

# Ka-Band Earth Station – Slope Ctny, ND

## Frequency Coordination Report

28 GHz



Prepared on Behalf of  
SPACE EXPLORATION  
HOLDINGS

April 17, 2020



**COMSEARCH**  
A CommScope Company

## **Table of Contents**

<b>1. Summary of Results</b>	<b>- 1 -</b>
<b>2. 28 GHz Common Carrier and LTTS Coordination</b>	<b>- 1 -</b>
<b>3. 28 GHz UMFUS Coordination</b>	<b>- 2 -</b>
<b>4. Earth Station Coordination Data</b>	<b>- 3 -</b>
<b>5. Contact Information</b>	<b>- 7 -</b>



## 1. Summary of Results

On behalf of SPACE EXPLORATION HOLDINGS, Comsearch performed a coordination notice under Section 25.203(c) and Section 25.136(a)(4) of the FCC’s rules for all existing and proposed terrestrial licenses within the coordination contours of their proposed Ka-Band earth station in Slope Ctny, ND, which will transmit at 28 GHz<sup>1</sup>. Prior-notification letters were sent to the licensees and a copy of the notification data is provided in section four of this report. The earth station coordination was finalized on April 17, 2020.

No objections were received from any of the incumbent 28 GHz licensees.

## 2. 28 GHz Common Carrier and LTTS Coordination

In accordance with FCC Rules and Regulations, the Ka-Band earth station in Slope Ctny, ND was prior-coordinated by Comsearch. A notification letter and datasheets for this earth station were sent to the following 28 GHz common carrier fixed microwave licensees. These licensees are authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis or local basis.

Licensee	Authorized Geographic Area
Frontier	Nationwide

A notification letter and datasheets for the Ka-Band earth station in Slope Ctny, ND were also sent to the following 28 GHz local television transmission licensee. This licensee is authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

Licensee	Authorized Geographic Area
Information Super Station, LLC	Continental US

No objections were received from the common carrier or local television transmission service incumbents.

<sup>1</sup> The proposed earth station will operate in the 27.5 – 29.1 GHz & 29.5 – 30.0 GHz portion of the Ka-Band.

### 3. 28 GHz UMFUS Coordination

There were six 28 GHz UMFUS licensees identified within the coordination distance of the proposed earth station. The proposed earth station will operate on frequencies that overlap Channel L1 & L2 of the UMFUS service. The total frequency allocation for Channels L1 & L2 of the UMFUS spectrum appears below.

**Channel:**    **L1**    27.500 - 27.925 GHz  
                  **L2**    27.925 - 28.350 GHz

Licensee	Authorized Geographic Area
Consolidated Telcom	Market-Based
McBride Spectrum Partners	Market-Based
SRT Communications	Market-Based
T-Mobile	Market-Based
Tradewinds Wireless Holdings	Market-Based
Verizon	Market-Based

No objections were received from the UMFUS incumbents.



## **4. Earth Station Coordination Data**

This section presents the data pertinent to the proposed Ka-Band earth station in Slope Ctny, ND. This data was circulated to all incumbent licensees in the shared 28 GHz frequency ranges.



**SPACE EXPLORATION HOLDINGS**  
**Ka-Band Earth Station – Slope Ctny, ND**  
**Frequency Coordination Report**  
**28 GHz**

Job Number: 200302COMSGE21

---

**Administrative Information**

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

**Site Information** SLOPE CTNY, ND

Venue Name:  
 Latitude (NAD 83): 46° 24' 30.2" N  
 Longitude (NAD 83): 103° 6' 52.5" W  
 Climate Zone: A  
 Rain Zone: 5  
 Ground Elevation (AMSL): 881.51 m / 2892.1 ft

**Link Information**

Satellite Type: Low Earth Orbit  
 Mode: TR - Transmit-Receive  
 Modulation: Digital  
 Minimum Elevation Angle: 25.0°  
 Azimuth Range: 0.0° to 360°  
 Antenna Centerline (AGL): 0.91 m / 3.0 ft

<b>Antenna Information</b>	<b>Receive - FCC32</b>	<b>Transmit - FCC32</b>
Manufacturer	SpaceX	SpaceX
Model	1.47 meter	1.47 meter
Gain / Diameter	46.9 dBi / 1.5 m	49.5 dBi / 1.5 m
3-dB / 15-dB Beamwidth	0.77° / 1.70°	0.49° / 1.17°
Max Available RF Power		
(dBW/4 kHz)		-39.8
(dBW/MHz)		-15.8
Maximum EIRP		
(dBW/4 kHz)		9.7
(dBW/MHz)		33.7
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%

<b>Frequency Information</b>	<b>Receive 18.0 GHz</b>	<b>Transmit 28.0 GHz</b>
Emission / Frequency Range (MHz)	62M5D7W - 480MD7W / 17800.0 - 18600.0 62M5D7W - 480MD7W / 18800.0 - 19300.0	62M5D7W - 480MD7W / 27500.0 - 29100.0 62M5D7W - 480MD7W / 29500.0 - 30000.0
Max Great Circle Coordination Distance	262.0 km / 162.8 mi	125.0 km / 77.7 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi



**SPACE EXPLORATION HOLDINGS**  
**Ka-Band Earth Station – Slope Ctny, ND**  
**Frequency Coordination Report**  
**28 GHz**

<b>Coordination Values</b>	<b>SLOPE CTNY, ND</b>		
Licensee Name	Space Exploration Holdings		
Latitude (NAD 83)	46° 24' 30.2" N		
Longitude (NAD 83)	103° 6' 52.5" W		
Ground Elevation (AMSL)	881.51 m / 2892.1 ft		
Antenna Centerline (AGL)	0.91 m / 3.0 ft		
Antenna Model	SpaceX 1.47 meter		
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%
	Short Term	-146.0 dBW/MHz	0.01%
Max Available RF Power			-39.8 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.73	80.90	-3.00	262.00	-3.00	125.00
5	0.00	76.10	-3.00	262.00	-3.00	125.00
10	0.00	71.34	-3.00	262.00	-3.00	125.00
15	0.00	66.61	-3.00	262.00	-3.00	125.00
20	0.36	61.95	-3.00	262.00	-3.00	125.00
25	0.92	57.38	-3.00	262.00	-3.00	125.00
30	1.14	52.82	-3.00	262.00	-3.00	125.00
35	0.64	48.11	-3.00	262.00	-3.00	125.00
40	0.24	43.46	-3.00	262.00	-3.00	125.00
45	0.00	38.92	-3.00	262.00	-3.00	125.00
50	0.00	34.59	-3.00	262.00	-3.00	125.00
55	0.00	30.43	-3.00	262.00	-3.00	125.00
60	0.00	26.53	-3.00	262.00	-3.00	125.00
65	0.00	23.02	-3.00	262.00	-3.00	125.00
70	0.00	20.12	-3.00	262.00	-3.00	125.00
75	0.00	18.11	-3.00	262.00	-3.00	125.00
80	0.00	17.31	-3.00	262.00	-3.00	125.00
85	0.00	17.88	-3.00	262.00	-3.00	125.00
90	0.00	19.71	-3.00	262.00	-3.00	125.00
95	0.00	22.48	-3.00	262.00	-3.00	125.00
100	0.00	25.90	-3.00	262.00	-3.00	125.00
105	0.00	29.74	-3.00	262.00	-3.00	125.00
110	0.00	33.87	-3.00	262.00	-3.00	125.00
115	0.00	38.18	-3.00	262.00	-3.00	125.00
120	0.00	42.62	-3.00	262.00	-3.00	125.00
125	0.00	47.15	-3.00	262.00	-3.00	125.00
130	0.00	51.75	-3.00	262.00	-3.00	125.00
135	0.00	56.40	-3.00	262.00	-3.00	125.00
140	0.00	61.09	-3.00	262.00	-3.00	125.00
145	0.00	65.80	-3.00	262.00	-3.00	125.00
150	0.00	70.54	-3.00	262.00	-3.00	125.00
155	0.00	75.29	-3.00	262.00	-3.00	125.00
160	0.00	80.05	-3.00	262.00	-3.00	125.00
165	0.00	84.82	-3.00	262.00	-3.00	125.00
170	0.00	89.59	-3.00	262.00	-3.00	125.00
175	0.00	94.37	-3.00	262.00	-3.00	125.00
180	0.00	99.14	-3.00	262.00	-3.00	125.00
185	0.00	103.90	-3.00	262.00	-3.00	125.00



**SPACE EXPLORATION HOLDINGS**  
**Ka-Band Earth Station – Slope Ctny, ND**  
**Frequency Coordination Report**  
**28 GHz**

<b>Coordination Values</b>	<b>SLOPE CTNY, ND</b>		
Licensee Name	Space Exploration Holdings		
Latitude (NAD 83)	46° 24' 30.2" N		
Longitude (NAD 83)	103° 6' 52.5" W		
Ground Elevation (AMSL)	881.51 m / 2892.1 ft		
Antenna Centerline (AGL)	0.91 m / 3.0 ft		
Antenna Model	SpaceX 1.47 meter		
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 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		-39.8 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	108.66	-3.00	262.00	-3.00	125.00
195	0.00	113.39	-3.00	262.00	-3.00	125.00
200	0.00	118.11	-3.00	262.00	-3.00	125.00
205	0.00	122.81	-3.00	262.00	-3.00	125.00
210	0.00	127.46	-3.00	262.00	-3.00	125.00
215	0.00	132.07	-3.00	262.00	-3.00	125.00
220	0.00	136.62	-3.00	262.00	-3.00	125.00
225	0.25	140.98	-3.00	262.00	-3.00	125.00
230	0.41	145.23	-3.00	262.00	-3.00	125.00
235	0.39	149.36	-3.00	262.00	-3.00	125.00
240	0.37	153.24	-3.00	262.00	-3.00	125.00
245	0.33	156.73	-3.00	262.00	-3.00	125.00
250	0.32	159.61	-3.00	262.00	-3.00	125.00
255	0.31	161.59	-3.00	262.00	-3.00	125.00
260	0.33	162.36	-3.00	262.00	-3.00	125.00
265	0.33	161.80	-3.00	262.00	-3.00	125.00
270	0.00	160.29	-3.00	262.00	-3.00	125.00
275	0.00	157.52	-3.00	262.00	-3.00	125.00
280	0.00	154.10	-3.00	262.00	-3.00	125.00
285	0.00	150.26	-3.00	262.00	-3.00	125.00
290	0.00	146.13	-3.00	262.00	-3.00	125.00
295	0.29	141.71	-3.00	262.00	-3.00	125.00
300	0.77	137.12	-3.00	262.00	-3.00	125.00
305	0.98	132.56	-3.00	262.00	-3.00	125.00
310	1.03	127.99	-3.00	262.00	-3.00	125.00
315	1.03	123.38	-3.00	262.00	-3.00	125.00
320	0.95	118.75	-3.00	262.00	-3.00	125.00
325	1.10	114.04	-3.00	262.00	-3.00	125.00
330	1.17	109.33	-3.00	262.00	-3.00	125.00
335	1.07	104.62	-3.00	262.00	-3.00	125.00
340	0.81	99.90	-3.00	262.00	-3.00	125.00
345	0.84	95.15	-3.00	262.00	-3.00	125.00
350	0.98	90.40	-3.00	262.00	-3.00	125.00
355	0.95	85.66	-3.00	262.00	-3.00	125.00





## **5. Contact Information**

For questions or information regarding the 28 GHz Frequency Coordination Report, please contact:

Contact person:	Dennis Jimeno
Title:	Engineer III, Telecommunications
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5858
Fax:	703-726-5599
Email:	DJimeno@Comsearch.com
Web site:	www.comsearch.com