

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Denali 20020, LLC
VERNON VLY, NJ
E080162
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
October 23, 2020

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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 10/13/2020.

Company

10Band LLC
AMFM Radio Licenses, LLC
AQ2AT LLC
AT&T Corp.
Affiniti PA, LLC
Albany, County of
Algonquin Gas Transmission, LLC
Altice USA, Inc
Archdiocese of New York Dept of Educatio
Atlantic Telecommunications
Avon Police Department
Baltimore Gas and Electric Company
Bayberry Administrative Services, LLC
Beasley Media Group, LLC
Bedford County of
Bergen County Police Department
Bergen, County of
Berks County Department of Emergency Ser
Berkshire County Sheriff's Office
Bethel CT Police Department
Blair County 911
Bloomfield Center Fire District
Blueline Communications
Buckeye Partners
Bucks County Dept. of Emergency Comm
Business Only Broadband, LLC
CBS Communications Services Inc
CTI Networks, Inc
Cambria, County of
Capital Communications of America
Capital District Trans. Authority
Carbon, County of 911 Center
Cecil Cnty Depart. of Emergency Services
Cellco Partnership - (W-NY)
Cellco Partnership - Bridgeville, PA/WV
Cellco Partnership- PA Region
Cellco Partnership-Northern New Jersey
Central Hudson Gas & Electric Corp.
Centre Wisp Venture 6
Cherry Hill, Township Of

Chester, County of
Chevra Hatzalah Inc.
City of Albany
City of Bethlehem
City of Bristol
City of Jersey City
City of New York
City of Springfield Police Department
City of Westfield
Citywisper LLC
Clair Global
Clearwire Spectrum Holdings III, LLC
Cobham Advanced Electronic Solutions Inc
Columbia, County
Columbia, County of
Comcast of Southeast Pennsylvania, Inc.
Commonwealth of Pennsylvania-Radio Proj.
Community Products, LLC
Comprehensive Wireless LLC
Connecticut, State of
Connoisseur Media Licenses, LLC
Consult Dynamics, Inc
Conterra Ultra Broadband, LLC
County of Burlington
County of Burlington, Public Safety Cntr
County of Camden
County of Hunterdon
County of Mercer
County of Pike
County of Warren, NJ
Crowsnest Broadband LLC
D&E Communications, Inc.
DELAWARE RIVER PORT AUTHORITY
Dauphin County Emergency Management
Delaware County (PA) Emergency Services
Delaware Division of Communications
Direct Broadcast Services, Inc.
Dover, Township of
Drive
Dutchess County Emergency Response
ECW Wireless, LLC
East Brunswick, Township of, NJ
East Hampton Town Police Department
Eastern MLG LLC
Educational Media Foundation
Electric Railroad, LLC
Enoch Pratt Free Library
Entercom License, LLC
Essex County Sheriff's Office (NJ)
Eversource Energy Service Company
Exelon Generation Company, LLC
FELHC, Inc.
Fiberless Networks Corporation
Fordham University(WFUV)
Frascogna, Carl
Fundamental Broadcasting LLC

GAW High-Speed Internet
GTT Americas LLC
Garden State Transmissions
Geodesic Networks LLC
Glastonbury Police Department
Global Crossing Telecommunications, Inc.
Gloucester Township
Gloucester, County of
Goosetown Network Services, LLC
Greater Boston Radio Inc.
Greenwich, Town of (CT)
HUDSON VALLEY WIRELESS
Hamilton, Township of
High Voltage Communications LLC (CFN)
Highway Networks, LLC
Hilltower Tower Leasing, Inc
Hudson County Prosecutors Office
Huntingdon, County of
In The Stix Broadband LLC
Jackson Twp. Police Department
Jefferson Microwave, LLC
Juniata County Emergency Services
Kryptick Technologies
L3Harris Technologies, Inc
LANline Communications, Inc.
Lackawanna County Dept. of Emergency Ser
Lackawanna, County of
Lake Mohegan Fire District
Lakewood Municipal Utilities Authority
Lancaster County-Wide Communications
Lehigh, County of
Luzerne County of PA
MPS Communications
Manchester, Township of
Marcus Communications
Maryland State Highway Administration
Massachusetts Commonwealth of
Massachusetts, Commonwealth of
Mid-Hudson Cablevision
Mid-Hudson Data Corp
Middlesex, County of
Middletown, City of
Mifflin County
Millersburg Area School District
Monmouth, County of
Monroe County Control Center (PA)
Montgomery County Of
Morris, County of
NBC Telemundo License LLC
NW Technologies, LLC
NY Dept of Health and Mental Hygiene
NYC DOT Staten Island Ferry
Nassau County Police Department
New Britain, City of
New Cingular Wireless PCS LLC - NJ
New Cingular Wireless PCS - Maryland

New Cingular Wireless PCS LLC - CT
New Cingular Wireless PCS LLC - MA
New Cingular Wireless PCS LLC-DE/NH/RI
New Cingular Wireless PCS, LLC (NY)
New Cingular Wireless PCS, LLC - PA
New Haven, City of
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 Police TARU
New York City Transit Authority
New York Communications Co., Inc
New York Presbyterian Hospital
New York Public Radio
New York SMSA LP (Northern NJ)
New York SMSA Limited Partnership
New York State Electric & Gas Corp
Newark Police Department
Newark, City of
Norcom Communications Corp.
Northumberland County DPS/911
Norton, Douglas R
Ocean County of - Div of Wireless Tech.
Ocean, County of
Office of Emergency Telecom Services, NJ
Orange County Dept of Emergency Services
Orange and Rockland Utilities, Inc.
Orangetown, Town of
PSEG Services Corporation
Parsippany Troy Hills Township
Peco Energy Company
Pennsylvania Turnpike Commission
Perry, County of
PhillieCo, L.P.
Pierce Broadband, LLC
Pines Pantry, Inc.
Piscataway, Township Of
Pocono Mountain School District
Putnam County Bureau of Emerg. Services
R. Fritz Enterprises Inc
Rensselaer County
Ridgefield Police Department
Rockland, County of
SW Networks
Sanofi Pasteur
Schuylkill, County of
Secom Net
Setauket Fire District
Shenandoah Personal Communications, LLC
SkyPacket Networks Inc.
Snyder, County of
Somerset County (M.I.S.)
Somerset, County of

Southampton, Town Of, Police Dept.
Southeastern Pennsylvania Transit Auth
Southington Town of CT
Spectrum Holding Company LLC
Spot On Networks
Sprint Spectrum L.P.
Sprintcom, Inc
St Lukes Hospital - Monroe Campus
Stamford, City of
Standard Backhaul Communications LLC
State of Maryland, MIEMSS
State of New Jersey
State of New Jersey
State of New Jersey Information Technolog
State of New York, Div of State Police
Suffolk County Police Department
Suffolk, County of
Sullivan County DPW
Susquehanna County
Sussex County Sheriffs Office
T-Mobile License LLC
TTWN Networks, LLC
Telecom Transport Management, Inc
Toms River, Township of
Towerstream Corp.
Town of Colonie Police Department
Town of East Hampton
Town of North Haven
Town of Smithtown Dept of Public Safety
Town of West Hartford
Town of Wethersfield
Township of Lakewood
Township of Middletown
Township of Old Bridge
Townsquare Media Monmouth-Ocean License
Transcontinental Gas Pipe Line Co., LLC
Transwave Communication Systems, Inc.
Triangle Communications, Inc.
Ulster County of
Union County New Jersey
Uniti Fiber LLC
Upward Broadband
VTel Wireless, Inc.
Valley Rural Electric Cooperative, Inc.
Verizon New Jersey, Inc.
Verizon Wireless (VAW) LLC (NY)
Verizon Wireless (VAW) LLC - Northern NJ
Verizon Wireless (VAW) LLC-Pennsylvania
WHYY, Inc.
Wayne County - DHS-EM
Wayne, County of
Wayne, Township of
Weblin Holdings LLC
West Springfield, Town of Fire Dept
Westchester, County of
Widmo Holdings LLC

Windsor Town Connecticut
Wireless Internetwork LLC
Woodbrigde PD
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: 10/23/2020
Job Number: 201013COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E080162
Licensee Code DENALI
Licensee Name Denali 20020, LLC

Site Information

VERNON VLY, NJ
Venue Name
Latitude (NAD 83) 41° 12' 10.0" N
Longitude (NAD 83) 74° 31' 39.0" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 217.93 m / 715.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 3° W to 143° West Longitude
Azimuth Range 102.4° to 255.4°
Corresponding Elevation Angles 5.1° / 7.4°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

	Receive - FCC32	Transmit - FCC32
Manufacturer	Vertex/RSI	Vertex/RSI
Model	11.0 KPK	11.0 KPK
Gain / Diameter	61.0 dBi / 11.0 m	62.4 dBi / 11.0 m
3-dB / 15-dB Beamwidth	0.16° / 0.32°	0.14° / 0.26°
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)	-14.0 10.0
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)	48.4 72.4
Interference Objectives:	Long Term Short Term	-156.0 dBW/MHz 20% -146.0 dBW/MHz 0.01%
		-151.0 dBW/4 kHz 20% -128.0 dBW/4 kHz 0.0025%

Frequency Information

	Receive 11.0 GHz	Transmit 14.0 GHz
Emission / Frequency Range (MHz)	1M00G7W - 36M0G7W / 10950.0 - 11200.0 1M00G7W - 36M0G7W / 11450.0 - 12200.0	1M00G7W - 36M0G7W / 13750.0 - 14500.0
Max Great Circle Coordination Distance	691.3 km / 429.5 mi	305.3 km / 189.7 mi
Precipitation Scatter Contour Radius	605.8 km / 376.4 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values

VERNON VLY, NJ

Licensee Name Denali 20020, LLC
Latitude (NAD 83) 41° 12' 10.0" N
Longitude (NAD 83) 74° 31' 39.0" W
Ground Elevation (AMSL) 217.93 m / 715.0 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model Vertex/RSI 11 meter
Antenna Mode Receive 11.0 GHz Transmit 14.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -151.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -128.0 dBW/4 kHz 0.0025%
Max Available RF Power -14.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	4.60	102.41	-10.00	102.75	-10.00	100.00
5	3.36	97.41	-10.00	120.98	-10.00	100.00
10	2.20	92.41	-10.00	142.03	-10.00	100.00
15	1.22	87.42	-10.00	174.23	-10.00	100.00
20	0.95	82.43	-10.00	184.46	-10.00	100.00
25	2.17	77.43	-10.00	142.58	-10.00	100.00
30	2.31	72.43	-10.00	139.55	-10.00	100.00
35	1.38	67.46	-10.00	168.85	-10.00	100.00
40	0.22	62.52	-10.00	229.06	-10.00	113.96
45	0.00	57.56	-10.00	231.37	-10.00	115.80
50	0.00	52.59	-10.00	231.37	-10.00	115.80
55	0.00	47.62	-9.95	231.61	-9.95	115.94
60	0.00	42.66	-8.75	236.91	-8.75	118.92
65	0.00	37.71	-7.41	243.07	-7.41	122.30
70	0.00	32.77	-5.89	250.45	-5.89	126.18
75	0.54	27.76	-4.09	227.41	-4.09	105.64
80	1.44	22.70	-1.90	205.23	-1.90	100.00
85	1.70	17.74	0.78	207.75	0.78	100.00
90	1.70	12.87	4.26	224.06	4.26	100.00
95	2.13	7.99	9.43	240.65	9.43	100.00
100	2.12	3.86	17.35	691.30	17.35	305.32
105	2.30	3.84	17.41	475.88	17.41	200.98
110	2.21	7.51	10.11	242.67	10.11	100.00
115	2.07	11.19	5.78	222.09	5.78	100.00
120	2.43	14.42	3.03	203.79	3.03	100.00
125	2.25	17.93	0.66	196.74	0.66	100.00
130	2.64	20.92	-1.02	179.74	-1.02	100.00
135	2.85	23.88	-2.45	164.10	-2.45	100.00
140	3.52	26.29	-3.50	142.94	-3.50	100.00
145	3.42	29.08	-4.59	139.74	-4.59	100.00
150	3.42	31.55	-5.48	135.96	-5.48	100.00
155	3.88	33.31	-6.07	126.73	-6.07	100.00
160	2.97	35.97	-6.90	138.77	-6.90	100.00
165	2.67	37.74	-7.42	142.92	-7.42	100.00
170	2.43	39.06	-7.79	146.50	-7.79	100.00
175	2.93	39.24	-7.84	135.65	-7.84	100.00
180	2.26	40.13	-8.09	149.28	-8.09	100.00
185	2.07	40.09	-8.08	154.06	-8.08	100.00

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Coordination Values

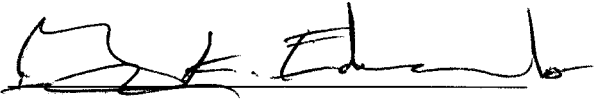
VERNON VLY, NJ

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Longitude (NAD 83) 74° 31' 39.0" W
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Interference Objectives: Long Term -156.0 dBW/MHz 20% -151.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -128.0 dBW/4 kHz 0.0025%
Max Available RF Power -14.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	1.19	40.27	-8.12	184.32	-8.12	100.00
195	0.00	40.25	-8.12	239.79	-8.12	120.51
200	0.00	38.67	-7.68	241.80	-7.68	121.61
205	0.00	36.71	-7.12	244.57	-7.12	123.04
210	0.00	34.42	-6.42	247.88	-6.42	124.82
215	0.00	31.86	-5.58	251.95	-5.58	126.97
220	0.45	28.70	-4.45	232.45	-4.45	110.27
225	0.97	25.32	-3.09	211.00	-3.09	100.00
230	1.92	21.46	-1.29	195.37	-1.29	100.00
235	1.73	18.31	0.43	205.43	0.43	100.00
240	1.67	14.95	2.63	217.01	2.63	100.00
245	2.49	10.88	6.08	214.37	6.08	100.00
250	3.81	6.40	11.84	217.54	11.84	100.00
255	4.79	2.64	21.45	460.93	21.45	191.10
260	7.45	4.57	15.51	193.35	15.51	100.00
265	9.19	9.73	7.29	124.54	7.29	100.00
270	9.74	14.75	2.78	101.92	2.78	100.00
275	9.77	19.71	-0.36	100.00	-0.36	100.00
280	9.87	24.68	-2.81	100.00	-2.81	100.00
285	9.88	29.66	-4.81	100.00	-4.81	100.00
290	9.81	34.64	-6.49	100.00	-6.49	100.00
295	9.49	39.61	-7.95	100.00	-7.95	100.00
300	8.82	44.59	-9.23	100.00	-9.23	100.00
305	8.16	49.57	-10.00	100.00	-10.00	100.00
310	8.25	54.57	-10.00	100.00	-10.00	100.00
315	7.98	59.57	-10.00	100.00	-10.00	100.00
320	7.26	64.57	-10.00	100.00	-10.00	100.00
325	6.66	69.57	-10.00	100.00	-10.00	100.00
330	7.50	74.57	-10.00	100.00	-10.00	100.00
335	8.35	79.57	-10.00	100.00	-10.00	100.00
340	8.22	84.57	-10.00	100.00	-10.00	100.00
345	8.26	89.57	-10.00	100.00	-10.00	100.00
350	7.13	94.57	-10.00	100.00	-10.00	100.00
355	5.86	99.56	-10.00	100.00	-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: October 23, 2020