

ATTACHMENT A

Ka-Band Earth Station – Rifle, CO

Frequency Coordination Report

28 GHz



Prepared on Behalf of
HNS LICENSE SUB,
LLC

December 22, 2021



Table of Contents

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

1. Summary of Results

On behalf of HNS LICENSE SUB, 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 Rifle, CO, which will transmit at 28 GHz¹. Prior-notification letters were sent to the licensees with the antenna update and a copy of the notification data is provided in section four of this report. The earth station coordination was finalized on December 22, 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 Rifle, 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
None Identified	

A notification letter and datasheets for the Ka-Band earth station in Rifle, 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
None Identified	

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 – 28.35 GHz & 28.35 – 29.1 GHz portion of the Ka-Band.

3. 28 GHz UMFUS Coordination

There were three 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
DISH Network	Market-Based
UBET	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 Rifle, CO. This data was circulated to all incumbent licensees in the shared 28 GHz frequency ranges.

Job Number: HNS.Rifle.28GHZ

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code HUNESY
Licensee Name HNS License Sub, LLC

Site Information RIFLE, CO

Venue Name
Latitude (NAD 83) 39° 32' 42.5" N
Longitude (NAD 83) 107° 45' 42.9" W
Climate Zone A
Rain Zone 5
Ground Elevation (AMSL) 1688.73 m / 5540.5 ft

Link Information

Satellite Type Geostationary
Mode TO - Transmit-Only
Modulation Digital
Satellite Arc 95.2° W to 95.2° West Longitude
Azimuth Range 160.7° to 160.7°
Corresponding Elevation Angles 42.4° / 42.4°
Antenna Centerline (AGL) 7.01 m / 23.0 ft

Antenna Information Transmit - FCC32

Manufacturer SED
Model 10.0 meter
Gain / Diameter 67.9 dBi / 10.0 m
3-dB / 15-dB Beamwidth 0.08° / 0.16°

Max Available RF Power (dBW/4 kHz) -41.8
(dBW/MHz) -17.8

Maximum EIRP (dBW/4 kHz) 26.1
(dBW/MHz) 50.1

Interference Objectives: Long Term -151.0 dBW/4 kHz 20%
Short Term -128.0 dBW/4 kHz 0.0025%

Frequency Information Transmit 28.0 GHz

Emission / Frequency Range (MHz) 455MG7W - 470MG7W / 27500.0 - 28350.0
455MG7W - 470MG7W / 28350.0 - 29100.0

Max Great Circle Coordination Distance 100.0 km / 62.1 mi
Precipitation Scatter Contour Radius 100.0 km / 62.1 mi

Coordination Values	RIFLE, CO
Licensee Name	HNS License Sub, LLC
Latitude (NAD 83)	39° 32' 42.5" N
Longitude (NAD 83)	107° 45' 42.9" W
Ground Elevation (AMSL)	1688.73 m / 5540.5 ft
Antenna Centerline (AGL)	7.01 m / 23.0 ft
Antenna Model	SED 10 meter
Antenna Mode	Transmit 28.0 GHz
Interference Objectives: Long Term	-151.0 dBW/4 kHz 20%
Short Term	-128.0 dBW/4 kHz 0.0025%
Max Available RF Power	-41.8 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	1.35	135.37	-10.00	100.00
5	3.02	134.78	-10.00	100.00
10	3.25	132.56	-10.00	100.00
15	3.33	129.90	-10.00	100.00
20	3.67	127.13	-10.00	100.00
25	3.70	123.96	-10.00	100.00
30	3.88	120.68	-10.00	100.00
35	2.56	116.62	-10.00	100.00
40	2.49	113.06	-10.00	100.00
45	1.84	109.24	-10.00	100.00
50	1.85	105.59	-10.00	100.00
55	1.88	101.88	-10.00	100.00
60	1.85	98.12	-10.00	100.00
65	1.44	94.31	-10.00	100.00
70	1.31	90.54	-10.00	100.00
75	0.60	86.81	-10.00	100.00
80	0.40	83.11	-10.00	100.00
85	0.69	79.39	-10.00	100.00
90	0.86	75.69	-10.00	100.00
95	0.85	72.08	-10.00	100.00
100	1.09	68.45	-10.00	100.00
105	1.15	64.95	-10.00	100.00
110	1.17	61.57	-10.00	100.00
115	0.87	58.49	-10.00	100.00
120	0.24	55.82	-10.00	100.00
125	0.91	52.55	-10.00	100.00
130	0.44	50.27	-10.00	100.00
135	0.54	47.86	-10.00	100.00
140	1.24	45.24	-9.39	100.00
145	0.93	43.85	-9.05	100.00
150	1.53	42.02	-8.59	100.00
155	1.49	41.25	-8.39	100.00
160	2.06	40.36	-8.15	100.00
165	2.82	39.79	-7.99	100.00
170	2.85	40.46	-8.18	100.00
175	2.96	41.56	-8.47	100.00
180	2.75	43.40	-8.94	100.00
185	2.77	45.42	-9.43	100.00

Coordination Values		RIFLE, CO
Licensee Name		HNS License Sub, LLC
Latitude (NAD 83)		39° 32' 42.5" N
Longitude (NAD 83)		107° 45' 42.9" W
Ground Elevation (AMSL)		1688.73 m / 5540.5 ft
Antenna Centerline (AGL)		7.01 m / 23.0 ft
Antenna Model		SED 10 meter
Antenna Mode		Transmit 28.0 GHz
Interference Objectives: Long Term	-151.0 dBW/4 kHz	20%
Short Term	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power	-41.8 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	2.85	47.75	-9.97	100.00
195	3.05	50.30	-10.00	100.00
200	3.48	52.98	-10.00	100.00
205	3.45	56.18	-10.00	100.00
210	3.17	59.66	-10.00	100.00
215	2.31	63.48	-10.00	100.00
220	1.64	67.24	-10.00	100.00
225	1.41	70.89	-10.00	100.00
230	1.12	74.59	-10.00	100.00
235	0.82	78.31	-10.00	100.00
240	0.34	82.07	-10.00	100.00
245	0.00	85.78	-10.00	100.00
250	0.00	89.47	-10.00	100.00
255	0.00	93.16	-10.00	100.00
260	0.39	96.89	-10.00	100.00
265	0.62	100.60	-10.00	100.00
270	0.81	104.30	-10.00	100.00
275	1.42	108.09	-10.00	100.00
280	1.48	111.69	-10.00	100.00
285	1.67	115.26	-10.00	100.00
290	1.61	118.64	-10.00	100.00
295	2.10	122.17	-10.00	100.00
300	2.03	125.27	-10.00	100.00
305	1.88	128.10	-10.00	100.00
310	1.84	130.77	-10.00	100.00
315	1.67	133.05	-10.00	100.00
320	1.51	134.99	-10.00	100.00
325	1.41	136.59	-10.00	100.00
330	1.15	137.62	-10.00	100.00
335	0.97	138.24	-10.00	100.00
340	1.09	138.68	-10.00	100.00
345	1.39	138.80	-10.00	100.00
350	1.58	138.30	-10.00	100.00
355	1.12	136.73	-10.00	100.00

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

Ka-Band Earth Station – Rifle, CO

Frequency Coordination Report

48 GHz



Prepared on Behalf of
HNS LICENSE SUB,
LLC

December 22, 2021



Table of Contents

1.	Summary of Results	- 1 -
2.	48 GHz UMFUS Coordination	- 1 -
3.	Earth Station Coordination Data	- 2 -
4.	Contact Information	- 7 -

1. Summary of Results

On behalf of HNS LICENSE SUB, LLC, Comsearch performed a coordination notice under Section 25.203(c) and Section 25.136(d)(4)(iv) of the FCC's rules for all existing and proposed terrestrial licenses within the coordination contours of their proposed Ka-Band earth station in Rifle, CO, which will transmit at 48 GHz¹. Prior-notification letters were sent to the licensees with the antenna update and a copy of the notification data is provided in section four of this report. The earth station coordination was finalized on December 22, 2021.

No objections were received from any of the incumbent 48 GHz licensees.

2. 48 GHz UMFUS Coordination

There were two 48 GHz UMFUS licensees identified within the coordination distance of the proposed earth station. The proposed earth station will operate on frequencies that overlap the UMFUS service band of 47.2 - 48.2 GHz.

Licensee	Authorized Geographic Area
DISH Network	Market-Based
T-Mobile	Market-Based

No objections were received from the UMFUS incumbents.

¹ The proposed earth station will operate in the 47.2 – 48.2 GHz portion of the Ka-Band.



3. Earth Station Coordination Data

This section presents the data pertinent to the proposed Ka-Band earth station in Rifle, CO. This data was circulated to all incumbent licensees in the shared 48 GHz frequency ranges.

Job Number: HNS.Rifle.48GHZ

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign:
Licensee Code: HUNESY
Licensee Name: HNS License Sub, LLC

Site Information

RIFLE, CO
Venue Name:
Latitude (NAD 83): 39° 32' 42.5" N
Longitude (NAD 83): 107° 45' 42.9" W
Climate Zone: A
Rain Zone: 5
Ground Elevation (AMSL): 1688.73 m / 5540.5 ft

Link Information

Satellite Type: Geostationary
Mode: TO - Transmit-Only
Modulation: Digital
Satellite Arc: 95.2° W to 95.2° West Longitude
Azimuth Range: 160.7° to 160.7°
Corresponding Elevation Angles: 42.4° / 42.4°
Antenna Centerline (AGL): 7.01 m / 23.0 ft

Antenna Information

Transmit - FCC32
Manufacturer: SED
Model: 10.0 meter
Gain / Diameter: 71.6 dBi / 10.0 m
3-dB / 15-dB Beamwidth: 0.08° / 0.16°

Max Available RF Power: (dBW/4 kHz) -46.5
(dBW/MHz) -22.5

Maximum EIRP: (dBW/4 kHz) 25.1
(dBW/MHz) 49.1

Interference Objectives: Long Term -151.0 dBW/4 kHz 20%
Short Term -128.0 dBW/4 kHz 0.0025%

Frequency Information

Transmit 48.0 GHz
Emission / Frequency Range (MHz): 455MG7W - 470MG7W / 47200.0 – 48200.0

Max Great Circle Coordination Distance: 100.0 km / 62.1 mi
Precipitation Scatter Contour Radius: 100.0 km / 62.1 mi

Coordination Values		RIFLE, CO
Licensee Name		HNS License Sub, LLC
Latitude (NAD 83)		39° 32' 42.5" N
Longitude (NAD 83)		107° 45' 42.9" W
Ground Elevation (AMSL)		1688.73 m / 5540.5 ft
Antenna Centerline (AGL)		7.01 m / 23.0 ft
Antenna Model		SED 10.0 meter
Antenna Mode		Transmit 48.0 GHz
Interference Objectives: Long Term	-151.0 dBW/4 kHz	20%
Short Term	-128.0 dBW/4 kHz	0.0025%
Max Available RF Power	-46.5 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 48.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	1.36	135.38	-10.00	100.00
5	3.03	134.79	-10.00	100.00
10	3.26	132.56	-10.00	100.00
15	3.34	129.90	-10.00	100.00
20	3.68	127.14	-10.00	100.00
25	3.72	123.97	-10.00	100.00
30	3.89	120.69	-10.00	100.00
35	2.57	116.63	-10.00	100.00
40	2.51	113.07	-10.00	100.00
45	1.86	109.25	-10.00	100.00
50	1.90	105.60	-10.00	100.00
55	1.94	101.89	-10.00	100.00
60	1.90	98.13	-10.00	100.00
65	1.49	94.31	-10.00	100.00
70	1.36	90.54	-10.00	100.00
75	0.66	86.80	-10.00	100.00
80	0.47	83.11	-10.00	100.00
85	0.79	79.37	-10.00	100.00
90	0.97	75.66	-10.00	100.00
95	0.96	72.05	-10.00	100.00
100	1.20	68.41	-10.00	100.00
105	1.26	64.90	-10.00	100.00
110	1.28	61.51	-10.00	100.00
115	0.98	58.43	-10.00	100.00
120	0.26	55.81	-10.00	100.00
125	0.92	52.54	-10.00	100.00
130	0.45	50.26	-10.00	100.00
135	0.56	47.85	-10.00	100.00
140	1.26	45.23	-9.38	100.00
145	0.95	43.83	-9.05	100.00
150	1.56	42.00	-8.58	100.00
155	1.51	41.23	-8.38	100.00
160	2.08	40.34	-8.14	100.00
165	2.84	39.76	-7.99	100.00
170	2.87	40.44	-8.17	100.00
175	2.98	41.54	-8.46	100.00
180	2.77	43.38	-8.93	100.00
185	2.78	45.41	-9.43	100.00

Coordination Values		RIFLE, CO
Licensee Name		HNS License Sub, LLC
Latitude (NAD 83)		39° 32' 42.5" N
Longitude (NAD 83)		107° 45' 42.9" W
Ground Elevation (AMSL)		1688.73 m / 5540.5 ft
Antenna Centerline (AGL)		7.01 m / 23.0 ft
Antenna Model		SED 10.0 meter
Antenna Mode		Transmit 48.0 GHz
Interference Objectives: Long Term		-151.0 dBW/4 kHz 20%
Short Term		-128.0 dBW/4 kHz 0.0025%
Max Available RF Power		-46.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 48.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	2.86	47.74	-9.97	100.00
195	3.06	50.29	-10.00	100.00
200	3.49	52.97	-10.00	100.00
205	3.46	56.17	-10.00	100.00
210	3.18	59.65	-10.00	100.00
215	2.32	63.48	-10.00	100.00
220	1.73	67.21	-10.00	100.00
225	1.53	70.85	-10.00	100.00
230	1.23	74.56	-10.00	100.00
235	0.92	78.30	-10.00	100.00
240	0.35	82.07	-10.00	100.00
245	0.00	85.78	-10.00	100.00
250	0.00	89.47	-10.00	100.00
255	0.00	93.16	-10.00	100.00
260	0.41	96.89	-10.00	100.00
265	0.64	100.60	-10.00	100.00
270	0.82	104.30	-10.00	100.00
275	1.44	108.09	-10.00	100.00
280	1.49	111.69	-10.00	100.00
285	1.68	115.27	-10.00	100.00
290	1.63	118.65	-10.00	100.00
295	2.12	122.18	-10.00	100.00
300	2.04	125.27	-10.00	100.00
305	1.89	128.11	-10.00	100.00
310	1.85	130.78	-10.00	100.00
315	1.68	133.06	-10.00	100.00
320	1.53	135.00	-10.00	100.00
325	1.43	136.61	-10.00	100.00
330	1.17	137.63	-10.00	100.00
335	0.99	138.26	-10.00	100.00
340	1.11	138.69	-10.00	100.00
345	1.41	138.81	-10.00	100.00
350	1.59	138.31	-10.00	100.00
355	1.13	136.74	-10.00	100.00



4. Contact Information

For questions or information regarding the 48 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