

## ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of LEXINGTON CHRISTIAN NETWORK in support of its amendment to Application for Construction Permit [BNPL-20131115ACH] to operate a Low Power FM station on Channel 259 (99.7 MHz) in Lexington, Kentucky.

It is proposed to mount a standard two-bay circularly polarized antenna at the 12-meter level of proposed 14-meter tower. The proposed effective radiated power is 49 watts. Exhibit B is a map upon which the proposed 60 dBu service contour for the proposed facility is plotted. It is important to note that the proposed location meets all of the Commission's spacing requirements to pertinent co-channel and adjacent-channel full-power, FM translator and LPFM stations. We have also determined that the proposed facility should not cause objectionable interference to the input signal of any existing translator station, based on the information contained in the FCC's CDBS database.

Employing the methods of OET Bulletin No. 65, and based on the elevation pattern of a standard 2-bay FM antenna, maximum power density two meters above ground of  $0.0068 \text{ mW/cm}^2$  is calculated to occur 5 meters from the base of the tower. Since this is only 3.3 percent of the  $0.2 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating in the FM band, a grant of this proposal can be considered a minor environmental action with respect to human exposure to non-ionizing electromagnetic radiation. Further the station owner will take whatever precautionary steps are necessary to

EXHIBIT A

ensure that workers operating in the vicinity of the antenna are not exposed to RF energy in excess of the Commission's guideline values.

Due to the diminutive height of the proposed tower and its proximity to the nearest airport runways, the FAA has not been notified of this application. In addition, FCC registration of this structure is not required for the same reasons. This conclusion is supported by the Commission's TOWAIR program.

I declare under penalty of perjury that the foregoing statements and the attached exhibit, which was prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.



KYLE T. FISHER

December 3, 2014

**CONTOUR POPULATION**  
**2010 U.S. CENSUS DATA**  
**102,951**



**Proposed Site**

Latitude: 38-01-48.50 N  
Longitude: 084-27-00.90 W  
ERP: 0.0493 kW  
Channel: 259  
Frequency: 99.7 MHz  
AMSL Height: 328.6 m  
Horiz. Pattern: Omni

**60 DBU FCC  
CONTOUR**

Lexington-Fayette

Proposed Site

Fayette

Lexington

60

75

Scale 1:90,000

0 0.77 1.53 2.3 mi

**EXHIBIT B**  
**PREDICTED SERVICE CONTOUR**  
**PROPOSED LPFM STATION**  
**CH. 259 - LEXINGTON, KENTUCKY**

REQUEST FOR WAIVER OF SECOND-ADJACENT-CHANNEL SPACING RULE  
PROPOSED LPFM STATION  
CHANNEL 259 – LEXINGTON, KENTUCKY  
[AMENDMENT TO BNPL-20131115ACH]

The site proposed herein is located 10.4 kilometers from that WKQQ, which operates on Channel 261C2 in Winchester, Kentucky. Since the required spacing is 53 kilometers, a waiver of the Commission's spacing rules with regard to this station is requested and believed to be justified for the reasons stated below.

Attached, as Exhibit C-2, is a map on which the proposed LPFM site is plotted in relation to the WKQQ 88.1 dBu contour, which passes close to the LPFM site. With a 40 dB desired-to-undesired ratio for second-adjacent-channel stations applied in this instance, the proposed LPFM interference contour is its 128.1 dBu contour. This contour extends a maximum of 19 meters from the proposed LPFM antenna. As shown in Exhibit C-3, the area within 19 meters of the proposed site is located on the roof of the building on which the proposed antenna will be mounted. This is an industrial building with no residences within the interference zone. Therefore no adverse effect on reception of WKQQ is expected.

In addition, if the Commission determines it to be necessary, the applicant will install a half-wave-spaced antenna at the site in order to further eliminate the likelihood of interference to the station of concern.

Accordingly, a waiver of the Commission's Rules with regard to WKQQ is requested and believed to be justified.



✚ WKQQ

Lexington-Fayette

Proposed Site

Fayette

WKQQ  
88.1 DBU

Lexington

Scale 1:100,000

0 1 2 3 km




**EXHIBIT C-2  
2ND-ADJACENT-CHANNEL  
WAIVER REQUEST TO WKQQ  
PROPOSED LPFM STATION  
CH. 259 - LEXINGTON, KENTUCKY**



# Exhibit C-3

Lexington Amendment

## Legend

-  19-Meter Arc
-  Eastlex Machine Corporation
-  Lexington

Christian Rd

 Lexington



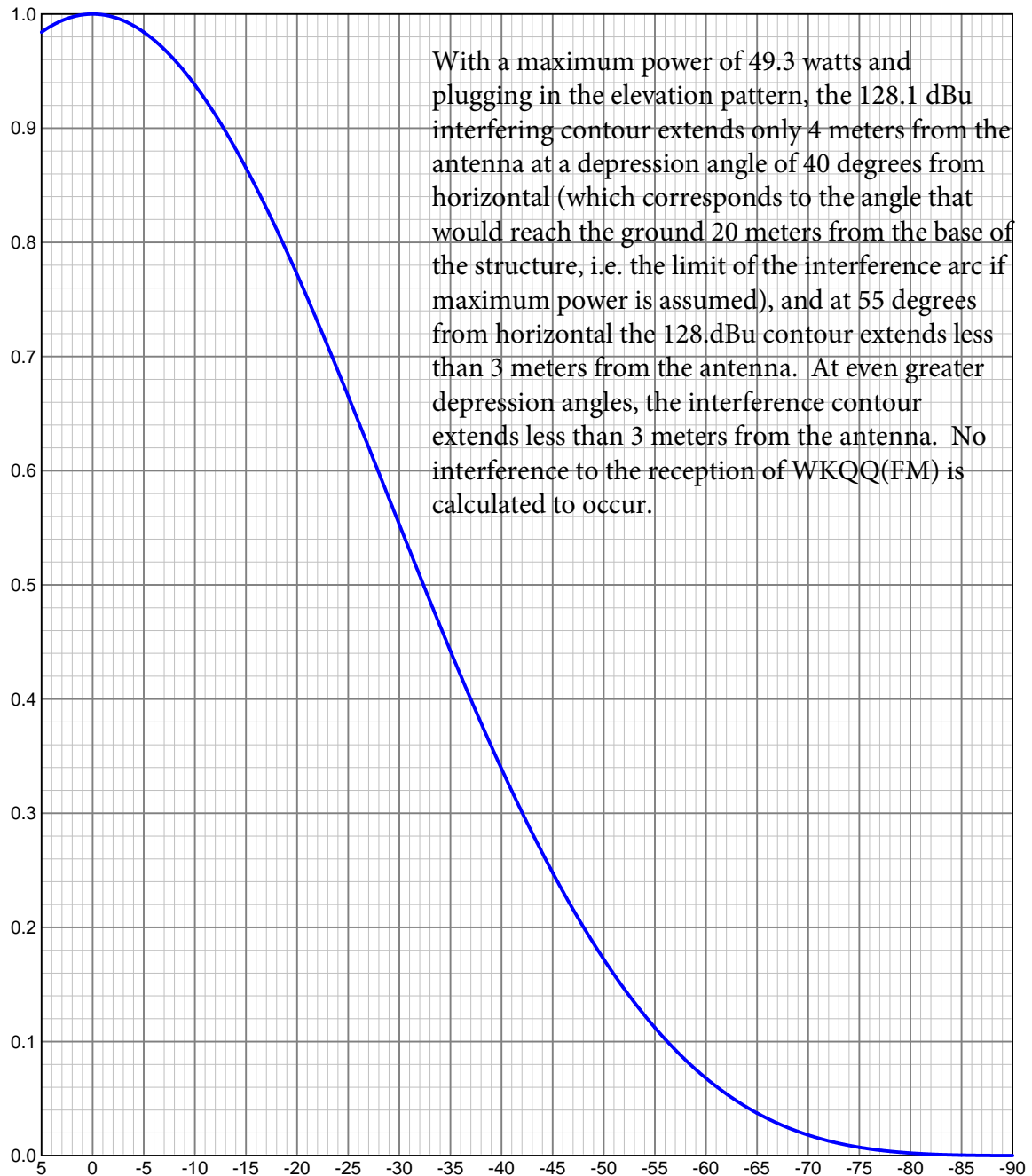
50 m

Google earth

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**ELEVATION PATTERN**

Type:	LPX2H		Channel:	259
Directivity:	Numeric	dBd	Location:	
Main Lobe:	0.70	-1.54	Beam Tilt:	0.00
Horizontal:	0.70	-1.54	Polarization:	Circular

**Relative Field**

With a maximum power of 49.3 watts and plugging in the elevation pattern, the 128.1 dBu interfering contour extends only 4 meters from the antenna at a depression angle of 40 degrees from horizontal (which corresponds to the angle that would reach the ground 20 meters from the base of the structure, i.e. the limit of the interference arc if maximum power is assumed), and at 55 degrees from horizontal the 128.dBu contour extends less than 3 meters from the antenna. At even greater depression angles, the interference contour extends less than 3 meters from the antenna. No interference to the reception of WKQQ(FM) is calculated to occur.

*Preliminary, subject to final design and review.*



## TABULATED DATA FOR ELEVATION PATTERN

Type: LPX2H

Polarization: Circular

ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB	ANGLEFIELD	dB
5.00	0.984	-0.14	-6.75	0.971	-0.25	-27.00	0.621	-4.14	-50.50
4.75	0.986	-0.13	-7.00	0.969	-0.27	-27.50	0.609	-4.30	-51.00
4.50	0.987	-0.11	-7.25	0.967	-0.29	-28.00	0.598	-4.46	-51.50
4.25	0.989	-0.10	-7.50	0.965	-0.31	-28.50	0.587	-4.63	-52.00
4.00	0.990	-0.09	-7.75	0.962	-0.33	-29.00	0.576	-4.80	-52.50
3.75	0.991	-0.08	-8.00	0.960	-0.36	-29.50	0.564	-4.97	-53.00
3.50	0.992	-0.07	-8.25	0.957	-0.38	-30.00	0.553	-5.15	-53.50
3.25	0.993	-0.06	-8.50	0.955	-0.40	-30.50	0.542	-5.33	-54.00
3.00	0.994	-0.05	-8.75	0.952	-0.43	-31.00	0.530	-5.51	-54.50
2.75	0.995	-0.04	-9.00	0.949	-0.45	-31.50	0.519	-5.69	-55.00
2.50	0.996	-0.03	-9.25	0.947	-0.48	-32.00	0.508	-5.88	-55.50
2.25	0.997	-0.03	-9.50	0.944	-0.50	-32.50	0.497	-6.07	-56.00
2.00	0.997	-0.02	-9.75	0.941	-0.53	-33.00	0.486	-6.27	-56.50
1.75	0.998	-0.02	-10.00	0.938	-0.56	-33.50	0.475	-6.47	-57.00
1.50	0.999	-0.01	-10.50	0.932	-0.61	-34.00	0.464	-6.67	-57.50
1.25	0.999	-0.01	-11.00	0.925	-0.67	-34.50	0.453	-6.88	-58.00
1.00	0.999	-0.01	-11.50	0.919	-0.74	-35.00	0.442	-7.09	-58.50
0.75	1.000	0.00	-12.00	0.912	-0.80	-35.50	0.431	-7.30	-59.00
0.50	1.000	0.00	-12.50	0.905	-0.87	-36.00	0.421	-7.52	-59.50
0.25	1.000	0.00	-13.00	0.897	-0.94	-36.50	0.410	-7.74	-60.00
0.00	1.000	0.00	-13.50	0.889	-1.02	-37.00	0.400	-7.97	-60.50
-0.25	1.000	0.00	-14.00	0.882	-1.09	-37.50	0.389	-8.20	-61.00
-0.50	1.000	0.00	-14.50	0.874	-1.17	-38.00	0.379	-8.43	-61.50
-0.75	1.000	0.00	-15.00	0.865	-1.26	-38.50	0.369	-8.67	-62.00
-1.00	0.999	-0.01	-15.50	0.857	-1.34	-39.00	0.359	-8.91	-62.50
-1.25	0.999	-0.01	-16.00	0.848	-1.43	-39.50	0.349	-9.15	-63.00
-1.50	0.999	-0.01	-16.50	0.839	-1.52	-40.00	0.339	-9.40	-63.50
-1.75	0.998	-0.02	-17.00	0.830	-1.62	-40.50	0.329	-9.65	-64.00
-2.00	0.997	-0.02	-17.50	0.821	-1.72	-41.00	0.320	-9.91	-64.50
-2.25	0.997	-0.03	-18.00	0.811	-1.82	-41.50	0.310	-10.17	-65.00
-2.50	0.996	-0.03	-18.50	0.802	-1.92	-42.00	0.301	-10.43	-65.50
-2.75	0.995	-0.04	-19.00	0.792	-2.03	-42.50	0.292	-10.70	-66.00
-3.00	0.994	-0.05	-19.50	0.782	-2.14	-43.00	0.283	-10.97	-66.50
-3.25	0.993	-0.06	-20.00	0.772	-2.25	-43.50	0.274	-11.25	-67.00
-3.50	0.992	-0.07	-20.50	0.762	-2.36	-44.00	0.265	-11.53	-67.50
-3.75	0.991	-0.08	-21.00	0.751	-2.48	-44.50	0.256	-11.82	-68.00
-4.00	0.990	-0.09	-21.50	0.741	-2.60	-45.00	0.248	-12.11	-68.50
-4.25	0.989	-0.10	-22.00	0.730	-2.73	-45.50	0.240	-12.41	-69.00
-4.50	0.987	-0.11	-22.50	0.720	-2.86	-46.00	0.232	-12.71	-69.50
-4.75	0.986	-0.13	-23.00	0.709	-2.99	-46.50	0.224	-13.01	-70.00
-5.00	0.984	-0.14	-23.50	0.698	-3.12	-47.00	0.216	-13.32	-70.50
-5.25	0.983	-0.15	-24.00	0.687	-3.26	-47.50	0.208	-13.64	-71.00
-5.50	0.981	-0.17	-24.50	0.676	-3.40	-48.00	0.201	-13.96	-71.50
-5.75	0.979	-0.18	-25.00	0.665	-3.54	-48.50	0.193	-14.28	-72.00
-6.00	0.977	-0.20	-25.50	0.654	-3.69	-49.00	0.186	-14.61	-72.50
-6.25	0.975	-0.22	-26.00	0.643	-3.84	-49.50	0.179	-14.95	-73.00
-6.50	0.973	-0.23	-26.50	0.632	-3.99	-50.00	0.172	-15.29	-73.50

*Preliminary, subject to final design and review.*