

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Space Exploration Holdings**  
**NORCROSS, GA**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
January 14, 2021

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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 12/10/2020.

#### Company

AT&T Corp.  
Alabama Broadcatsing Partners  
Alabama, State of Dept of Transportation  
Biltmore Communications  
Birmingham, City of  
Buncombe County  
Business Only Broadband, LLC  
Capstar TX LLC  
Cellco Partnership - Georgia Mkt  
Cellco Partnership - North Carolina  
Cellco Partnership - Tennessee  
City of Atlanta  
City of Greenville, SC  
Clearwire Spectrum Holdings II, LLC  
Clearwire Spectrum Holdings III, LLC  
Cobb Electric Membership Corporation  
Conterra Ultra Broadband, LLC  
Cover Networks, LLC  
DSM Chemicals N.A., Inc.  
Diverse Power Inc  
Eastern Band of Cherokee Indians  
Echo Technologies  
Fulton, County of  
Georgia College and State University  
Georgia State of  
Global Telecom & Technology Americas  
Gwinnett County Government  
Jackson County Emergency Services  
Kimtron, Inc.  
Kudzu Networks, Inc.  
MCIS Inc  
New Cingular Wireless PCS LLC - AL, MS  
New Cingular Wireless PCS LLC - Georgia  
New Cingular Wireless PCS LLC - TN  
New Cingular Wireless PCS LLC - WV,NC,SC  
North Fulton Regional Radio System Auth  
Olympic Wireless, LLC  
One Ring Networks, Inc.  
PTA-FLA, Inc.  
Polk County

Quickrelay Wireless Communications  
Radio One Inc  
Raytheon Missile Systems  
SC Educational Television Commission  
South Carolina Dept of Transportation  
Southern Company Services, Inc.  
Southern Light, LLC  
Sprint Spectrum L.P.  
Sprintcom, Inc  
Startouch, Inc.  
T-Mobile License LLC  
Tele-Page, Inc.  
Tennessee RSA No. 3 Limited Partnership  
US Cellular Telephone Co-Grtr Knoxville  
USCOC of Greater North Carolina, LLC  
Verizon Wireless (VAW) LLC - Alabama  
Verizon Wireless (VAW) LLC- Tennessee  
WTTO Inc.

## **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: 01/14/2021  
Job Number: 201210COMSGE07

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### Administrative Information

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

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### Site Information NORCROSS, GA

Venue Name  
Latitude (NAD 83) 33° 57' 17.9" N  
Longitude (NAD 83) 84° 11' 52.7" W  
Climate Zone A  
Rain Zone 1  
Ground Elevation (AMSL) 313.6 m / 1028.9 ft

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### 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

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### Antenna Information

	Receive - FCC32	Transmit - FCC32
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%	-151.0 dBW/4 kHz 20%
	Short Term -146.0 dBW/MHz 0.01%	-128.0 dBW/4 kHz 0.0025%

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### Frequency Information

	Receive 18.0 GHz	Transmit 28.0 GHz
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



# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### NORCROSS, GA

Licensee Name	Space Exploration Holdings		
Latitude (NAD 83)	33° 57' 17.9" N		
Longitude (NAD 83)	84° 11' 52.7" W		
Ground Elevation (AMSL)	313.6 m / 1028.9 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)
0	1.43	93.24	-3.00	262.00	-3.00	125.00
5	1.27	88.26	-3.00	262.00	-3.00	125.00
10	1.20	83.28	-3.00	262.00	-3.00	125.00
15	1.26	78.30	-3.00	262.00	-3.00	125.00
20	1.18	73.32	-3.00	262.00	-3.00	125.00
25	1.04	68.33	-3.00	262.00	-3.00	125.00
30	0.54	63.34	-3.00	262.00	-3.00	125.00
35	0.31	58.34	-3.00	262.00	-3.00	125.00
40	0.38	53.37	-3.00	262.00	-3.00	125.00
45	0.30	48.39	-3.00	262.00	-3.00	125.00
50	0.30	43.41	-3.00	262.00	-3.00	125.00
55	0.00	38.42	-3.00	262.00	-3.00	125.00
60	0.00	33.45	-3.00	262.00	-3.00	125.00
65	0.00	28.49	-3.00	262.00	-3.00	125.00
70	0.00	23.55	-3.00	262.00	-3.00	125.00
75	0.00	18.64	-3.00	262.00	-3.00	125.00
80	0.00	13.79	-3.00	262.00	-3.00	125.00
85	0.00	9.11	-3.00	262.00	-3.00	125.00
90	0.00	5.05	-3.00	262.00	-3.00	125.00
95	0.00	4.25	-3.00	262.00	-3.00	125.00
100	0.00	7.78	-3.00	262.00	-3.00	125.00
105	0.00	12.36	-3.00	262.00	-3.00	125.00
110	0.60	17.32	-3.00	262.00	-3.00	125.00
115	0.88	22.24	-3.00	262.00	-3.00	125.00
120	1.25	27.20	-3.00	262.00	-3.00	125.00
125	1.41	32.14	-3.00	262.00	-3.00	125.00
130	1.56	37.09	-3.00	262.00	-3.00	125.00
135	1.72	42.05	-3.00	262.00	-3.00	125.00
140	1.62	47.00	-3.00	262.00	-3.00	125.00
145	1.76	51.97	-3.00	262.00	-3.00	125.00
150	1.89	56.94	-3.00	262.00	-3.00	125.00
155	1.70	61.89	-3.00	262.00	-3.00	125.00
160	1.74	66.87	-3.00	262.00	-3.00	125.00
165	1.66	71.84	-3.00	262.00	-3.00	125.00
170	1.44	76.81	-3.00	262.00	-3.00	125.00
175	1.31	81.78	-3.00	262.00	-3.00	125.00
180	1.27	86.76	-3.00	262.00	-3.00	125.00
185	1.10	91.74	-3.00	262.00	-3.00	125.00

# COMSEARCH

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### Coordination Values

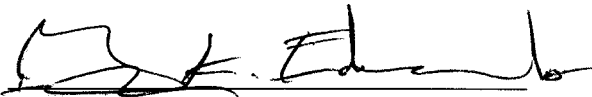
### NORCROSS, GA

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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 -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	1.07	96.72	-3.00	262.00	-3.00	125.00
195	0.97	101.71	-3.00	262.00	-3.00	125.00
200	0.95	106.69	-3.00	262.00	-3.00	125.00
205	0.99	111.67	-3.00	262.00	-3.00	125.00
210	1.02	116.64	-3.00	262.00	-3.00	125.00
215	1.25	121.61	-3.00	262.00	-3.00	125.00
220	1.67	126.55	-3.00	262.00	-3.00	125.00
225	1.92	131.49	-3.00	262.00	-3.00	125.00
230	2.36	136.39	-3.00	262.00	-3.00	125.00
235	2.71	141.27	-3.00	262.00	-3.00	125.00
240	2.96	146.13	-3.00	262.00	-3.00	125.00
245	3.15	150.96	-3.00	262.00	-3.00	125.00
250	2.99	155.81	-3.00	262.00	-3.00	125.00
255	3.00	160.54	-3.00	262.00	-3.00	125.00
260	2.98	165.11	-3.00	262.00	-3.00	125.00
265	2.98	169.29	-3.00	262.00	-3.00	125.00
270	2.98	172.42	-3.00	262.00	-3.00	125.00
275	2.88	173.03	-3.00	262.00	-3.00	125.00
280	2.37	170.82	-3.00	262.00	-3.00	125.00
285	1.98	166.89	-3.00	262.00	-3.00	125.00
290	1.74	162.36	-3.00	262.00	-3.00	125.00
295	1.41	157.65	-3.00	262.00	-3.00	125.00
300	1.28	152.80	-3.00	262.00	-3.00	125.00
305	1.19	147.89	-3.00	262.00	-3.00	125.00
310	1.07	142.97	-3.00	262.00	-3.00	125.00
315	0.88	138.03	-3.00	262.00	-3.00	125.00
320	0.66	133.08	-3.00	262.00	-3.00	125.00
325	0.74	128.10	-3.00	262.00	-3.00	125.00
330	0.70	123.13	-3.00	262.00	-3.00	125.00
335	0.98	118.14	-3.00	262.00	-3.00	125.00
340	1.29	113.15	-3.00	262.00	-3.00	125.00
345	1.43	108.17	-3.00	262.00	-3.00	125.00
350	1.52	103.19	-3.00	262.00	-3.00	125.00
355	1.49	98.21	-3.00	262.00	-3.00	125.00

## 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: January 14, 2021