

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Discovery World Television, Inc.
KNOXVILLE, TN
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
August 07, 2018

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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

No great circle interference cases were identified during the interference study of the proposed earth station.

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 07/16/2018.

<u>Company</u>
Comsearch

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: 08/07/2018
Job Number: 180716COMSGE31

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code DISWTV
Licensee Name Discovery World Television, Inc.

Site Information

KNOXVILLE, TN
Venue Name
Latitude (NAD 83) 35° 54' 57.5" N
Longitude (NAD 83) 84° 6' 40.4" W
Climate Zone A
Rain Zone 1
Ground Elevation (AMSL) 292.27 m / 958.9 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 43° W to 143° West Longitude
Azimuth Range 123.9° to 250.5°
Corresponding Elevation Angles 30.1° / 16.4°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information

Receive - A40451
Manufacturer ANDREW CORPORATION
Model ESA45-46A
Gain / Diameter 43.9 dBi / 4.5 m
3-dB / 15-dB Beamwidth 1.20° / 2.40°

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

Frequency Information

Receive 4.0 GHz
Emission / Frequency Range (MHz) 36M0G7W / 3700.0 - 4200.0

Max Great Circle Coordination Distance 311.3 km / 193.4 mi
Precipitation Scatter Contour Radius 592.8 km / 368.3 mi

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Coordination Values

KNOXVILLE, TN

Licensee Name Discovery World Television, Inc.
Latitude (NAD 83) 35° 54' 57.5" N
Longitude (NAD 83) 84° 6' 40.4" W
Ground Elevation (AMSL) 292.27 m / 958.9 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model Andrew Corporation ESA45-46A
Antenna Mode Receive 4.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	1.16	108.79	-9.13	219.62
5	1.08	113.57	-11.53	210.50
10	1.31	110.81	-10.42	208.89
15	1.08	106.46	-7.27	232.29
20	0.86	102.11	-6.10	249.80
25	0.98	97.78	-6.10	243.11
30	0.81	93.41	-6.10	253.04
35	0.87	89.05	-6.10	249.34
40	0.53	84.70	-6.10	271.48
45	0.42	80.38	-6.10	283.72
50	0.46	76.06	-6.10	278.73
55	0.66	71.73	-6.10	263.07
60	0.63	67.48	-6.10	265.25
65	1.31	63.09	-6.10	231.14
70	1.26	58.93	-6.10	232.76
75	0.83	55.01	-6.10	251.80
80	0.82	51.06	-6.10	252.49
85	0.46	47.44	-6.10	278.92
90	0.33	43.90	-6.10	293.92
95	0.33	40.54	-6.10	294.35
100	0.00	37.72	-6.10	311.30
105	0.26	34.84	-6.10	303.28
110	0.37	32.54	-6.10	289.77
115	0.71	30.58	-5.33	264.33
120	0.87	29.45	-4.99	256.58
125	1.10	29.00	-4.90	245.33
130	0.90	29.76	-5.05	254.02
135	0.63	31.29	-5.62	267.97
140	1.19	32.73	-6.10	235.17
145	1.37	35.08	-6.10	229.00
150	1.40	37.90	-6.10	228.30
155	1.44	40.44	-6.10	226.80
160	1.92	42.25	-8.55	203.25
165	1.67	44.26	-8.95	205.86
170	1.33	45.89	-9.28	213.69
175	1.56	46.48	-9.40	206.80
180	0.84	47.47	-9.59	231.15
185	1.37	46.66	-9.43	211.76

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Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model Andrew Corporation ESA45-46A
Antenna Mode Receive 4.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	1.78	45.47	-9.19	204.12
195	1.88	44.06	-8.91	202.72
200	2.02	42.17	-8.53	200.97
205	2.29	39.75	-8.05	197.24
210	2.36	37.15	-7.53	198.02
215	2.35	34.31	-6.82	201.63
220	2.53	31.08	-5.53	204.03
225	2.32	27.92	-4.68	210.18
230	1.99	24.66	-3.96	221.77
235	2.04	21.01	-2.50	228.80
240	1.96	17.78	-1.21	238.63
245	1.96	15.43	-0.27	244.75
250	1.98	14.43	-0.10	245.33
255	2.08	15.00	-0.10	242.53
260	2.17	17.05	-0.92	234.72
265	2.18	20.19	-2.18	226.94
270	2.14	23.99	-3.69	219.42
275	1.91	28.23	-4.75	219.79
280	1.69	32.66	-6.10	219.26
285	1.71	37.13	-6.10	218.55
290	1.67	41.73	-6.10	219.75
295	1.77	46.36	-6.10	216.87
300	1.83	51.05	-6.10	215.00
305	1.79	55.81	-6.10	216.17
310	1.75	60.59	-6.10	217.34
315	1.63	65.40	-6.10	220.96
320	1.35	70.23	-6.10	229.74
325	1.05	75.06	-6.10	239.74
330	1.01	79.88	-6.10	241.41
335	1.20	84.69	-6.10	234.89
340	1.21	89.51	-6.10	234.38
345	1.05	94.34	-6.10	239.77
350	1.21	99.16	-6.10	234.45
355	1.00	103.97	-6.10	241.66

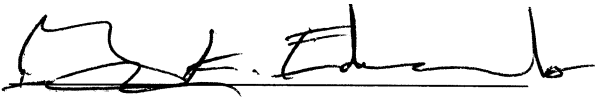
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5. CERTIFICATION

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: August 07, 2018

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1. CONCLUSIONS

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2. SUMMARY OF RESULTS

No great circle interference cases were identified during the interference study of the proposed earth station.

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Date: 08/07/2018
Job Number: 180716COMSGE30

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code DISWTV
Licensee Name Discovery World Television, Inc.

Site Information

KNOXVILLE, TN
Venue Name
Latitude (NAD 83) 35° 54' 57.5" N
Longitude (NAD 83) 84° 6' 40.4" W
Climate Zone A
Rain Zone 1
Ground Elevation (AMSL) 292.27 m / 958.9 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 43° W to 143° West Longitude
Azimuth Range 123.9° to 250.5°
Corresponding Elevation Angles 30.1° / 16.4°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information

Receive - FCC32
Manufacturer Valuestar
Model 3.6 meter
Gain / Diameter 40.5 dBi / 3.6 m
3-dB / 15-dB Beamwidth 1.40° / 2.00°

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

Frequency Information

Receive 4.0 GHz
Emission / Frequency Range (MHz) 36M0G7W / 3700.0 - 4200.0

Max Great Circle Coordination Distance 302.3 km / 187.8 mi
Precipitation Scatter Contour Radius 592.8 km / 368.3 mi

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Antenna Mode Receive 4.0 GHz
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Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
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5	1.08	113.57	-10.00	217.86
10	1.31	110.81	-10.00	210.86
15	1.08	106.46	-10.00	217.94
20	0.86	102.11	-10.00	227.66
25	0.98	97.78	-10.00	221.64
30	0.81	93.41	-10.00	230.50
35	0.87	89.05	-10.00	227.25
40	0.53	84.70	-10.00	247.48
45	0.42	80.38	-10.00	259.09
50	0.46	76.06	-10.00	254.39
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60	0.63	67.48	-10.00	241.70
65	1.31	63.09	-10.00	211.00
70	1.26	58.93	-10.00	212.43
75	0.83	55.01	-10.00	229.37
80	0.82	51.06	-10.00	229.99
85	0.46	47.44	-9.90	255.15
90	0.33	43.90	-9.06	274.54
95	0.33	40.54	-8.20	280.47
100	0.00	37.72	-7.41	302.26
105	0.26	34.84	-6.55	300.18
110	0.37	32.54	-5.81	291.73
115	0.71	30.58	-5.13	265.60
120	0.87	29.45	-4.73	258.24
125	1.10	29.00	-4.56	247.41
130	0.90	29.76	-4.84	255.36
135	0.63	31.29	-5.39	269.47
140	1.19	32.73	-5.87	236.47
145	1.37	35.08	-6.63	226.10
150	1.40	37.90	-7.47	220.96
155	1.44	40.44	-8.17	215.95
160	1.92	42.25	-8.64	202.81
165	1.67	44.26	-9.15	204.97
170	1.33	45.89	-9.54	212.42
175	1.56	46.48	-9.68	205.50
180	0.84	47.47	-9.91	229.46
185	1.37	46.66	-9.72	210.38

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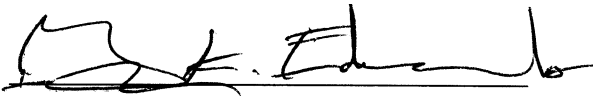
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230	1.99	24.66	-2.80	228.33
235	2.04	21.01	-1.06	237.48
240	1.96	17.78	0.75	251.63
245	1.96	15.43	2.29	262.54
250	1.98	14.43	3.02	267.28
255	2.08	15.00	2.60	261.23
260	2.17	17.05	1.21	248.57
265	2.18	20.19	-0.63	236.26
270	2.14	23.99	-2.50	226.10
275	1.91	28.23	-4.27	222.39
280	1.69	32.66	-5.85	220.57
285	1.71	37.13	-7.24	212.73
290	1.67	41.73	-8.51	207.78
295	1.77	46.36	-9.65	202.37
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305	1.79	55.81	-10.00	200.13
310	1.75	60.59	-10.00	201.22
315	1.63	65.40	-10.00	204.49
320	1.35	70.23	-10.00	209.77
325	1.05	75.06	-10.00	218.62
330	1.01	79.88	-10.00	220.11
335	1.20	84.69	-10.00	214.32
340	1.21	89.51	-10.00	213.87
345	1.05	94.34	-10.00	218.65
350	1.21	99.16	-10.00	213.92
355	1.00	103.97	-10.00	220.34

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.

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