

# 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  
December 06, 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

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 11/20/2019.

Company

CBS Television Stations  
Colorado Public TV - KBDI  
Entravision Holdings, LLC  
Gray Television Licensee LLC (Gray TV)  
Gray Television Licensee, LLC  
Ion Media Denver License, Inc.  
KWGN, LLC  
Mainstreet Broadcasting Co.,  
Multimedia Holdings Corporation  
NEXSTAR BROADCASTING, INC.  
Pikes Peak Television, Inc.  
Rocky Mountain Public Media Inc  
SBE coordinator  
SIMCHAT TORAH BEIT MIDRASH  
Scripps Broadcasting Holdings, LLC  
Scripps Media, Inc. - KMGH TV  
Syncom Media Group, Inc  
Tribune Broadcasting Denver License, LLC  
Word of God Fellowship, 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: 12/06/2019  
Job Number: 191120COMSGE07

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign KL92  
Licensee Code INTELS  
Licensee Name Intelsat License LLC

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### Site Information CASTLE ROCK, CO

Venue Name  
Latitude (NAD 83) 39° 16' 36.2" N  
Longitude (NAD 83) 104° 48' 26.1" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 2087.49 m / 6848.7 ft

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### Link Information

Satellite Type Geostationary  
Mode RO - Receive-Only  
Modulation Analog and Digital  
Satellite Arc 33° W to 177° West Longitude  
Azimuth Range 101.8° to 258.5°  
Corresponding Elevation Angles 5.3° / 5.0°  
Antenna Centerline (AGL) 7.74 m / 25.4 ft

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### Antenna Information Receive - FCC32

Manufacturer NEC  
Model 12.5 meter  
Gain / Diameter 62.0 dBi / 12.5 m  
3-dB / 15-dB Beamwidth 0.14° / 0.26°

Interference Objectives: Long Term -156.0 dBW/MHz 20%  
Short Term -146.0 dBW/MHz 0.01%

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### Frequency Information Receive 13.0 GHz

Emission / Frequency Range (MHz) 440KG2D / 12749.75

Max Great Circle Coordination Distance 680.7 km / 422.9 mi  
Precipitation Scatter Contour Radius 596.8 km / 370.8 mi

# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### CASTLE ROCK, CO

Licensee Name                    Intelsat License LLC  
Latitude (NAD 83)               39° 16' 36.2" N  
Longitude (NAD 83)              104° 48' 26.1" W  
Ground Elevation (AMSL)       2087.49 m / 6848.7 ft  
Antenna Centerline (AGL)       7.74 m / 25.4 ft  
Antenna Model                    NEC 12.5 meter  
Antenna Mode                     Receive 13.0 GHz  
Interference Objectives: Long Term   -156.0 dBW/MHz   20%  
                                  Short Term       -146.0 dBW/MHz   0.01%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	4.68	101.50	-10.00	100.00
5	4.58	96.75	-10.00	100.00
10	5.40	91.76	-10.00	100.00
15	5.36	86.76	-10.00	100.00
20	5.29	81.76	-10.00	100.00
25	5.67	76.76	-10.00	100.00
30	4.99	71.76	-10.00	100.00
35	4.03	66.76	-10.00	105.00
40	2.77	61.79	-10.00	126.37
45	2.80	56.79	-10.00	125.72
50	2.84	51.80	-10.00	125.07
55	2.37	46.83	-9.76	133.80
60	1.30	41.91	-8.56	169.40
65	1.25	36.95	-7.19	177.31
70	0.59	32.07	-5.65	209.55
75	0.00	27.24	-3.88	251.16
80	0.00	22.37	-1.74	261.92
85	0.00	17.56	0.89	275.81
90	0.00	12.89	4.24	292.66
95	0.25	8.44	8.84	316.48
100	0.22	5.40	13.70	661.49
105	0.00	6.23	12.13	447.19
110	0.00	9.71	7.32	311.80
115	0.27	13.22	3.97	285.75
120	0.32	16.82	1.35	265.23
125	0.28	20.39	-0.73	258.41
130	0.57	23.62	-2.33	225.34
135	0.41	27.03	-3.79	230.68
140	0.47	30.11	-4.97	220.16
145	0.42	33.07	-5.99	219.89
150	0.63	35.58	-6.78	202.81
155	0.83	37.80	-7.44	192.00
160	0.93	39.75	-7.98	184.72
165	0.99	41.34	-8.41	179.72
170	1.10	42.45	-8.70	175.11
175	0.88	43.41	-8.94	183.23
180	0.85	43.69	-9.01	184.61
185	0.74	43.55	-8.97	190.36



# COMSEARCH

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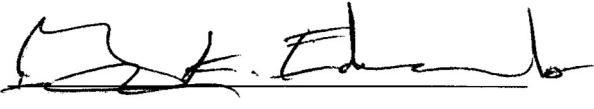
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<b>Coordination Values</b>	<b>CASTLE ROCK, CO</b>
Licensee Name	Intelsat License LLC
Latitude (NAD 83)	39° 16' 36.2" N
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Antenna Model	NEC 12.5 meter
Antenna Mode	Receive 13.0 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz 20%
Short Term	-146.0 dBW/MHz 0.01%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	1.35	42.21	-8.63	167.33
195	0.90	41.43	-8.43	184.55
200	1.35	39.38	-7.88	171.01
205	1.23	37.46	-7.34	177.23
210	1.28	35.05	-6.62	178.86
215	1.67	32.09	-5.66	171.63
220	1.93	29.01	-4.56	169.25
225	2.60	25.42	-3.13	157.87
230	2.52	22.22	-1.67	169.02
235	2.69	18.71	0.20	174.54
240	2.67	15.21	2.44	186.04
245	2.71	11.58	5.41	199.18
250	2.86	7.80	9.70	215.51
255	2.90	4.05	16.80	410.63
260	2.92	2.59	21.69	680.74
265	2.99	6.81	11.18	220.64
270	3.14	11.65	5.34	190.10
275	4.06	16.52	1.55	149.08
280	3.96	21.52	-1.32	137.78
285	3.99	26.52	-3.59	128.84
290	4.12	31.51	-5.46	119.94
295	4.30	36.50	-7.06	111.78
300	4.30	41.50	-8.45	106.82
305	4.02	46.50	-9.69	106.22
310	4.73	51.50	-10.00	100.00
315	5.32	56.50	-10.00	100.00
320	5.54	61.50	-10.00	100.00
325	5.43	66.50	-10.00	100.00
330	5.37	71.50	-10.00	100.00
335	5.00	76.50	-10.00	100.00
340	4.63	81.50	-10.00	100.00
345	4.63	86.50	-10.00	100.00
350	4.66	91.50	-10.00	100.00
355	4.66	96.50	-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: December 06, 2019