

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

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

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
August 02, 2018

TABLE OF CONTENTS

1. CONCLUSIONS	3
2. SUMMARY OF RESULTS	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA.....	10
5. CERTIFICATION.....	14

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 07/12/2018.

Company

3G Wireless, LLC
AB Services LLC
ABC, Inc. - WPVI-TV
AERIAL VIDEO SYSTEMS
Affiniti PA, LLC
Alascom Inc
Algonquin Gas Transmission, LLC
Allentown SMSA Limited Partnership
American Broadcasting Companies, Inc.
AQ2AT LLC
Ascent Media Network Services, LLC
AT&T Corp.
AT&T Wireless Services 3 LLC - PA
Atlantic City Electric Company
Auburn Data Systems, LLC
Bedford County of
Bellsouth Telecommunications, Inc.
Bergen, County of
Berks County Department of Emergency Ser
BFI Licenses, LLC
Blair County 911
Blue Ridge Carriers
Blueline Communications
Borgeson, Tom R.
Broadcast Sports Inc.
Bucks County Dept. of Emergency Comm
Capital Communications of America
Carbon, County of 911 Center
Carolina Telephone and Telegraph Co
Casper, John
CBS Broadcasting Inc
Cellco Partnership - Bridgeville, PA/WV
Cellco Prtnrshp - Phil. Tri-State Rgn
CenturyTel of the Southwest, Inc.
Chester, County of
Chicago Comnet Corp
Cincinnati Bell Wireless LLC
City of Bethlehem
City of New York
Citywide News Network, Inc.

Commonwealth of Pennsylvania
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 Hunterdon
County of Pike
County of Warren, NJ
Cowboys Stadium LP
Cumberland, County of (PA)
Dauphin County Emergency Management
DCI II, INC.
Delaware County (PA) Emergency Services
Delaware Division of Communications
Delmarva Broadcasting Company
Direct Broadcast Services, Inc.
Direct Broadcast Services, Inc.
Dominion Energy Transmission, Inc.
DSRC Networks
DSRC Networks
Eastern MLG LLC
Eastern Pennsylvania EMS Council
ECW Wireless, LLC
Egan LLC
Electric Railroad, LLC
Essex County Sheriff's Office (NJ)
Exelon Generation Company, LLC
Federal Communication Commission
FELHC, Inc.
Fox Television Stations, LLC
Franklin County Dept. of Emergency Servi
Frontier California Inc.
Fulton County of (PA)
Fundamental Broadcasting LLC
Garden State Transmissions
Geodesic Networks LLC
Global Telecom & Technology Americas, In
Gloucester, County of
Greene, County of (PA)
GTT America LLC
Hallco Unlimited, Inc.
Hammarlund Research LLC
Hardy Cellular Telephone Company
HARRIS CORPORATION
Hawaiian Telcom, Inc.
Hearst Properties Inc.
Heiden, William
HF Enterprises, Inc
High Voltage Communications LLC (CFN)
Higher Ground LLC
Huntingdon, County of
Illinois Bell Telephone Company
Indiana Bell Telephone Company
Information & Display Systems, Inc.

Information Super Station, LLC
International Communications Group, Inc.
iSignal
Jefferson Microwave, LLC
Kentucky RSA #3 Cellular General Partner
Kentucky RSA #4 Cellular General Partner
Kryptick Technologies
Lackawanna County Dept. of Emergency Ser
Lackawanna, County of
Lancaster County-Wide Communications
Lebanon, County of
Lehigh, County of
Luzerne County of PA
MERCURY COMMUNICATIONS
Michigan Bell Telephone Company
Middlesex, County of
Mifflin County
Monmouth, County of
Monroe County Control Center (PA)
Montgomery County Of
Moreen, Steven K
Morris, County of
Morris, County of
Nassau County Police Department
National Tower Company LLC
Navajo Communications Company
NBC Telemundo License Co.
NBC Telemundo License LLC
New Cingular Wireless PCS LLC - NJ
New Cingular Wireless PCS LLC - WV,NC,SC
New Cingular Wireless PCS LLC-DE/NH/RI
New Cingular Wireless PCS, LLC - PA
NEW ENGLAND DIGITAL DISTRIBUTION, INC.
New Jersey State Police
New Jersey Transit Rail Operations, Inc.
New Jersey Turnpike Authority-Pkwy Div
New Jersey, State of -NJ Transit
New Line Networks, LLC
New York City Police Department
New York City Transit Authority
Norfolk Southern Railway
Northeast Pennsylvania SMSA LTD Prtnrsh
NorthWest Suburbs Community Access Corp
NSM Surveillance
Ocean County of - Div of Wireless Tech.
Ocean, County of
Office of Emergency Telecom Services, NJ
Ohio Bell GTelephone Company
Onboard Images
Optiver GT US, LLC
Orange and Rockland Utilities, Inc.
Orange County Dept of Emergency Services
Pacific Bell Tel Com dba AT&T California
Peco Energy Company
Penn Service Microwave Co., Inc.
Pennsylvania Sports Entertainment Netwo.

Pennsylvania State Police
Pennsylvania Turnpike Commission
Philadelphia, City of
Pike County Commissioners
Pittsburgh SMSA Limited Partnership
Plateau Telecommunications, Inc.
Plum TV, LLC
Port Authority of New York & New Jersey
Production & Satellite Services, Inc.
PSEG Services Corporation
Qoncept Holdings LLC
Quick Link Connections Inc.
Qwest Corporation
Radiofone, Inc.
Randy Hermes Production
RCC Minnesota Inc. - MN NE ND SD
Remote Broadcasts, Inc.
REMOTE FACILITIES CONSULTING SERVICES
RF Central, LLC
RF Film, Inc
Rockland, County of
Schuylkill, County of
Secom Net
Somerset County Dept. of Emergency Servi
South Central Task Force (SCTFNET)
Southeastern Pennsylvania Transit Auth
Southwestern Bell Telephone L.P.
Speedshotz, Inc
Standard Backhaul Communications LLC
State of Maryland, MIEMSS
State of New Jersey
State of New York, Div of State Police
Sullivan County DPW
SW Networks
Texas Eastern Communications, LLC
Thought Transmissions, LLC
T-Mobile License LLC
Townsquare Media Monmouth-Ocean License
Transcontinental Gas Pipeline Corp.
Transwave Communication Systems, Inc.
Triangle Communications, Inc.
TTWN Networks, LLC
Unisat, Inc.
United Telephone - Southeast
Uniti Fiber PEG, LLC
USCOC of Cumberland, Inc.
USOC of Pennsylvania RSA No 10 B2 Inc.
Verizon Maryland, Inc.
Verizon New England Inc.
Verizon New Jersey, Inc.
Verizon New York, Inc.
Verizon North Inc.
Verizon Northwest Inc.
Verizon Pennsylvania, Inc.
VERIZON SOUTH INC.
Verizon Virginia, Inc.

Verizon Washington DC, Inc.
Verizon Wireless (VAW) LLC-Pennsylvania
Virginia Electric & Power Company
Vyvx, LLC
Wayne, County of
Weblin Holdings LLC
Westar Satellite Services LP
Winged Vision Inc
Wireless Internetwork LLC
Wisconsin Bell Telephone Company
Wolfe Air Aviation
World Class Wireless, LLC
xWave Engineering LLC
Zango LLC
Zen Networks, 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: 08/02/2018
Job Number: 180712COMSGE10

Administrative Information

Status: TEMPORARY (Operation from 08/17/2018 to 08/26/2018)
Call Sign:
Licensee Code: RCASTR
Licensee Name: Lockheed Martin Corporation-Phillipsburg

Site Information

CARPENTERSVILLE, 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

Link Information

Satellite Type: Geostationary
Mode: TO - Transmit-Only
Modulation: 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 - FCC32

Manufacturer: TIW SYSTEMS
Model: FCC STD 14.2-MET
Gain / Diameter: 63.9 dBi / 14.2 m
3-dB / 15-dB Beamwidth: 0.12° / 0.22°

Max Available RF Power: (dBW/4 kHz) -3.9
(dBW/MHz) 20.1

Maximum EIRP: (dBW/4 kHz) 60.0
(dBW/MHz) 84.0

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

Frequency Information

Transmit 6.0 GHz

Emission / Frequency Range (MHz): 16K0F3D - 27K7G3N / 6415.0 – 6431.0
6639.0 - 6657.0

Max Great Circle Coordination Distance: 509.6 km / 316.6 mi
Precipitation Scatter Contour Radius: 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

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 14.2 meter
Antenna Mode Transmit 6.0 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -3.9 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 6.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	3.51	102.08	-10.00	100.00
5	3.90	97.51	-10.00	100.00
10	2.91	92.51	-10.00	100.00
15	2.84	87.51	-10.00	100.00
20	2.83	82.52	-10.00	100.00
25	3.07	77.52	-10.00	100.00
30	3.44	72.52	-10.00	100.00
35	3.78	67.52	-10.00	100.00
40	3.82	62.52	-10.00	100.00
45	3.80	57.53	-10.00	100.00
50	3.59	52.54	-10.00	100.00
55	3.40	47.55	-9.93	100.00
60	3.31	42.56	-8.72	100.00
65	3.12	37.58	-7.37	100.00
70	2.88	32.61	-5.83	100.00
75	3.07	27.61	-4.03	100.00
80	3.04	22.64	-1.87	100.00
85	3.06	17.68	0.82	103.87
90	3.07	12.74	4.37	117.12
95	2.74	8.00	9.42	141.20
100	2.73	3.74	17.68	182.92
105	2.58	3.84	17.40	310.63
110	2.72	7.37	10.31	145.33
115	2.80	10.92	6.05	128.44
120	2.62	14.56	2.92	120.05
125	2.05	18.40	0.38	121.72
130	1.63	22.02	-1.57	124.74
135	2.22	24.75	-2.84	106.72
140	2.76	27.32	-3.91	100.00
145	2.31	30.46	-5.09	100.00
150	2.22	33.06	-5.98	100.00
155	1.94	35.55	-6.77	100.00
160	2.22	37.22	-7.27	100.00
165	2.67	38.33	-7.59	100.00
170	2.46	39.65	-7.95	100.00
175	1.94	40.84	-8.28	100.00
180	1.90	41.11	-8.35	100.00
185	1.86	40.92	-8.30	100.00

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

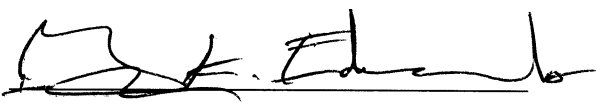
CARPENTERSVI, NJ

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 14.2 meter
Antenna Mode Transmit 6.0 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -3.9 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 6.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	1.23	40.84	-8.28	113.23
195	1.33	39.59	-7.94	111.72
200	2.37	37.09	-7.23	100.00
205	1.76	35.72	-6.82	104.23
210	1.77	33.44	-6.11	106.01
215	2.21	30.54	-5.12	100.00
220	3.42	26.81	-3.71	100.00
225	3.50	23.78	-2.41	100.00
230	4.90	19.59	-0.30	100.00
235	4.41	16.68	1.44	100.00
240	4.50	13.22	3.97	100.00
245	3.77	10.24	6.75	113.64
250	2.53	7.51	10.11	148.39
255	2.28	4.01	16.92	334.06
260	2.60	3.20	19.36	509.64
265	3.11	7.34	10.36	137.67
270	3.39	12.19	4.85	113.30
275	2.86	17.22	1.10	108.58
280	2.80	22.19	-1.65	100.00
285	3.05	27.15	-3.84	100.00
290	3.56	32.11	-5.67	100.00
295	4.21	37.09	-7.23	100.00
300	4.98	42.08	-8.60	100.00
305	5.49	47.09	-9.82	100.00
310	5.46	52.09	-10.00	100.00
315	5.57	57.09	-10.00	100.00
320	4.81	62.08	-10.00	100.00
325	3.99	67.09	-10.00	100.00
330	3.36	72.09	-10.00	100.00
335	3.16	77.09	-10.00	100.00
340	3.15	82.09	-10.00	100.00
345	3.00	87.09	-10.00	100.00
350	3.23	92.08	-10.00	100.00
355	3.48	97.08	-10.00	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
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: August 02, 2018