

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**AT&T Corp - Extended C-Band Sites**  
**ROARING CREEK, PA**  
**(16.4 Meter)**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
June 23, 2011

## TABLE OF CONTENTS

1. CONCLUSIONS .....	3
2. SUMMARY OF RESULTS .....	4
3. SUPPLEMENTAL SHOWING .....	5
4. EARTH STATION COORDINATION DATA.....	7
5. CERTIFICATION.....	11

## 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

Allentown SMSA Limited Partnership  
Appalachian Broadcasting  
Cellco Partnership- PA Region  
Cellco Prtnrshp - Phil. Tri-State Rgn  
Coral Reef Technologies Ltd  
DAUPHIN COUNTY EMERGENCY MANAGEMENT  
Kryptic Technologies  
New Cingular Wireless PCS, LLC - PA  
Northeast Pennsylvania SMSA LTD Prtnrsh  
Open Range Communications  
Penn Service Microwave Co., 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 06/01/2011.

Company

AB Services LLC  
ALGONQUIN GAS TRANSMISSION CO  
AT&T CORP  
Allentown SMSA Limited Partnership  
Appalachian Broadcasting  
Auburn Data Systems, LLC  
BFI Licenses, LLC  
Berks, County of  
Binghamton MSA Limited Partnership  
CONSOLIDATED EDISON COMPANY OF NEW YORK  
Cellco Partnership - Bridgeville, PA  
Cellco Partnership- PA Region  
Cellco Partnership-Newark-Dallas Verizon  
Cellco Prtnrshp - Phil. Tri-State Rgn  
Commonwealth of Pennsylvania-Radio Proj.  
Comprehensive Wireless LLC  
Conterra Ultra Broadband, LLC  
Coral Reef Technologies Ltd  
County of Tioga  
County of Warren  
DAUPHIN COUNTY EMERGENCY MANAGEMENT  
Direct Broadcast Services, Inc.  
EASTERN PENNSYLVANIA EMS COUNCIL  
EMS OF NORTHEAST PENNSYLVANIA  
Essex County Sherrif's Office  
FELHC, Inc.  
Fibertrack, LLC  
Fundamental Broadcasting LLC  
Juniata County Emergency Services  
Kryptic Technologies  
Last Mile Inc.  
Luzerne County Department of Public Sfty  
MCI Communications Services Inc.  
METROPOLITAN AREA NETWORKS, INC.  
Monroe County Control Center (PA)  
NBC TELEMUNDO LICENSE CO.  
NEW JERSEY STATE POLICE  
NEW JERSEY TRANSIT RAIL OPERATIONS,INC  
NEW YORK CITY POLICE DEPARTMENT  
NYNEX Mobile of New York LP

National Radio Astronomy Observatory  
New Cingular Wireless PCS LLC -NJ  
New Cingular Wireless PCS LLC -NE Reg  
New Cingular Wireless PCS of PA LLC  
New Cingular Wireless PCS, LLC - NY  
New Cingular Wireless PCS, LLC - PA  
New Jersey, State of -NJ Transit  
New York RSA #3 Cellular Partnership  
New York, City of  
Northeast Pennsylvania SMSA LTD Prtnrsh  
Open Range Communications  
Orange and Rockland Utilities, Inc.  
PENNSYLVANIA TURNPIKE COMMISSION  
POTTER, COUNTY OF  
PSEG Services Corporation  
Penn Service Microwave Co., Inc.  
Pennsylvania 3 Sector 2, L.P.  
SBA Broadband Services  
SCTF NET  
Stevens Institute of Technology  
Sullivan, County of  
Texas Eastern Communications, Inc.  
Thought Transmissions, LLC  
Tompkins County Dept. of Emergency Respo  
WITF 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: 110601COMSGE02

---

### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E980493  
Licensee Code P1175P  
Licensee Name AT&T Corp -

---

### Site Information ROARING CRK, PA

Venue Name  
Latitude (NAD 83) 40° 53' 39.3" N  
Longitude (NAD 83) 76° 26' 19.8" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 292.61 m / 960.0 ft

---

### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 10° W to 60° West Longitude  
Azimuth Range 105.9° to 155.7°  
Corresponding Elevation Angles 9.0° / 39.8°  
Antenna Centerline (AGL) 6.4 m / 21.0 ft

---

### Antenna Information

#### Receive - FCC32

#### Transmit - FCC32

Manufacturer	Vertex	Vertex	
Model	16.4 Meter	16.4 Meter	
Gain / Diameter	55.1 dBi / 16.4 m	58.9 dBi / 16.4 m	
3-dB / 15-dB Beamwidth	0.30° / 0.63°	0.19° / 0.40°	
Max Available RF Power (dBW/4 kHz)		-4.5	
(dBW/MHz)		19.5	
Maximum EIRP (dBW/4 kHz)		54.4	
(dBW/MHz)		78.4	
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

#### Transmit 6.1 GHz

Emission / Frequency Range (MHz)	46K8G7W - 36M0G7W / 3700.0 - 4200.0	46K8G7W - 36M0G7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	524.5 km / 325.8 mi	289.8 km / 180.1 mi
Precipitation Scatter Contour Radius	551.7 km / 342.8 mi	100.0 km / 62.1 mi



# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
(703)726-5500 <http://www.comsearch.com>

### Coordination Values

### ROARING CRK, PA

Licensee Name AT&T Corp -  
Latitude (NAD 83) 40° 53' 39.3" N  
Longitude (NAD 83) 76° 26' 19.8" W  
Ground Elevation (AMSL) 292.61 m / 960.0 ft  
Antenna Centerline (AGL) 6.4 m / 21.0 ft  
Antenna Model Vertex 16.4 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 -4.5 (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	0.25	105.75	-10.00	278.86	-10.00	156.64
5	1.55	100.84	-10.00	206.74	-10.00	100.00
10	2.40	95.90	-10.00	185.29	-10.00	100.00
15	2.61	90.93	-10.00	180.43	-10.00	100.00
20	2.30	85.96	-10.00	187.74	-10.00	100.00
25	2.22	81.00	-10.00	189.58	-10.00	100.00
30	1.97	76.04	-10.00	195.38	-10.00	100.00
35	1.66	71.10	-10.00	203.76	-10.00	100.00
40	1.35	66.16	-10.00	209.88	-10.00	103.29
45	1.00	61.24	-10.00	220.24	-10.00	112.25
50	1.09	56.30	-10.00	217.36	-10.00	109.82
55	1.07	51.38	-10.00	218.14	-10.00	110.49
60	1.51	46.41	-9.66	206.76	-9.66	100.02
65	1.25	41.54	-8.46	220.42	-8.46	110.44
70	0.66	36.76	-7.14	256.82	-7.14	135.06
75	0.49	31.97	-5.62	277.73	-5.62	148.62
80	0.31	27.26	-3.89	312.90	-3.89	175.56
85	0.24	22.62	-1.86	337.57	-1.86	191.36
90	0.29	18.11	0.56	348.93	0.56	195.60
95	0.22	13.99	3.36	379.99	3.36	211.52
100	0.25	10.56	6.41	400.53	6.41	221.42
105	0.23	8.81	8.37	524.46	8.37	289.84
110	0.72	9.22	7.89	366.00	7.89	194.83
115	1.02	12.04	4.98	320.48	4.98	164.16
120	1.30	15.37	2.33	287.58	2.33	144.07
125	1.81	18.43	0.36	254.32	0.36	124.99
130	2.28	21.38	-1.25	229.90	-1.25	109.04
135	2.16	24.62	-2.78	224.04	-2.78	106.06
140	1.81	27.88	-4.13	226.27	-4.13	109.38
145	1.97	30.53	-5.12	216.25	-5.12	102.46
150	2.50	32.61	-5.83	203.22	-5.83	100.00
155	2.61	34.73	-6.52	197.54	-6.52	100.00
160	2.79	36.45	-7.04	190.95	-7.04	100.00
165	3.53	37.25	-7.28	173.39	-7.28	100.00
170	3.33	38.80	-7.72	175.66	-7.72	100.00
175	3.16	40.75	-8.25	176.59	-8.25	100.00
180	3.02	43.10	-8.86	176.88	-8.86	100.00
185	2.94	45.73	-9.50	175.32	-9.50	100.00

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
(703)726-5500 <http://www.comsearch.com>

### Coordination Values

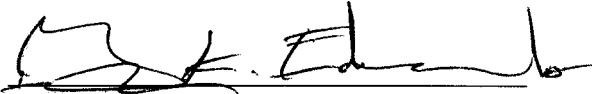
### ROARING CRK, PA

Licensee Name	AT&T Corp -			
Latitude (NAD 83)	40° 53' 39.3" N			
Longitude (NAD 83)	76° 26' 19.8" W			
Ground Elevation (AMSL)	292.61 m / 960.0 ft			
Antenna Centerline (AGL)	6.4 m / 21.0 ft			
Antenna Model	Vertex 16.4 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			-4.5 (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	2.71	48.76	-10.00	178.30	-10.00	100.00
195	2.29	52.10	-10.00	187.79	-10.00	100.00
200	1.94	55.57	-10.00	196.22	-10.00	100.00
205	1.84	59.03	-10.00	198.90	-10.00	100.00
210	1.98	62.52	-10.00	195.18	-10.00	100.00
215	1.82	66.24	-10.00	199.50	-10.00	100.00
220	1.52	70.07	-10.00	205.12	-10.00	100.00
225	1.55	73.85	-10.00	206.67	-10.00	100.00
230	1.08	77.78	-10.00	217.94	-10.00	110.32
235	1.13	81.63	-10.00	216.19	-10.00	108.82
240	1.54	85.49	-10.00	204.58	-10.00	100.00
245	2.16	89.41	-10.00	190.88	-10.00	100.00
250	2.33	93.38	-10.00	186.95	-10.00	100.00
255	2.29	97.33	-10.00	187.89	-10.00	100.00
260	1.41	101.13	-10.00	208.23	-10.00	101.80
265	0.72	104.83	-10.00	236.03	-10.00	124.86
270	0.52	108.54	-10.00	248.63	-10.00	134.25
275	0.51	112.23	-10.00	249.06	-10.00	133.31
280	0.49	115.82	-10.00	250.45	-10.00	134.24
285	0.57	119.36	-10.00	245.00	-10.00	131.59
290	0.00	122.42	-10.00	285.28	-10.00	162.08
295	0.00	125.60	-10.00	285.28	-10.00	162.08
300	0.00	128.58	-10.00	285.28	-10.00	162.08
305	0.00	131.33	-10.00	285.28	-10.00	162.08
310	0.00	133.79	-10.00	285.28	-10.00	162.08
315	0.00	135.93	-10.00	285.28	-10.00	162.08
320	0.00	137.69	-10.00	285.28	-10.00	162.08
325	0.00	139.01	-10.00	285.28	-10.00	162.08
330	0.00	135.21	-10.00	285.28	-10.00	162.08
335	0.00	130.33	-10.00	285.28	-10.00	162.08
340	0.00	125.43	-10.00	285.28	-10.00	162.08
345	0.00	120.51	-10.00	285.28	-10.00	162.08
350	0.00	115.59	-10.00	285.28	-10.00	162.08
355	0.00	110.67	-10.00	285.28	-10.00	162.08

## 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.

BY: 

Gary K. Edwards  
Senior Manager  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: June 23, 2011