

Exhibit A

Section 25.136 Demonstration

Pursuant to 47 C.F.R. § 25.115, Intelsat License LLC (“Intelsat”) herein seeks authority to operate two identical gateway earth stations (together, the “Castle Rock Gateways”) co-located in Castle Rock, CO. The first proposed gateway earth station (“Castle Rock Gateway 1”) will communicate with Intelsat 40e (S3066) at 91° W.L. The second proposed gateway earth station (“Castle Rock Gateway 2”) will communicate with Galaxy 30 (S3016) at 125° W.L. as the gateway’s primary point of communication and Intelsat 40e as its secondary point of communication.

Both gateways will utilize 9.4-meter antennas and operate in Ka-band, including the 27.5-28.35 GHz frequency band, licensed pursuant to Section 25.136(a)(4) of the Federal Communications Commission’s (“FCC” or “Commission”) rules.¹ This Exhibit addresses the four conditions for earth stations operating in the 27.5-28.35 GHz frequency band as specified in Section 25.136(a)(4).

I. Section 25.136(a)(4)(i) – Earth Stations per County

Section 25.136(a)(4)(i) requires that “there are no more than two other authorized earth stations operating in the 27.5-28.35 GHz band within the county where the proposed earth station is located.”² The Castle Rock Gateways will be located in Douglas County, CO. At the time of this application’s submission, there is only one authorized earth station, Call Sign E160093, in Douglas County operating in the 27.5-28.35 GHz band (the “Existing Earth Station”).³ The addition of the Castle Rock Gateways is within the limit on the total number of earth stations in Douglas County operating in the 27.5-28.35 GHz band.

II. Section 25.136(a)(4)(ii) – Population

Section 25.136(a)(4)(ii) requires that “the area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to $-77.6 \text{ dBm/m}^2/\text{MHz}$, together with the similar area of any other earth station authorized pursuant to [Section 25.136(a)], does not cover, in the aggregate, more than the amount of population of the UMFUS license area within which the earth station is located as noted in table 1 [of Section 25.136(a)(4)(ii)].”⁴ Where the population within the Upper Microwave Flexible Use Service (“UMFUS”) license area is between 6,000 and 450,000, the maximum permitted aggregate population within $-77.6 \text{ dBm/m}^2/\text{MHz}$ PFD contour of earth stations must not exceed 450 people.⁵ Douglas County has a population of 357,978 people⁶ and thus the maximum permitted aggregate population within the designated contour of earth stations is 450 people.

The Existing Earth Station is located sufficiently far from the proposed Castle Rock Gateways, so there is no overlap in the PFD contours between the stations. Intelsat calculates a total population of 410 people within the PFD contours of both the Existing Earth Station and the proposed Castle Rock

¹ 47 C.F.R. § 25.136(a)(4). Unless otherwise stated, all references to rule sections in this document refer to sections in Title 47 of the Code of Federal Regulations.

² 47 C.F.R. § 25.136(a)(4)(i).

³ See *Satellite Communications Services Information; Actions Taken*, Report No. SES01923, File No. SES-LIC-20160610-00523 (Jan. 25, 2017) (Public Notice).

⁴ 47 C.F.R. § 25.136(a)(4)(i)(ii).

⁵ *Id.* at Table 1.

⁶ See <https://data.census.gov/cedsci/all?q=Douglas%20County,%20Colorado>.

Gateways. For purposes of determining the estimated population coverage, Intelsat relied on the housing method as permitted under the FCC's rules and subsequent guidance from the International Bureau on siting methodologies for earth stations operating in UMFUS bands.⁷ The housing method, in the instant case, is more accurate than the actual area method and therefore.

The population disbursement in Douglas County. Douglas County has several high-density areas containing a significant portion of the County's population and housing units, as well as vast, rural areas where there is little population and few housing units. The housing method uses the density determined by the total number of housing units in a census block, as specified in the U.S. Census data, along with the total population of that block to calculate the population density. Because method this accounts for both high and low density housing areas, the housing method derives a more accurate count of the covered population in cases where the standard deviation of the population is great. Using that density, the population within the PFD contour is calculated depending on the percentage of housing units that fall within the contour.⁸ In contrast, using the actual area method, where the underlying assumption is that the population is evenly distributed in the county, in Douglas County grossly overestimates the population covered by the PFD contours of the proposed Castle Rock Gateways and the Existing Earth Station.

The PFD contour of the Existing Earth Station covers 391 residents using the housing method. Intelsat derived the PFD contour based on the technical parameters of the Existing Earth Station⁹ and the antenna pattern defined in Section 25.209.¹⁰ This PFD contour is shown Figure 1 below. Intelsat then calculated the population by superimposing the contour onto the relevant census blocks within the county,¹¹ shown in Table 1 of Appendix B using the housing method.

⁷ See 47 C.F.R. § 25.136(a)(4)(ii); *International Bureau Issues Guidance on Siting Methodologies for Earth Stations Seeking to Operate in the 24.75-25.25 GHz, 27.5-28.35 GHz, 37.5-40.0 GHz, 47.2-48.2 GHz, and 50.4-51.4 GHz Frequency Bands to Demonstrate Compliance with Section 25.136*, Public Notice, 35 FCC Rcd 6347, at 4 (IB 2020) (permitting use of methodologies other than the actual area method where the applicant has "fully explain[ed] such methodologies and why they are being used").

⁸ Figure 1 in Appendix B shows the PFD contour of the existing Earth Station on Google Earth overlaying U.S. census blocks.

⁹ See Application of ViaSat, Inc., IBFS File No. SES-LIC-20160610-00523, Call Sign E160093 (filed June 10, 2016); ViaSat, Inc. Fixed Earth Station License, IBFS File No. SES-LIC-20160610-00523, Call Sign E160093 (granted Jan. 19, 2017).

¹⁰ 47 C.F.R. § 25.209.

¹¹ See U.S. Census bureau data, <https://www.census.gov/geographies/mapping-files/timeseries/geo/tiger-line-file.html>.

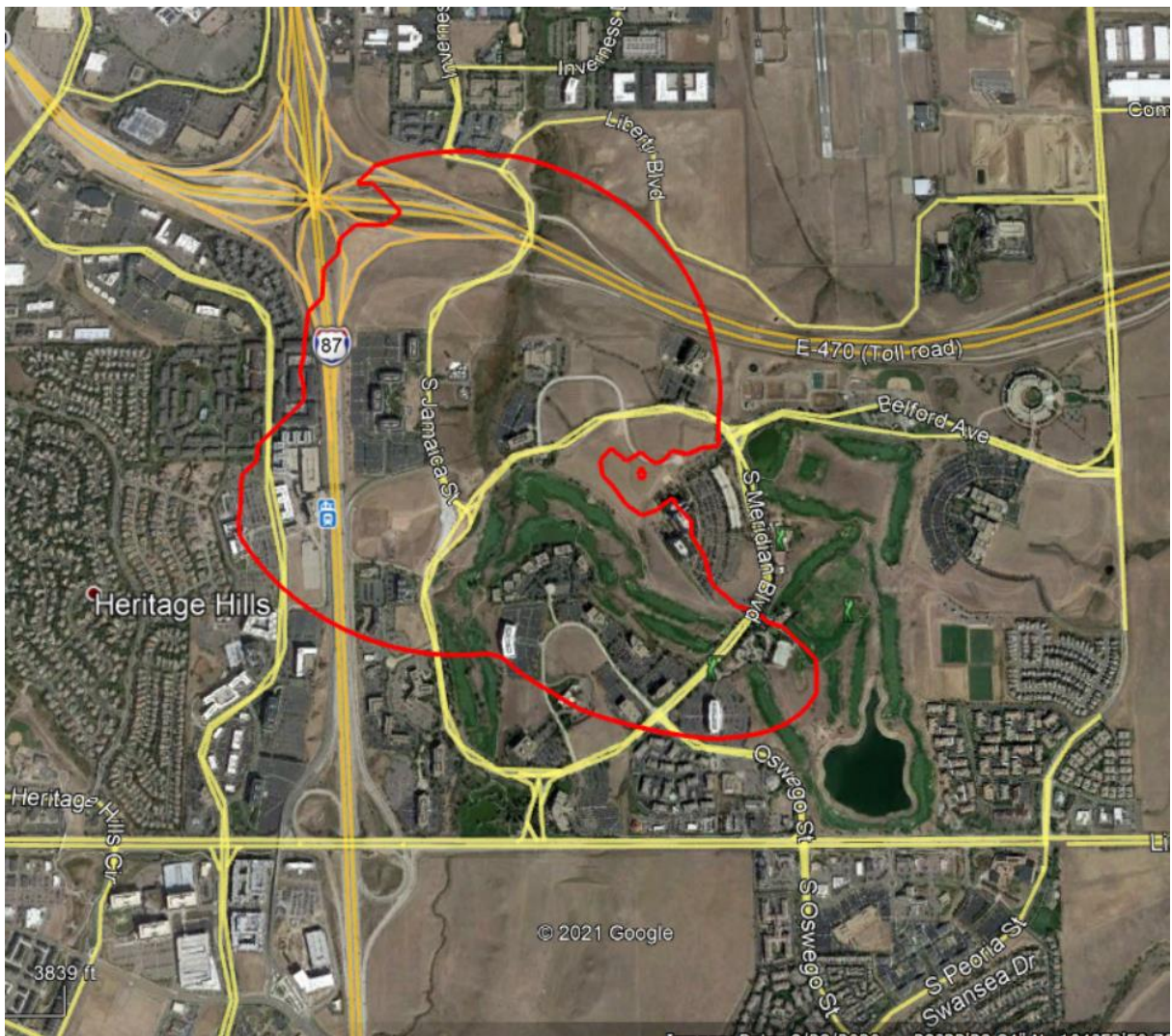


Figure 1. PFD Contour for the Existing Earth Station (Call Sign E160093)

The same analysis was done for the proposed Castle Rock Gateways and demonstrated that 19 residents are covered by the Castle Rock Gateway PFD contour. The PFD contour is shown in Figure 2 and was superimposed onto the US Census blocks.

The total population within both the Existing Earth Station PFD contour and the proposed Castle Rock Gateway PFD contour is 410, which is below the threshold of 450 residents for Douglas County.

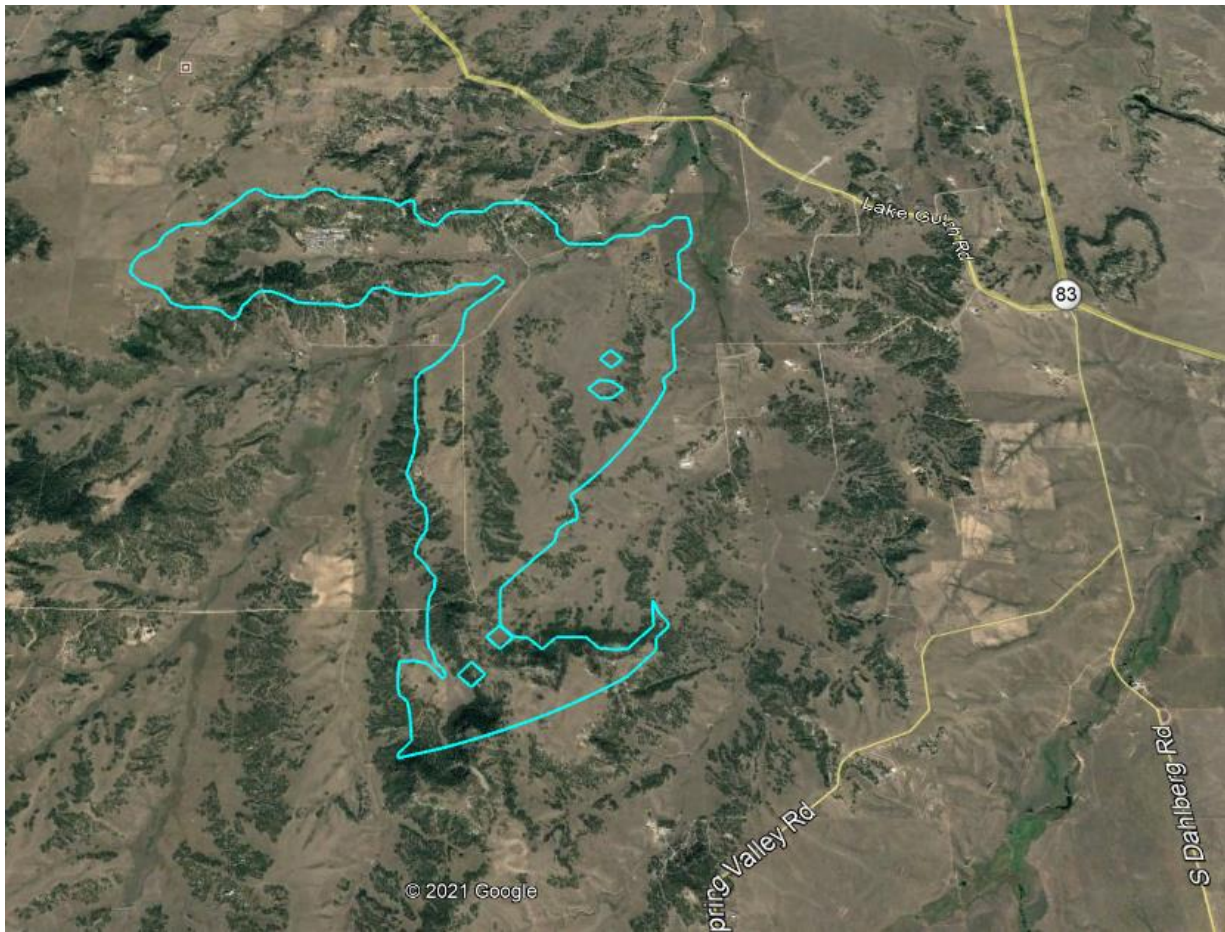


Figure 2. PFD Contour for the Proposed Castle Rock Gateways

III. Section 25.136(a)(4)(iii) – Federal Highways & Major Event Venues

Section 25.136(a)(4)(iii) requires that “the area in which the earth station generates a PFD, at 10 meters above ground level, of greater than or equal to $-77.6 \text{ dBm/m}^2/\text{MHz}$ does not contain any major event venue, urban mass transit route, passenger railroad, or cruise ship port” or, together with the similar area of any other earth station authorized pursuant to Section 25.136(a), any “Interstate, Other Freeways and Expressways, or Other Principal Arterial,” as defined by the Federal Highway Administration (“FHWA”).¹²

The proposed Castle Rock Gateway PFD contour does not contain any major event venue, urban mass transit route, passenger railroad, or cruise ship port. Additionally, as shown in Figure 2 above,¹³ there are no Interstate, Other Freeways and Expressways, or Other Principal Arterial roads as defined in functional classification guidelines issued by the Federal Highway Administration (“FHWA”) or by the state of Colorado.¹⁴

¹² 47 C.F.R. § 25.136(a)(4)(iii). See also 23 C.F.R. § 470.105(b); Federal Highway Administration, HEPGIS, <https://hepgis.fhwa.dot.gov/fhwagis/>.

¹³ The methodology and parameters used to derive the PFD contour for the proposed Castle Rock Gateways are provided in Appendix A.

¹⁴ See 23 C.F.R. 470.105(b).

IV. Section 25.136(a)(4)(iv) – Coordination with UMFUS Licensees

Section 25.136(a)(4)(iv) requires that applicants have “successfully completed frequency coordination with the UMFUS licensees operating within the area in which the earth station generates a PFD, at 10 meters above ground, of greater than or equal to -77.6 dBm/m²/MHz with respect to existing facilities constructed and in operation by the UMFUS licensee.”¹⁵ Intelsat has provided a Frequency Coordination Report, which demonstrates Intelsat’s completion of frequency coordination, as Appendix C.

¹⁵ 47 C.F.R. § 25.136(a)(4)(iv).

Appendix A

Intelsat derived the PFD contours using Visualyse Professional.¹ The analysis used the International Telecommunication Union (“ITU”) Recommendation P.525-4 propagation model and ITU Recommendation P.452-16 with a 10% time. To model the received emission by an UMFUS receiver in any possible direction, Intelsat used a reference antenna defined at a 10-meter height above ground, with omni-directional pattern and isotropic receive gain. In the simulations, this reference antenna was moved around the gateway and the value of received power was measured at each location. The simulation modeled the terrain profile using the NASA Shuttle Radar Topography Mission 3-Arc-Second Digital Terrain Elevation Data.

The Castle Rock Gateways were modeled using the following earth station parameters provided in Form 312, Schedule B for the 27.5-28.35 GHz band. Additionally, no clutter or polarization loss has been assumed, and the power spectral density will not increase to accommodate for rain fade.

Site Location	Castle Rock, CO
County	Douglas
Antenna Coordinates	39°16'34.50"N 104°48'30.90"W

Parameters	CRK - A25	CRK - A26
Antenna pointing	91W	125W
Power density (dBW/MHz)	-9.6	-9.6
Antenna size (m)	9.4	9.4
Peak gain (dBi)	65.8	65.8
Elevation (deg)	42.3	39.9

¹ For more information visit: <https://www.transfinite.com/content/professional>.

Appendix B

Figures 1 and 2 below show the PFD contours of existing and proposed Castle Rock Gateways on Google Earth overlaying U.S. census blocks, respectively.

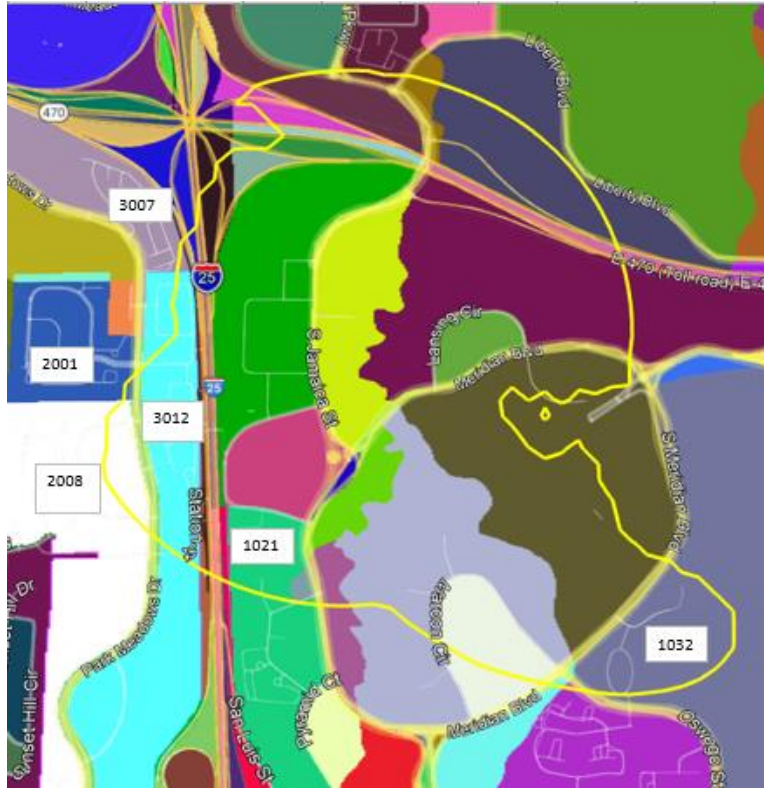


Figure 1. Existing Earth Station PFD Contour Projected on to U.S. Census Blocks

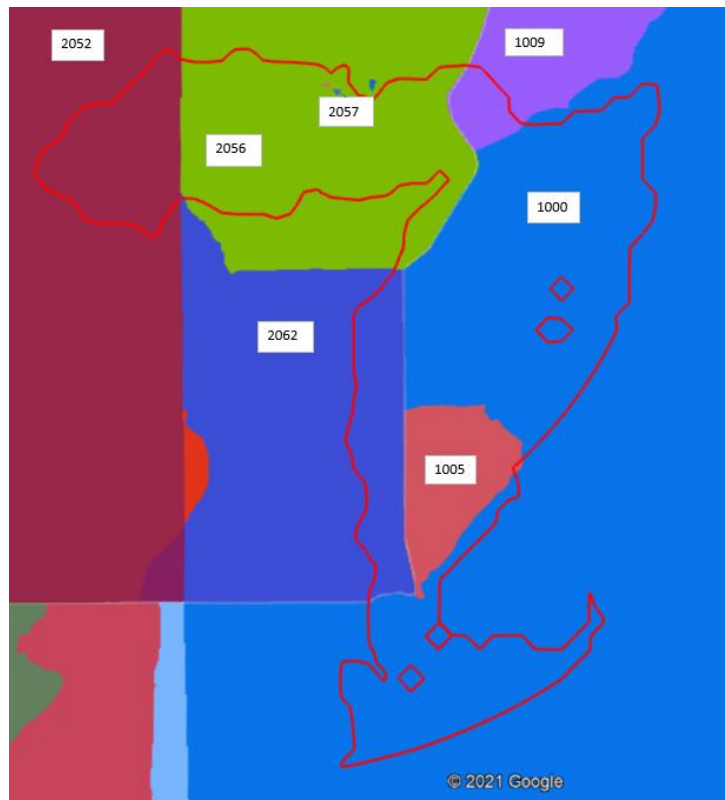


Figure 2. Proposed Castle Rock Gateways PFD Contour Projected on to U.S. Census Blocks

Tables 1 and 2 below show census blocks and relevant housing and population data that are within the Existing Earth Station and the Castle Rock Gateways PFD contours, respectively.

Census block #	Total Population	Total Housing Units	% area covered	Housing units affected	Population based on Housing	Population based on % area
TOTAL	3473	2114	N/A	239	391	583
080351032	422	256	10%	0	0	42
080351021	367	221	30%	66	110	110
080353012	703	432	40%	173	281	281
080352008	901	516	15%	0	0	135
080352001	34	18	5%	0	0	2
080353007	646	403	2%	0	0	13

Table 1. Existing Earth Station¹

Census block #	Total Population	Total Housing Units	% area covered	Housing units affected	Population based on Housing	Population based on % area
TOTAL	308	122	N/A	8	19	42
080352052	95	38	5%	0	0	5
080352056	59	25	30%	3	7	18
080352057	1	1	100%	1	1	1
080351009	31	11	20%	4	11	6
080352062	4	1	10%	0	0	0
080351005	0	0	95%	0	0	0
080351000	118	46	10%	0	0	12

Table 2. Proposed Colorado Gateways

¹ Below is a list of census blocks that do not contribute towards the population within the PFD contour for the existing earth station, so they are not included in Table 1 and Figure 1:

3048, 3043, 3049, 3047, 3038, 3050, 1005, 1018, 1017, 1009, 1030, 1028, 1029, 1036, 1038, 1035, 1045, 1025, 1022, 1023, 1026, 1024, 1016, 1019, 1012, 1011, 3044, 1010, 1058, 1007, 1060, 1005, 1006, 1000, 1039, 1042, 1041, 1027, 1046, 1048, 1049, 3018, 1047, 3011, 2003, 3020, 3019, 1015, 3010, 3040, 1037, 3062.

Appendix C

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Intelsat License LLC
CASTLE ROCK, CO
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
September 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 08/17/2021.

Company

AT&T Mobility Spectrum LLC - CO
Aerux LLP
Anadarko Petroleum Corporation
Boulder, County of
CBS Broadcasting Inc
Cellco Partnership - CO/ID/MT/WY/UT
City of Boulder
City of Colorado Springs
Clearwire Spectrum Holdings III, LLC
Commnet Four Corners, LLC
Directlink, LLC
Educational Media Foundation
El Paso County Sheriffs Office
Fundamental Holdings, Corp.
Kellin Communications
LP Broadband, Inc.
MPX Inc
Mobile Relay Associates Inc.
Newmont Mining Company
Olympic Wireless, LLC
Qwest Corporation
South Park Telephone
Sprint Spectrum LLC
Sprintcom, Inc
State of Colorado
TellerWifi LLC
United Power
University of Colorado Health
Weld County
Weld County Colorado

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: 09/14/2021
Job Number: 210817COMSGE06

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign: E210040
Licensee Code: INTELS
Licensee Name: Intelsat License LLC

Site Information

Venue Name: CASTLE ROCK, CO
Latitude (NAD 83): 39° 16' 34.5" N
Longitude (NAD 83): 104° 48' 30.9" W
Climate Zone: A
Rain Zone: 2
Ground Elevation (AMSL): 2087.25 m / 6847.9 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 91° W to 125° West Longitude
Azimuth Range: 158.8° to 210.2°
Corresponding Elevation Angles: 42.3° / 39.9°
Antenna Centerline (AGL): 10.0 m / 32.8 ft

Antenna Information

		Receive - FCC32	Transmit - FCC32
Manufacturer		ASC	ASC
Model		9.4m-Ka	9.4m-Ka
Gain / Diameter		62.0 dBi / 9.4 m	65.8 dBi / 9.4 m
3-dB / 15-dB Beamwidth		0.12° / 0.24°	0.08° / 0.17°
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)		-17.6 6.4
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		48.2 72.2
Interference Objectives:	Long Term Short Term	-156.0 dBW/MHz -146.0 dBW/MHz	20% 0.01%
			-151.0 dBW/4 kHz 20% -128.0 dBW/4 kHz 0.0025%

Frequency Information

	Receive 18.0 GHz	Transmit 28.0 GHz
Emission / Frequency Range (MHz)	1M00G7W - 140MG7W / 17800.0 - 18800.0 1M00G7W - 140MG7W / 19200.0 - 19400.0 1M00G7W - 140MG7W / 19600.0 - 20200.0	1M00G7W - 140MG7W / 27500.0 - 29100.0 1M00G7W - 140MG7W / 29250.0 - 30000.0
Max Great Circle Coordination Distance	136.2 km / 84.6 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Coordination Values

CASTLE ROCK, CO

Licensee Name Intelsat License LLC
Latitude (NAD 83) 39° 16' 34.5" N
Longitude (NAD 83) 104° 48' 30.9" W
Ground Elevation (AMSL) 2087.25 m / 6847.9 ft
Antenna Centerline (AGL) 10.0 m / 32.8 ft
Antenna Model ASC 9.4 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 -17.6 (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	3.93	134.39	-10.00	100.00	-10.00	100.00
5	3.95	134.70	-10.00	100.00	-10.00	100.00
10	4.17	132.26	-10.00	100.00	-10.00	100.00
15	3.91	129.21	-10.00	100.00	-10.00	100.00
20	3.74	126.02	-10.00	100.00	-10.00	100.00
25	3.91	122.83	-10.00	100.00	-10.00	100.00
30	3.53	119.22	-10.00	100.00	-10.00	100.00
35	3.74	115.76	-10.00	100.00	-10.00	100.00
40	3.54	112.05	-10.00	100.00	-10.00	100.00
45	2.63	108.08	-10.00	100.00	-10.00	100.00
50	2.10	104.23	-10.00	100.00	-10.00	100.00
55	1.99	100.47	-10.00	100.00	-10.00	100.00
60	1.15	96.60	-10.00	100.00	-10.00	100.00
65	0.85	92.83	-10.00	100.00	-10.00	100.00
70	0.00	89.10	-10.00	136.18	-10.00	100.00
75	0.00	85.41	-10.00	136.18	-10.00	100.00
80	0.00	81.73	-10.00	136.18	-10.00	100.00
85	0.00	78.08	-10.00	136.18	-10.00	100.00
90	0.00	74.48	-10.00	136.18	-10.00	100.00
95	0.20	70.87	-10.00	135.99	-10.00	100.00
100	0.00	67.47	-10.00	136.18	-10.00	100.00
105	0.00	64.10	-10.00	136.18	-10.00	100.00
110	0.00	60.84	-10.00	136.18	-10.00	100.00
115	0.24	57.60	-10.00	133.18	-10.00	100.00
120	0.43	54.53	-10.00	118.95	-10.00	100.00
125	0.23	51.92	-10.00	133.36	-10.00	100.00
130	0.55	49.18	-10.00	112.00	-10.00	100.00
135	0.40	47.09	-9.82	121.72	-9.82	100.00
140	0.46	45.17	-9.37	118.88	-9.37	100.00
145	0.45	43.68	-9.01	120.52	-9.01	100.00
150	0.73	42.34	-8.67	107.53	-8.67	100.00
155	0.81	41.66	-8.49	105.04	-8.49	100.00
160	0.87	41.46	-8.44	102.39	-8.44	100.00
165	1.06	41.64	-8.49	100.00	-8.49	100.00
170	0.88	42.66	-8.75	101.26	-8.75	100.00
175	0.88	43.41	-8.94	100.88	-8.94	100.00
180	0.82	43.71	-9.02	102.94	-9.02	100.00
185	0.95	43.34	-8.92	100.00	-8.92	100.00

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Coordination Values

CASTLE ROCK, CO

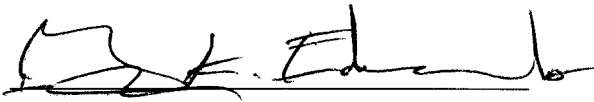
Licensee Name	Intelsat License LLC		
Latitude (NAD 83)	39° 16' 34.5" N		
Longitude (NAD 83)	104° 48' 30.9" W		
Ground Elevation (AMSL)	2087.25 m / 6847.9 ft		
Antenna Centerline (AGL)	10.0 m / 32.8 ft		
Antenna Model	ASC 9.4 meter		
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 GHz
Interference Objectives: 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	-17.6 (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	1.32	42.24	-8.64	100.00	-8.64	100.00
195	1.80	40.59	-8.21	100.00	-8.21	100.00
200	2.10	38.98	-7.77	100.00	-7.77	100.00
205	2.76	37.48	-7.35	100.00	-7.35	100.00
210	2.41	37.53	-7.36	100.00	-7.36	100.00
215	1.93	38.27	-7.57	100.00	-7.57	100.00
220	2.44	38.59	-7.66	100.00	-7.66	100.00
225	2.92	39.49	-7.91	100.00	-7.91	100.00
230	2.85	41.38	-8.42	100.00	-8.42	100.00
235	2.83	43.64	-9.00	100.00	-9.00	100.00
240	2.89	46.19	-9.61	100.00	-9.61	100.00
245	3.00	49.01	-10.00	100.00	-10.00	100.00
250	3.05	52.12	-10.00	100.00	-10.00	100.00
255	3.12	55.42	-10.00	100.00	-10.00	100.00
260	3.16	58.91	-10.00	100.00	-10.00	100.00
265	3.22	62.52	-10.00	100.00	-10.00	100.00
270	3.37	66.21	-10.00	100.00	-10.00	100.00
275	3.49	70.01	-10.00	100.00	-10.00	100.00
280	4.08	73.79	-10.00	100.00	-10.00	100.00
285	4.63	77.68	-10.00	100.00	-10.00	100.00
290	4.41	81.75	-10.00	100.00	-10.00	100.00
295	4.52	85.80	-10.00	100.00	-10.00	100.00
300	4.48	89.88	-10.00	100.00	-10.00	100.00
305	4.79	93.96	-10.00	100.00	-10.00	100.00
310	4.57	98.02	-10.00	100.00	-10.00	100.00
315	4.22	102.01	-10.00	100.00	-10.00	100.00
320	4.08	105.97	-10.00	100.00	-10.00	100.00
325	4.49	110.02	-10.00	100.00	-10.00	100.00
330	5.08	114.11	-10.00	100.00	-10.00	100.00
335	5.49	118.11	-10.00	100.00	-10.00	100.00
340	5.56	121.93	-10.00	100.00	-10.00	100.00
345	5.46	125.55	-10.00	100.00	-10.00	100.00
350	5.18	128.90	-10.00	100.00	-10.00	100.00
355	4.54	131.80	-10.00	100.00	-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: September 14, 2021

Ka-Band Earth Station – Castle Rock, CO

Frequency Coordination Report

28 GHz



Prepared on Behalf of
INTELSAT LICENSE
LLC

October 5, 2021



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1. Summary of Results

On behalf of INTELSAT LICENSE LLC, 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 Castle Rock, CO, which will transmit at 28 GHz¹. 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 October 5, 2021.

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 Castle Rock, CO 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 Castle Rock, CO 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.

¹ The proposed earth station will operate in the 27.5 – 29.1 GHz & 29.25 – 29.5 GHz portion of the Ka-Band.

3. 28 GHz UMFUS Coordination

There was one 28 GHz UMFUS licensee 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

UMFUS Licensee	Authorized Geographic Area
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 Castle Rock, CO. This data was circulated to all incumbent licensees in the shared 28 GHz frequency ranges.

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	E210040
Licensee Code	INTELS
Licensee Name	Intelsat License LLC

Site Information

Venue Name	CASTLE ROCK, CO
Latitude (NAD 83)	39° 16' 34.5" N
Longitude (NAD 83)	104° 48' 30.9" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	2087.25 m / 6847.9 ft

Link Information

Satellite Type	Geostationary
Mode	TR - Transmit-Receive
Modulation	Digital
Satellite Arc	91° W to 125° West Longitude
Azimuth Range	158.8° to 210.2°
Corresponding Elevation Angles	42.3° / 39.9°
Antenna Centerline (AGL)	10.0 m / 32.8 ft

Antenna Information

		Receive - FCC32	Transmit - FCC32
Manufacturer		ASC	ASC
Model		9.4m-Ka	9.4m-Ka
Gain / Diameter		62.0 dBi / 9.4 m	65.8 dBi / 9.4 m
3-dB / 15-dB Beamwidth		0.12° / 0.24°	0.08° / 0.17°
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)		-17.6 6.4
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		48.2 72.2
Interference Objectives:	Long Term Short Term	-156.0 dBW/MHz -146.0 dBW/MHz	20% 0.01%
			-151.0 dBW/4 kHz 20% -128.0 dBW/4 kHz 0.0025%

Frequency Information

	Receive 18.0 GHz	Transmit 28.0 GHz
Emission / Frequency Range (MHz)	1M00G7W - 140MG7W / 17800.0 - 18800.0 1M00G7W - 140MG7W / 19200.0 - 19400.0 1M00G7W - 140MG7W / 19600.0 - 20200.0	1M00G7W - 140MG7W / 27500.0 - 29100.0 1M00G7W - 140MG7W / 29250.0 - 29500.0
Max Great Circle Coordination Distance	136.2 km / 84.6 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

5. Contact Information

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

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