

TECHNICAL EXHIBIT
APPLICATION AMENDMENT
NEW LPFM STATION
MOCA, PUERTO RICO
CHANNEL 299
FACILITY ID 193601

Technical Narrative

The technical exhibit, of which this narrative is part, has been prepared on behalf of Behind the Sound Corp., (BSC) applicant of NEW LPFM station on channel 300 for Moca, PR, File No. BNPL-20131108ACM. The application of Behind the Sound Corp. is MX'd with three other applications in western Puerto Rico:

- Iglesia Evangelica Sion, Inc. (IES) - BNPL-20131104ABS
- Taller Cultural Jaycoa, Inc. (TCJ) - BNPL-20131104ABI
- I Love My Pets, Corp. (ILMP) BNPL-20131112CDR

By means of this amendment, the Behind the Sound Corp., application is made compliant with two of the above applications, namely, IES - BNPL-20131104ABS, and ILMP - BNPL-20131112CDR, by moving the BSC application to channel 299. Compliance with the TCJ application under current FCC requirements is not possible due to 1st adjacent channel distance separation requirements. As the final outcome of these application is uncertain and it is not possible now to determine which application(s) will prevail, should it be the case that either IES's or ILMP's applications end up being selected, the present amendment will make the BSC application compliant and thus grantable.

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 1.

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 90 kilometers. The proposed operation will produce field strengths much lower than 10 mV/m at the FCC Santa Isabel, PR station.

Allocation Considerations

Figure 1 summarizes the allocation study for the proposed facility. As indicated in Figure 1, except for compliance with the application of TCJ - BNPL-20131104ABI, as had been previously noted, spacing with respect to co-channel and first adjacent channels is within FCC requirements. IF related facilities, though it is believed not required for LPFM stations, are met. There is a short spacing predicted to second adjacent full service station WCMN-FM.

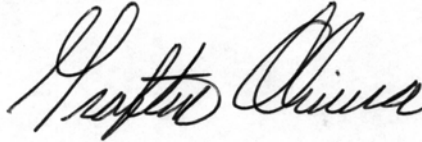
Figure 2 summarizes the list of licensed FM translator within 50 kilometers of the proposed LPFM transmitter site. An inspection of the licenses of these translator facilities show that none of these translators will get their input signal on the third adjacent channel, or closer, of the proposed LPFM facility.

The proposed LPFM station will operate on Channel 299, second adjacent channel to WCMN-FM, Channel 297B. Thus, the protection requirement of the undesired signal from the proposal is 40 dB higher than the desired signal of this station. The proposed transmitter site is located 36.7 kilometers, at a bearing of 298 degrees true from station WCMN-FM, which operates on channel 297B with an ERP of 50 kW and an HAAT of 409 meters along radial 298°. The predicted WCMN-FM, F(50,50) field strength at the proposed site is 76.8 dBu. Using the U/D ratio of 40 dB, the proposed F(50,10) interfering signal is 116.8 dBu. The 116.8 dBu contour thus defines the maximum extent of predicted interference to WCMN-FM from the proposed LPFM facility.

Since an ERP of 100 watts is proposed, the 116.8 dBu signal contour is calculated by means of a free-space calculation. Based on free-space calculations, the minimum height above ground level that the 116.8 dBu contour would reach is 6.4 m (21 feet) at a horizontal distance of 62 m (204 feet) from the transmitting antenna. This is graphically depicted in Figure 3B. Therefore, no harmful interference to WCMN-FM is predicted as a result of the proposed LPFM facility. Figure 3A is a table and Figure 3B a graphic representation showing the computed distances to the predicted 116.8 dBu contour under these assumptions.

If waiver of FCC Rules, 47 C.F.R. Section 73.807 is required, waiver of this section of The Rules is respectfully requested.

For the reasons stated above, it is believed that the proposed facility will be in compliance with applicable FCC Rules and Regulations, should either IES's or ILMP's applications end up being selected for the MX group of which the BSC application is part.

A handwritten signature in black ink, appearing to read "Grafton Olivera", is centered on the page. The signature is fluid and cursive.

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

(941) 329-6001

February 12, 2014

LPFM Study

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



Channel: 299 **Coordinates:** 018-24-02 067-07-14 (NAD 27) **Buffer:** km **Type:** LP100

Comment:

<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>		
WCMN-FM	LIC	297	FM	107.3	ARECIBO			PR	US	C	18-14-52	36.75	92	-55.25
8790	BLH	19890712KD		B			50	313		066-48-43	117.49	SHORT		
NEW	APP	300	FL	107.9	MOCA			PR	US	C	18-24-02	0	14	-14
193601	BNPL	20131108ACM		L1	N		0.1	0.482928		067-07-14	90	SHORT		
NEW	APP	300	FL	107.9	AGUADILLA			PR	US	C	18-26-40.5	5.86	14	-8.14
192521	BNPL	20131104ABI		L1	N		0.004881	133.609848		067-09-04.9	326.45	SHORT		

FM Inquiry

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



Listed stations are within 50 km of the point at 018-24-02 067-07-14.

<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>	
W206AF	206	89.1	D	FX	LIC	MAYAGUEZ			PR	018-09-21	067-00-32	29.55
BLFT-19940426TL			D	16173	270	0.25	620	889	C	9350	156.56	
W208AE	208	89.5	D	FX	LIC	ANASCO			PR	018-18-54	067-10-58	11.53
BLFT-19880119TI			D	13834	0	0.012		355	C	42888	214.63	
W283BI	283	104.5	D	FX	LIC	MAYAGUEZ			PR	018-19-06	067-10-49	11.08
BLFT-20101101AAD			C	102459		0.25		406	C	140950	214.59	
W285DL	285	104.9	D	FX	LIC	HORMIGUEROS			PR	017-59-37	067-10-27	45.4
BLFT-20100708PSY			C	79870	5	0.25		258	C	85936	187.14	
NEW	294	106.7	D	FX	APP	AGUADILLA			PR	018-19-05.6	067-10-50	11.1
BNPFT-20130822AAR			C	115560		0.05		385	C	143476	214.68	
NEW	294	106.7	D	FX	APP	AGUADILLA			PR	018-19-05.6	067-10-50	11.1
BNPFT-20030313APL			C	113246		0.05		385	C	143476	214.68	

FIGURE 3A

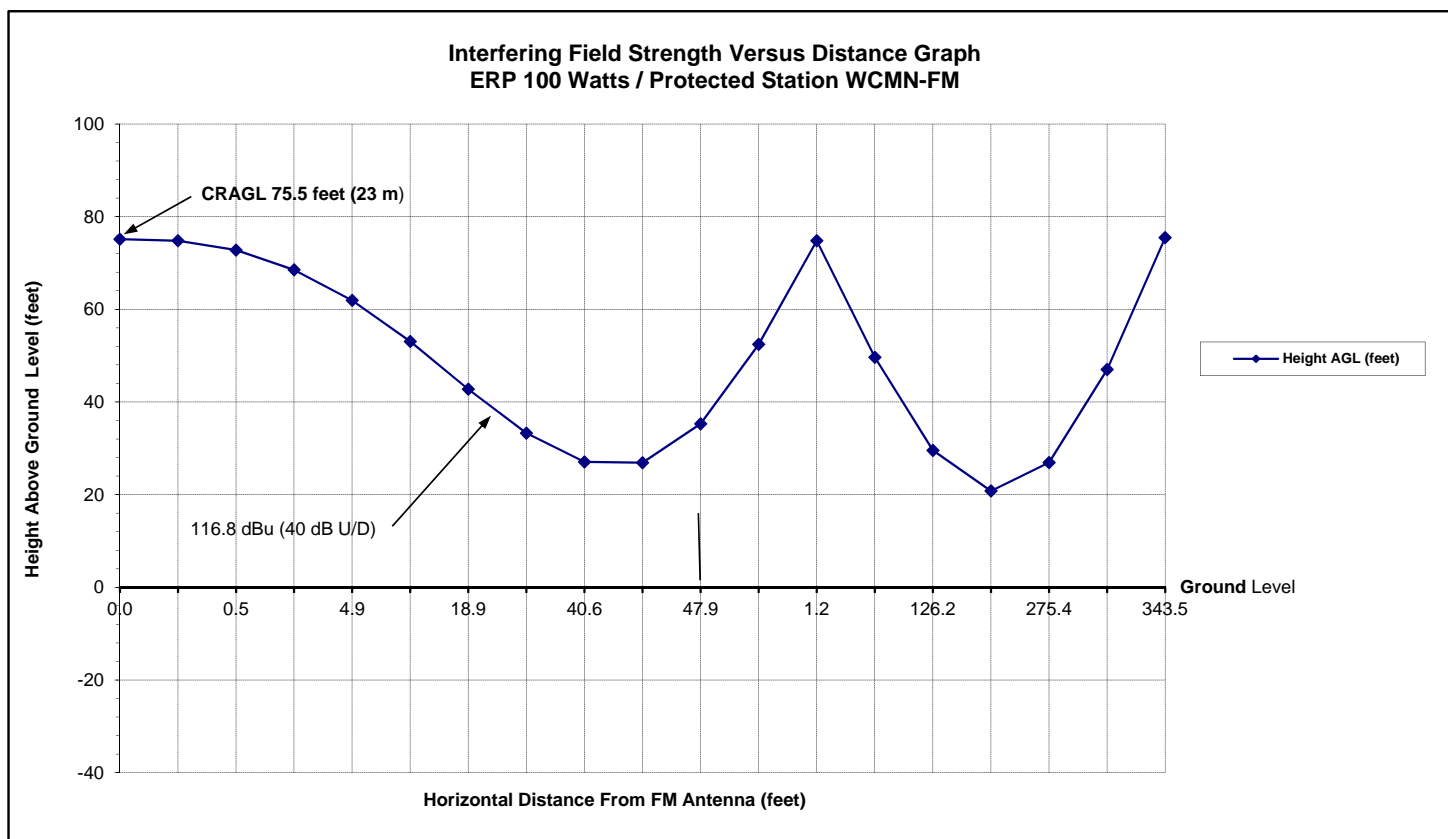
Interfering Field Strength Vs. Distance Graph

Antenna ERI 4-Bay, half-wavelength
 RCAGL **75.5** feet ERP **0.1** kW
 Interfering Contour **116.8** dBu -10 dBk

Depression Angle	VRF	ERP (dBk)	Distance to Contour (m)**	Distance to Contour (feet)**	Horiz. Dist. (feet)	Height AGL (feet)
90	0.001	-70.0	0.1	0	0	75
85	0.002	-64.0	0.2	1	0	75
80	0.008	-51.9	0.8	3	0	73
75	0.021	-43.6	2.2	7	2	69
70	0.042	-37.5	4.4	14	5	62
65	0.072	-32.9	7.5	25	10	53
60	0.110	-29.2	11.5	38	19	43
55	0.150	-26.5	15.7	52	30	33
50	0.184	-24.7	19.3	63	41	27
45	0.200	-24.0	20.9	69	49	27
40	0.182	-24.8	19.1	63	48	35
35	0.117	-28.6	12.3	40	33	52
30	0.004	-58.0	0.4	1	1	75
25	0.178	-25.0	18.6	61	55	50
20	0.391	-18.2	40.9	134	126	30
15	0.615	-14.2	64.4	211	204	21
10	0.814	-11.8	85.2	280	275	27
5	0.951	-10.4	99.6	327	325	47
0	1.000	-10.0	104.7	344	344	76

**Free Space Field Equation= Dist. (km)=LOG-1((107.2+P(DBK)-FS)/20)

FIGURE 3B



du Treil, Lundin & Rackley, Inc.

Consulting Engineers



201 Fletcher Ave.
Sarasota, FL 34237-6019
941-329-6000
941-329-6031 FAX

Grafton Olivera
Direct Dial 941-329-6001
e-mail: grifton@dlr.com

February 12, 2013

Via email (prcz@naic.edu)

Dr. Michael C. Nolan, Director
Angel M. Vázquez, Spectrum Manager
National Astronomy and Ionosphere Center
Arecibo Observatory
HC3 Box 53995
Arecibo, PR 00612

Gentlemen:

On behalf of our client, Behind The Sound Corp., applicant for a New LPFM station, in accordance with Section 73.1030 of the FCC Rules, we are hereby notifying you of a proposed amendment for this new facility: change to 1st adjacent channel 299, no other change is proposed. The particulars of the amended proposal are as follows:

Proposed Facility:

Geographical coordinates of antenna location (NAD27): 18-24-02 / 67-07-14
Antenna height: 23 m AGL; 59.3 m AMSL
Antenna Gain: 0 dB
Antenna Orientation: ND
Operating channel: 299 (107.7 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:grifton@dlr.com>), telefax (941-329-6030) or regular mail.

Very truly yours,

Grafton Olivera, P.E.

TECHNICAL STATEMENT
PROPOSED NEW LPFM STATION
MOCA, PUERTO RICO
CHANNEL 299

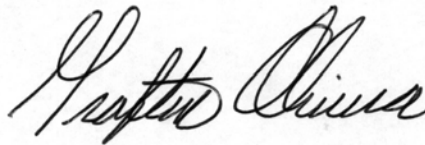
The proposed LPFM station will be side-mounted on an existing guyed tower supporting structure. The antenna will be located 23 meters above ground level with a height above mean sea level of 59.3 meters. A maximum radiated power (ERP) of 100 watts using a circularly polarized, ERI, 4-bay, half-wavelength transmitting antenna has been assumed for calculation purposes.

With respect to the potential for human exposure to radio frequency (RF) energy, calculations prepared in accordance with FCC Bulletin OET-65.* Indicate that the proposal will not result in human exposure to RF energy at ground level in excess of FCC standards. The calculation at 2-m above ground was made using the following formula from the OET-65 document:

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

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 a maximum relative field factor of 0.4 for any depression angle greater than 20 degrees below horizon for the proposed ERI, 4-bay, half-wavelength antenna, a total effective radiated power of 200 watts (circular polarization) and an antenna radiation center height above ground of 23 m, the calculated power density will not exceed $2.4 \mu\text{W}/\text{cm}^2$. Therefore, the calculated RF exposure at 2 m above ground will not exceed 1.2 % of the limit of $200 \mu\text{W}/\text{cm}^2$ for the general population and uncontrolled environments. Therefore, the proposal complies with the FCC limits for human exposure to RF energy.

The applicant, in coordination with other users of the transmission facility, shall reduce power or cease operation as necessary to prevent RF exposure above the FCC recommended limits.



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

February 12, 2014

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