

JOB 113119  
COMMUNITY OF LICENSE Louisville, KY  
APPLICANT Fellowship of Reconciliation Louisville Chapter

VER 2

# **CONSOLIDATED ENGINEERING EXHIBIT**

FCC Form 318 - Section VI - LPFM Engineering, Tech Box

**ENGINEERING STATEMENT**  
**PROPOSED NEW LPFM STATION AT LOUISVILLE, KY**  
**Fellowship of Reconciliation Louisville Chapter**

**SUMMARY:**

The applicant seeks a new LPFM station. This proposal is fully spaced to all co-channel and first-adjacent stations. It is short-spaced to one or more second-adjacent stations. Contour protection is provided by the D/U method, in compliance with 73.807(e)(1). **See Exhibit 11.** A waiver of second-adjacent spacing is hereby requested.

**PERTINENT SPECIFICATIONS NOT INCLUDED IN SECTION VI - TECH BOX:**

HAAT:	65 meters
ERP:	21 watts
DATA SOURCE:	V-Soft FMCommander with HAAT Method 0(zero); FCC 30- Second Terrain
SUPPORT STRUCTURE:	Penthouse with pole on building

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

# EXHIBIT 11 INTERFERENCE

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REFERENCE                                     CLASS = L1                                     DISPLAY DATES
38 14 44.0 N.                                Current Spacings to 2nd Adj.                DATA 11-08-13
85 45 28.0 W.                                Channel 293 - 106.5 MHz                     SEARCH 11-09-13
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Call	Channel	Location		Azi	Dist	FCC	Margin
WVEZ	LIC 295B	St. Matthews	KY	337.1	15.23	67.0	-51.8
AL9833	RSV-A 295B	St. Matthews	KY	337.1	15.23	67.0	-51.8
reallot from Louisville, KY.							
WWBL	LIC 293B	Washington	IN	290.6	130.85	112.0	18.9
WWWY	LIC 291B	North Vernon	IN	3.0	91.33	67.0	24.3

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 RSV-R = reserved - needs protection, RSV-A = allocation.  
 All separation margins include rounding

## **PROTECTED ZONES REPORT:**

Protected zones report for NEW on channel 293L1 11-09-2013  
 Lat. 38 14 44.0 Lng. 85 45 28.0, ERP= 0.021 kw, HAAT= 65M

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 Facility is okay with respect to AM station towers.

Closest AM Facility is WFIA, LOUISVILLE, KY, L, ND2 at 59.5° at a distance of 4.4 km

Facility is okay with respect to FCC monitoring stations.

Closest FCC Monitoring Station is 484.4 km= Allegan, MI

Facility is okay toward West Virginia Quiet Zone. Distance to center = 547.5 km

Facility is okay toward Table Mountain. Distance to Center = 1696.2 km, Azimuth = 283.3 Degrees True

## **CONTOUR PROTECTION TO 2<sup>ND</sup>-ADJACENT STATIONS:**

Contour protection to 2nd-adjacent station WVEZ is provided using the ratio method. The F(50/50) contour of WVEZ is 85.6dBu at the proposed site. Using the appropriate U/D ratio of 40dB vs. WVEZ, the corresponding “worst-case” interfering contour of the proposed station is 125.6dBu. At the full 21 watts ERP, this contour would extend to a distance of 16.9 meters from the antenna. However, the field strength of the proposed antenna system falls quickly at depression angles below the horizon.

The proposed 2-bay, ½ wave-spaced SWR FMEC/2-HWS antenna would be mounted on a 3 meter pole on a 5 meter elevator penthouse on the roof of a 69 meter building, at 76m AGL.

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Using elevation pattern data provided by SWR, the distance to the 125.6dBu contour at various depression angles is tabulated in **Exhibit 11a**.

The center of radiation would be 10 meters above the uppermost populated floor of the building. The worst-case 2<sup>nd</sup> adjacent interfering contour extends no closer than 4.8 meters above the uppermost populated area.

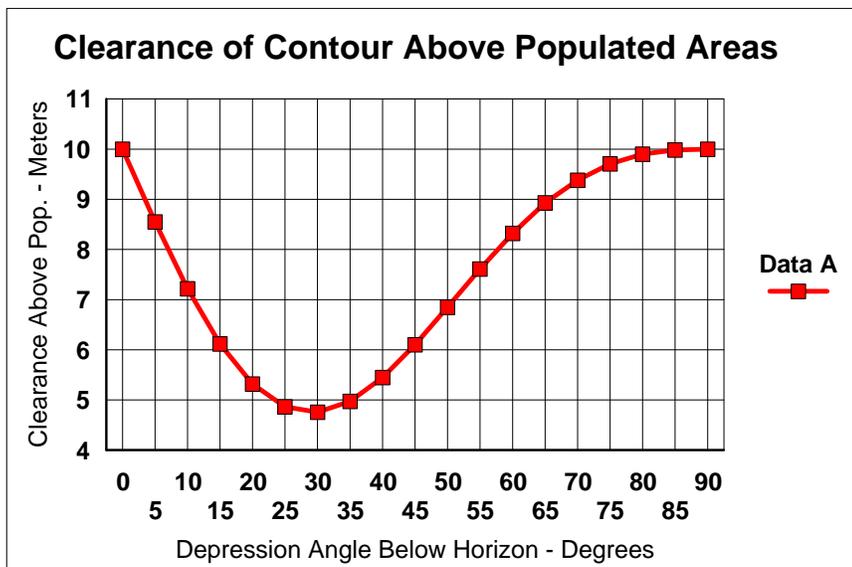
Therefore, there are no populated areas within the interference zone.

# Exhibit 11a

## SECOND ADJACENT INTERFERENCE PROTECTION TO POPULATED AREAS

NEW LPFM	<CALL LETTERS OR FILE NUMBER
Louisville, KY	<PROPOSED COMMUNITY OF LICENSE
125.60	<INTERFERING CONTOUR OF PROPOSAL - dBu
1.9055	<V/m
WVEZ	<2nd-ADJ STN REQUIRING INTERFERENCE PROT. (worst case)
21	<PROP. ERP (W)
SWR FMEC/2-HWS	<ANTENNA MODEL

max ERP (W)	depression angle below horizon (dg)	relative field	ERP (W)	angular distance to contour (m)	vertical distance (below antenna) (m)	horiz distance to contour (m)	vertical distance below antenna required to clear nearest populated level (m)	interfering contour above nearest populated level (m)
21	0	1	21.00	16.86	0.0	16.9	10	10.0
21	5	0.987	20.46	16.64	1.5	16.6	10	8.5
21	10	0.95	18.95	16.02	2.8	15.8	10	7.2
21	15	0.89	16.63	15.00	3.9	14.5	10	6.1
21	20	0.812	13.85	13.69	4.7	12.9	10	5.3
21	25	0.721	10.92	12.16	5.1	11.0	10	4.9
21	30	0.622	8.12	10.49	5.2	9.1	10	4.8
21	35	0.52	5.68	8.77	5.0	7.2	10	5.0
21	40	0.42	3.70	7.08	4.6	5.4	10	5.4
21	45	0.327	2.25	5.51	3.9	3.9	10	6.1
21	50	0.244	1.25	4.11	3.2	2.6	10	6.8
21	55	0.173	0.63	2.92	2.4	1.7	10	7.6
21	60	0.115	0.28	1.94	1.7	1.0	10	8.3
21	65	0.07	0.10	1.18	1.1	0.5	10	8.9
21	70	0.039	0.03	0.66	0.6	0.2	10	9.4
21	75	0.018	0.01	0.30	0.3	0.1	10	9.7
21	80	0.006	0.00	0.10	0.1	0.0	10	9.9
21	85	0.001	0.00	0.02	0.0	0.0	10	10.0
21	90	0	0.00		0.0	0.0	10	10.0



## **EXHIBIT 14**

### **ENVIRONMENTAL PROTECTION ACT / NIER ANALYSIS**

The applicant proposes mounting a two bay, 0.5-wave-spaced, SWR FMEC/2-HWS antenna to a 3 meter pole attached to a 5 meter roof penthouse. The antenna system would be 7 meters above the roof of a 69 meter building and 10 meters above the highest populated area - the building's uppermost floor.

The SWR FMEC antenna is a functional equivalent of the Jampro Double-V "Penetrator" antenna. RF exposures were calculated using FM Model for Windows, Version 2.10, using the "Jampro Double-V (EPA) setting. Even without roof attenuation factored in, FM Model predicted a peak exposure of  $2.3\mu\text{W}/\text{cm}^2$  at 14.8 meters from the penthouse/pole base, for persons on the uppermost populated floor. This represents 1.15% of the Maximum Permissible Exposure (MPE) of  $200\mu\text{W}/\text{cm}^2$  for uncontrolled environments. 47 CFR §1.1307(b)(3) exempts applicants from preparing an Environmental Assessment when the predicted exposure levels would be less than 5% of the FCC limits.

The roof and penthouse are controlled/occupational areas. Access is strictly controlled by a locked door, and they are only accessed for maintenance. FM Model predicts a peak exposure on the roof of  $5.9\mu\text{W}/\text{cm}^2$  at 9.2 meters from the tower base. This represents 0.59% of the Maximum Permissible Exposure (MPE) of  $1000\mu\text{W}/\text{cm}^2$  for controlled/occupational environments.

If tower climbing by authorized personnel becomes necessary, or if any roof work involves being above roof level, the transmitter power will be reduced or operation will cease, as necessary, so as to not exceed the RF exposure limits. RF warning signs will be posted at the access door to the roof, and on the 8 meter penthouse/pole structure.