

**APPLICATION FOR
MINOR
MODIFICATION TO
AN LPFM
CONSTRUCTION
PERMITTED STATION
FACILITY ID 196306
FCC FILE NO.: BNPL-
20131112BLW
KANSAS CITY, MO**

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Prepared For:

The International Radio
Project of Kansas City
6703 N Campbell
Gladstone, MO 64118

Prepared By:

Ryan Wilhour
Kessler and Gehman Assoc.
507 NW 60th Street Suite C
Gainesville, FL 32607

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1.0 PURPOSE OF LPFM MODIFICATION APPLICATION

It is herein proposed to move the construction permitted transmitter site to a new location.

2.0 STATION TRANSMITTER SITE LOCATION

The proposed transmitter site shall be re-located from a tower site to a rooftop location.

2.1 Change in Transmitter Site Physical Address

The transmitter site shall be modified from the following address:

5518 E Truman Rd
Kansas City, MO 64127

To the following address:

5203 E Truman Rd
Kansas City, MO 64127

2.2 Change in Transmitter Site Geographic Coordinates (NAD27)

The transmitter site shall be modified from the following site coordinates:

N. Latitude 39° 05' 40.8"
W. Longitude 94° 31' 04.4"

To the following site coordinates:

N. Latitude 39° 05' 36.6"
W. Longitude 94° 31' 16.1"

2.3 Antenna Structure Registration

The proposed structure consists of a 3 story 30' building with a 19' mast erected from the rooftop. The combined structure and mast height of the roof mounted antenna system does not require an Antenna Structure Registration "ASR" number since the mast atop the roof meets the 6.1 meter (20-foot) rule criteria. Output resulting from the FCC's TOWAIR program is demonstrated in Appendix A.

3.0 ANTENNA AND SITE ELEVATIONS

The applicant proposes to use a building roof top to erect a mast in which to mount the LPFM antenna. The pertinent elevations are as described:

- 3.1 Height of Site above Mean Sea Level (AMSL)
895ft / 272.8m (rounded to 273m for FCC Application)
- 3.2 Overall Height of Support Structure (Building) Above Ground Level (AGL)
30ft / 9.1m
- 3.3 Overall Height of Mast above Rooftop
19ft / 5.8m
- 3.4 Overall Height of Mast (AGL)
49ft / 14.9m (Rounded to 15m for FCC Application)
- 3.5 LPFM antenna height above rooftop
18ft / 5.5m
- 3.6 LPFM antenna height (AGL)
48ft / 14.6m (Rounded to 15m for FCC Application)
- 3.7 LPFM antenna height (AMSL)
943ft / 287.4m
- 3.8 LPFM antenna Height Above Average Terrain (HAAT)
108.3ft / 33m (Refer to Appendix B for HAAT Calculations produced from the FCC's Website)

4.0 LPFM EFFECTIVE RADIATED POWER

Pursuant to 47 C.F.R. Section 73.811(a) entitled "Maximum facilities", LPFM stations will be authorized to operate with maximum facilities of 100 watts ERP at 30 meters HAAT. An LPFM station with a HAAT that exceeds 30 meters will not be permitted to operate with an ERP greater than that which would result in a 60 dBu contour of 5.6 kilometers. In no event will an ERP less than one watt be authorized. No facility will be authorized in excess of one watt ERP at 450 meters HAAT.

Since the calculated HAAT is 33m as demonstrated in Appendix B, the applicant shall employ 84 Watts ERP in order to keep compliant within 47 C.F.R. Section 73.811(a).

5.0 FREQUENCY ALLOCATION ANALYSIS AND WAIVER REQUEST

5.1 LPFM Short Space Study for Channel 261

Appendix C is a long form channel study which demonstrates the distance separation requirements of 47 C.F.R. Section 73.807. As demonstrated the proposed LPFM facility is short spaced to the following second adjacent channel facility:

KZPT FCC File No.: BLH-20030602CHV

5.2 Second Adjacent Channel Short Spacing Waiver for KZPT(FM)

Appendix D demonstrates that using the Undesired-to-Desired signal ratio method, the distance from the LPFM proposed antenna to the KZPT(FM) protected contour is 4 meters. The antenna is proposed to be side mounted on a mast 5.5 meters above the rooftop of a building. The interference zone will be 1.5 meters above the roof and thus does not contact any nearby occupied structures or 2 lane highways, thus no population will be subject to interference from the proposed station according to the undesired-to-desired ratio method. As such, a waiver is respectfully requested for the proposed LPFM second-adjacent channel short-spacing with KZPT(FM), FCC File No. BLH-20030602CHV, facility ID 6379 and of which is not an existing station designated with a Radio Reading Service.

6.0 INTERFERENCE TO TRANSLATOR OR BOOSTER INPUT SIGNALS

Pursuant to the requirements of 47 C.F.R. Section 73.827(a), Appendix E lists the following FM translator stations which are located within 10 km of the proposed LPFM site and are subject to potential third adjacent-channel interference to the reception of their input channel from their parent station from the herein proposed LPFM facility:

K205ER FCC File No: BLFT-20031210ACS
Input Channel: KSIV-FM Ch. 218

K224ET FCC File No: BPFT-20140425ACI
Input Channel: KDMR(AM)

K257DZ FCC File No: BLFT-20150202AEN
Input Channel: KLRX(FM) Ch. 247

K268CF FCC File No: BLFT-20121212ACA
Input Channel: KCCV(AM)

K273BZ FCC File No: BLFT-20101112ACD
Input Channel: KCMO-FM Ch. 235

K275BQ FCC File No: BMLFT-20111207ALR
Input Channel: KCXL(AM)

K279BI FCC File No: BLFT-20100309ABW
Input Channel: KCFX(FM) Ch. 266

K295CH FCC File No: BPFT-20140325ABS
Input Channel: KCTE(AM)
K300CH FCC File No: BLFT-20140319AAC
Input Channel: KCFX(FM) Ch. 266

None of the listed translators or boosters has an input channel that is third-adjacent to the proposed LPFM facility; as such the proposed LPFM facility will not cause interference to the input signals of and surrounding FM translator or FM booster stations.

7.0 CHANNEL 6 TELEVISION STATIONS

Section 47 C.F.R. Section 73.825 TV Channel 6 interference is not a factor for LPFM stations operating on channels 221 – 300 and thus is not applicable to the instant application for further analysis.

8.0 AM STATION PROXIMITY

Pursuant to 47 C.F.R. Section 1.30002(e), the addition of an antenna-supporting structure on a building shall be considered construction subject to the analysis and notification requirement only if the height of the antenna-supporting structure ALONE exceeds the 60 and 36 electrical degree threshold in Section 1.30002(a) and 1.30002(b) for a non-direction and directional AM facility respectively.

The proposed support structure in this instance extends 5.8 meters above the roof top. A worst case proposed support structure height in electrical degrees shall be calculated using the highest frequency on the AM band of 1600 kHz which subsequently has the highest wavelength and thus is the most prone to vertical radiators. As such the worst case proposed structure height in electrical degrees is as follows:

AM Wavelength = $300/1.6 = 187.5$ meters

Prop. Support Structure. Ht. in elec. Deg. = $(5.8/187.5)(360) = 11.1$ electrical degrees

As demonstrated the calculated height in electrical degrees is well below the 60 and 36 electrical degree thresholds for non-directional and directional AM facilities respectively. As such, the proposed LPFM facility and its support structure are not subject to the moment method analysis and 30 day advance notification of the commencement of construction of the proposed rooftop support structure.

9.0 INTERNATIONAL COORDINATION

The proposed facility is not within 320km of any international borders and is not subject to international coordination.

10.0 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

10.1 General Environmental Requirements

The proposed support structure and antenna will not:

- Require high intensity white lighting.
- Is not located in an official designated wilderness area or wildlife preserve.
- Does not threaten the existence or habitat of endangered species.
- Does not affect districts, sites, buildings, structures or objects significant in American history, architecture, archaeology, engineering or culture that are listed in the National Register of Historic Places or are eligible for listing.
- Does not affect Indian religious sites.
- Is not located in a floodplain
- Does not require construction that involves significant changes in surface features (e.g., wetland fill, deforestation or water diversion).

10.2 Radio Frequency Radiation (RFR) Compliance.

Appendix F is a RFR analysis which demonstrates that the peak RFR exposure is less than 5% of the most restrictive permissible exposure threshold standing anywhere at ground level and in any proximity to the proposed support structure. Pursuant to OET Bulletin 65, since the proposed operation does not exceed 5% of the most permissible exposure

at any location 2 meters above the roof top, it is not considered a significant contributor to RFR and other sources of RFR need not be taken into consideration for a net effect. The instant application is compliant with the FCC limits for human exposure to RFR and thus is excluded from further environmental processing.

11.0 CONCLUSION

Subject to the acceptance of the Section 5.2 waiver request, the proposed facility is rule compliant.

12.0 CERTIFICATION

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on July 1, 2015.

KESSLER AND GEHMAN ASSOCIATES, INC.



Ryan Wilhour
Consulting Engineer

APPENDIX A – FCC Towair Study

Antenna Structure Registration (ASR) filing determination was calculated from the FCC's structure registration tool:

<http://wireless2.fcc.gov/UlsApp/AsrSearch/towairSearch.jsp>

Results are as follows:

DETERMINATION Results	
Structure does not require registration. The structure meets the 6.10-meter (20-foot) Rule criteria.	
Your Specifications	
NAD83 Coordinates	
Latitude	39-05-36.6 north
Longitude	094-31-16.9 west
Measurements (Meters)	
Overall Structure Height (AGL)	14.9
Support Structure Height (AGL)	9.1
Site Elevation (AMSL)	272.8
Structure Type	
BMAST - Building with Mast	

APPENDIX B - Height Above Average Terrain Calculation

The Height Above Average Terrain (HAAT) was calculated from the FCC's HAAT Calculator tool:

http://transition.fcc.gov/mb/audio/bickel/haat_calculator.html

Results are as follows:

Antenna Height Above Average Terrain Calculations -- Results**Input Data**

Latitude **39° 5' 36.6" North**

Longitude **94° 31' 16.1" West (NAD 27)**

These coordinates convert to NAD 83 coordinates of
39° 05' 36.62", North, 94° 31' 16.93" West (NAD 83).

Height of antenna radiation center above mean sea level: **287.4 meters AMSL**

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

Results

Calculated HAAT = 33 meters

**Antenna Height Above Average Terrain calculated
using FCC 30 second terrain database (continental USA only)**

Individual "Radial HAAT" Values, in meters

0°	40.0 m
45°	68.2 m
90°	14.2 m
135°	5.7 m
180°	34.5 m
225°	1.9 m
270°	46.5 m
315°	50.8 m

APPLICATION FOR MINOR MODIFICATION TO AN LPFM BROADCAST STATION

The International Radio Project of Kansas City

July 1, 2015

APPENDIX C - Short Spacing Study for Channel 261

REFERENCE
39 05 36.6 N. CLASS = L1
94 31 16.1 W. Current Spacings to 3rd Adj.
----- Channel 261 - 100.1 MHz -----

DISPLAY DATES
DATA 06-29-15
SEARCH 06-30-15

Call	Channel	Location	Azi	Dist	FCC	Margin		
KZPT	LIC	259C0	Kansas City	MO	175.3	7.93	84.0	-76.1
KDVV	CP -N	262C	Topeka	KS	263.1	121.43	120.0	1.4
K262CF	CP	262D	Kansas City	KS	274.2	24.88	15.0	9.9
KDVV	LIC	262C0	Topeka	KS	263.1	121.43	111.0	10.4
KKWK	LIC-N	261C2	Cameron	MO	19.8	102.10	91.0	11.1
KMZU	LIC	264C1	Carrollton	MO	72.2	101.16	73.0	28.2

APPENDIX D – Short Spacing Waiver Calculation

Short Spacing Undesired-to-Desired Ratio Calculation to second-adjacent channel facility:

KZPT(FM) FCC File No.: BLH-20030602CHV

Undesired-to-Desired Ratio Method:

BLH-20030602CHV f(50,50) signal: 105.0 dBu¹²

Second-adjacent protection: +40 dB

Interference-zone boundary: 145 dBu

Distance to 145 dBu: 4m (HAAT = 30 m, ERP ≤ 0.1 kW)¹

¹ tvfms_metric() C-language subroutine as distributed by the FCC. At distances less than or equal to 1.5km, tvfms_metric() uses the free-space method.

² FCC HAAT Calculator web page,
http://transition.fcc.gov/mb/audio/bickel/haat_calculator.html

APPENDIX E – Translator and Booster Proximity

The proposed transmitter site proximity to FM boosters and translators was determined using the FCC's FMQuery tool:

<http://www.fcc.gov/encyclopedia/fm-query-broadcast-station-search>

Results are as follows:

Boosters within 10km of the proposed LPFM transmitter site:

Search Parameters:

Service:	FB
Search radius:	10.00 km
Center lat / lon:	N 39 5 36.60 W 94 31 16.10
Lower Channel	200
Upper Channel	300

FM Query Results

Tue Jun 30 16:31:05 2015 Eastern time

[Print Results](#) (one page per record)

First Record

*** 0 FM Records within 10.00 km distance of
39° 5' 36.60" N, 94° 31' 16.10" W ***

Translators within 10km of the proposed LPFM transmitter site:

Search Parameters:

Service:	FX
Search radius:	10.00 km
Center lat / lon:	N 39 5 36.60 W 94 31 16.10
Lower Channel	200
Upper Channel	300

FM Query Results

Tue Jun 30 16:33:35 2015 Eastern time

[Print Results](#) (Landscape printing preferred)

Call	Channel	Class	Service	Frequency	Status	City	State	Country	File Number	Docket
K205ER	205	D	FX	88.9 MHz	LIC	RAYTOWN	MO	US	BLFT-20031210ACS	
K224ET	224	D	FX	92.7 MHz	CP	KANSAS CITY	KS	US	BPFT-20140425ACI	
K257DZ	257	D	FX	99.3 MHz	LIC	KANSAS CITY	MO	US	BLFT-20150202AEN	
K268CF	268	D	FX	101.5 MHz	LIC	KANSAS CITY	MO	US	BLFT-20121212ACA	
K273BZ	273	D	FX	102.5 MHz	LIC	BONNER SPRINGS	KS	US	BLFT-20101112ACD	
K275BQ	275	D	FX	102.9 MHz	LIC	KANSAS CITY	MO	US	BMLFT-20111207ALR	
K279BT	279	D	FX	103.7 MHz	LIC	KANSAS CITY	MO	US	BLFT-20100309ABW	
K295CH	295	D	FX	106.9 MHz	APP	KANSAS CITY	MO	US	BPFT-20140325ABS	
K300CH	300	D	FX	107.9 MHz	LIC	LEES SUMMIT	MO	US	BLFT-20140319AAC	

*** 9 FM Records within 10.00 km distance of 39° 5' 36.60" N, 94° 31' 16.10" W ***

APPENDIX F - Far Field Exposure to RF Emissions

A theoretical analysis has been conducted of the human exposure to radio frequency radiation ("RFR") using the calculation methodology described in OET Bulletin 65, Edition 97-01. The RFR analysis is conducted pursuant to the following methodology:

Terrain³ extraction is compiled from the support structure site, if the support structure is on a rooftop with no higher elevations (e.g., elevator shaft) then flat terrain is compiled. Terrain is extracted using radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. The power density is calculated for each terrain point at 6 feet above ground level using the elevation and azimuth pattern of the proposed broadcast antenna. The power density calculations are conducted using the lower edge of the proposed channel frequency. To account for ground reflections, a coefficient of 1.6 was included in the calculation.

The resulting cylindrical polar analysis is then summarized into a coordinate plane graph using the following methodology:

Starting from the origin the maximum calculated RFR value is determined among the 360 degree radials for each 0.001 mile increment, the value is then converted into a percentage of the maximum allowable general population or uncontrolled exposure and plotted as a function of perpendicular distance from the tower.

³ Terrain extraction is based upon a 3 arc second point spacing terrain database.

FAR FIELD EXPOSURE TO RF EMISSIONS

