

TECHNICAL EXHIBIT
MINOR MODIFICATION OF LICENSE
FEEDING HOMELESS CORP.
LPFM STATION WYKQ-LP
MAYAGUEZ, PUERTO RICO
CHANNEL 215
FACILITY ID 195919

MAY 28, 2015

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Technical Narrative

The technical exhibit, of which this narrative is part, has been prepared on behalf of Feeding Homeless Corp., licensee of a LPFM station WYKQ-LP, Channel 256, Fac. ID 195919, FCC File Num. BLL-20150105AAD, in Mayaguez, PR. For the reasons stated below, Feeding Homeless Corp. requests authority to change site and channel number.

Proposed Transmitter Location

The proposed transmitting facility would operate on channel 215 using a an ERI single bay circularly polarized antenna, side-mounted on an existing guyed tower. The proposed site location, 3.51 kilometers from the existing licensed site, is described by the following NAD27 geographic coordinates:

18° 12' 13.3" North
67° 08' 35.0" West

It is proposed to side mount the antenna at a height of 25.9 meters (85 feet) above ground on an existing tower at a site with an elevation of 12 meters AMSL. Thus, the antenna will be mounted at a height of 37.9 meters AMSL. According to the FCC HAAT web utility, this corresponds to a HAAT of -33 meters. The permissible ERP of 100 Watts allowed under these conditions is proposed. Appendix 1 shows the HAAT calculations performed using the FCC HAAT web utility.

Tower Registration

The FAA is not being notified of the proposed construction, as it is proposed to side-mount the FM antenna on an existing 27.4 meter tower, that according to the TOWAIR program (see Appendix 2), does not require registration.

Environmental Considerations

The proposal is excluded from environmental processing, as an existing supporting structure is to be employed and the proposal complies with the FCC Rules concerning human exposure to radio frequency (RF) energy.^{*} The proposal would not exceed 3.6 % of the RF exposure limit for general population/uncontrolled environments for the frequency proposed. The calculation of RF energy at 2-m above ground was made under the procedures of OET Bulletin No. 65.[†] The formula employed is as follows:

$$S = \frac{(33.4)F^2P}{R^2}$$

where, S = power density in $\mu\text{W}/\text{cm}^2$, F = relative field factor at the angle to the calculation point, P = the total effective radiated power relative to a dipole in watts, and R = distance from the antenna radiation center to the calculation point in meters.

Based on the vertical radiation pattern of the proposed antenna, a relative field factor of 0.78 or less for any depression angle equal or greater than 30 degrees below horizon, a total effective radiated power of 100 watts (circular polarization) and an antenna radiation center height above ground of 25.9 m, the calculated power density will not exceed $7.1 \mu\text{W}/\text{cm}^2$. Therefore, the calculated RF exposure at 2 m above ground will not exceed 3.6 % of the limit of $200 \mu\text{W}/\text{cm}^2$ for the general population and uncontrolled environments.

The antenna system shall be restricted from access and appropriate warning signs posted. In the event that personnel are required to climb the structure, the LPFM transmissions shall be reduced or terminated as necessary to prevent RF exposure above the FCC recommended limits.

^{*} Given that the proposed ERP will not exceed 100 watts, the proposal is categorically excluded from environmental processing pursuant to Section 1.1307 of the FCC Rules.

[†] Federal Communications Commission OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01, August 1997).

FCC Monitoring Stations

FCC rules pertaining to FCC monitoring stations, Section 73.1030(c), requires that the proposed facility does not produce a field strength greater than 10 mV/m at the FCC stations. The closest FCC monitoring station to the proposed operation is located at Santa Isabel, PR, at a distance of 84 kilometers. The proposed operation will produce field strengths much lower than 10 mV/m at the FCC station in Santa Isabel, PR.

Quiet Zone Notification

As required by FCC rules pertaining to radio Quiet Zones, Section 73.1030(a), the National Astronomy and Ionosphere Center (NAIC) in Arecibo, Puerto Rico is being notified of this application. A copy of the notification letter to the Arecibo Observatory of the proposed facility is included herein as Appendix 3.

AM Stations Within 3.2 km

There are no non-directional AM stations located within 0.80 km of the above specified coordinates, or any directional AM stations within 3.2 km of these coordinates, except for WORA, 760 kHz, at a distance of 2 kilometers. As no new tower construction or modification of the existing tower is proposed, no adverse effect is predicted to AM station WORA. Thus, the proposal is believed to be compliant with Section 47 CFR 73.1692.

Allocation Considerations

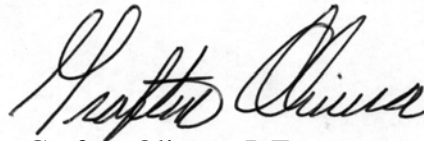
Figure 1 summarizes the allocation study with a 50 miles buffer for the currently licensed channel 256 facility. While no interference whatsoever has been reported to be caused by WYKQ-LP to the co-channel or second adjacent stations shown in Figure 1, station WYKQ-LP is predicted to be exposed to interference from co-channel station WPRM-FM, as well as from second adjacent channel WUKQ-FM and WIDI (FM). As reported by the licensee, reception tests on channel 256 within the predicted 60 dBu coverage of WYKQ-LP show that occasional interference is experienced by WYKQ-LP.

Figure 2 summarizes the allocation study with a 50 miles buffer for the proposed facility on channel 215. As indicated in Figure 2, there is no co-channel or second-adjacent full-service facility to be concerned about. Thus, WYKQ-LP will be fully compliant with all the spacing requirements and it is not predicted to be exposed to interference from any station.

Reception tests on channel 215 within the predicted 60 dBu coverage area of the proposed site, show a channel less affected by interference. Thus, a frequency change to channel 215 is respectfully requested under the provisions of Section 73.870(a)(1), which justify changes to any frequency upon a showing of reduced interference.

Figure 3 summarizes the list of licensed and applied for FM translators within 20 kilometers of the proposed transmitter site. An inspection of the licenses and applications of these translator facilities show that none of these translators will get their input signal on the third adjacent channel, or closer, of the proposed channel 215 facility.

For the reasons stated above, it is believed that the proposed facility is in compliance with FCC Rules and Regulations and will serve the public interest.



Grafton Olivera, P.E.
du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 34237-6019

(941) 329-6001

May 28, 2015

Figure 1



LPFM Study

du Treil, Lundin, & Rackley, Inc., Sarasota, Florida

Channel: 256 Coordinates: 018-10-32.5 067-07-39.8 (NAD 27) Buffer: 50 mi Type: LP100

Comment: WYKQ-LP Licensed Facility

Callsign	Status	Channel	Service	Freq.	City	State	Co.	Rec.	Latitude	Dist. (km)	Sep. (km)	Spac. (km)
Facility ID	ARN			Class	DA	Ant. ID	ERP (kW)	HAAT (m)	Longitude	Bear. (deg)	Comment	
WRUO	LIC	202	FM	88.3	MAYAGUEZ			PR US C	18-19-31	17.16	9	8.16
69434	BLED	19981229KE	A	D	14750	2		306	067-10-13	344.89	CLOSE	
WUKQ-FM	LIC	254	FM	98.7	MAYAGUEZ			PR US C	18-09-05	14.96	92	-77.04
54818	BLH	20130104ABI	B	N		25		601	066-59-19	100.4	SHORT	
WYKQ-LP	LIC	256	FL	99.1	MAYAGUEZ			PR US C	18-10-32.5	0	24	-24
195919	BLL	20150105AAD	L1	N		0.1		14.231304	067-07-39.8	136.47	SHORT	
WPRM-FM	LIC	256	FM	99.1	SAN JUAN			PR US C	18-06-47	114.08	138	-23.92
2875	BLH	20130607AAY	B	N		25		580.6	066-03-06	93.34	SHORT	
WIDI	LIC	258	FM	99.5	QUEBRADILLAS			PR US C	18-09-00	15.54	92	-76.46
32141	BLH	20090610AAN	B	N		22.4		640	066-59-00	100.59	SHORT	

LPFM Study

du Treil, Lundin, & Rackley, Inc., Sarasota, Florida



Channel: 215 **Coordinates:** 018-12-13.3 067-08-35 (NAD 27) **Buffer:** 50 mi **Type:** LP100

Comment: WYKQ-LP Proposed Site & Channel

<i>Callsign</i>	<i>Status</i>	<i>Channel</i>	<i>Service</i>	<i>Freq.</i>	<i>City</i>		<i>State</i>	<i>Co.</i>	<i>Rec.</i>	<i>Latitude</i>	<i>Dist. (km)</i>	<i>Sep. (km)</i>	<i>Spac. (km)</i>	
<i>Facility ID</i>	<i>ARN</i>			<i>Class</i>	<i>DA</i>	<i>Ant. ID</i>	<i>ERP (kW)</i>	<i>HAAT (m)</i>		<i>Longitude</i>	<i>Bear. (deg)</i>	<i>Comment</i>		
WVID	LIC	212	FM	90.3	ANASCO			PR	US	C	18-19-00	13.2	92	-78.8
10053	BLED	19910311KC		B	N		14.5	304		067-10-59	341.42	SHORT		
WIDA-FM	LIC	213	FM	90.5	CAROLINA			PR	US	C	18-06-48	115.88	92	23.88
10955	BLED	19830711AI		B	D	13541	25	579		066-03-07	94.81	CLEAR		
WIPR-FM	LIC	217	FM	91.3	SAN JUAN			PR	US	C	18-06-42	115.96	92	23.96
53860	BLED	19910107KA		B	N		125	825		066-03-05	94.9	CLEAR		
WELX	LIC	268	FM	101.5	ISABELA			PR	US	C	18-26-36	26.53	20	6.53
29219	BLH	19920107KA		B	N		50	129		067-08-50	359.06	CLOSE		

Figure 3

FM Inquiry

du Treil, Lundin, & Rackley, Inc., Sarasota, Florida



Listed stations are within 20 km of the point at 018-12-13 067-08-35.

<i>Callsign</i>	<i>Chan.</i>	<i>Freq.</i>	<i>Class</i>	<i>Service</i>	<i>Status</i>	<i>City</i>			<i>State</i>	<i>Latitude</i>	<i>Longitude</i>	<i>Distance (km)</i>
<i>ARN</i>			<i>DA</i>	<i>Antenna ID</i>	<i>Rotation</i>	<i>ERP (kW)</i>	<i>HAAT (m)</i>	<i>RCAMSL (m)</i>	<i>Rec. Type</i>	<i>Facility ID</i>	<i>Bearing (deg)</i>	
W295BU	295	106.9	D	FX	LIC	MAYAGUEZ			PR	018-19-05.6	067-10-50	13.29
BLFT-20141016ACT			C	119649		0.25		385	C	143476	342.75	
W208AE	208	89.5	D	FX	LIC	MAYAGUEZ			PR	018-19-06	067-10-49	13.29
BLFT-20140827ABX			N	118924		0.25		396	C	42888	342.88	
W283BI	283	104.5	D	FX	LIC	MAYAGUEZ			PR	018-19-06	067-10-49	13.29
BLFT-20101101AAD			C	102459		0.25		406	C	140950	342.88	
W206AF	206	89.1	D	FX	LIC	MAYAGUEZ			PR	018-09-21	067-00-32	15.15
BLFT-19940426TL			D	16173	270	0.25	620	889	C	9350	110.53	

Antenna Height Above Average Terrain Calculations -- Results**Input Data**Latitude **18° 12' 6.17"** NorthLongitude **67° 8' 33.69"** West (NAD 83)Height of antenna radiation center above mean sea level: **37.9** meters AMSLNumber of Evenly Spaced Radials = **8** 0° is referenced to True North**Results**Calculated HAAT = **-33 meters**Antenna Height Above Average Terrain calculated
using 1 km [GLOBE terrain data](#)**Individual "Radial HAAT" Values, in meters**

0°	-22.4 m
45°	-71.4 m
90°	-237.9 m
135°	-59.6 m
180°	12.8 m
225°	37.6 m
270°	37.9 m
315°	35.1 m

APPENDIX 2

Antenna Structure Registration

[FCC](#) > [WTB](#) > [ASR](#) > [Online Systems](#) > TOWAIR

TOWAIR Determination Results

[? HELP](#)

[New Search](#) [Printable Page](#)

A routine check of the coordinates, heights, and structure type you provided indicates that this structure does not require registration.

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results							
PASS SLOPE(100:1)NO FAA REQ - 5961.0 Meters (19556.8 Feet)away & below slope by 25.0 Meters (82.0199 Feet)							
Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	18-15-15.00N	067-09-20.00W	EUGENIO MARIA DE HOSTOS	--PUERTO RICO MAYAGUEZ, PR	4.7	1523.4000000000001
Your Specifications							
NAD83 Coordinates							
Latitude						18-12-06.2 north	
Longitude						067-08-33.7 west	
Measurements (Meters)							
Overall Structure Height (AGL)						27.4	
Support Structure Height (AGL)						0	
Site Elevation (AMSL)						12	
Structure Type							
GTOWER - Guyed Structure Used for Communication Purposes							

Tower Construction Notifications

Notify Tribes and Historic Preservation Officers of your plans to build a tower.



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May 28, 2015

Via email (prcz@naic.edu)

Angel M. Vázquez, Spectrum Manager
National Astronomy and Ionosphere Center
Arecibo Observatory
HC3 Box 53995
Arecibo, PR 00612

Gentlemen:

On behalf of our client, Feeding Homeless Corp., licensee of LPFM station WYKQ-LP in Mayaguez, PR, in accordance with Section 73.1030 of FCC Rules, we hereby notify proposed changed to this licensed facility. The particulars of the amended proposal are as follows:

Proposed Facility:

Geographical coordinates of antenna location (NAD83): 18-12-06.2 / 67-08-33.7
Antenna height: 25.9 m AGL; 37.9 m AMSL
Antenna Gain: 0 dB
Antenna Orientation: ND
Operating channel: 215 (90.9 MHz)
Type of emission: F3E
Effective isotropic radiated power: 0.328 kW – Circular Polarization

Please review this proposal and let us know your findings. Please feel free to communicate via email ([mailto:Grafton@dlr.com](mailto:grifton@dlr.com)), telefax (941-329-6030) or regular mail.

Very truly yours,

Grafton Olivera, P.E.