

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
HUGHES NETWORK SYSTEMS LIMITED
ROSEBURG, OR
(E150079)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
February 09, 2017

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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 01/25/2017.

Company

Cellco Partnership - Oregon
City of Medford
Clearwire Spectrum Holdings II, LLC
Clearwire Spectrum Holdings III, LLC
Coos County Sheriff's Office
Eugene, City of
Falcon Cable Systems Co. II, L.P.
Fixed Wireless Holdings, LLC
Freewire Broadband LLC
Lane Education Service District
Lane Transit District
NEXTEL WEST CORPORATION
New Cingular Wireless PCS LLC -OR Region
Olympic Wireless, LLC
Oregon Public Broadcasting (KOPB)
Outreach Internet, Inc.
PacifiCorp
SILKE COMMUNICATIONS, INC
Sprint Spectrum L.P.
Sprint Spectrum Portland MTA
Sprintcom, Inc
T-Mobile License LLC
UnwiredWest, LLC
Verizon Wireless (VAW) LLC-Portland, OR

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: 01/25/2017
Job Number: 170125COMSGE10

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E150079
Licensee Code HUNESY
Licensee Name HUGHES NETWORK SYSTEMS LIMITED

Site Information

ROSEBURG, OR
Venue Name
Latitude (NAD 83) 43° 12' 41.9" N
Longitude (NAD 83) 123° 20' 45.9" W
Climate Zone A
Rain Zone 3
Ground Elevation (AMSL) 137.8 m / 452.1 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 97.1° W to 97.1° West Longitude
Azimuth Range 144.2° to 144.2°
Corresponding Elevation Angles 33.6° / 33.6°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

Receive - FCC32
Manufacturer General Dynamics
Model 8.1 meter
Gain / Diameter 62.0 dBi / 8.1 m
3-dB / 15-dB Beamwidth 1.00° / 2.00°

Interference Objectives:	Long Term	-156.0 dBW/MHz	20%
	Short Term	-146.0 dBW/MHz	0.01%

Frequency Information

Receive 18.0 GHz
Emission / Frequency Range (MHz) 100KG7W - 25M0G7W / 18300.0 - 19300.0
100KG7W - 25M0G7W / 19700.0 - 20200.0

Max Great Circle Coordination Distance 112.4 km / 69.8 mi
Precipitation Scatter Contour Radius 100.0 km / 62.1 mi

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Coordination Values		ROSEBURG, OR	
Licensee Name		HUGHES NETWORK SYSTEMS LIMITED	
Latitude (NAD 83)		43° 12' 41.9" N	
Longitude (NAD 83)		123° 20' 45.9" W	
Ground Elevation (AMSL)		137.8 m / 452.1 ft	
Antenna Centerline (AGL)		5.49 m / 18.0 ft	
Antenna Model		General Dynamics 8.1 meter	
Antenna Mode		Receive 18.0 GHz	
Interference Objectives: Long Term		-156.0 dBW/MHz	20%
	Short Term	-146.0 dBW/MHz	0.01%

Receive 18.0 GHz

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)
0	4.51	135.17	-10.00	100.00
5	3.92	131.17	-10.00	100.00
10	3.90	127.31	-10.00	100.00
15	5.33	123.87	-10.00	100.00
20	3.24	119.05	-10.00	100.00
25	3.84	115.10	-10.00	100.00
30	4.43	111.02	-10.00	100.00
35	5.14	106.85	-10.00	100.00
40	5.64	102.55	-10.00	100.00
45	5.18	98.12	-10.00	100.00
50	4.27	93.70	-10.00	100.00
55	4.16	89.34	-10.00	100.00
60	3.08	85.04	-10.00	100.00
65	2.77	80.78	-10.00	100.00
70	2.93	76.49	-10.00	100.00
75	2.18	72.39	-10.00	100.00
80	1.57	68.38	-10.00	100.00
85	1.44	64.34	-10.00	100.00
90	1.95	60.16	-10.00	100.00
95	2.70	55.93	-10.00	100.00
100	3.62	51.64	-10.00	100.00
105	3.02	48.18	-10.00	100.00
110	3.24	44.49	-9.21	100.00
115	3.84	40.74	-8.25	100.00
120	5.22	36.64	-7.10	100.00
125	6.82	32.55	-5.81	100.00
130	7.69	29.32	-4.68	100.00
135	7.82	27.27	-3.89	100.00
140	6.73	27.16	-3.85	100.00
145	6.71	26.88	-3.74	100.00
150	6.51	27.63	-4.04	100.00
155	6.93	28.59	-4.41	100.00
160	7.37	30.29	-5.03	100.00
165	5.63	34.31	-6.38	100.00
170	4.51	38.08	-7.52	100.00
175	3.75	41.80	-8.53	100.00
180	2.66	45.88	-9.54	100.00
185	3.11	49.24	-10.00	100.00

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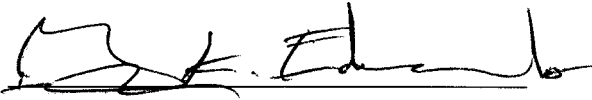
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Receive 18.0 GHz

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)
190	4.36	52.49	-10.00	100.00
195	2.89	57.04	-10.00	100.00
200	2.27	61.27	-10.00	100.00
205	0.60	65.81	-10.00	110.13
210	1.26	69.70	-10.00	100.00
215	1.96	73.70	-10.00	100.00
220	1.83	77.92	-10.00	100.00
225	2.34	82.11	-10.00	100.00
230	3.24	86.34	-10.00	100.00
235	4.50	90.66	-10.00	100.00
240	5.93	95.10	-10.00	100.00
245	6.34	99.55	-10.00	100.00
250	6.39	103.98	-10.00	100.00
255	5.67	108.25	-10.00	100.00
260	6.20	112.70	-10.00	100.00
265	5.46	116.81	-10.00	100.00
270	4.83	120.82	-10.00	100.00
275	2.29	123.91	-10.00	100.00
280	1.38	127.31	-10.00	100.00
285	1.53	131.03	-10.00	100.00
290	1.60	134.52	-10.00	100.00
295	1.03	137.35	-10.00	100.00
300	0.54	139.85	-10.00	112.38
305	0.55	142.32	-10.00	112.21
310	1.00	144.76	-10.00	100.00
315	1.64	146.88	-10.00	100.00
320	1.40	147.56	-10.00	100.00
325	2.46	148.86	-10.00	100.00
330	2.57	148.51	-10.00	100.00
335	1.89	146.71	-10.00	100.00
340	2.53	145.54	-10.00	100.00
345	2.29	143.04	-10.00	100.00
350	3.88	141.47	-10.00	100.00
355	4.75	138.84	-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: February 09, 2017