

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**eScapes Network LLC**  
**MONROE, MI**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
June 20, 2011

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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

Alltel Communications LLC - Michigan Mkt  
New Cingular Wireless PCS LLC  
New Par  
Newpar - Michigan (Great Lks Mkt)  
Watch TV Company, Inc

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 05/16/2011.

Company

AMERICAN ELECTRIC POWER SERVICE CORP.  
AT&T CORP  
Air Advantage, LLC  
Allied Wireless Communications Corp.  
Alltel Communications LLC - Michigan Mkt  
Alltel Communications LLC - Ohio Region  
Appalachian Broadcasting  
Auburn Data Systems, LLC  
Blackwater Telecom  
COMWAVZ  
Cellco Partnership - Ohio  
Comprehensive Wireless LLC  
Coral Reef Technologies Ltd  
DETROIT EDISON COMPANY  
FELHC, Inc.  
Frontier North Inc.  
Fundamental Broadcasting LLC  
Hallco Unlimited, Inc.  
INDIANA DEPT OF TRANSPORTATION TOLL RD  
INDIANA MICHIGAN POWER COMPANY  
Indiana RSA 2 Partnership  
LINK Investments, LTD  
LUCAS COUNTY SHERIFF  
MCI Communications Services Inc.  
METROPOLITAN AREA NETWORKS, INC.  
MetaLINK Technologies, Inc.  
Michigan, State of  
New Cingular Wireless PCS LLC  
New Par  
Newpar - Michigan (Great Lks Mkt)  
OHIO TURNPIKE COMMISSION  
Ohio RSA 2 Limited Partnership  
Ohio RSA 5 Limited Partnership  
Ohio Networks  
Open Range Communications  
PATHNET, INC. - DEBTOR IN POSSESSION  
State of Michigan, DOT  
Thought Transmissions, LLC  
Washtenaw County Emergency Management  
Watch TV Company, Inc.

## **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: 06/20/2011  
Job Number: 110516COMSTC01

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### Administrative Information

Licensee Name eScapes Network LLC

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### Site Information

**MONROE, MI**  
Latitude (NAD 83) 41° 55' 0.0" N  
Longitude (NAD 83) 83° 23' 49.0" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 177.76 m / 583.2 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 43°W to 139° West Longitude  
Azimuth Range 128.1° to 245.4°  
Corresponding Elevation Angles 26.8° / 16.5°  
Antenna Centerline (AGL) 9.67 m / 31.7 ft

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### Antenna Information

**Receive**  
Manufacturer Prodelin  
Model 1385  
Gain / Diameter 41.9 dBi / 3.8 m  
3-dB / 15-dB Beamwidth 1.00° / 2.00°

### Transmit

Prodelin  
1385  
45.9 dBi / 3.8 m  
0.60° / 1.60°

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

-15.74  
8.24

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

30.16  
54.14  
61.92

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%

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### Frequency Information

Emission / Frequency Range (MHz)

**Receive 4.0 GHz**  
6M00G7F / 3700.0 - 4200.0

**Transmit 6.1 GHz**  
6M00G7F / 5925.0 - 6425.0

Max Great Circle Coordination Distance 368.6 km / 229.0 mi  
Precipitation Scatter Contour Radius 513.6 km / 319.1 mi

163.4 km / 101.5 mi  
100.0 km / 62.1 mi

# COMSEARCH

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### Coordination Values

### MONROE, MI

Licensee Name eScapes Network LLC  
Latitude (NAD 83) 41° 55' 0.0" N  
Longitude (NAD 83) 83° 23' 49.0" W  
Ground Elevation (AMSL) 177.76 m / 583.2 ft  
Antenna Centerline (AGL) 9.67 m / 31.7 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 -15.7 (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	113.50	-10.00	285.28	-10.00	128.30
5	0.00	118.25	-10.00	285.28	-10.00	128.30
10	0.00	114.90	-10.00	285.28	-10.00	128.30
15	0.00	110.54	-10.00	285.28	-10.00	128.30
20	0.00	106.14	-10.00	285.28	-10.00	128.30
25	0.00	101.71	-10.00	285.28	-10.00	128.30
30	0.00	97.26	-10.00	285.28	-10.00	128.30
35	0.00	92.80	-10.00	285.28	-10.00	128.30
40	0.00	88.34	-10.00	285.28	-10.00	128.30
45	0.00	83.87	-10.00	285.28	-10.00	128.30
50	0.00	79.42	-10.00	285.28	-10.00	128.30
55	0.00	74.99	-10.00	285.28	-10.00	128.30
60	0.00	70.58	-10.00	285.28	-10.00	128.30
65	0.00	66.20	-10.00	285.28	-10.00	128.30
70	0.00	61.88	-10.00	285.28	-10.00	128.30
75	0.00	57.61	-10.00	285.28	-10.00	128.30
80	0.00	53.42	-10.00	285.28	-10.00	128.30
85	0.00	49.34	-10.00	285.28	-10.00	128.30
90	0.00	45.39	-9.42	288.97	-9.42	129.84
95	0.00	41.61	-8.48	295.13	-8.48	132.36
100	0.00	38.06	-7.51	301.60	-7.51	133.73
105	0.00	34.81	-6.54	308.23	-6.54	136.43
110	0.00	31.95	-5.61	315.36	-5.61	139.13
115	0.00	29.60	-4.78	321.24	-4.78	141.63
120	0.00	27.88	-4.13	325.89	-4.13	143.64
125	0.00	26.93	-3.76	328.61	-3.76	144.83
130	0.00	26.82	-3.71	328.93	-3.71	144.97
135	0.00	27.56	-4.01	326.79	-4.01	144.03
140	0.00	29.09	-4.59	322.57	-4.59	142.20
145	0.00	31.30	-5.39	316.94	-5.39	139.80
150	0.00	33.80	-6.22	310.44	-6.22	137.34
155	0.00	36.04	-6.92	305.62	-6.92	135.36
160	0.00	37.96	-7.48	301.80	-7.48	133.80
165	0.00	39.51	-7.92	298.87	-7.92	133.87
170	0.00	40.65	-8.23	296.80	-8.23	133.04
175	0.00	41.35	-8.41	295.58	-8.41	132.54
180	0.00	41.59	-8.48	295.16	-8.48	132.37
185	0.00	41.35	-8.41	295.58	-8.41	132.54



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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 -15.7 (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	40.65	-8.23	296.80	-8.23	133.04
195	0.00	39.51	-7.92	298.87	-7.92	133.87
200	0.00	37.96	-7.48	301.79	-7.48	133.80
205	0.00	36.04	-6.92	305.63	-6.92	135.36
210	0.00	33.80	-6.22	310.44	-6.22	137.34
215	0.00	31.28	-5.38	316.97	-5.38	139.81
220	0.00	28.53	-4.38	324.10	-4.38	142.86
225	0.00	25.56	-3.19	332.72	-3.19	146.65
230	0.00	22.44	-1.78	343.18	-1.78	151.37
235	0.00	19.45	-0.23	354.88	-0.23	156.81
240	0.00	17.36	1.01	364.39	1.01	161.36
245	0.00	16.53	1.55	368.58	1.55	163.39
250	0.00	17.13	1.16	365.55	1.16	161.92
255	0.00	19.03	0.01	356.71	0.01	157.68
260	0.00	21.90	-1.51	345.16	-1.51	152.28
265	0.00	25.41	-3.12	333.21	-3.12	146.86
270	0.00	29.33	-4.68	321.95	-4.68	141.94
275	0.00	33.51	-6.13	311.09	-6.13	137.61
280	0.00	37.88	-7.46	301.96	-7.46	133.87
285	0.00	42.36	-8.67	293.85	-8.67	131.84
290	0.00	46.93	-9.79	286.64	-9.79	128.87
295	0.00	51.57	-10.00	285.28	-10.00	128.30
300	0.00	56.25	-10.00	285.28	-10.00	128.30
305	0.00	60.96	-10.00	285.28	-10.00	128.30
310	0.00	65.70	-10.00	285.28	-10.00	128.30
315	0.00	70.46	-10.00	285.28	-10.00	128.30
320	0.00	75.23	-10.00	285.28	-10.00	128.30
325	0.00	80.02	-10.00	285.28	-10.00	128.30
330	0.00	84.80	-10.00	285.28	-10.00	128.30
335	0.00	89.60	-10.00	285.28	-10.00	128.30
340	0.00	94.39	-10.00	285.28	-10.00	128.30
345	0.00	99.18	-10.00	285.28	-10.00	128.30
350	0.00	103.97	-10.00	285.28	-10.00	128.30
355	0.00	108.74	-10.00	285.28	-10.00	128.30

## 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  
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DATED: June 20, 2011