FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
SHENANDOAH CABLE TELEVISION CO.
MARLINTON, WV
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
October 26, 2017

TABLE OF CONTENTS

1. CONCLUSIONS 3
2. SUMMARY OF RESULTS 4
3. SUPPLEMENTAL SHOWING 5
4. EARTH STATION COORDINATION DATA 6
5. CERTIFICATION 10

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 10/17/2017.

Company
General Dynamics - OTS, 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:	10/26/2017
Job Number:	171017COMSGE05

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	
Licensee Code	ZSHETC
Licensee Name	SHENANDOAH CABLE TELEVISION CO.

Site Information — MARLINTON, WV

Venue Name	
Latitude (NAD 83)	38° 13' 30.2" N
Longitude (NAD 83)	80° 5' 27.9" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	648.55 m / 2127.8 ft

Link Information

Satellite Type	Geostationary
Mode	RO - Receive-Only
Modulation	Digital
Satellite Arc	60° W to 143° West Longitude
Azimuth Range	149.4° to 252.4°
Corresponding Elevation Angles	41.0° / 12.5°
Antenna Centerline (AGL)	2.74 m / 9.0 ft

Antenna Information — Receive - FCC32

Manufacturer		Anexter	
Model		5 meter	
Gain / Diameter		45.0 dBi / 5.0 m	
3-dB / 15-dB Beamwidth		1.00° / 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	233.5 km / 145.1 mi
Precipitation Scatter Contour Radius	528.6 km / 328.4 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values	**MARLINTON, WV**
Licensee Name	SHENANDOAH CABLE TELEVISION CO.
Latitude (NAD 83)	38° 13' 30.2" N
Longitude (NAD 83)	80° 5' 27.9" W
Ground Elevation (AMSL)	648.55 m / 2127.8 ft
Antenna Centerline (AGL)	2.74 m / 9.0 ft
Antenna Model	Anexter 5 meter
Antenna Mode	Receive 4.0 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz 20%
Short Term	-146.0 dBW/MHz 0.01%

Receive 4.0 GHz

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)
0	4.27	107.38	-10.00	143.78
5	3.49	112.27	-10.00	158.58
10	2.42	117.11	-10.00	185.00
15	2.06	121.97	-10.00	193.04
20	2.15	119.64	-10.00	191.08
25	2.94	116.43	-10.00	172.95
30	2.52	112.61	-10.00	182.57
35	4.05	109.29	-10.00	147.18
40	6.71	105.94	-10.00	117.42
45	7.96	102.05	-10.00	104.22
50	8.56	97.93	-10.00	100.00
55	10.14	93.79	-10.00	100.00
60	12.06	89.49	-10.00	100.00
65	12.22	85.10	-10.00	100.00
70	16.14	80.40	-10.00	100.00
75	16.70	75.82	-10.00	100.00
80	17.88	71.13	-10.00	100.00
85	18.08	66.56	-10.00	100.00
90	17.87	62.10	-10.00	100.00
95	17.94	57.62	-10.00	100.00
100	17.37	53.41	-10.00	100.00
105	16.82	49.33	-10.00	100.00
110	15.66	45.71	-9.50	100.00
115	15.43	41.91	-8.56	100.00
120	15.30	38.28	-7.57	100.00
125	16.76	33.86	-6.24	100.00
130	17.56	30.08	-4.96	100.00
135	17.48	27.36	-3.93	100.00
140	17.03	25.64	-3.22	100.00
145	17.73	23.65	-2.34	100.00
150	18.62	22.38	-1.75	100.00
155	18.26	23.37	-2.22	100.00
160	18.07	24.96	-2.93	100.00
165	17.06	27.12	-3.83	100.00
170	15.58	29.43	-4.72	100.00
175	12.98	32.56	-5.82	100.00
180	10.30	35.41	-6.73	100.00
185	7.70	37.81	-7.44	117.11

COMSEARCH

Earth Station Data Sheet

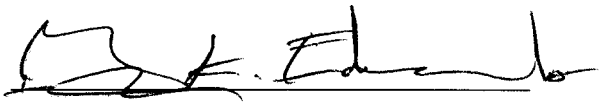
19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 http://www.comsearch.com

Coordination Values	**MARLINTON, WV**	
Licensee Name	SHENANDOAH CABLE TELEVISION CO.	
Latitude (NAD 83)	38° 13' 30.2" N	
Longitude (NAD 83)	80° 5' 27.9" W	
Ground Elevation (AMSL)	648.55 m / 2127.8 ft	
Antenna Centerline (AGL)	2.74 m / 9.0 ft	
Antenna Model	Anexter 5 meter	
Antenna Mode	Receive 4.0 GHz	
Interference Objectives: Long Term	-156.0 dBW/MHz	20%
Short Term	-146.0 dBW/MHz	0.01%

			Receive 4.0 GHz	
Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)
190	5.12	39.70	-7.97	140.73
195	5.13	38.58	-7.66	141.96
200	5.19	37.00	-7.21	143.42
205	3.41	36.60	-7.09	177.00
210	2.44	35.04	-6.62	200.73
215	2.65	32.19	-5.69	200.61
220	2.95	29.04	-4.57	199.81
225	3.70	25.34	-3.10	191.47
230	5.08	21.06	-1.09	178.45
235	6.52	16.63	1.48	175.02
240	7.77	12.24	4.80	178.48
245	7.14	9.07	8.06	206.20
250	7.18	5.82	12.88	233.49
255	7.22	5.84	12.83	232.67
260	7.52	9.03	8.10	201.85
265	8.31	13.23	3.96	164.75
270	8.17	18.07	0.58	146.61
275	9.04	22.81	-1.95	128.05
280	9.54	27.71	-4.07	114.68
285	9.47	32.69	-5.86	107.75
290	8.79	37.72	-7.41	107.20
295	8.39	42.72	-8.77	105.21
300	9.13	47.65	-9.95	100.00
305	8.61	52.66	-10.00	100.00
310	8.77	57.64	-10.00	100.00
315	8.05	62.65	-10.00	103.37
320	7.84	67.64	-10.00	105.49
325	7.96	72.62	-10.00	104.17
330	6.86	77.63	-10.00	115.88
335	5.68	82.62	-10.00	128.29
340	4.42	87.59	-10.00	141.59
345	6.01	92.55	-10.00	125.15
350	5.79	97.51	-10.00	127.25
355	5.12	102.46	-10.00	133.70

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: October 26, 2017