

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
KMBC Hearst Television Inc.
KANSAS CITY, MO
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
November 15, 2016

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4. EARTH STATION COORDINATION DATA.....	6
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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 09/28/2016.

<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: 11/15/2016
Job Number: 160928COMSGE11

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code KMBCTV
Licensee Name KMBC Hearst Television Inc.

Site Information KANSAS CITY, MO

Venue Name
Latitude (NAD 83) 39° 0' 27.5" N
Longitude (NAD 83) 94° 30' 13.0" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 267.5 m / 877.6 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 60° W to 143° West Longitude
Azimuth Range 132.5° to 240.9°
Corresponding Elevation Angles 32.5° / 23.0°
Antenna Centerline (AGL) 2.74 m / 9.0 ft

Antenna Information Receive - FCC32

Manufacturer Patriot
Model 3.8 meter
Gain / Diameter 42.1 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 285.3 km / 177.2 mi
Precipitation Scatter Contour Radius 498.5 km / 309.7 mi

COMSEARCH

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Coordination Values

KANSAS CITY, MO

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Antenna Model Patriot 3.8 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)
0	0.97	116.82	-10.00	221.69
5	1.02	121.27	-10.00	219.63
10	1.19	117.31	-10.00	214.54
15	1.37	113.27	-10.00	209.16
20	1.56	109.15	-10.00	206.25
25	1.52	104.93	-10.00	205.02
30	1.76	100.71	-10.00	200.88
35	1.92	96.44	-10.00	196.73
40	2.16	92.14	-10.00	190.92
45	2.45	87.82	-10.00	184.21
50	2.95	83.46	-10.00	172.66
55	2.97	79.13	-10.00	172.04
60	2.20	74.94	-10.00	190.01
65	1.61	70.81	-10.00	204.94
70	2.66	66.37	-10.00	179.44
75	2.80	62.16	-10.00	176.01
80	2.94	58.01	-10.00	172.97
85	2.78	54.06	-10.00	176.62
90	2.59	50.26	-10.00	181.05
95	2.57	46.55	-9.70	183.00
100	2.49	43.07	-8.85	188.93
105	2.33	39.91	-8.03	196.49
110	1.91	37.30	-7.29	206.95
115	2.33	34.44	-6.43	203.94
120	2.54	32.23	-5.71	202.96
125	2.72	30.61	-5.15	201.69
130	2.29	30.29	-5.03	209.07
135	3.08	29.51	-4.75	196.12
140	3.34	30.02	-4.93	189.58
145	3.48	31.38	-5.42	184.17
150	3.17	33.75	-6.21	186.86
155	3.05	36.16	-6.96	185.70
160	2.91	38.25	-7.57	185.75
165	2.61	40.12	-8.08	189.88
170	2.67	41.22	-8.38	187.13
175	2.54	42.06	-8.60	189.00
180	2.44	42.40	-8.68	190.78
185	2.25	42.35	-8.67	195.17

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Coordination Values

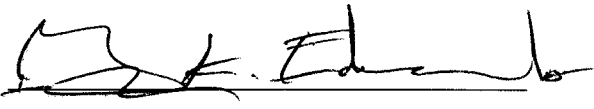
KANSAS CITY, MO

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Ground Elevation (AMSL) 267.5 m / 877.6 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model Patriot 3.8 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	2.40	41.48	-8.45	192.75
195	2.41	40.31	-8.13	194.18
200	2.68	38.46	-7.62	190.58
205	2.77	36.40	-7.03	191.58
210	2.84	34.02	-6.29	193.70
215	2.92	31.33	-5.40	196.39
220	2.85	28.51	-4.38	202.88
225	2.67	25.58	-3.20	209.88
230	2.60	23.00	-2.05	217.67
235	2.50	21.28	-1.20	224.78
240	2.73	20.28	-0.68	222.35
245	3.29	20.11	-0.58	210.25
250	3.02	21.88	-1.50	211.20
255	3.14	24.19	-2.59	205.56
260	3.01	27.38	-3.94	201.65
265	2.26	31.39	-5.42	207.93
270	2.23	35.23	-6.67	205.05
275	1.42	39.65	-7.96	217.62
280	1.38	43.84	-9.05	213.36
285	1.25	48.17	-10.00	212.61
290	1.26	52.56	-10.00	212.43
295	1.17	57.03	-10.00	215.08
300	0.96	61.59	-10.00	222.41
305	0.75	66.17	-10.00	234.03
310	0.56	70.76	-10.00	245.69
315	0.45	75.36	-10.00	255.65
320	0.26	79.97	-10.00	277.63
325	0.00	84.59	-10.00	285.28
330	0.00	89.19	-10.00	285.28
335	0.31	93.80	-10.00	271.42
340	0.41	98.41	-10.00	259.64
345	0.54	103.03	-10.00	247.01
350	0.62	107.63	-10.00	241.83
355	0.78	112.23	-10.00	232.31

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: November 15, 2016

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Date: 11/15/2016
Job Number: 160928COMSGE10

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code KMBCTV
Licensee Name KMBC Hearst Television Inc.

Site Information

KANSAS CITY, MO
Venue Name
Latitude (NAD 83) 39° 0' 27.5" N
Longitude (NAD 83) 94° 30' 13.0" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 267.5 m / 877.6 ft

Link Information

Satellite Type Geostationary
Mode RO - Receive-Only
Modulation Digital
Satellite Arc 60° W to 143° West Longitude
Azimuth Range 132.5° to 240.9°
Corresponding Elevation Angles 32.5° / 23.0°
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 498.5 km / 309.7 mi

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			Horizon Gain (dBi)	Coordination Distance (km)
0	0.97	116.82	-13.19	206.41
5	1.02	121.27	-15.35	197.41
10	1.19	117.31	-13.49	200.95
15	1.37	113.27	-11.41	205.17
20	1.56	109.15	-9.42	206.48
25	1.52	104.93	-6.10	224.29
30	1.76	100.71	-6.10	216.98
35	1.92	96.44	-6.10	212.60
40	2.16	92.14	-6.10	206.82
45	2.45	87.82	-6.10	202.94
50	2.95	83.46	-6.10	192.23
55	2.97	79.13	-6.10	191.67
60	2.20	74.94	-6.10	205.96
65	1.61	70.81	-6.10	221.47
70	2.66	66.37	-6.10	198.52
75	2.80	62.16	-6.10	195.35
80	2.94	58.01	-6.10	192.52
85	2.78	54.06	-6.10	195.90
90	2.59	50.26	-6.10	200.01
95	2.57	46.55	-6.10	200.44
100	2.49	43.07	-6.10	202.16
105	2.33	39.91	-6.10	205.59
110	1.91	37.30	-6.10	212.74
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120	2.54	32.23	-5.99	201.60
125	2.72	30.61	-5.34	200.74
130	2.29	30.29	-5.22	208.17
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175	2.54	42.06	-8.51	189.41
180	2.44	42.40	-8.58	191.28
185	2.25	42.35	-8.57	195.65

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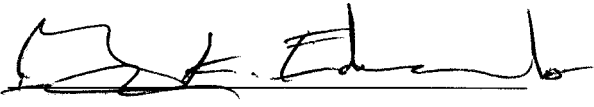
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235	2.50	21.28	-2.61	216.87
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255	3.14	24.19	-3.78	199.72
260	3.01	27.38	-4.58	198.51
265	2.26	31.39	-5.66	206.79
270	2.23	35.23	-6.10	205.34
275	1.42	39.65	-6.10	227.44
280	1.38	43.84	-6.10	228.67
285	1.25	48.17	-6.10	232.96
290	1.26	52.56	-6.10	232.76
295	1.17	57.03	-6.10	235.76
300	0.96	61.59	-6.10	243.97
305	0.75	66.17	-6.10	256.92
310	0.56	70.76	-6.10	269.55
315	0.45	75.36	-6.10	280.07
320	0.26	79.97	-6.10	303.29
325	0.00	84.59	-6.10	311.30
330	0.00	89.19	-6.10	311.30
335	0.31	93.80	-6.10	296.76
340	0.41	98.41	-6.10	284.31
345	0.54	103.03	-6.10	270.97
350	0.62	107.63	-8.20	252.38
355	0.78	112.23	-10.99	227.07

5. CERTIFICATION

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