

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Denali 20020, LLC
VERNON VALLEY, NJ
(E080162)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
March 29, 2015

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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 02/04/2015.

Company

ABC, Inc. - WPVI-TV
AT&T Corporation
AWC Networks
American Broadcasting Companies, Inc.
Auburn Data Systems, LLC
Bergen, County of
Blueline Communications
Borough of Fort Lee, New Jersey
Borough of Sayreville
Business Only Broadband, LLC
CABLEVISION LIGHTPATH
CAMPUS TELEVIDEO
CBS Communication Services Inc
CBS Radio Stations Inc.
COLUMBIA UNIVERSITY IN THE CITY NEW YORK
City of Bethlehem
City of Jersey City
Clearwire Spectrum Holdings III, LLC
Comprehensive Wireless LLC
County of Hunterdon
DREXEL UNIVERSITY
Diocese of Camden
ECW Wireless, LLC
Entergy Nuclear Indian Point 2, LLC
Federal Home Loan Bank of New York
Fundamental Broadcasting LLC
Geodesic Networks LLC
Greenwich, Town of (CT)
HISPANIC INFORMATION AND TELECOMM NETWRK
High Voltage Communications LLC
Highway Networks, LLC
Hoboken Fire Department
Hopewell Radiology Group
Hotwire Communications
Hudson County MIS Department
J & R ELECTRONIC INC
Jamaica Hospital Medical Center
Jefferson Microwave, LLC
Jersey City, City of
Lawrence School District
MAHWAH TOWNSHIP NEW JERSEY

MINEOLA UNION FREE SCHOOL DISTRICT
MONTGOMERY, McCracken, Walker & Rhoads
MTA - Long Island Railroad
Metro Networks Communications, Inc.
Mifflin Mobilecom
Mount Sinai Hospital
NBC Telemundo License Co.
NBC Telemundo License LLC
NEW JERSEY PUBLIC BROADCASTING AUTHORITY
NEW YORK CITY HOUSING AUTHORITY
NEW YORK UNIVERSITY
NW Technologies, LLC
NYC DOT Staten Island Ferry
NYU Medical Center
Nassau County Government
Nassau County Police Department
National Tower Company LLC
NeXXCom Wireless LLC
New Cingular Wireless PCS LLC -NJ
New Cingular Wireless PCS, LLC (NY)
New Cingular Wireless PCS, LLC - PA
New Jersey Telcomm
New York City Police Department TARU
New York Communications Co., Inc
New York Health and Hospitals Corp/North
New York Methodist Hospital
New York Power Authority
New York Presbyterian Hospital
New York SMSA Limited Partnership
New York, City of (Police Department)
Nextel Comm. of The Mid-Atlantic, Inc.
Nextel of New York, Inc.
Northeast Utilities Service Company
Northrop Grumman Systems Corp.
Northrop Grumman Systems Corporation Inc
Office of Emergency Mng, City of Newark
Philadelphia, City of
Pitt Power
Plymouth Township Police Department
Qoncept Holdings LLC
Rendezvous Communications LLC
Rutgers, The State University of N.J.
SCS Networks
SECOM NET
SOMERSET COUNTY (M.I.S.)
SONSHINE FAMILY TELEVISION CORPORATION
ST. LUKE'S HOSPITAL
Sachem Central School District
Sesame Workshop
Sprint Spectrum L.P.
St. Lukes Cornwall Hospital
Standard Backhaul Communications LLC
State of New Jersey
State of New York, Div of State Police
T-Mobile License LLC
Telecom Transport Management, Inc

The Center for Discovery
The Goldman Sachs Group, Inc.
Thought Transmissions, LLC
Tivcorp, Inc.
Total Recall Corp
Towerstream Corp.
Town of Babylon
Town of North Hempstead
Town of Westport Connecticut
Town of Wethersfield
Township of Lower Merion
Townsquare Media Trenton License, LLC
Turtle Networks 6384
Turtle Networks 6559
Turtle Networks 6562
ULTRAVISION INC
Verizon New Jersey, Inc.
WATERBURY CITY POLICE
WESTCHESTER, COUNTY OF
WILLIAM PATERSON UNIVERSITY
WLG TV INC
WPHL, LLC
WYCKOFF HEIGHTS MEDICAL CENTER
Weblin Holdings LLC
Weehawken, Township of
West Islip Fire District
White Rabbit Networks
Wireless Holdings Network, LLC
Wireless Internetwork LLC
World Class Wireless, LLC
Xchange Telecom Corp.
Zayo Group, LLC
Zen Networks, Inc
iSignal

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: 02/04/2015
Job Number: <PCNJobCode>

Administrative Information

Status ENGINEER PROPOSAL
Call Sign <PCNCallSign>
Licensee Code DENALI
Licensee Name Denali 20020, LLC

Site Information

VERNON VALLEY, 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) 7.32 m / 24.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	Vertex	Vertex
Model	11 Meter	11 Meter
Gain / Diameter	60.5 dBi / 11.0 m	62.0 dBi / 11.0 m
3-dB / 15-dB Beamwidth	0.16° / 0.30°	0.14° / 0.26°
Max Available RF Power	(dBW/4 kHz)	1.4
	(dBW/MHz)	25.4
Maximum EIRP	(dBW/4 kHz)	63.4
	(dBW/MHz)	87.4
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%
	Short Term	-146.0 dBW/MHz 0.01%
		-151.0 dBW/4 kHz 20%
		-128.0 dBW/4 kHz 0.0025%

Frequency Information

Receive 12.0 GHz

Transmit 17.0 GHz

Emission / Frequency Range (MHz)	1M00G7W - 36M0G7W / 12200.0 - 12700.0	1M00G7W - 36M0G7W / 17300.0 - 17800.0
Max Great Circle Coordination Distance	663.0 km / 411.9 mi	456.7 km / 283.8 mi
Precipitation Scatter Contour Radius	601.9 km / 374.0 mi	196.9 km / 122.3 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)	7.32 m / 24.0 ft		
Antenna Model	Vertex 11 Meter		
Antenna Mode	Receive 12.0 GHz		Transmit 17.0 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz 20%
	Short Term	-146.0 dBW/MHz	0.01%
Max Available RF Power		1.4 (dBW/4 kHz)	-128.0 dBW/4 kHz 0.0025%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.0 GHz		Transmit 17.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	4.52	102.41	-10.00	101.21	-10.00	100.00
5	3.29	97.41	-10.00	119.57	-10.00	100.00
10	2.13	92.41	-10.00	140.37	-10.00	100.00
15	1.13	87.42	-10.00	172.86	-10.00	107.86
20	0.90	82.43	-10.00	182.28	-10.00	115.23
25	2.13	77.43	-10.00	140.24	-10.00	100.00
30	2.26	72.44	-10.00	137.51	-10.00	100.00
35	1.33	67.47	-10.00	163.69	-10.00	102.89
40	0.00	62.53	-10.00	227.19	-10.00	159.68
45	0.00	57.56	-10.00	227.19	-10.00	159.68
50	0.00	52.59	-10.00	227.19	-10.00	159.68
55	0.00	47.62	-9.95	227.42	-9.95	159.89
60	0.00	42.66	-8.75	232.71	-8.75	165.92
65	0.00	37.71	-7.41	238.85	-7.41	171.01
70	0.00	32.77	-5.89	246.63	-5.89	176.80
75	0.53	27.77	-4.09	223.69	-4.09	149.89
80	1.42	22.70	-1.90	201.25	-1.90	125.15
85	1.68	17.74	0.78	203.72	0.78	128.12
90	1.69	12.87	4.26	219.73	4.26	139.59
95	2.11	8.00	9.42	235.89	9.42	150.46
100	2.10	3.87	17.30	663.01	17.30	456.74
105	2.28	3.85	17.36	460.30	17.36	307.89
110	2.19	7.52	10.09	237.85	10.09	151.62
115	2.05	11.20	5.77	217.63	5.77	136.78
120	2.40	14.43	3.02	199.64	3.02	121.11
125	2.22	17.95	0.65	192.58	0.65	116.02
130	2.60	20.95	-1.03	175.69	-1.03	103.09
135	2.82	23.91	-2.46	160.22	-2.46	100.00
140	3.49	26.32	-3.51	140.08	-3.51	100.00
145	3.39	29.11	-4.60	137.09	-4.60	100.00
150	3.38	31.58	-5.49	133.50	-5.49	100.00
155	3.85	33.34	-6.07	124.36	-6.07	100.00
160	2.94	36.00	-6.91	136.19	-6.91	100.00
165	2.64	37.77	-7.43	140.11	-7.43	100.00
170	2.41	39.08	-7.80	143.49	-7.80	100.00
175	2.90	39.26	-7.85	133.17	-7.85	100.00
180	2.23	40.15	-8.09	146.26	-8.09	100.00
185	2.04	40.12	-8.08	150.87	-8.08	100.00

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Coordination Values

VERNON VLY, NJ

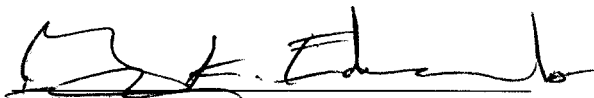
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Latitude (NAD 83)	41° 12' 10.0" N		
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Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 12.0 GHz		Transmit 17.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	1.18	40.28	-8.13	180.26	-8.13	112.09
195	0.00	40.25	-8.12	235.58	-8.12	168.31
200	0.00	38.67	-7.68	237.59	-7.68	169.97
205	0.00	36.71	-7.12	240.23	-7.12	172.12
210	0.00	34.42	-6.42	244.05	-6.42	174.77
215	0.00	31.86	-5.58	248.12	-5.58	177.97
220	0.27	28.84	-4.50	246.45	-4.50	175.12
225	0.94	25.34	-3.09	207.78	-3.09	133.13
230	1.87	21.49	-1.31	192.02	-1.31	116.52
235	1.68	18.35	0.41	202.21	0.41	126.92
240	1.47	15.09	2.53	217.29	2.53	138.33
245	2.24	11.06	5.91	213.99	5.91	133.42
250	3.62	6.53	11.63	214.85	11.63	129.67
255	4.55	2.88	20.50	444.58	20.50	291.31
260	7.27	4.57	15.50	190.01	15.50	104.20
265	9.01	9.70	7.33	122.98	7.33	100.00
270	9.56	14.72	2.80	100.57	2.80	100.00
275	9.59	19.69	-0.35	100.00	-0.35	100.00
280	9.63	24.66	-2.80	100.00	-2.80	100.00
285	9.64	29.65	-4.80	100.00	-4.80	100.00
290	9.57	34.63	-6.49	100.00	-6.49	100.00
295	9.25	39.60	-7.94	100.00	-7.94	100.00
300	8.58	44.58	-9.23	100.00	-9.23	100.00
305	7.98	49.57	-10.00	100.00	-10.00	100.00
310	8.07	54.57	-10.00	100.00	-10.00	100.00
315	7.80	59.57	-10.00	100.00	-10.00	100.00
320	7.08	64.57	-10.00	100.00	-10.00	100.00
325	6.48	69.57	-10.00	100.00	-10.00	100.00
330	7.35	74.57	-10.00	100.00	-10.00	100.00
335	8.20	79.57	-10.00	100.00	-10.00	100.00
340	8.09	84.57	-10.00	100.00	-10.00	100.00
345	8.14	89.57	-10.00	100.00	-10.00	100.00
350	7.02	94.57	-10.00	100.00	-10.00	100.00
355	5.77	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: March 29, 2015