

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Space Exploration Holdings
BREWSTER, WA
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
April 01, 2019

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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

No great circle interference cases were identified during the interference study of the proposed earth station.

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 02/26/2019.

<u>Company</u>
Comsearch

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: 02/26/2019
Job Number: 190226COMSGE07

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code SPACEX
Licensee Name Space Exploration Holdings

Site Information

BREWSTER, WA

Venue Name
Latitude (NAD 83) 48° 8' 55.0" N
Longitude (NAD 83) 119° 42' 4.1" W
Climate Zone A
Rain Zone 5
Ground Elevation (AMSL) 385.0 m / 1263.1 ft

Link Information

Satellite Type Low Earth Orbit
Mode TR - Transmit-Receive
Modulation Digital
Minimum Elevation Angle 5.0°
Azimuth Range 0.0° to 360°
Antenna Centerline (AGL) 3.05 m / 10.0 ft

Antenna Information

Receive - FCC32

Transmit - FCC32

Manufacturer	Cgc	Cgc	
Model	Type 4	Type 4	
Gain / Diameter	52.0 dBi / 5.0 m	56.0 dBi / 5.0 m	
3-dB / 15-dB Beamwidth	0.32° / 0.64°	0.26° / 0.54°	
Max Available RF Power (dBW/4 kHz)		-11.3	
(dBW/MHz)		12.7	
Maximum EIRP (dBW/4 kHz)		44.7	
(dBW/MHz)		68.7	
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%

Frequency Information

Receive 12.0 GHz

Transmit 13.0 GHz

Emission / Frequency Range (MHz) 36M0F8W / 12200.0 - 12250.0 2M70D7W / 13900.0 - 13950.0

Max Great Circle Coordination Distance 242.0 km / 150.4 mi 264.5 km / 164.3 mi
Precipitation Scatter Contour Radius 342.1 km / 212.5 mi 100.0 km / 62.1 mi

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Coordination Values		BREWSTER, WA	
Licensee Name		Space Exploration Holdings	
Latitude (NAD 83)		48° 8' 55.0" N	
Longitude (NAD 83)		119° 42' 4.1" W	
Ground Elevation (AMSL)		385.0 m / 1263.1 ft	
Antenna Centerline (AGL)		3.05 m / 10.0 ft	
Antenna Model		Cgc 5 meter	
Antenna Mode		Receive 12.0 GHz	Transmit 13.0 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		-11.3 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)		Receive 12.0 GHz		Transmit 13.0 GHz		Coordination Distance (km)
			Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	
0	0.00	0.0	-3.00	242.00	-3.00	264.50	
5	0.00	0.0	-3.00	242.00	-3.00	264.50	
10	0.00	0.0	-3.00	242.00	-3.00	264.50	
15	0.00	0.0	-3.00	242.00	-3.00	264.50	
20	0.00	0.0	-3.00	242.00	-3.00	264.50	
25	0.00	0.0	-3.00	242.00	-3.00	264.50	
30	0.00	0.0	-3.00	242.00	-3.00	264.50	
35	0.00	0.0	-3.00	242.00	-3.00	264.50	
40	0.00	0.0	-3.00	242.00	-3.00	264.50	
45	0.00	0.0	-3.00	242.00	-3.00	264.50	
50	0.00	0.0	-3.00	242.00	-3.00	264.50	
55	0.00	0.0	-3.00	242.00	-3.00	264.50	
60	0.00	0.0	-3.00	242.00	-3.00	264.50	
65	0.00	0.0	-3.00	242.00	-3.00	264.50	
70	0.00	0.0	-3.00	242.00	-3.00	264.50	
75	0.00	0.0	-3.00	242.00	-3.00	264.50	
80	0.00	0.0	-3.00	242.00	-3.00	264.50	
85	0.00	0.0	-3.00	242.00	-3.00	264.50	
90	0.00	0.0	-3.00	242.00	-3.00	264.50	
95	0.00	0.0	-3.00	242.00	-3.00	264.50	
100	0.00	0.0	-3.00	242.00	-3.00	264.50	
105	0.00	0.0	-3.00	242.00	-3.00	264.50	
110	0.00	0.0	-3.00	242.00	-3.00	264.50	
115	0.00	0.0	-3.00	242.00	-3.00	264.50	
120	0.00	0.0	-3.00	242.00	-3.00	264.50	
125	0.00	0.0	-3.00	242.00	-3.00	264.50	
130	0.00	0.0	-3.00	242.00	-3.00	264.50	
135	0.00	0.0	-3.00	242.00	-3.00	264.50	
140	0.00	0.0	-3.00	242.00	-3.00	264.50	
145	0.00	0.0	-3.00	242.00	-3.00	264.50	
150	0.00	0.0	-3.00	242.00	-3.00	264.50	
155	0.00	0.0	-3.00	242.00	-3.00	264.50	
160	0.00	0.0	-3.00	242.00	-3.00	264.50	
165	0.00	0.0	-3.00	242.00	-3.00	264.50	
170	0.00	0.0	-3.00	242.00	-3.00	264.50	
175	0.00	0.0	-3.00	242.00	-3.00	264.50	
180	0.00	0.0	-3.00	242.00	-3.00	264.50	
185	0.00	0.0	-3.00	242.00	-3.00	264.50	

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Earth Station Data Sheet

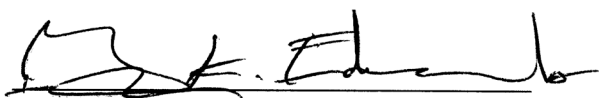
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Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz 20%
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power		-11.3 (dBW/4 kHz)	

Azimuth (°)	Receive 12.0 GHz		Transmit 13.0 GHz		Coordination Distance (km)
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Horizon Gain (dBi)	
190	0.00	0.0	-3.00	-3.00	264.50
195	0.00	0.0	-3.00	-3.00	264.50
200	0.00	0.0	-3.00	-3.00	264.50
205	0.00	0.0	-3.00	-3.00	264.50
210	0.00	0.0	-3.00	-3.00	264.50
215	0.00	0.0	-3.00	-3.00	264.50
220	0.00	0.0	-3.00	-3.00	264.50
225	0.00	0.0	-3.00	-3.00	264.50
230	0.00	0.0	-3.00	-3.00	264.50
235	0.00	0.0	-3.00	-3.00	264.50
240	0.00	0.0	-3.00	-3.00	264.50
245	0.00	0.0	-3.00	-3.00	264.50
250	0.00	0.0	-3.00	-3.00	264.50
255	0.00	0.0	-3.00	-3.00	264.50
260	0.00	0.0	-3.00	-3.00	264.50
265	0.00	0.0	-3.00	-3.00	264.50
270	0.00	0.0	-3.00	-3.00	264.50
275	0.00	0.0	-3.00	-3.00	264.50
280	0.00	0.0	-3.00	-3.00	264.50
285	0.00	0.0	-3.00	-3.00	264.50
290	0.00	0.0	-3.00	-3.00	264.50
295	0.00	0.0	-3.00	-3.00	264.50
300	0.00	0.0	-3.00	-3.00	264.50
305	0.00	0.0	-3.00	-3.00	264.50
310	0.00	0.0	-3.00	-3.00	264.50
315	0.00	0.0	-3.00	-3.00	264.50
320	0.00	0.0	-3.00	-3.00	264.50
325	0.00	0.0	-3.00	-3.00	264.50
330	0.00	0.0	-3.00	-3.00	264.50
335	0.00	0.0	-3.00	-3.00	264.50
340	0.00	0.0	-3.00	-3.00	264.50
345	0.00	0.0	-3.00	-3.00	264.50
350	0.00	0.0	-3.00	-3.00	264.50
355	0.00	0.0	-3.00	-3.00	264.50

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: April 01, 2019