



Jennifer D. Hindin
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VIA ELECTRONIC FILING

November 14, 2018

Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: AT&T Corp. Application for Modification of Call Sign KA444 to Add New Antennas, IBFS
File No. SES-MOD-INTR2018-09334

Dear Ms. Dortch:

AT&T Corp., by its undersigned counsel, respectfully notifies the Federal Communications Commission that the coordination process for the above-captioned earth station modification application has been completed. Attached are the final Frequency Coordination and Interference Analysis Reports for inclusion in the FCC's files for the above-referenced earth station application.

Should you have any questions regarding this filing, please do not hesitate to contact me.

Respectfully Submitted,

/s/ Jennifer D. Hindin

Jennifer D. Hindin
Counsel for AT&T Corp.

Attachment 1

Coordination Report for 11.1-meter Antenna

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
**AT&T Corp -
ROARING CRK, PA
Satellite Earth Station**

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
October 31, 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.

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

Weblin Holdings LLC
xWave Engineering LLC
Kryptick Technologies
Northumberland County DPS/911

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 10/15/2018.

Company

AB Services LLC
AQ2AT LLC
AT&T Corp.
AT&T Wireless Services 3 LLC - PA
Adams County Department of Emergency Svc
Affiniti PA, LLC
Agile Network Builders LLC
Algonquin Gas Transmission, LLC
Allentown SMSA Limited Partnership
Alltel Communications LLC - Western PA
Alltel Communications LLC-E OH WV
American Electric Power Service Corp
Auburn Data Systems, LLC
Beaver Springs Faith Baptist Church, Inc
Bedford County of
Berks County Department of Emergency Ser
Binghamton MSA Limited Partnership(NY)
Blair County 911
Blue Ridge Carriers
Blueline Communications
Bradford County
Bucks County Dept. of Emergency Comm
Cambria, County of
Capital Communications of America
Carbon, County of 911 Center
Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership- PA Region
Chemung County
City of New York
Clearfield, County of
Clinton, County of
Commonwealth of Pennsylvania-Radio Proj.
Comprehensive Wireless LLC
Consolidated Edison Company of New York
Conterra Ultra Broadband, LLC
County of Centre
County of Lycoming
County of Pike
County of Tioga
County of Warren, NJ
County of York

DSRC Networks
Dauphin County Emergency Management
Direct Broadcast Services, Inc.
Dominion Energy Transmission, Inc.
ECW Wireless, LLC
EMS of Northeast Pennsylvania
East Ohio Gas Company
Eastern MLG LLC
Eastern Pennsylvania EMS Council
Electric Railroad, LLC
Essex County Sheriff's Office (NJ)
Exelon Generation Company, LLC
FELHC, Inc.
GTT America LLC
Garden State Transmissions
Getwireless.Net
Hammarlund Research LLC
High Voltage Communications LLC (CFN)
Higher Ground LLC
Highway Networks, LLC
Huntingdon, County of
Indiana, County of
Jefferson Microwave, LLC
Jefferson, County Of
Juniata County Emergency Services
Kryptick Technologies
Lackawanna, County of
Lancaster County-Wide Communications
Limitless Mobile, LLC
Luzerne County of PA
McKean, County of
Middlesex, County of
Mifflin County
Monmouth, County of
Monroe County Control Center (PA)
Montgomery County Of
Morris, County of
Mountain State Communications, llc
NYNEX Mobile of New York LP
Nassau County Police Department
New Cingular Wireless PCS LLC - NJ
New Cingular Wireless PCS, LLC (NY)
New Cingular Wireless PCS, LLC - PA
New Jersey State Police
New Jersey Transit Rail Operations, Inc.
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York City Police Department
New York RSA No. 3 Cellular Partnership
New York State Electric & Gas Corp
Norfolk Southern Railway
Northeast Pennsylvania SMSA LTD Prtnrsh
Northumberland County DPS/911
Office of Emergency Telecom Services, NJ
Ohio Networks
Orange County Dept of Emergency Services

Orange and Rockland Utilities, Inc.
PSEG Services Corporation
Peco Energy Company
Pennsylvania 3 Sector 2, L.P. - PA Regn
Pennsylvania Turnpike Commission
Perry, County of
Pike County Commissioners
Pittsburgh SMSA Limited Partnership
Port Authority of New York & New Jersey
Potter County of (PA)
Qoncept Holdings LLC
Radio License Holding CBC, LLC
SW Networks
Schuyler, County of
Shenandoah Personal Communications, LLC
Snyder, County of
Somerset County Dept. of Emergency Servi
South Central Task Force (SCTFNET)
Sullivan, County of
T-Mobile License LLC
Texas Eastern Communications, LLC
Tioga, County of
Tompkins, County Dept of Emergency Respo
Torelco LLC
Transcontinental Gas Pipeline Corp.
Transwave Communication Systems, Inc.
Uniti Fiber PEG, LLC
Verizon Wireless (VAW) LLC-Pennsylvania
WV DHHR BPH, Office of Ems, Com. Div.
Weblin Holdings LLC
Westmoreland, County of
Williams Energy Services
Wireless Internetwork LLC
World Class Wireless, LLC
iSignal
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: 10/31/2018
Job Number: 181015COMSGE12

Administrative Information

Status ENGINEER PROPOSAL
Call Sign KA444
Licensee Code P1175P
Licensee Name AT&T Corp -

Site Information ROARING CRK, PA

Venue Name
Latitude (NAD 83) 40° 53' 36.2" N
Longitude (NAD 83) 76° 26' 21.4" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 295.96 m / 971.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 4.6° W to 148.2° West Longitude
Azimuth Range 102.1° to 257.8°
Corresponding Elevation Angles 5.0° / 5.0°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		Gen Dynamics		Gen Dynamics	
Model		Satcom		Satcom	
Gain / Diameter		51.9 dBi / 11.1 m		55.6 dBi / 11.1 m	
3-dB / 15-dB Beamwidth		0.40° / 0.90°		0.30° / 0.60°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-2.7 21.3	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			52.9 76.9	
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)	54K6G7W - 72M0G7W / 3625.0 - 4200.0	54K6G7W - 72M0G7W / 5850.0 - 6425.0
Max Great Circle Coordination Distance	714.9 km / 444.2 mi	429.1 km / 266.6 mi
Precipitation Scatter Contour Radius	621.4 km / 386.1 mi	101.8 km / 63.2 mi

COMSEARCH

Earth Station Data Sheet

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(703)726-5500 <http://www.comsearch.com>

Coordination Values

ROARING CRK, PA

Licensee Name AT&T Corp -
Latitude (NAD 83) 40° 53' 36.2" N
Longitude (NAD 83) 76° 26' 21.4" W
Ground Elevation (AMSL) 295.96 m / 971.0 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model Gen Dynamics 11.1 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 -2.7 (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	102.08	-10.00	285.28	-10.00	170.66
5	1.43	97.11	-10.00	207.55	-10.00	106.50
10	2.35	92.12	-10.00	186.51	-10.00	100.00
15	2.56	87.12	-10.00	181.76	-10.00	100.00
20	2.21	82.13	-10.00	189.73	-10.00	100.00
25	2.07	77.14	-10.00	193.03	-10.00	100.00
30	1.86	72.15	-10.00	198.40	-10.00	100.00
35	1.59	67.16	-10.00	205.57	-10.00	102.44
40	1.29	62.18	-10.00	211.49	-10.00	110.05
45	1.06	57.21	-10.00	218.42	-10.00	116.05
50	1.10	52.22	-10.00	217.17	-10.00	114.99
55	1.07	47.24	-9.86	218.76	-9.86	116.17
60	1.41	42.24	-8.64	214.51	-8.64	111.05
65	1.06	37.30	-7.29	232.56	-7.29	124.13
70	0.55	32.39	-5.76	272.41	-5.76	151.17
75	0.41	27.47	-3.97	299.21	-3.97	172.40
80	0.28	22.59	-1.85	331.71	-1.85	193.97
85	0.00	17.81	0.74	362.27	0.74	210.39
90	0.35	12.96	4.19	370.25	4.19	210.41
95	0.00	8.67	8.55	425.98	8.55	245.15
100	0.64	4.81	14.94	714.89	14.94	429.11
105	1.30	4.65	15.31	534.18	15.31	302.55
110	1.85	7.87	9.60	326.60	9.60	170.34
115	2.07	11.31	5.66	284.68	5.66	144.66
120	2.00	14.88	2.69	264.17	2.69	134.37
125	1.75	18.47	0.34	256.28	0.34	132.85
130	1.67	21.83	-1.48	246.81	-1.48	128.26
135	1.63	25.03	-2.96	238.99	-2.96	124.10
140	1.93	27.78	-4.09	222.71	-4.09	112.61
145	2.35	30.22	-5.01	207.84	-5.01	100.76
150	2.64	32.49	-5.79	200.30	-5.79	100.00
155	2.99	34.40	-6.41	189.73	-6.41	100.00
160	3.34	35.95	-6.89	179.64	-6.89	100.00
165	3.58	37.20	-7.26	172.29	-7.26	100.00
170	3.61	38.25	-7.56	169.96	-7.56	100.00
175	3.44	39.07	-7.80	172.74	-7.80	100.00
180	3.26	39.47	-7.91	176.19	-7.91	100.00
185	3.18	39.33	-7.87	178.16	-7.87	100.00

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

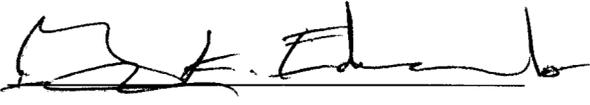
ROARING CRK, PA

Licensee Name	AT&T Corp - Extended C-Band Sites			
Latitude (NAD 83)	40° 53' 36.2" N			
Longitude (NAD 83)	76° 26' 21.4" W			
Ground Elevation (AMSL)	295.96 m / 971.0 ft			
Antenna Centerline (AGL)	5.49 m / 18.0 ft			
Antenna Model	Gen Dynamics 11.1 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			-2.7 (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	3.02	38.82	-7.73	182.45	-7.73	100.00
195	2.64	38.09	-7.52	191.94	-7.52	100.00
200	1.92	37.24	-7.28	206.80	-7.28	102.46
205	1.92	35.33	-6.70	209.47	-6.70	104.16
210	2.10	32.94	-5.94	208.87	-5.94	102.64
215	2.05	30.46	-5.09	214.32	-5.09	106.58
220	1.62	28.03	-4.19	231.98	-4.19	120.06
225	1.61	25.04	-2.97	239.39	-2.97	124.40
230	1.19	22.19	-1.65	263.07	-1.65	138.60
235	0.89	19.09	-0.02	289.22	-0.02	156.33
240	0.98	15.59	2.18	299.57	2.18	161.22
245	1.33	11.83	5.17	308.84	5.17	163.67
250	2.08	7.73	9.80	319.90	9.80	163.15
255	2.41	3.84	17.38	537.68	17.38	304.22
260	2.34	3.46	18.54	712.17	18.54	427.07
265	1.33	8.07	9.33	345.12	9.33	184.88
270	0.69	12.91	4.22	337.23	4.22	188.34
275	0.21	17.82	0.73	361.48	0.73	209.83
280	0.20	22.67	-1.89	341.96	-1.89	201.62
285	0.24	27.56	-4.01	321.31	-4.01	189.60
290	0.47	32.46	-5.78	279.18	-5.78	156.78
295	0.00	37.47	-7.34	302.76	-7.34	180.97
300	0.00	42.42	-8.69	293.76	-8.69	175.75
305	0.00	47.38	-9.89	285.98	-9.89	171.09
310	0.00	52.35	-10.00	285.28	-10.00	170.66
315	0.00	57.32	-10.00	285.28	-10.00	170.66
320	0.00	62.29	-10.00	285.28	-10.00	170.66
325	0.00	67.27	-10.00	285.28	-10.00	170.66
330	0.00	72.25	-10.00	285.28	-10.00	170.66
335	0.00	77.23	-10.00	285.28	-10.00	170.66
340	0.00	82.21	-10.00	285.28	-10.00	170.66
345	0.00	87.19	-10.00	285.28	-10.00	170.66
350	0.00	92.17	-10.00	285.28	-10.00	170.66
355	0.00	97.15	-10.00	285.28	-10.00	170.66

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: October 31, 2018

Attachment 2

Coordination Report for 13.1-meter Antenna

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
**AT&T Corp -
ROARING CRK, PA
Satellite Earth Station**

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
October 31, 2018

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Northumberland County DPS/911

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AT&T Wireless Services 3 LLC - PA
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Algonquin Gas Transmission, LLC
Allentown SMSA Limited Partnership
Alltel Communications LLC - Western PA
Alltel Communications LLC-E OH WV
American Electric Power Service Corp
Auburn Data Systems, LLC
Beaver Springs Faith Baptist Church, Inc
Bedford County of
Berks County Department of Emergency Ser
Binghamton MSA Limited Partnership(NY)
Blair County 911
Blue Ridge Carriers
Blueline Communications
Bradford County
Bucks County Dept. of Emergency Comm
Cambria, County of
Capital Communications of America
Carbon, County of 911 Center
Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership- PA Region
Chemung County
City of New York
Clearfield, County of
Clinton, County of
Commonwealth of Pennsylvania-Radio Proj.
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Consolidated Edison Company of New York
Conterra Ultra Broadband, LLC
County of Centre
County of Fayette
County of Lycoming
County of Pike
County of Tioga
County of Warren, NJ

County of York
DSRC Networks
Dauphin County Emergency Management
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Dominion Energy Transmission, Inc.
ECW Wireless, LLC
EMS of Northeast Pennsylvania
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Highway Networks, LLC
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Jefferson, County Of
Juniata County Emergency Services
Kryptick Technologies
Lackawanna, County of
Lancaster County-Wide Communications
Limitless Mobile, LLC
Luzerne County of PA
McKean, County of
Middlesex, County of
Mifflin County
Monmouth, County of
Monroe County Control Center (PA)
Montgomery County Of
Morris, County of
Mountain State Communications, llc
NYNEX Mobile of New York LP
Nassau County Police Department
New Cingular Wireless PCS LLC - NJ
New Cingular Wireless PCS, LLC (NY)
New Cingular Wireless PCS, LLC - PA
New Jersey State Police
New Jersey Transit Rail Operations, Inc.
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York City Police Department
New York RSA No. 3 Cellular Partnership
New York State Electric & Gas Corp
Norfolk Southern Railway
Northeast Pennsylvania SMSA LTD Prtnrsh
Northumberland County DPS/911
Office of Emergency Telecom Services, NJ
Ohio Networks

Orange County Dept of Emergency Services
Orange and Rockland Utilities, Inc.
PSEG Services Corporation
Peco Energy Company
Pennsylvania 3 Sector 2, L.P. - PA Regn
Pennsylvania Turnpike Commission
Perry, County of
Pike County Commissioners
Pittsburgh SMSA Limited Partnership
Port Authority of New York & New Jersey
Potter County of (PA)
Qoncept Holdings LLC
Radio License Holding CBC, LLC
SW Networks
Schuyler, County of
Shenandoah Personal Communications, LLC
Snyder, County of
Somerset County Dept. of Emergency Servi
South Central Task Force (SCTFNET)
Sullivan, County of
T-Mobile License LLC
Texas Eastern Communications, LLC
Tioga, County of
Tompkins, County Dept of Emergency Respo
Torellco LLC
Transcontinental Gas Pipeline Corp.
Transwave Communication Systems, Inc.
Uniti Fiber PEG, LLC
Verizon Wireless (VAW) LLC-Pennsylvania
WV DHHR BPH, Office of Ems, Com. Div.
Weblin Holdings LLC
Westmoreland, County of
Williams Energy Services
Wireless Internetwork LLC
World Class Wireless, LLC
iSignal
xWave Engineering LLC

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Model		Satcom		Satcom	
Gain / Diameter		53.5 dBi / 13.1 m		57.3 dBi / 13.1 m	
3-dB / 15-dB Beamwidth		0.38° / 0.76°		0.26° / 0.52°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-2.7 21.3	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			54.6 78.6	
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Max Available RF Power -2.7 (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	102.08	-10.00	285.28	-10.00	170.66
5	1.43	97.11	-10.00	207.55	-10.00	106.50
10	2.35	92.12	-10.00	186.51	-10.00	100.00
15	2.56	87.12	-10.00	181.76	-10.00	100.00
20	2.21	82.13	-10.00	189.73	-10.00	100.00
25	2.07	77.14	-10.00	193.03	-10.00	100.00
30	1.86	72.15	-10.00	198.40	-10.00	100.00
35	1.59	67.16	-10.00	205.57	-10.00	102.44
40	1.29	62.18	-10.00	211.49	-10.00	110.05
45	1.06	57.21	-10.00	218.42	-10.00	116.05
50	1.10	52.22	-10.00	217.17	-10.00	114.99
55	1.07	47.24	-9.86	218.76	-9.86	116.17
60	1.41	42.24	-8.64	214.51	-8.64	111.05
65	1.06	37.30	-7.29	232.56	-7.29	124.13
70	0.55	32.39	-5.76	272.41	-5.76	151.17
75	0.41	27.47	-3.97	299.21	-3.97	172.40
80	0.28	22.59	-1.85	331.71	-1.85	193.97
85	0.00	17.81	0.74	362.27	0.74	210.39
90	0.35	12.96	4.19	370.25	4.19	210.41
95	0.00	8.67	8.55	425.98	8.55	245.15
100	0.64	4.81	14.94	743.12	14.94	448.01
105	1.30	4.65	15.31	549.46	15.31	312.69
110	1.85	7.87	9.60	326.60	9.60	170.34
115	2.07	11.31	5.66	284.68	5.66	144.66
120	2.00	14.88	2.69	264.17	2.69	134.37
125	1.75	18.47	0.34	256.28	0.34	132.85
130	1.67	21.83	-1.48	246.81	-1.48	128.26
135	1.63	25.03	-2.96	238.99	-2.96	124.10
140	1.93	27.78	-4.09	222.71	-4.09	112.61
145	2.35	30.22	-5.01	207.84	-5.01	100.76
150	2.64	32.49	-5.79	200.30	-5.79	100.00
155	2.99	34.40	-6.41	189.73	-6.41	100.00
160	3.34	35.95	-6.89	179.64	-6.89	100.00
165	3.58	37.20	-7.26	172.29	-7.26	100.00
170	3.61	38.25	-7.56	169.96	-7.56	100.00
175	3.44	39.07	-7.80	172.74	-7.80	100.00
180	3.26	39.47	-7.91	176.19	-7.91	100.00
185	3.18	39.33	-7.87	178.16	-7.87	100.00

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

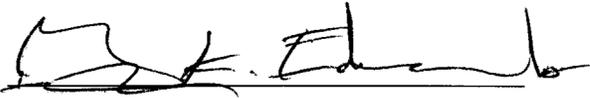
ROARING CRK, PA

Licensee Name AT&T Corp - Extended C-Band Sites
Latitude (NAD 83) 40° 53' 36.2" N
Longitude (NAD 83) 76° 26' 21.4" W
Ground Elevation (AMSL) 295.96 m / 971.0 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model Gen Dynamics 13.1 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 -2.7 (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	3.02	38.82	-7.73	182.45	-7.73	100.00
195	2.64	38.09	-7.52	191.94	-7.52	100.00
200	1.92	37.24	-7.28	206.80	-7.28	102.46
205	1.92	35.33	-6.70	209.47	-6.70	104.16
210	2.10	32.94	-5.94	208.87	-5.94	102.64
215	2.05	30.46	-5.09	214.32	-5.09	106.58
220	1.62	28.03	-4.19	231.98	-4.19	120.06
225	1.61	25.04	-2.97	239.39	-2.97	124.40
230	1.19	22.19	-1.65	263.07	-1.65	138.60
235	0.89	19.09	-0.02	289.22	-0.02	156.33
240	0.98	15.59	2.18	299.57	2.18	161.22
245	1.33	11.83	5.17	308.84	5.17	163.67
250	2.08	7.73	9.80	319.90	9.80	163.15
255	2.41	3.84	17.38	554.04	17.38	315.04
260	2.34	3.46	18.54	740.33	18.54	445.89
265	1.33	8.07	9.33	345.12	9.33	184.88
270	0.69	12.91	4.22	337.23	4.22	188.34
275	0.21	17.82	0.73	361.48	0.73	209.83
280	0.20	22.67	-1.89	341.96	-1.89	201.62
285	0.24	27.56	-4.01	321.31	-4.01	189.60
290	0.47	32.46	-5.78	279.18	-5.78	156.78
295	0.00	37.47	-7.34	302.76	-7.34	180.97
300	0.00	42.42	-8.69	293.76	-8.69	175.75
305	0.00	47.38	-9.89	285.98	-9.89	171.09
310	0.00	52.35	-10.00	285.28	-10.00	170.66
315	0.00	57.32	-10.00	285.28	-10.00	170.66
320	0.00	62.29	-10.00	285.28	-10.00	170.66
325	0.00	67.27	-10.00	285.28	-10.00	170.66
330	0.00	72.25	-10.00	285.28	-10.00	170.66
335	0.00	77.23	-10.00	285.28	-10.00	170.66
340	0.00	82.21	-10.00	285.28	-10.00	170.66
345	0.00	87.19	-10.00	285.28	-10.00	170.66
350	0.00	92.17	-10.00	285.28	-10.00	170.66
355	0.00	97.15	-10.00	285.28	-10.00	170.66

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: October 31, 2018