline (AGL) 2.74 m / 9.0 ft

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### Antenna Information

	Receive	Transmit
Manufacturer	Prodelin	Prodelin
Model	1383	1383
Gain / Diameter	41.8 dBi / 3.8 m	46.2 dBi / 3.8 m
3-dB / 15-dB Beamwidth	1.20° / 2.40°	0.80° / 1.60°

		<u>1M20G7W - 36M0G7W</u>			
Max Available RF Power	(dBW/4 kHz)	-14.00	-14.77		
	(dBW/MHz)	10.0	9.23		
Maximum EIRP	(dBW/4 kHz)	32.2	31.4		
	(dBW/MHz)	56.24	55.4		
	(dBW)	56.97	70.97		
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%

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### Frequency Information

	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	1M20G7W - 36M0G7W / 3700.0 - 4200.0	1M20G7W - 36M0G7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	353.9 km / 219.9 mi	159.7 km / 99.2 mi
Precipitation Scatter Contour Radius	504.7 km / 313.5 mi	100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### CICERO, IL

Licensee Name RCN License Subsidiary, Inc.  
Latitude (NAD 83) 41° 49' 40.5" N  
Longitude (NAD 83) 87° 45' 8.6" W  
Ground Elevation (AMSL) 183.18 m / 601.0 ft  
Antenna Centerline (AGL) 2.74 m / 9.0 ft  
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 -14.8 (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	0.00	116.40	-10.00	285.28	-10.00	130.78
5	0.00	121.02	-10.00	285.28	-10.00	130.78
10	0.00	123.47	-10.00	285.28	-10.00	130.78
15	0.00	119.70	-10.00	285.28	-10.00	130.78
20	0.00	115.83	-10.00	285.28	-10.00	130.78
25	0.00	111.88	-10.00	285.28	-10.00	130.78
30	0.00	107.86	-10.00	285.28	-10.00	130.78
35	0.00	103.80	-10.00	285.28	-10.00	130.78
40	0.00	99.70	-10.00	285.28	-10.00	130.78
45	0.30	95.59	-10.00	272.66	-10.00	122.46
50	0.29	91.44	-10.00	273.92	-10.00	123.30
55	0.34	87.28	-10.00	267.47	-10.00	118.97
60	0.00	83.16	-10.00	285.28	-10.00	130.78
65	0.00	79.04	-10.00	285.28	-10.00	130.78
70	0.00	74.95	-10.00	285.28	-10.00	130.78
75	0.00	70.89	-10.00	285.28	-10.00	130.78
80	0.00	66.90	-10.00	285.28	-10.00	130.78
85	0.00	62.97	-10.00	285.28	-10.00	130.78
90	0.00	59.13	-10.00	285.28	-10.00	130.78
95	0.00	55.40	-10.00	285.28	-10.00	130.78
100	0.00	51.81	-10.00	285.28	-10.00	130.78
105	0.00	48.40	-10.00	285.28	-10.00	130.78
110	0.00	45.20	-9.38	289.26	-9.38	132.44
115	0.00	42.27	-8.65	294.00	-8.65	133.15
120	0.00	39.68	-7.97	298.55	-7.97	135.04
125	0.00	37.50	-7.35	302.70	-7.35	136.78
130	0.00	35.79	-6.84	306.15	-6.84	138.24
135	0.00	34.64	-6.49	308.59	-6.49	139.29
140	0.00	34.10	-6.32	309.78	-6.32	139.80
145	0.00	34.20	-6.35	309.56	-6.35	139.70
150	0.00	34.93	-6.58	307.96	-6.58	139.02
155	0.00	36.26	-6.99	305.18	-6.99	137.83
160	0.00	38.05	-7.51	301.62	-7.51	136.33
165	0.00	39.60	-7.94	298.70	-7.94	135.10
170	0.00	40.75	-8.25	296.64	-8.25	134.24
175	0.00	41.45	-8.44	295.41	-8.44	133.73
180	0.00	41.69	-8.50	295.00	-8.50	133.56
185	0.00	41.45	-8.44	295.41	-8.44	133.73

# COMSEARCH

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### Coordination Values

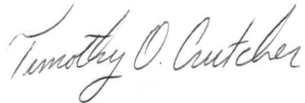
### CICERO, IL

Licensee Name	RCN License Subsidiary, Inc.			
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Antenna Centerline (AGL)	2.74 m / 9.0 ft			
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			-14.8 (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)
190	0.00	40.75	-8.25	296.64	-8.25	134.24
195	0.00	39.60	-7.94	298.70	-7.94	135.10
200	0.00	38.05	-7.51	301.63	-7.51	136.33
205	0.00	36.12	-6.95	305.46	-6.95	137.95
210	0.00	33.88	-6.25	310.27	-6.25	140.01
215	0.00	31.35	-5.41	316.80	-5.41	142.57
220	0.00	28.59	-4.40	323.93	-4.40	145.73
225	0.00	25.63	-3.22	332.53	-3.22	149.63
230	0.00	22.79	-1.94	341.93	-1.94	154.01
235	0.00	20.73	-0.91	349.66	-0.91	157.69
240	0.00	19.70	-0.36	353.86	-0.36	159.72
245	0.00	19.86	-0.45	353.19	-0.45	159.40
250	0.00	21.18	-1.15	347.88	-1.15	156.84
255	0.00	23.47	-2.26	339.54	-2.26	152.89
260	0.00	26.48	-3.57	329.92	-3.57	148.44
265	0.00	30.00	-4.93	320.20	-4.93	144.07
270	0.00	33.85	-6.24	310.32	-6.24	140.03
275	0.00	37.95	-7.48	301.82	-7.48	136.41
280	0.00	42.21	-8.64	294.10	-8.64	133.19
285	0.00	46.60	-9.71	287.14	-9.71	131.56
290	0.00	51.07	-10.00	285.28	-10.00	130.78
295	0.00	55.61	-10.00	285.28	-10.00	130.78
300	0.00	60.20	-10.00	285.28	-10.00	130.78
305	0.00	64.83	-10.00	285.28	-10.00	130.78
310	0.00	69.49	-10.00	285.28	-10.00	130.78
315	0.00	74.17	-10.00	285.28	-10.00	130.78
320	0.00	78.86	-10.00	285.28	-10.00	130.78
325	0.00	83.56	-10.00	285.28	-10.00	130.78
330	0.00	88.27	-10.00	285.28	-10.00	130.78
335	0.00	92.98	-10.00	285.28	-10.00	130.78
340	0.00	97.69	-10.00	285.28	-10.00	130.78
345	0.00	102.39	-10.00	285.28	-10.00	130.78
350	0.00	107.07	-10.00	285.28	-10.00	130.78
355	0.00	111.75	-10.00	285.28	-10.00	130.78

## 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.



Timothy O. Crutcher  
Frequency Planner  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: March 19, 2018