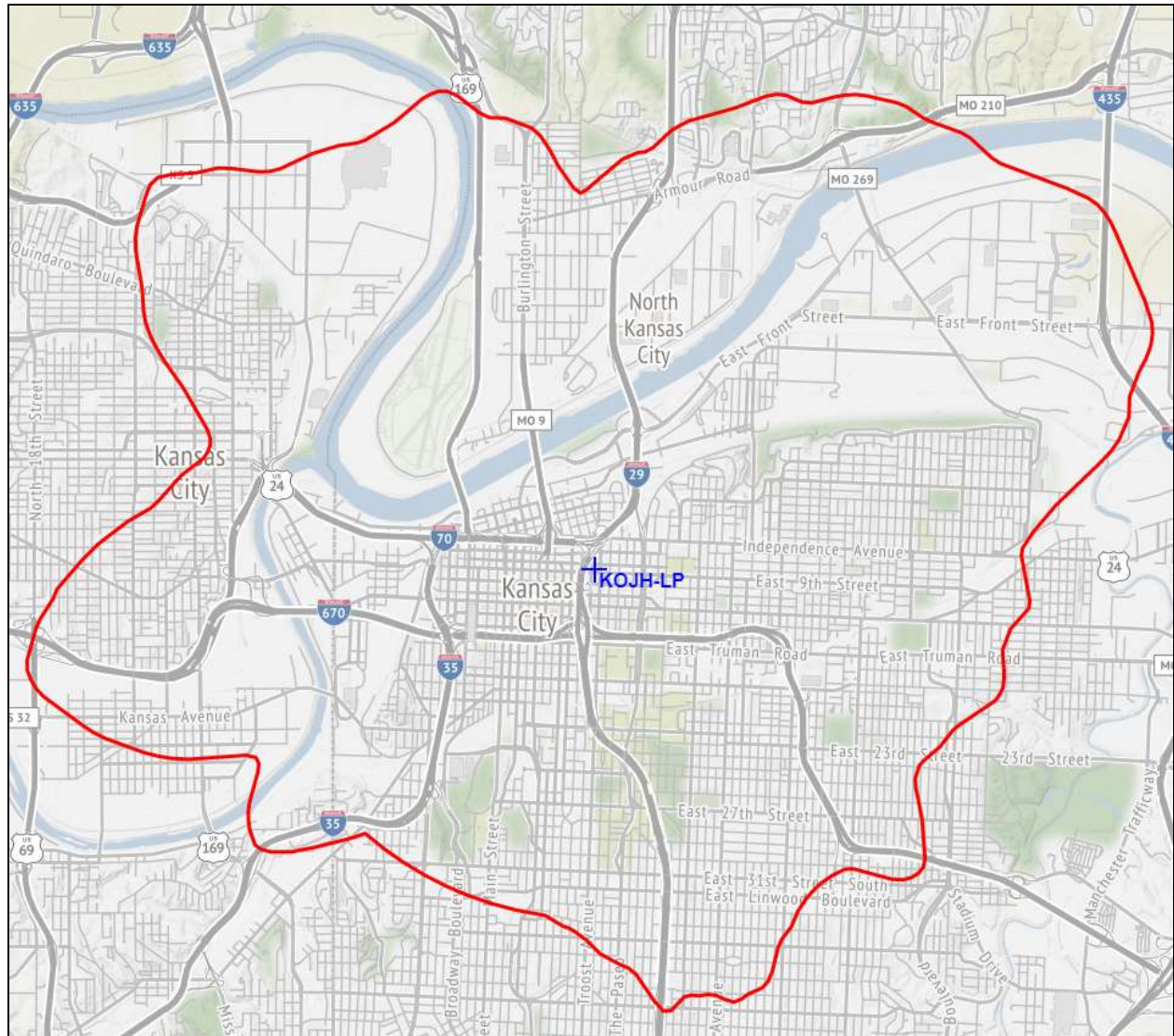




Minor modification for KOJH-LP  
KANSAS CITY, MO  
**MUTUAL MUSICIANS FOUNDATION, INC.**  
BNPL-20131114ARG



KANSAS CITY, MO – Channel 284L1 (104.7 MHz) ~ ERP 0.033 kW  
 Elev: 294 meters ~ RCAGL: 21 meters ~ RCAMSL: 315 meters ~ HAAT: 52 meters (GLOBE)  
 Overall tower height: 22 meters – ASR: 20-foot rule applies  
 NAD27 Latitude: 39° 06' 11.7" NL – Longitude: 94° 34' 12.6" WL  
 NAD83 Latitude: 39° 06' 11.7" NL – Longitude: 94° 34' 13.4" WL

Site: KOJH(A)  
 Coordinates: 39-06-11.7 N, 94-34-12.6 W  
 Freq: 104.70000 MHz  
 ERP: 33.00 W

Bearing	ERP W	HAAT	DH	Distance	Lat	Lon
0	33.00	27	40	4.25	39.141512	-94.570167
5	33.00	31	50	4.32	39.141976	-94.565798
10	33.00	38	30	4.79	39.145670	-94.560522
15	33.00	43	30	5.11	39.147601	-94.554843
20	33.00	52	40	5.65	39.151019	-94.547746
25	33.00	54	50	5.76	39.150209	-94.541928
30	33.00	63	60	6.19	39.151484	-94.534252
35	33.00	66	60	6.33	39.149903	-94.528036
40	33.00	68	80	6.43	39.147523	-94.522254
45	33.00	70	60	6.52	39.144692	-94.516715
50	33.00	78	70	6.86	39.142918	-94.509187
55	33.00	85	80	7.18	39.140277	-94.501951
60	33.00	83	90	7.08	39.135082	-94.499037
65	33.00	81	60	6.99	39.129786	-94.496743
70	33.00	72	60	6.61	39.123547	-94.498207
75	33.00	63	60	6.19	39.117646	-94.500818
80	33.00	48	70	5.42	39.111705	-94.508247
85	33.00	36	90	4.66	39.106888	-94.516392
90	33.00	34	70	4.52	39.103238	-94.517742
95	33.00	35	70	4.59	39.099640	-94.517171
100	33.00	32	70	4.39	39.096384	-94.520073
105	33.00	33	60	4.46	39.092866	-94.520286
110	33.00	30	60	4.25	39.090154	-94.523842
115	33.00	26	60	4.25	39.087071	-94.525490
120	33.00	25	40	4.25	39.084111	-94.527478
125	33.00	27	30	4.25	39.081297	-94.529790
130	33.00	35	30	4.59	39.076706	-94.529428
135	33.00	36	30	4.66	39.073625	-94.532015
140	33.00	27	30	4.25	39.073935	-94.538486
145	33.00	27	30	4.25	39.071904	-94.541898
150	33.00	30	30	4.25	39.070111	-94.545525
155	33.00	36	30	4.66	39.065285	-94.547367
160	33.00	40	40	4.91	39.061749	-94.550714
165	33.00	36	50	4.66	39.062789	-94.556204
170	33.00	38	60	4.79	39.060830	-94.560534
175	33.00	29	60	4.25	39.065133	-94.565872
180	33.00	25	100	4.25	39.064988	-94.570167
185	33.00	20	60	4.25	39.065133	-94.574462
190	33.00	16	80	4.25	39.065569	-94.578724
195	33.00	16	70	4.25	39.066291	-94.582921
200	33.00	14	60	4.25	39.067294	-94.587022
205	33.00	13	40	4.25	39.068571	-94.590994
210	33.00	12	50	4.25	39.070111	-94.594808
215	33.00	10	30	4.25	39.071904	-94.598435
220	33.00	17	20	4.25	39.073935	-94.601847
225	33.00	27	20	4.25	39.076189	-94.605018
230	33.00	36	20	4.66	39.076318	-94.611500
235	33.00	34	30	4.52	39.079908	-94.613096
240	33.00	29	40	4.25	39.084111	-94.612856
245	33.00	38	50	4.79	39.085035	-94.620460
250	33.00	53	40	5.71	39.085674	-94.632320
255	33.00	64	40	6.24	39.088703	-94.640013
260	33.00	73	50	6.65	39.092842	-94.646039
265	33.00	67	70	6.38	39.098225	-94.643828
270	33.00	57	60	5.90	39.103230	-94.638516
275	33.00	45	40	5.24	39.107344	-94.630708
280	33.00	35	30	4.59	39.110407	-94.622565
285	33.00	31	30	4.32	39.113301	-94.618561
290	33.00	31	30	4.32	39.116536	-94.617249
295	33.00	41	70	4.97	39.122130	-94.622389
300	33.00	55	110	5.81	39.129346	-94.628467
305	33.00	68	70	6.43	39.136391	-94.631216
310	33.00	77	70	6.82	39.142676	-94.630773
315	33.00	70	40	6.52	39.144692	-94.623618
320	33.00	58	70	5.94	39.144190	-94.614469
325	33.00	54	60	5.76	39.145690	-94.608489
330	33.00	49	60	5.48	39.145939	-94.601950
335	33.00	48	70	5.42	39.147462	-94.596752
340	33.00	53	60	5.71	39.151492	-94.592810
345	33.00	46	60	5.31	39.149373	-94.586103
350	33.00	41	60	4.97	39.147273	-94.580176
355	33.00	30	40	4.25	39.141367	-94.574466

R E C NETWORKS  
CHANNEL REPORT

NAD27 LATITUDE: 39 - 06' 12.1" - LONGITUDE: 94 - 34' 13.7"  
CHANNEL: 284 - CLASS: LPFM(LP-100)

CHAN	FREQ	CALL	LOCATION	CLS	DIST	REQ	CLEAR	BEAR
282	104.3	KBEQ-FM : MGTF MEDIA COMPANY, LLC	KANSAS CITY	MO C0	8.1	84.0	-75.9	106.1
284	104.7	KRES : ALPHA MEDIA LICENSEE LLC	MOBERLY	MO C	166.0	130.0	36.0	75.6
284	104.7	KVCY : VCY AMERICA, INC.	FORT SCOTT	KS C3	136.6	78.0	58.6	185.5
284	104.7	KXBZ : MANHATTAN BROADCASTING CO., INC.	MANHATTAN	KS C2	164.8	91.0	73.8	276.8
284	104.7	KKLH : MW SPRINGMO, INC.	MARSHFIELD	MO C2	256.2	91.0	165.2	144.9
284	104.7	KOJH-LP : MUTUAL MUSICIANS FOUNDATION, INC : Currently authorized facility - move is on the same roof at lower height.	KANSAS CITY	MO L1	0.0	24.0	-24.0	112.6
284	104.7	K284BS : FOOTPRINT RADIO BROADCASTING MINISTRY, INC.	LAWRENCE	KS D4	66.5	32.0	34.5	249.2
284	104.7	K284CH : ALPINE BROADCASTING CORPORATION : Current distance 11.2 (rounds to 11). Short-spacing not increased.	KANSAS CITY	MO D3	11.2	32.0	-20.8	150.5
284	104.7	K284BS : FOOTPRINT RADIO BROADCASTING MINISTRY, INC.	LAWRENCE	KS D5	57.2	32.0	25.2	246.3
284	104.7	K284CH : ALPINE BROADCASTING CORPORATION : Current distance 11.2 (rounds to 11). Short-spacing not increased.	KANSAS CITY	MO D7	11.2	39.0	-27.8	150.6
286	105.1	KCJK : CMP HOUSTON-KC, LLC	GARDEN CITY	MO C1	8.7	73.0	-64.3	99.4

**LPFM SECOND ADJACENT CHANNEL WAIVER STUDY**  
**WAIVER REQUEST §73.807(a)**

KOJH-LP  
Kansas City, Missouri  
Channel 284L1 (104.7 MHz)

The proposed location does not meet second-adjacent channel minimum distance separation in respect to KBEQ-FM, Kansas City, Missouri and KCJK, Garden City Missouri.

KBEQ-FM operates on Channel 282C0 with an effective radiated power (ERP) of 99 kW at 301 meters height above average terrain (HAAT) into a non-directional antenna. KBEQ-FM places a 103.5 dBu service contour at the proposed transmitter site.

KCJK operates on Channel 286C1 with an ERP of 72 kW at 346 meters HAAT into a non-directional antenna. KCJK places a 102.2 dBu service contour at the proposed transmitter site.

When evaluating multiple short-spaced second adjacent channel stations, we must further evaluate the one with the weaker signal strength as the interfering contour in respect to the stronger station would be fully encompassed by the one for the weaker station. In this case, the weaker station is KCJK.

Using GLOBE terrain data, the HAAT at the radiation center of the proposed station was calculated at 52 meters, which in accordance with §73.811(a) of the Rules means that the ERP would be limited to 33 watts (0.033 kW).

Using the U/D method<sup>1</sup>, the proposed LPFM station is predicted to produce an undesired interference overlap in respect to KCJK to the proposed LPFM station's 142.2 dBu interfering contour ("overlap zone"). At 33 watts ERP, the overlap zone extends to 3 meters from the radiation center. The proposed LPFM station is on the roof of a two-story building with an unoccupied bell tower. The antenna will be mounted on the main roof and will be 9 meters above the main roof line. As a result of that height, the 142.2 dBu interfering contour will not penetrate the building or any adjacent structures. Therefore, the proposed station will not create any interference to existing or potential listeners of second adjacent channel stations KBEQ-FM, Kansas City, Missouri and KCJK, Garden City Missouri.

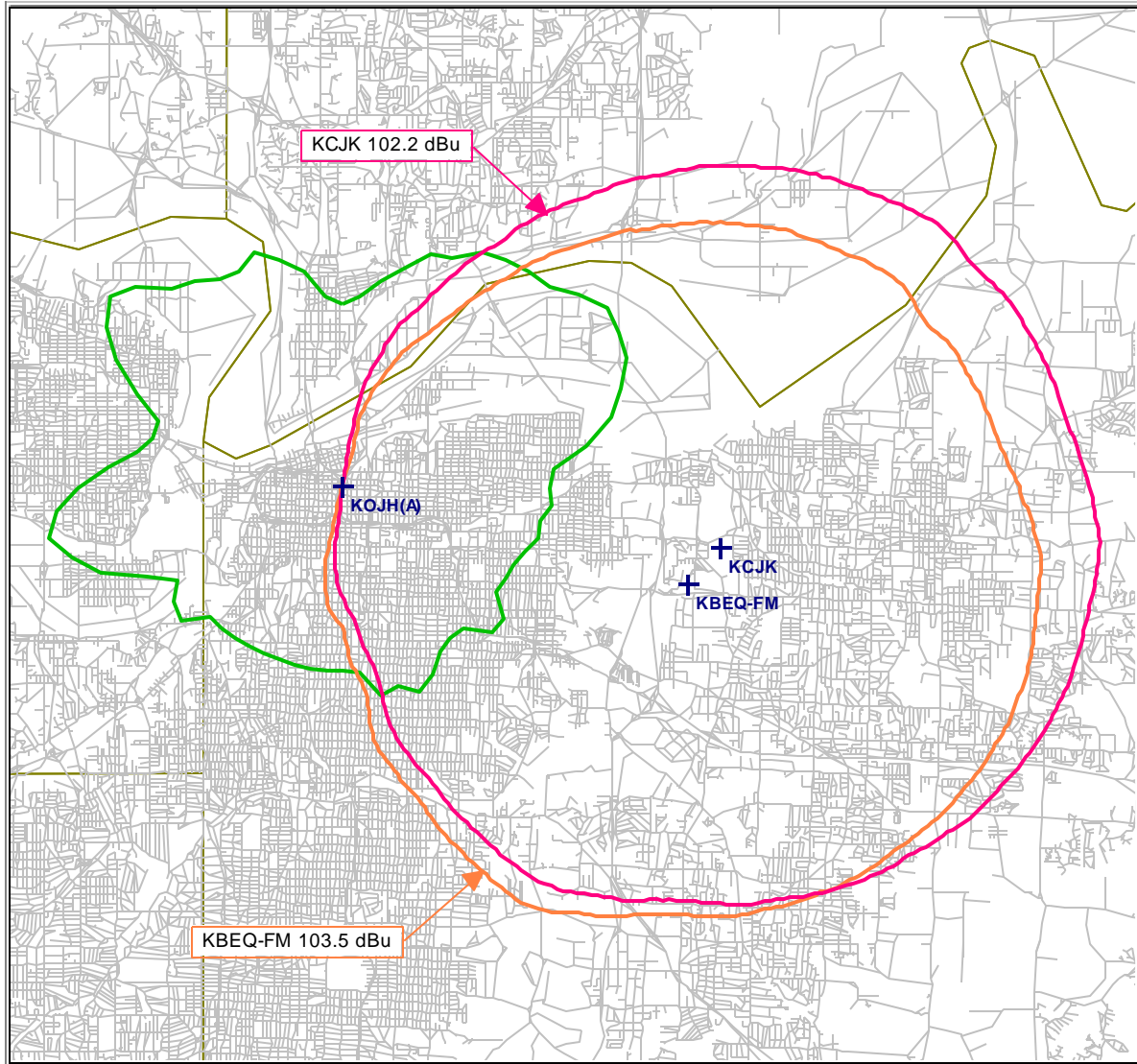
The applicant requests a waiver of §73.807(a) of the Commission's Rules in respect to KBEQ-FM and KCJK.

Report completed by  
Michelle Bradley  
Founder, REC Networks  
December 3, 2017

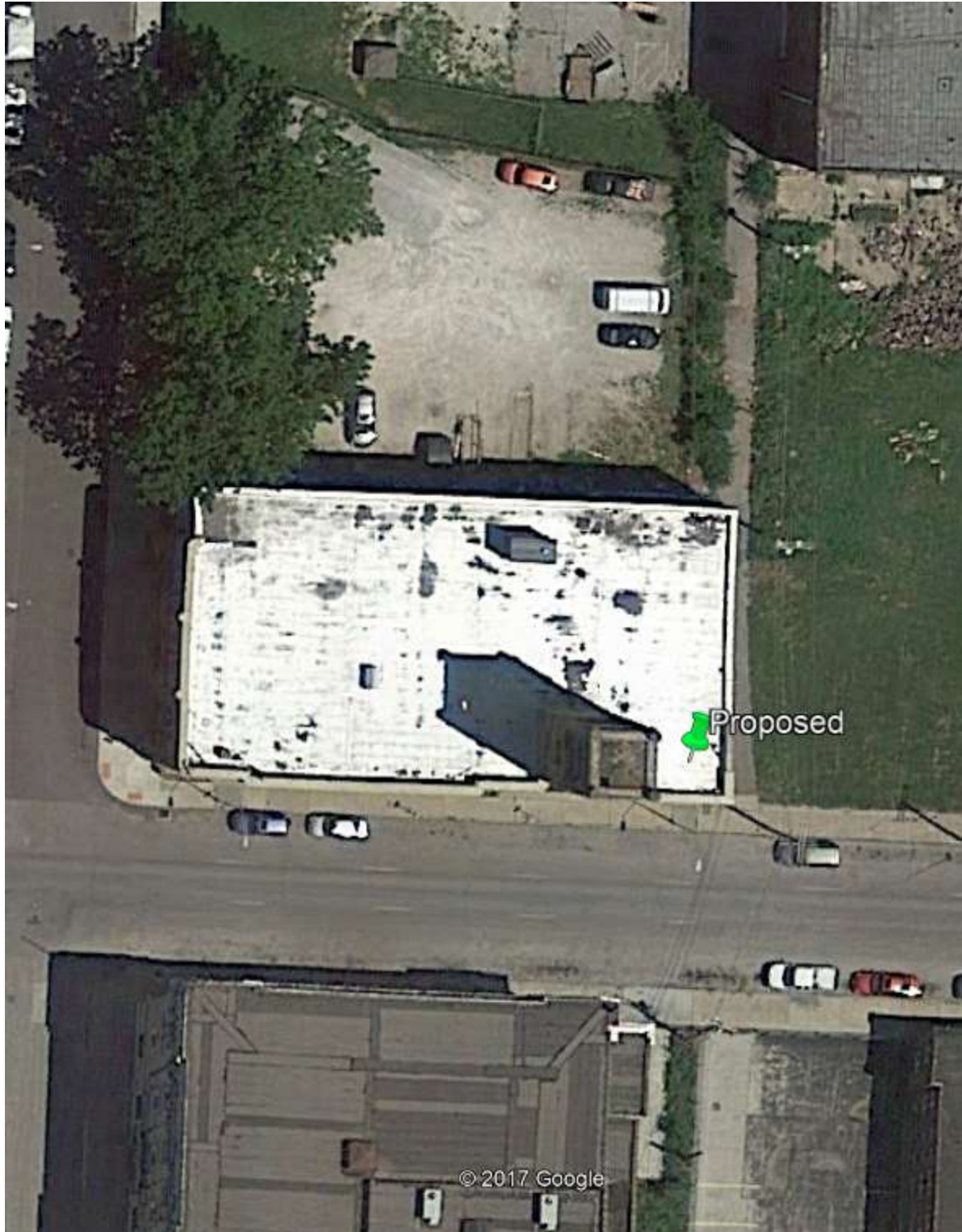
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<sup>1</sup> - See *Living Way Ministries, Inc.* Memorandum Opinion and Order, 17 FCC Rcd 17054, 17056 (2002) at 5. *Recon denied* 23 FCC Rcd 15070 (2008).

## KOJH-LP - Second Adjacent Channels







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## **BUILDING FOR TRANSMITTER SITE**



Antenna structure will be placed on the roof level. The bell tower is unoccupied.



## **TOWER REGISTRATION – 20 FOOT RULE**

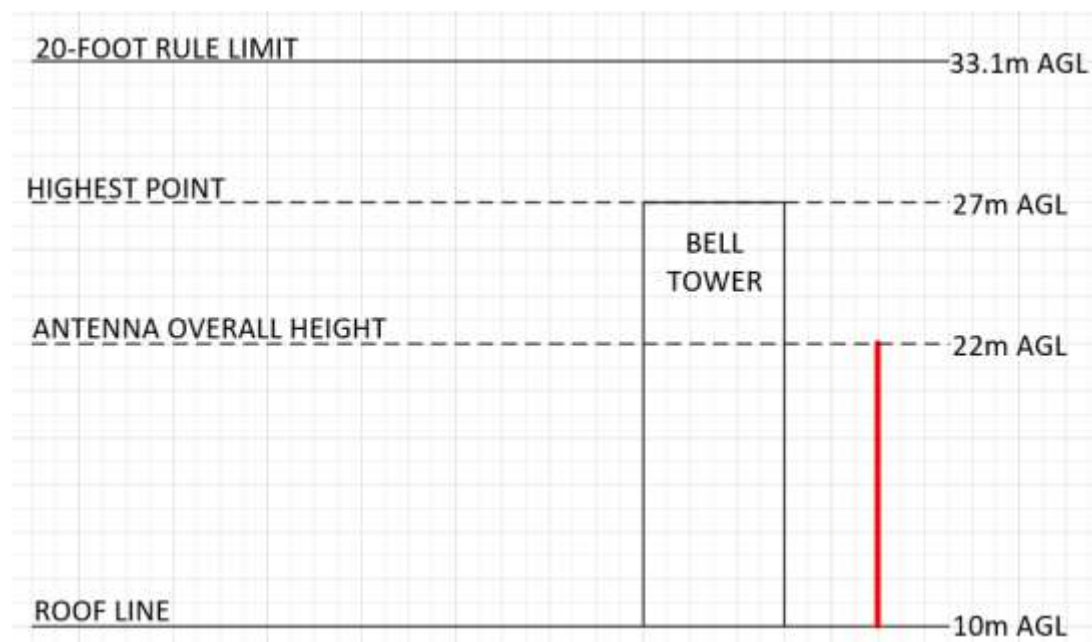
KOJH-LP  
Kansas City, Missouri  
Channel 284L1 (104.7 MHz)

The proposed antenna location was originally on the top of the bell tower of this same building. The antenna structure was not going to exceed 6 meters above the highest point of the bell tower and therefore did qualify under the “20-foot rule” (§17.7(e)(3)).

Due to structural issues with the bell tower, the decision was made to place the antenna on a tower structure mounted from the main roof. The antenna may go to the bell tower at a future date at which time, a modification application must be filed prior to construction.

This antenna tower structure reaches an overall height of 22 meters above ground level (AGL). As the height of the bell tower is 27 meters, this would make the maximum overall height allowed for this structure at 33.1 meters under the “20-foot rule”. See red line in graphic below and the picture on the previous page.

Because the proposed installation does not even reach the highest point of the building, it would qualify under the “20-foot rule”. The applicant is requesting processing in accordance with §17.3(e)(3) of the Commission’s Rules.



Report completed by  
Michelle Bradley  
Founder, REC Networks  
December 3, 2017



## **GLOBE TERRAIN DATA REQUESTED**

Applicant is requesting that height above average terrain be calculated using GLOBE data.

### **Antenna Height Above Average Terrain Calculations -- Results**

#### **Input Data**

Latitude **39° 6' 11.7" North**

Longitude **94° 34' 13.4" West (NAD 83)**

Height of antenna radiation center above mean sea level: **315 meters AMSL**

Number of Evenly Spaced Radials = **8**      0° is referenced to True North

#### **Results**

**Calculated HAAT = 52 meters**

Antenna Height Above Average Terrain calculated  
using 1 km **GLOBE terrain data**

#### **Individual "Radial HAAT" Values, in meters**

0°	36.3 m
45°	73.1 m
90°	51.4 m
135°	48.5 m
180°	34.7 m
225°	40.1 m
270°	53.8 m
315°	75.9 m

#### **'100 watt' LPFM facilities for equivalency determination:**

Reference ERP = 0.100 kW ERP

Reference HAAT= 30 meters HAAT

F(50 50) 60 dBu protected contour at 5.6 km distance

**Equivalent ERP = 0.033 kilowatts (kW)**  
(rounded per [47 CFR 73.212](#))

Unrounded ERP = 0.032 kW for 52 meters HAAT