

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
SES Americom, Inc.
BREWSTER, WA
(13m)
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
September 30, 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 08/14/2020.

Company

AT&T Mobility Spectrum LLC - ID, MT, WY
AT&T Mobility Spectrum LLC - Washington
Accel Net, Inc.
Avista Corporation
BNSF Railway Company
Bearclaw, LLC
Benton County Emergency Services
Boeing Company
Bookbinder, LLC
Brigadier, LLC
Capstar TX LLC
Cascade Natural Gas Corporation
Cellco Partnership - Washington
CenturyTel of Cowiche, Inc.
CenturyTel of Washington, Inc.
Chelan County PUD #1
City of Tacoma / Tacoma Public Utilities
Community Transit Snohomish County PTBA
Computer 5, Inc.
Confluence Health
Eastside Public Safety Com Agency
EcliptixNet Broadband, Inc.
Fox Television Stations, LLC
Franklin County Sheriff
Frontier Communications Northwest Inc.
Inland Cellular LLC
International Communications Group, Inc.
King County DOT Metro Transit Division
King, County of
Kittcom
Kootenai, County of
McDaniel Cellular Telephone Company
Multi Agency Communications Center
NCI Datacom, Inc.
New Cingular Wireless PCS - ID, WY
New Cingular Wireless PCS LLC-Washington
New Cingular Wireless PCS, LLC (NY)
Noel Communications, Inc.
Northwest Pipeline GP
Olympic Wireless, LLC

Oregon RSA #2, Inc.
PacifiCorp
Pick Two LLC
Pierce County
Public Util Dist. #1 of Snohomish County
Puget Sound Energy, Inc
Puyallup, City of
Qwest Corporation
RSN Wireless, LLC
Seattle City Light
Seattle SMSA Limited Partnership
Seattle, City of
Shoshone Medical Center
Silke Communications, Inc.
Snohomish County Emergency Radio System
Spokane Regional Emergency Communication
Sprint Spectrum L.P.
Startouch, Inc.
State of Idaho
Stevens County Sheriff's Office
T-Mobile License LLC
Thurston 9-1-1 Communications
USCOC of Richland, Inc.
Union Pacific Railroad Company
Verizon Wireless (VAW) LLC - (WA)
Verizon Wireless (VAW) LLC - Idaho
Verizon Wireless (VAW) LLC -CO/ID/MT/WY
Washington State of Dept of Transportat
Washington, State of
Western Sub-RSA LTD Partnership
Wired or Wireless, Inc.
Yakima MSA Limited Partnership

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: 09/30/2020
Job Number: 200814COMSGE05

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code P3210
Licensee Name SES Americom, Inc.

Site Information BREWSTER, WA

Venue Name
Latitude (NAD 83) 48° 8' 49.2" N
Longitude (NAD 83) 119° 41' 44.5" W
Climate Zone A
Rain Zone 5
Ground Elevation (AMSL) 385.31 m / 1264.2 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 52° W to 188° West Longitude
Azimuth Range 107.0° to 253.5°
Corresponding Elevation Angles 6.0° / 5.6°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

		Receive - FCC32	Transmit - FCC32		
Manufacturer		GD Satcom	GD Satcom		
Model		13 THBG	13 THBG		
Gain / Diameter		53.4 dBi / 13.0 m	57.1 dBi / 13.0 m		
3-dB / 15-dB Beamwidth		0.38° / 0.76°	0.26° / 0.52°		
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)		0.5 24.5		
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		57.6 81.6		
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%

Frequency Information

	Receive 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	N0N - 72M0G7W / 3625.0 - 4200.0	N0N - 72M0G7W / 5850.0 - 6425.0
Max Great Circle Coordination Distance	694.5 km / 431.5 mi	446.2 km / 277.2 mi
Precipitation Scatter Contour Radius	461.5 km / 286.7 mi	100.0 km / 62.1 mi

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Coordination Values

BREWSTER, WA

Licensee Name	SES Americom, Inc.		
Latitude (NAD 83)	48° 8' 49.2" N		
Longitude (NAD 83)	119° 41' 44.5" W		
Ground Elevation (AMSL)	385.31 m / 1264.2 ft		
Antenna Centerline (AGL)	5.49 m / 18.0 ft		
Antenna Model	GD Satcom 13 meter		
Antenna Mode	Receive 4.0 GHz		Transmit 6.1 GHz
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%	-154.0 dBW/4 kHz 20%
	Short Term	-146.0 dBW/MHz 0.01%	-131.0 dBW/4 kHz 0.0025%
Max Available RF Power		0.5 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.29	106.44	-10.00	273.79	-10.00	173.21
5	0.94	101.95	-10.00	223.36	-10.00	129.84
10	0.45	96.96	-10.00	255.71	-10.00	155.41
15	0.84	91.99	-10.00	229.14	-10.00	133.23
20	1.64	87.00	-10.00	204.35	-10.00	111.00
25	0.75	82.03	-10.00	234.21	-10.00	137.31
30	0.37	77.06	-10.00	265.01	-10.00	163.70
35	0.67	72.07	-10.00	238.74	-10.00	141.03
40	0.92	67.09	-10.00	224.76	-10.00	130.99
45	0.88	62.12	-10.00	226.64	-10.00	132.50
50	1.48	57.11	-10.00	206.20	-10.00	114.96
55	1.39	52.14	-10.00	208.76	-10.00	117.31
60	1.71	47.14	-9.84	203.23	-9.84	109.77
65	1.84	42.16	-8.62	205.01	-8.62	110.18
70	1.96	37.18	-7.26	205.95	-7.26	112.16
75	2.11	32.21	-5.70	209.72	-5.70	114.32
80	2.44	27.21	-3.87	211.64	-3.87	114.57
85	2.44	22.27	-1.69	223.35	-1.69	122.58
90	2.56	17.33	1.03	237.07	1.03	130.76
95	2.72	12.43	4.64	257.89	4.64	139.97
100	2.52	7.81	9.68	304.28	9.68	169.52
105	2.22	4.28	16.20	665.34	16.20	424.55
110	2.10	4.94	14.66	498.84	14.66	302.80
115	1.93	8.20	9.15	319.81	9.15	181.68
120	2.02	11.17	5.80	287.28	5.80	160.68
125	1.74	14.33	3.09	276.36	3.09	156.17
130	1.08	17.70	0.80	284.46	0.80	167.73
135	0.65	20.75	-0.93	299.50	-0.93	182.05
140	0.36	23.52	-2.29	318.39	-2.29	197.59
145	0.00	26.18	-3.45	330.83	-3.45	206.52
150	0.00	28.30	-4.30	324.71	-4.30	204.91
155	0.00	30.17	-4.99	319.75	-4.99	202.27
160	0.00	31.76	-5.55	315.81	-5.55	200.15
165	0.00	33.03	-5.97	312.82	-5.97	198.53
170	0.00	33.96	-6.27	310.09	-6.27	197.38
175	0.00	34.52	-6.45	308.85	-6.45	196.69
180	0.00	34.71	-6.51	308.43	-6.51	196.46
185	0.00	34.52	-6.45	308.85	-6.45	196.69

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Coordination Values

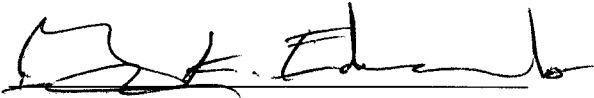
BREWSTER, WA

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Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power 0.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	33.96	-6.27	310.09	-6.27	197.38
195	0.00	33.03	-5.97	312.82	-5.97	198.53
200	0.00	31.76	-5.55	315.81	-5.55	200.15
205	0.00	30.18	-4.99	319.74	-4.99	202.27
210	0.00	28.30	-4.30	324.71	-4.30	204.91
215	0.00	26.18	-3.45	330.84	-3.45	206.53
220	0.00	23.84	-2.43	338.31	-2.43	210.52
225	0.00	21.29	-1.20	347.46	-1.20	215.50
230	0.00	18.59	0.27	358.68	0.27	221.73
235	0.00	15.73	2.08	372.78	2.08	229.72
240	0.00	12.76	4.35	390.35	4.35	240.31
245	0.47	9.34	7.74	384.98	7.74	229.64
250	1.89	5.11	14.29	521.05	14.29	318.77
255	3.04	2.99	20.11	694.52	20.11	446.24
260	2.02	7.43	10.22	325.30	10.22	184.29
265	2.92	11.82	5.19	256.52	5.19	138.27
270	3.56	16.63	1.47	215.98	1.47	114.08
275	3.84	21.58	-1.35	197.71	-1.35	100.00
280	3.57	26.58	-3.62	191.53	-3.62	100.00
285	3.37	31.58	-5.49	186.28	-5.49	100.00
290	3.41	36.57	-7.08	177.13	-7.08	100.00
295	2.33	41.62	-8.48	194.34	-8.48	100.33
300	1.66	46.64	-9.72	204.92	-9.72	111.22
305	2.42	51.58	-10.00	185.00	-10.00	100.00
310	2.23	56.58	-10.00	189.22	-10.00	100.00
315	1.83	61.58	-10.00	199.07	-10.00	106.12
320	1.59	66.57	-10.00	205.46	-10.00	112.04
325	1.75	71.55	-10.00	201.38	-10.00	108.24
330	2.21	76.53	-10.00	189.83	-10.00	100.00
335	2.15	81.53	-10.00	191.02	-10.00	100.00
340	1.91	86.52	-10.00	196.88	-10.00	104.14
345	1.45	91.51	-10.00	206.97	-10.00	115.67
350	0.66	96.49	-10.00	239.38	-10.00	141.56
355	0.00	101.45	-10.00	285.28	-10.00	183.06

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: September 30, 2020