

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Lockheed Martin Corporation-Phillipsburg
CARPENTERSVILLE, NJ
Satellite Earth Station

Prepared By:
COMSEARCH
21515 Ridgetop Circle, Suite 300
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September 20, 2022

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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.

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 09/15/2022.

Company

AQ2AT LLC
AT&T Corp.
AT&T Services, Inc.
AT&T Wireless Services 3 LLC - PA
Algonquin Gas Transmission, LLC
Allentown SMSA Limited Partnership
Beaver Springs Faith Baptist Church, Inc
Bedford County of
Berks County Department of Emergency Ser
Blair County 911
Blueline Communications
Bucks County Dept. of Emergency Comm
Carbon, County of 911 Center
Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership- PA Region
Cellco Partnership-Northern New Jersey
Cellco Prtnrshp - Phil. Tri-State Rgn
Chester, County of
City of New York
Cobham Advanced Electronic Solutions Inc
Commonwealth of Pennsylvania-Radio Proj.
Consolidated Edison Company of New York
Conterra Ultra Broadband, LLC
County of Burlington, Public Safety Cntr
County of Camden
County of Fayette
County of York (PA)
Culmination Communications
DELAWARE RIVER PORT AUTHORITY
Dauphin County Emergency Management
Delaware County (PA) Emergency Services
Delaware Division of Communications
Direct Broadcast Services, Inc.
East Ohio Gas Company
Eastern Pennsylvania EMS Council
Electric Railroad, LLC
Essex County Sheriff's Office (NJ)
Everstream Solutions LLC
Exelon Generation Company, LLC
FELHC, Inc.

FM Radio License, LLC
Federal Communication Commission
Franklin County Dept. of Emergency Servi
Fulton County PA
Fundamental Broadcasting LLC
Garden State Transmissions LLC
Gloucester, County of
Greene, County of (PA)
High Voltage Communications LLC (CFN)
Huntingdon, County of
In The Stix Broadband LLC
Lackawanna, County of
Lancaster County-Wide Communications
Luzerne County of PA
Middlesex, County of
Mifflin County
Monmouth, County of
Monroe County Control Center (PA)
Montgomery County Of
Moose Communications
Morris, County of
Nassau County Police Department
New Cingular Wireless PCS, LLC - PA
New Jersey Turnpike Authority-Pkwy Div
New Jersey, Division of State Police
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York City Police Department
New York Power Authority
Norfolk Southern Railway Company
Northumberland County DPS/911
Ocean County of - Div of Wireless Tech.
Office of Emergency Telecom Services, NJ
Orange County Dept of Emergency Services
Orange and Rockland Utilities, Inc.
PSEG Services Corporation
Peco Energy Company
Pennsylvania Turnpike Commission
Pike County Commissioners
Pike County of
SW Networks
Schuylkill, County of
Somerset, County of
South Central Task Force (SCTFNET)
Spectrum Holding Company LLC
State of Maryland, MIEMSS
Sullivan County DPW
T-Mobile License LLC
Texas Eastern Communications, LLC
Thought Transmissions, LLC
Transcontinental Gas Pipe Line Co., LLC
Transwave Communication Systems, Inc.
USCOC of Cumberland, Inc.
USOC of Pennsylvania RSA No 10 B2 Inc.
Uniti Fiber LLC
Ursa Navigation Solutions, Inc.

Virginia Electric & Power Company
Warren, County of
Waterleaf International LLC
Wayne, County of
Weblin Holdings LLC
Wireless Internetwork 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: 09/20/2022
Job Number: 220915COMSGE01

Administrative Information

Status: TEMPORARY (Operation from 10/05/2022 to 04/05/2023)
Call Sign:
Licensee Code: RCASTR
Licensee Name: Lockheed Martin Corporation-Phillipsburg

Site Information

CARPENTERSVI, NJ

Venue Name:
Latitude (NAD 83): 40° 38' 39.1" N
Longitude (NAD 83): 75° 11' 27.8" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 54.86 m / 180.0 ft
Country: ESID:10327

Link Information

Satellite Type: Geostationary
Mode: TO - Transmit-Only
Modulation: Analog and Digital
Satellite Arc: 4° W to 147° West Longitude
Azimuth Range: 102.5° to 257.9°
Corresponding Elevation Angles: 5.5° / 5.0°
Antenna Centerline (AGL): 9.14 m / 30.0 ft

Antenna Information

Transmit - T61421

Manufacturer: TIW SYSTEMS
Model: FCC STD 14.2-MET
Gain / Diameter: 57.5 dBi / 14.2 m
3-dB / 15-dB Beamwidth: 0.24° / 0.46°

Max Available RF Power: (dBW/4 kHz) 3.5
(dBW/MHz) 27.5

Maximum EIRP: (dBW/4 kHz) 61.0
(dBW/MHz) 85.0
(dBW) 85.0

Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%

Frequency Information

Transmit 6.1 GHz

Emission / Frequency Range (MHz): 1M00F2D / 6419.5 - 6420.5

Max Great Circle Coordination Distance: 521.6 km / 324.1 mi
Precipitation Scatter Contour Radius: 288.8 km / 179.5 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values

CARPENTERSVI, NJ

Licensee Name Lockheed Martin Corporation-Phillipsburg
Latitude (NAD 83) 40° 38' 39.1" N
Longitude (NAD 83) 75° 11' 27.8" W
Ground Elevation (AMSL) 54.86 m / 180.0 ft
Antenna Centerline (AGL) 9.14 m / 30.0 ft
Antenna Model TIW SYSTEMS FCC STD 14.2-MET
Antenna Mode Transmit 6.1 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power 3.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	3.26	102.08	-10.50	100.00
5	3.41	97.51	-10.50	100.00
10	3.64	92.51	-10.50	100.00
15	3.01	87.51	-10.50	100.00
20	3.43	82.52	-10.50	100.00
25	3.08	77.52	-10.50	100.00
30	3.38	72.52	-10.50	100.00
35	3.54	67.53	-10.50	100.00
40	3.62	62.53	-10.50	100.00
45	3.73	57.53	-10.50	100.00
50	3.54	52.54	-10.50	100.00
55	3.34	47.55	-10.01	100.00
60	3.42	42.55	-9.01	100.00
65	3.40	37.56	-7.52	100.00
70	3.23	32.58	-5.53	104.63
75	3.06	27.61	-4.02	113.51
80	3.06	22.64	-2.08	121.02
85	3.12	17.67	0.90	130.84
90	3.26	12.71	4.79	142.49
95	3.25	7.84	7.50	155.20
100	3.17	3.42	15.80	201.01
105	3.17	3.41	15.85	324.78
110	3.34	6.96	7.57	153.73
115	3.33	10.54	5.96	146.30
120	3.13	14.20	3.30	138.66
125	2.91	17.77	0.84	133.22
130	2.07	21.70	-1.52	140.82
135	2.27	24.72	-3.33	131.05
140	2.75	27.33	-3.97	119.43
145	2.28	30.48	-4.69	125.66
150	2.22	33.07	-5.73	123.06
155	1.94	35.55	-6.72	125.08
160	2.21	37.23	-7.39	117.16
165	2.69	38.31	-7.82	106.20
170	2.53	39.57	-8.33	107.41
175	1.98	40.79	-8.66	117.19
180	1.91	41.10	-8.72	118.70
185	1.89	40.89	-8.68	119.30

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values

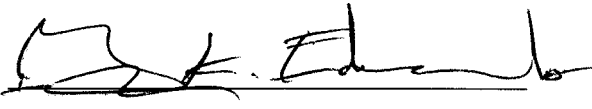
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Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
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Max Available RF Power 3.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	1.23	40.84	-8.67	134.47
195	1.33	39.59	-8.34	133.12
200	2.36	37.10	-7.34	114.38
205	1.81	35.67	-6.77	128.04
210	1.81	33.41	-5.86	131.30
215	2.22	30.53	-4.71	126.81
220	3.01	27.13	-3.93	114.75
225	3.69	23.64	-2.68	107.46
230	4.93	19.57	-0.24	100.00
235	4.41	16.68	1.49	112.01
240	4.52	13.21	4.29	121.35
245	3.81	10.21	6.29	138.48
250	2.56	7.49	7.50	172.89
255	2.28	4.01	13.47	348.44
260	2.61	3.20	16.70	521.61
265	3.06	7.35	7.50	159.60
270	3.65	12.16	5.34	137.34
275	2.79	17.23	1.16	136.72
280	2.80	22.19	-1.81	126.88
285	3.05	27.15	-3.93	114.05
290	3.50	32.12	-5.35	100.46
295	4.29	37.09	-7.34	100.00
300	5.04	42.08	-8.92	100.00
305	5.37	47.08	-9.92	100.00
310	5.66	52.09	-10.50	100.00
315	5.56	57.09	-10.50	100.00
320	4.83	62.08	-10.50	100.00
325	4.01	67.09	-10.50	100.00
330	3.37	72.09	-10.50	100.00
335	3.13	77.09	-10.50	100.00
340	3.05	82.09	-10.50	100.00
345	2.99	87.09	-10.50	100.00
350	3.24	92.08	-10.50	100.00
355	3.48	97.08	-10.50	100.00

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
21515 Ridgetop Circle, Suite 300
Sterling, VA 20166

DATED: September 20, 2022