

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
COMCAST OF GREATER FLORIDA/GEORGIA, INC.
JACKSONVILLE, FL
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
June 16, 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 06/16/2018.

<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: 06/16/2018
Job Number: 180616COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign WQ46
Licensee Code ZAMCB5
Licensee Name COMCAST OF GREATER FLORIDA/GEORGIA, INC.

Site Information JACKSONVILLE, FL

Venue Name
Latitude (NAD 83) 30° 15' 44.0" N
Longitude (NAD 83) 81° 36' 46.0" W
Climate Zone B
Rain Zone 1
Ground Elevation (AMSL) 5.75 m / 18.9 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 70° W to 136° West Longitude
Azimuth Range 157.8° to 250.1°
Corresponding Elevation Angles 52.5° / 22.1°
Antenna Centerline (AGL) 7.62 m / 25.0 ft

Antenna Information Receive - F40701

Manufacturer MICRODYNE CORPORATION
Model PR 23
Gain / Diameter 46.6 dBi / 7.0 m
3-dB / 15-dB Beamwidth 0.74° / 1.50°

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 504.5 km / 313.4 mi
Precipitation Scatter Contour Radius 574.5 km / 356.9 mi

COMSEARCH

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Coordination Values

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Antenna Centerline (AGL) 7.62 m / 25.0 ft
Antenna Model MICRODYNE CORPORATION PR 23
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	0.00	108.33	-10.40	407.27
5	0.00	112.91	-10.40	407.27
10	0.00	117.45	-10.40	407.27
15	0.00	119.01	-10.40	407.27
20	0.00	116.81	-10.40	407.27
25	0.00	114.44	-10.40	407.27
30	0.00	111.92	-10.40	407.27
35	0.00	109.26	-10.40	407.27
40	0.00	106.50	-10.40	407.27
45	0.00	103.65	-10.40	407.27
50	0.00	100.73	-10.40	407.27
55	0.00	97.76	-10.40	407.27
60	0.00	94.75	-10.40	407.27
65	0.00	91.72	-10.40	407.27
70	0.00	88.67	-10.40	407.27
75	0.00	85.64	-10.40	407.27
80	0.00	82.62	-10.40	407.27
85	0.00	79.64	-10.40	407.27
90	0.00	76.71	-10.40	407.27
95	0.00	73.86	-10.40	407.27
100	0.00	71.08	-10.40	407.27
105	0.00	68.42	-10.40	407.27
110	0.00	65.87	-10.40	407.27
115	0.00	63.48	-10.40	407.27
120	0.00	61.26	-10.40	407.27
125	0.00	59.23	-10.40	407.27
130	0.00	57.43	-10.40	407.27
135	0.00	55.87	-10.40	407.27
140	0.00	54.58	-10.40	407.27
145	0.00	53.59	-10.40	407.27
150	0.00	52.91	-10.40	407.27
155	0.00	52.56	-10.40	407.27
160	0.00	52.54	-10.40	407.27
165	0.00	52.85	-10.40	407.27
170	0.00	53.49	-10.40	407.27
175	0.00	54.37	-10.40	407.27
180	0.00	54.73	-10.40	407.27
185	0.00	54.37	-10.40	407.27

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Antenna Model MICRODYNE CORPORATION PR 23
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	0.00	53.30	-10.40	407.27
195	0.00	51.61	-10.40	407.27
200	0.00	49.37	-10.40	407.27
205	0.00	46.68	-10.40	407.27
210	0.00	43.63	-10.13	410.65
215	0.00	40.29	-9.46	418.99
220	0.00	36.72	-8.09	436.64
225	0.00	33.02	-6.61	456.54
230	0.00	29.59	-5.32	474.02
235	0.00	26.61	-4.72	482.63
240	0.00	24.25	-4.10	491.78
245	0.00	22.70	-3.48	501.05
250	0.00	22.14	-3.26	504.46
255	0.00	22.64	-3.46	501.43
260	0.00	24.13	-4.05	492.48
265	0.00	26.45	-4.69	483.09
270	0.00	29.40	-5.28	474.57
275	0.00	32.81	-6.52	457.73
280	0.00	36.55	-8.02	437.55
285	0.00	40.53	-9.51	418.39
290	0.00	44.68	-10.34	408.07
295	0.00	48.95	-10.40	407.27
300	0.00	53.33	-10.40	407.27
305	0.00	57.77	-10.40	407.27
310	0.00	62.28	-10.40	407.27
315	0.00	66.82	-10.40	407.27
320	0.00	71.39	-10.40	407.27
325	0.00	75.99	-10.40	407.27
330	0.00	80.61	-10.40	407.27
335	0.00	85.23	-10.40	407.27
340	0.00	89.86	-10.40	407.27
345	0.00	94.49	-10.40	407.27
350	0.00	99.12	-10.40	407.27
355	0.00	103.73	-10.40	407.27

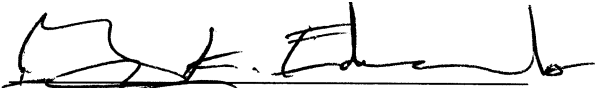
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5. CERTIFICATION

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: June 16, 2018

COMSEARCH

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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.

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Coordination data for this earth station was sent to the below listed carriers with a letter dated 06/16/2018.

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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.

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

Date: 06/16/2018
Job Number: 180616COMSGE02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign WQ46
Licensee Code ZAMCB5
Licensee Name COMCAST OF GREATER FLORIDA/GEORGIA, INC.

Site Information JACKSONVILLE, FL

Venue Name
Latitude (NAD 83) 30° 15' 44.0" N
Longitude (NAD 83) 81° 36' 46.0" W
Climate Zone B
Rain Zone 1
Ground Elevation (AMSL) 5.75 m / 18.9 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 70° W to 136° West Longitude
Azimuth Range 157.8° to 250.1°
Corresponding Elevation Angles 52.5° / 22.1°
Antenna Centerline (AGL) 7.62 m / 25.0 ft

Antenna Information Receive - C40381

Manufacturer COMTECH ANTENNA SYSTEMS
Model 3.8 METER PF
Gain / Diameter 42.9 dBi / 3.8 m
3-dB / 15-dB Beamwidth 1.40° / 2.80°

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 509.1 km / 316.3 mi
Precipitation Scatter Contour Radius 574.5 km / 356.9 mi

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Antenna Mode Receive 4.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20%
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Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	108.33	-8.10	436.48
5	0.00	112.91	-8.10	436.48
10	0.00	117.45	-9.08	423.76
15	0.00	119.01	-9.70	415.88
20	0.00	116.81	-8.82	427.05
25	0.00	114.44	-8.10	436.48
30	0.00	111.92	-8.10	436.48
35	0.00	109.26	-8.10	436.48
40	0.00	106.50	-8.10	436.48
45	0.00	103.65	-8.10	436.48
50	0.00	100.73	-8.10	436.48
55	0.00	97.76	-8.10	436.48
60	0.00	94.75	-8.10	436.48
65	0.00	91.72	-8.10	436.48
70	0.00	88.67	-8.10	436.48
75	0.00	85.64	-8.10	436.48
80	0.00	82.62	-8.10	436.48
85	0.00	79.64	-8.10	436.48
90	0.00	76.71	-8.10	436.48
95	0.00	73.86	-8.10	436.48
100	0.00	71.08	-8.10	436.48
105	0.00	68.42	-8.10	436.48
110	0.00	65.87	-8.10	436.48
115	0.00	63.48	-8.10	436.48
120	0.00	61.26	-8.10	436.48
125	0.00	59.23	-8.10	436.48
130	0.00	57.43	-8.10	436.48
135	0.00	55.87	-8.10	436.48
140	0.00	54.58	-8.66	429.21
145	0.00	53.59	-10.10	410.96
150	0.00	52.91	-10.10	410.96
155	0.00	52.56	-10.10	410.96
160	0.00	52.54	-10.10	410.96
165	0.00	52.85	-10.10	410.96
170	0.00	53.49	-10.10	410.96
175	0.00	54.37	-10.10	410.96
180	0.00	54.73	-10.10	410.96
185	0.00	54.37	-10.10	410.96

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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	0.00	53.30	-10.10	410.96
195	0.00	51.61	-10.10	410.96
200	0.00	49.37	-9.97	412.53
205	0.00	46.68	-9.44	419.27
210	0.00	43.63	-8.55	430.60
215	0.00	40.29	-7.21	448.29
220	0.00	36.72	-6.44	458.82
225	0.00	33.02	-6.10	463.60
230	0.00	29.59	-5.94	465.25
235	0.00	26.61	-4.75	482.30
240	0.00	24.25	-3.80	496.25
245	0.00	22.70	-3.18	505.61
250	0.00	22.14	-2.96	509.05
255	0.00	22.64	-3.16	506.00
260	0.00	24.13	-3.75	496.96
265	0.00	26.45	-4.68	483.23
270	0.00	29.40	-5.86	466.34
275	0.00	32.81	-6.10	463.60
280	0.00	36.55	-6.41	459.30
285	0.00	40.53	-7.31	447.00
290	0.00	44.68	-8.10	436.48
295	0.00	48.95	-8.10	436.48
300	0.00	53.33	-8.10	436.48
305	0.00	57.77	-8.10	436.48
310	0.00	62.28	-8.10	436.48
315	0.00	66.82	-8.10	436.48
320	0.00	71.39	-8.10	436.48
325	0.00	75.99	-8.10	436.48
330	0.00	80.61	-8.10	436.48
335	0.00	85.23	-8.10	436.48
340	0.00	89.86	-8.10	436.48
345	0.00	94.49	-8.10	436.48
350	0.00	99.12	-8.10	436.48
355	0.00	103.73	-8.10	436.48

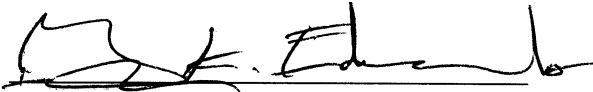
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Date: 06/16/2018
Job Number: 180616COMSGE01

Administrative Information

Status ENGINEER PROPOSAL
Call Sign WQ46
Licensee Code ZAMCB5
Licensee Name COMCAST OF GREATER FLORIDA/GEORGIA, INC.

Site Information JACKSONVILLE, FL

Venue Name
Latitude (NAD 83) 30° 15' 44.0" N
Longitude (NAD 83) 81° 36' 46.0" W
Climate Zone B
Rain Zone 1
Ground Elevation (AMSL) 5.75 m / 18.9 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 70° W to 136° West Longitude
Azimuth Range 157.8° to 250.1°
Corresponding Elevation Angles 52.5° / 22.1°
Antenna Centerline (AGL) 7.62 m / 25.0 ft

Antenna Information Receive - S40452

Manufacturer SCIENTIFIC-ATLANTA, INC
Model 8345 4.5 METER
Gain / Diameter 43.3 dBi / 4.5 m
3-dB / 15-dB Beamwidth 1.20° / 2.50°

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 428.7 km / 266.3 mi
Precipitation Scatter Contour Radius 574.5 km / 356.9 mi

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			Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	108.33	-10.37	407.68
5	0.00	112.91	-13.03	376.50
10	0.00	117.45	-15.68	348.21
15	0.00	119.01	-16.30	343.47
20	0.00	116.81	-15.42	350.82
25	0.00	114.44	-14.25	363.10
30	0.00	111.92	-12.23	385.52
35	0.00	109.26	-10.55	405.41
40	0.00	106.50	-10.00	412.19
45	0.00	103.65	-9.70	415.94
50	0.00	100.73	-9.70	415.94
55	0.00	97.76	-9.70	415.94
60	0.00	94.75	-9.70	415.94
65	0.00	91.72	-9.70	415.94
70	0.00	88.67	-9.70	415.94
75	0.00	85.64	-9.70	415.94
80	0.00	82.62	-9.70	415.94
85	0.00	79.64	-9.70	415.94
90	0.00	76.71	-9.70	415.94
95	0.00	73.86	-9.70	415.94
100	0.00	71.08	-9.70	415.94
105	0.00	68.42	-9.70	415.94
110	0.00	65.87	-9.70	415.94
115	0.00	63.48	-9.70	415.94
120	0.00	61.26	-9.70	415.94
125	0.00	59.23	-9.70	415.94
130	0.00	57.43	-9.70	415.94
135	0.00	55.87	-9.70	415.94
140	0.00	54.58	-9.70	415.94
145	0.00	53.59	-9.70	415.94
150	0.00	52.91	-9.74	415.45
155	0.00	52.56	-9.72	415.66
160	0.00	52.54	-9.73	415.59
165	0.00	52.85	-10.60	404.85
170	0.00	53.49	-10.70	403.62
175	0.00	54.37	-10.70	403.62
180	0.00	54.73	-10.70	403.62
185	0.00	54.37	-11.86	389.79

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

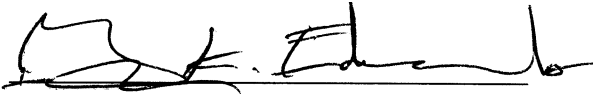
JACKSONVILLE, FL

Licensee Name COMCAST OF GREATER FLORIDA/GEORGIA, INC.
Latitude (NAD 83) 30° 15' 44.0" N
Longitude (NAD 83) 81° 36' 46.0" W
Ground Elevation (AMSL) 5.75 m / 18.9 ft
Antenna Centerline (AGL) 7.62 m / 25.0 ft
Antenna Model SCIENTIFIC-ATLANTA, INC 8345 4.5 METER
Antenna Mode Receive 4.0 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20%
Short Term -146.0 dBW/MHz 0.01%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	53.30	-12.70	380.18
195	0.00	51.61	-12.70	380.18
200	0.00	49.37	-12.70	380.18
205	0.00	46.68	-12.48	382.73
210	0.00	43.63	-11.47	394.45
215	0.00	40.29	-10.70	403.62
220	0.00	36.72	-10.70	403.62
225	0.00	33.02	-10.70	403.62
230	0.00	29.59	-8.70	428.66
235	0.00	26.61	-8.70	428.66
240	0.00	24.25	-8.70	428.66
245	0.00	22.70	-8.70	428.66
250	0.00	22.14	-8.70	428.66
255	0.00	22.64	-8.70	428.66
260	0.00	24.13	-8.70	428.66
265	0.00	26.45	-8.70	428.66
270	0.00	29.40	-8.70	428.66
275	0.00	32.81	-9.70	415.94
280	0.00	36.55	-9.70	415.94
285	0.00	40.53	-9.70	415.94
290	0.00	44.68	-9.70	415.94
295	0.00	48.95	-9.70	415.94
300	0.00	53.33	-9.70	415.94
305	0.00	57.77	-9.70	415.94
310	0.00	62.28	-9.70	415.94
315	0.00	66.82	-9.70	415.94
320	0.00	71.39	-9.70	415.94
325	0.00	75.99	-9.70	415.94
330	0.00	80.61	-9.70	415.94
335	0.00	85.23	-9.70	415.94
340	0.00	89.86	-9.70	415.94
345	0.00	94.49	-9.70	415.94
350	0.00	99.12	-9.70	415.94
355	0.00	103.73	-9.70	415.94

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: June 16, 2018