

APPLICATION FOR A NEW LPFM BROADCAST STATION TO SERVE MIAMI, FL

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1.0 PURPOSE OF LPFM APPLICATION

It is herein proposed to create a new LPFM broadcast station for the non-profit entity Beware Inc. “BI”. BI is an organization recognized by the state of Florida as a non-profit corporation

Upon grant of the instant application, the LPFM station shall further allow BI to advance its educational program as indicated in Section II – Legal question number (2) Exhibit 2. The technical and compliance details are outlined in the following sections.

2.0 STATION TRANSMITTER LOCATION

The proposed station shall utilize an existing tower as outlined below.

2.1 Transmitter Site Physical Address:

7050 NW 4th Ave
Miami, FL 33142

2.2 Transmitter Site Geographic Coordinates (NAD27):

N. Latitude 25° 50’ 21.1”
W. Longitude 80° 12’ 13.8”

2.3 Antenna Structure Registration

The LPFM antenna support structure is an existing 162’ mono tower owned by Crown Castle. The support structure does not require an Antenna Structure Registration “ASR” number since it is not taller than 200 feet Above Ground Level (AGL) and the FCC’s TOWAIR study shown in Appendix A demonstrates that FAA notification is not required. It should be noted that Crown Castle has received a determination of no hazard to air navigation for this structure in aeronautical study number 2012-ASO-11509-OE, but has not subsequently registered the tower with the FCC since it is not required.

3.0 ANTENNA AND SITE ELEVATIONS

The applicant proposes to use the structure described in Section 2.0 to mount the LPFM antenna. The pertinent elevations are as described:

- 3.1 Height of Site above Mean Sea Level (AMSL)
3.0m (rounded to 3m for FCC Application)
- 3.2 Overall Height of Structure above Ground Level (AGL)
49.4m (rounded to 49m for FCC Application)
- 3.3 LPFM antenna height (AGL)
30.5m (Rounded to 31m for FCC Application)
- 3.4 LPFM antenna height (AMSL)
33.5m
- 3.5 LPFM antenna Height Above Average Terrain (HAAT)
34.0m (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 34m as demonstrated in Appendix B, the applicant shall employ an 77 Watt ERP resulting in a 5.59km 60 dbu contour and is thus well within 47 C.F.R. Section 73.811(a) compliance.

5.0 FREQUENCY SEARCH PRESELECTION OVERVIEW

5.1 Channels Found With no Spacing Violations

Based upon a 47 C.F.R. Section 73.807 frequency search, the following table demonstrates channels which are available for the assignment of LPFM stations at the proposed location:

Channel	Comments
None	No channels at this location meet the minimum spacing

	requirements pursuant to 47 C.F.R. Section 73.807 of the FCC Rules.
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5.2 Channels Found Requiring a Second Adjacent Channel Waiver

The following table demonstrates channels that are short spaced with existing second adjacent channel facilities but not with any co-channel or first adjacent channel facilities:

Channel	2 nd Adjacent Stations	Overlap (too close by)
296	WRMA-FM WAMR-FM	66.73 km 58.81 km
284	WHQT-FM WAXY-FM	69.81 km 56.72 km
280	WMIB-FM WAXY-FM	78.81 km 56.72 km
276	WMIB-FM WMXJ-FM	78.81 km 69.81 km
266	WHYI-FM WLYF-FM	69.81 km 58.86 km
258	WKIS-FM WEDR-FM	66.73 km 58.77 km
254	WEDR-FM WRTO-FM	58.77 km 41.52 km
241	WPOW-FM WXDJ-FM	78.81 km 45.54 km
233	WMGE-FM	69.81 km
232	WMIA-FM	69.81 km
224	WFEZ-FM WCMQ-FM	69.81 km 45.54 km

6.0 ALLOCATION ANALYSIS AND REQUEST FOR WAIVER

As indicated in Section 5, the only channels available for an LPFM facility will require a waiver of second adjacent channel short spaced stations. Further area propagation and interference analysis studies identify channel 224 as having the least amount of inbound and outbound interference from and to surrounding FM broadcast stations.

6.1 LPFM Short Space Study for Channel 224

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 facilities:

- WFEZ-FM FCC File No.: BLH-20050224ABN
- WCMQ-FM FCC File No.: BLH-20100420AIB

6.2 Second Adjacent Channel Short Spacing Waiver for WFEZ-FM FCC File No.: BLH-20050224ABN

Appendix D demonstrates that using the Undesired-to-Desired signal ratio method, the distance from the LPFM proposed antenna to the WFEZ-FM protected contour is 14 meters assuming a worst case scenario that the antenna radiates 100 Watts in all directions and thus produces a 14 meter interference sphere around the center of the antenna. Since the proposed antenna shall be mounted 31 meters above ground, the closest the interference zone sphere will come to touching ground level is 17 meters.

The 14 meter interference zone described above clears the ground and does not touch occupied structures nor major roadways, thus no population will be subject to interference from the proposed station according to the undesired-to-desired ratio method. As such, a wavier is respectfully requested for the proposed LPFM second-adjacent channel short-spacing with WFEZ-FM FCC File No.: BLH-20050224ABN, facility ID 40408 and of which is not an existing station designated with a Radio Reading Service.

6.3 Second Adjacent Channel Short Spacing Waiver for WCMQ-FM FCC File No.: BLH-20100420AIB

Appendix E demonstrates that using the Undesired-to-Desired signal ratio method, the distance from the LPFM proposed antenna to the WCMQ-FM protected contour is 11 meters assuming a worst case scenario that the antenna radiates 100 Watts in all directions and thus produces a 11 meter interference sphere around the center of the antenna. Since the proposed antenna shall be mounted 31 meters above ground, the closest the interference zone sphere will come to touching ground level is 20 meters.

The 11 meter interference zone described above clears the ground and does not touch occupied structures nor major roadways, thus no population will be subject to interference from the proposed station according to the undesired-to-desired ratio method. As such, a wavier is respectfully requested for the proposed LPFM second-adjacent channel short-spacing with WCMQ-FM FCC File No.: BLH-20100420AIB, facility ID

61640 and of which is not an existing station designated with a Radio Reading Service.

7.0 INTERFERENCE TO TRANSLATOR OR BOOSTER INPUT SIGNALS

Pursuant to the requirements of 47 C.F.R. Section 73.827(a), Appendix F 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:

- W228BY FCC File No: BLFT-20130222ACK
Input Channel: WHYI-FM Ch. 264
- NEW FCC File No: BNPFT-20030317MDE
Input Channel: WLLY-FM Ch. 258
- NEW FCC File No: BNPFT-20130826AGJ
Input Channel: WLLY-FM Ch. 258

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.

8.0 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.

9.0 AM STATION PROXIMITY

Appendix G demonstrates that there is one AM station within 3.2 km of the proposed coordinates. The addition of the LPFM antenna to the existing tower will not require altering the tower structure height and thus shall have no significant effect on the AM station.

10.0 INTERNATIONAL COORDINATION

The proposed facility lies beyond 320km from any international boarder and thus international coordination is not required.

11.0 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA)

11.1 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).

11.2 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 ground, 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.

12.0 CONCLUSION

As the frequency search indicates, there are no channels that may be used at this transmitter site without a second adjacent channel waiver. Of the potential channels requiring a second adjacent channel waiver, Channel 224 provided the best interference free coverage area. On all other accounts, the proposed facility is well within compliance on all regulatory matters.

13.0 CERTIFICATION

The foregoing statement and the report regarding the aforementioned engineering work are true and correct to the best of my knowledge. Executed on November 11, 2013.

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							
PASS SLOPE: No FAA REQ-Unmarked Seaplane base							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
SEAP		00-00-00.0N	000-00-00.0W	MIAMI	DADE MIAMI, FL	1.8	4267.1999999999998
PASS SLOPE: No FAA REQ-Unmarked Seaplane base							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
SEAP		00-00-00.0N	000-00-00.0W	MIAMI	DADE MIAMI, FL	1.8	4267.1999999999998
PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 7804.70 MTRS (7.80470 KM) AWAY							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	25-48-7.00N	080-16-10.00W	MIAMI INTL	DADE MIAMI, FL	2.3	3967.3000000000002
Your Specifications							
NAD83 Coordinates							
Latitude						25-50-22.4 north	
Longitude						080-12-13.0 west	
Measurements (Meters)							
Overall Structure Height (AGL)						49.4	
Support Structure Height (AGL)						49.4	
Site Elevation (AMSL)						3.0	
Structure Type							
MTOWER - Monopole							

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 -- Input

Latitude **25 50 21.1 North**
Longitude **80 12 13.8 West** (NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **33.5** meters

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

Results:

Calculated HAAT= 34. meters

(Antenna Height Above Average Terrain)
using the 30 second FCC/NGDC terrain data)

HAAT is equal to RCAMSL.
Check to see if the site is in the ocean!

Antenna Radiation Center Heights Above Individual Radials:

0.0°	33.5 meters
45.0°	33.5 meters
90.0°	33.5 meters
135.0°	33.5 meters
180.0°	33.5 meters
225.0°	33.5 meters
270.0°	33.5 meters
315.0°	33.5 meters

APPENDIX C - Short Spacing Study for Channel 224

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REFERENCE                                     DISPLAY DATES
25 50 21.1 N.                                CLASS = L1          DATA 11-11-13
80 12 13.8 W.                                Current Spacings to 2nd Adj. SEARCH 11-11-13
----- Channel 224 - 92.7 MHz -----

Call      Channel  Location      Azi      Dist      FCC      Margin
-----
WFEZ      LIC-D   226C0   Miami      FL      357.7      14.19      84.0      -69.8
WCMQ-FM   LIC     222C2   Hialeah    FL      168.0        7.46      53.0      -45.5
WAVW      LIC     224C2   Stuart     FL      357.1     159.25      91.0       68.3
WEOW      LIC     224C1   Key West   FL      225.8     184.17     111.0       73.2
W220DQ    CP      223D    Belle Glade FL      334.6     101.50      28.0       73.5
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APPENDIX D - Short Spacing Waiver Calculation for WFEZ-FM FCC File No.: BLH-20050224ABN

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

Undesired-to-Desired Ratio Method:

BLH-20050224ABN f(50,50) signal: 94.2 dBu¹²

Second-adjacent protection: + 40 dB

Interference-zone f(50,10) boundary: 134.2 dBu

Distance to 134.2 dBu: 14 m (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 1.5 km, 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 - Short Spacing Waiver Calculation for WCMQ-FM FCC File No.:
BLH-20100420AIB**

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

Undesired-to-Desired Ratio Method:

BLH-20100420AIB f(50,50) signal: 96.1 dBu

Second-adjacent protection: + 40 dB

Interference-zone f(50,10) boundary: 136.1 dBu

Distance to 136.1 dBu: 11 m (HAAT = 30 m, ERP <= 0.1 kW) 1

APPENDIX F – 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 25 50 21.10 W 80 12 13.80
Lower Channel	200
Upper Channel	300

*** 0 FM Records within 10.00 km distance of 25° 50' 21.10" N, 80° 12' 13.80" W ***

Translators within 10km of the proposed LPFM transmitter site:

Search Parameters

Service:	FX
Search radius:	10.00 km
Center lat / lon:	N 25 50 21.10 W 80 12 13.80
Lower Channel	200
Upper Channel	300

Call	Class	Frequency	Status	City	State	Country	File Number	Docket
W228BY	228 D	FX 93.5 MHz	LIC	MIAMI	FL	US	BLFT-20130222ACK	
NEW	282 D	FX 104.3 MHz	APP	MIAMI	FL	US	BNPFT-20030317MDE	
NEW	282 D	FX 104.3 MHz	APP	MIAMI	FL	US	BNPFT-20130826AGJ	

*** 3 FM Records within 10.00 km distance of 25° 50' 21.10" N, 80° 12' 13.80" W ***

APPENDIX G – AM Station Proximity

The proposed transmitter site proximity to AM stations was determined using the FCC's FMQuery tool:

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

Results are as follows:

AM Stations within 3.2 km radius for 47 C.F.R. Section 73.1692 compliance:

Search Parameters										
Search radius:		3.20 km								
Center lat / lon:		N 25 50 21.10 W 80 12 13.80								
Lower Frequency		530								
Upper Frequency		1700								
WOCN	AM 1450 kHz ND1	Daytime	C C LIC	MIAMI	FL US BML	-20060711ADG	1.0	kW	43034	1.41 km
WOCN	AM 1450 kHz ND1	Nighttime	C C LIC	MIAMI	FL US BML	-20060711ADG	1.0	kW	43034	1.41 km

*** 2 AM Records within 3.20 km distance of 25° 50' 21.10" N, 80° 12' 13.80" W ***

APPENDIX H - 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:

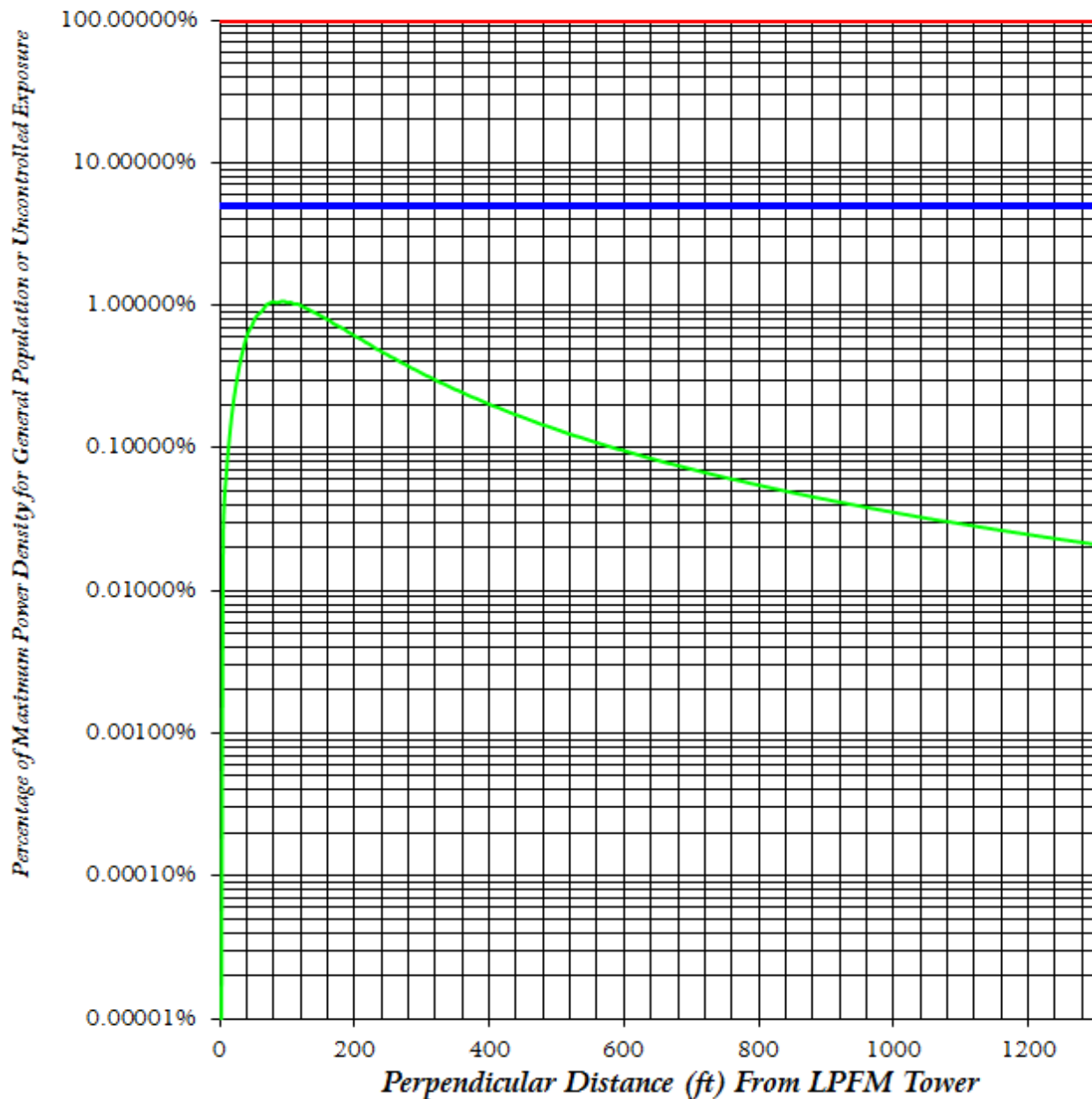
Terrain³ extraction is compiled from the support structure site, if the support structure is on a rooftop with no higher elevations (e.g., elevator shaft) then flat terrain is compiled. Terrain is extracted using radial lengths of 0.25 miles in 0.001 mile increments for 360 radials. The power density 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



- Maximum Allowable General Population or Uncontrolled Exposure
- 5 % of Maximum General Population or Uncontrolled Exposure
- Percentage of Maximum General Population or Uncontrolled Exposure