

# **ENGINEERING REPORT**

## **MINOR MODIFICATION OF CONSTRUCTION PERMIT APPLICATION**

For the FM Facilities of

**WLFX(FM) – Berea, KY  
CH294C3 – 106.7 MHz  
Facility ID No. 4809**

File No.

**BMLH-20140624AAQ  
BPH-20160523ABP**

June, 2016

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## **RF Radiation Study Requirement**

Exhibit 35.1 - RF Radiation Study

(Exhibit Numbering is in response to FCC Online Form 301, Section III-B)

# **DISCUSSION OF REPORT**

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This firm was retained to prepare the required engineering report in support of this Minor Change Amendment of Construction Permit Application, BPH-20160523ABP, for WLFX(FM) – Berea, KY (Facility ID No. 4809). Presently WLFX(FM) operates under License BMLH-20140624AAQ with 3.7 kW ERP (H&V) at 403 meters AMSL. The pending application was to correct the coordinates of the station and go from DA to NDA operation. That application determined the site elevation to be higher than previously reported. So the actual radiation center height is actually 409 meters AMSL. The station proposes to upgrade from Class A to Class C3 for an increase in ERP to 14.5 kW and install a directional antenna at the existing transmitter site. The existing 4-Bay ERI antenna will be modified at present location on the tower to provide the required DA pattern. The facility will continue to serve the currently authorized community of Berea, KY.

The proposed site for the Class C3 operation meets all domestic and international spacing requirements of 47 C.F.R. §73.207 toward other stations in the allocation with the exception of WNKR(FM) – Williamstown, KY. **Exhibit 30.1** is a tabulation of the spacings from a fully spaced Class C3 reference point. From this location a theoretical 70 dBu, 23 kilometer circle covers 100% of the Berea city limits as shown in **Exhibit 30.2**. **Exhibit 30.3** is a tabulation of the spacings from the present WLFX transmitter site. **Exhibit 30.4** is a map showing the detailed protection of the licensed WNKR(FM) operation. **Exhibit 30.5** is a tabulation showing the detailed protection of the licensed WNKR(FM) operation. **Exhibit 30.6** is a map showing the detailed protection of a max class facility of WNKR(FM). **Exhibit 30.7** is a tabulation showing the detailed protection of a max class facility of WNKR(FM). **Exhibit 30.8** is a copy of the proposed WLFX directional antenna pattern.

The present and proposed service contours have been calculated in accordance with the Rules, and the data obtained has been tabulated and plotted in this report. The plotted contours are found as **Exhibit 27.4** of this report. This exhibit shows the 3.16 mV/m contour which serves the community of license, and the overall service provided by the 1.0 mV/m contour of the facility. The plotted contours shown in **Exhibit 27.4**, are based on the use of a full 360 terrain radials. The applicant would like to note the use of the NED 03 SEC terrain database for all allocation, contour and HAAT calculations contained here-in.

As stated before, the antenna will be mounted on an existing tower presently bearing Antenna Structure Registration number 1041544. A copy of the existing ASR has been included in **Exhibit 27.1**. A vertical antenna plan depicting the placement of the antenna on the tower has been included in **Exhibit 27.2**. As this proposal will not increase the overall tower height, it is believed the FAA need not be notified

The remainder of the information in this report and exhibit numbering is responsive to the Rules of the Commission, and provides the data for FCC Online Form 301, Section III-B.

**RADIATION PROTECTION:** The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency

## DISCUSSION OF REPORT (continued)

radiation. This report section is in response to that provision of the Rules. The current Federal Communications Commission guidelines for RF radiation protection are set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01).

The FM Broadcast facility proposed in this application will not produce human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1307(b)(3) of the Commission's rules concerning RF contributors of less than 5%. **Exhibit 35.1** provides the details of the study that was made to demonstrate compliance. The facility is properly marked with signs, and entry is restricted by means of fencing with locked doors and/or gates. Any other means as may be required to protect employees and the general public will be employed.

***In the event work would be required in proximity to the antenna such that the person or persons working in the area would be potentially exposed to fields in excess of the guidelines set forth in OET Bulletin No. 65 (Edition 97-01), the transmitter power will be reduced or the station will cease operation during the critical period.***

**DISTANCES TO CONTOURS:** The table below shows the distances to the 3.16 mV/m and 1.0 mV/m contours from the proposed facility using an ERP of 14.5 kW at an HAAT of 133 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 373936.0    W. Lng. = 840900.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC							
Azi.	AV EL	HAAT	ERP kW	dBk	Field	70-F5	60-F5
000	258.9	150.1	7.0847	8.50	0.699	20.86	35.45
045	234.9	174.1	14.5000	11.61	1.000	26.25	44.07
090	221.3	187.7	14.5000	11.61	1.000	27.12	45.25
135	301.2	107.8	14.5000	11.61	1.000	21.22	35.99
180	320.8	88.2	14.5000	11.61	1.000	19.12	32.70
225	297.5	111.5	14.5000	11.61	1.000	21.57	36.52
270	294.3	114.7	14.5000	11.61	1.000	21.86	36.96
315	278.0	131.0	14.5000	11.61	1.000	23.14	38.96
Ave El= 275.86 M    HAAT= 133.14 M    AMSL= 409							