

**ENGINEERING REPORT
MINOR CHANGE
CONSTRUCTION PERMIT
APPLICATION**

for

WQHN(FM) – East Jordan, MI
CH265A (100.9 MHz)
BMLED-20031205AUX
(Facility ID No. 28886)

June 2018

COPYRIGHT 2018

MUNN-REESE
Broadcast Engineering Consultants
Coldwater, MI 49036

Table of Contents

Discussion of Report

Allotment Requirement

Exhibit 27.1 - Copy of Existing Antenna Structure Registration

Exhibit 27.2 - Proposed Service Contour Study

Community Coverage Requirement (See Discussion)

Main Studio Location Requirement (See Discussion)

Interference Requirements

Separation Requirements

Exhibit 30.1 - Tabulation of Commercial Spacings

Exhibit 30.2 - Tabulation of Commercial Spacings from Reference Location

Exhibit 34.1 – Short Spaced Contour Protection Studies

RF Radiation Study Requirement

Exhibit 35.1 - RF Radiation Study

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

MUNN-REESE

Broadcast Engineering Consultants
Coldwater, MI 49036

Discussion of Report

This firm was retained to prepare the required engineering report in support of this Minor Change Construction Permit Application for WQHN(FM) – East Jordan, MI (Facility ID No. 28886). Presently WQHN(FM) operates under License BMLED-20031205AUX with 2.8 kW ERP (H&V) at 375 meters AMSL. WQHN(FM) operating parameters of 11.5 kW ERP (H&V) at 375 meters AMSL are requested. WQHN(FM) will continue to serve the community of East Jordan, MI.

The antenna will be mounted on the tower bearing Antenna Structure Registration Number 1004399. A copy of the existing ASR has been included as **Exhibit 27.1**

The proposed site for the Class C3 operation meets domestic and international spacing requirements of 47 C.F.R. §73.207 toward other stations in the allocation except for WGRY(FM) – Roscommon, MI and WQON(FM) – Grayling, MI. A tabulation of the existing and required spacing toward each of the other relevant stations is found in **Exhibit 30.1**. A tabulation of the fully spaced class C3 reference location is shown in **Exhibit 30.2**. A tabulation of the requirements of 47 C.F.R. §73.215 for Contour Protection with respect to WGRY(FM) and WQON(FM) is found in **Exhibit 34.1**

The 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 in **Exhibit 27.2** of this report. This exhibit shows the 70 dBu contour which serves the community of license, and the overall service provided by the 60 dBu contour of the facility. The plotted contours shown in **Exhibit 27.2** 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 herein.

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.

Discussion of Report (continued)

RADIATION PROTECTION: The Commission requires an engineering study regarding compliance with the guidelines for human protection from radiofrequency 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 §1.1310 of the Commission's rules. ***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 11.5 kW at an HAAT of 149 meters. These distances have been calculated based on the FCC F(50-50) curves.

N. Lat. = 451040.0 W. Lng. = 850557.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC							
WQHN, Northern Christian Radio, BMLED20031205AUX							
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5	70-F5
000	196.9	178.1	11.5000	10.61	1.000	42.47	25.18
045	228.5	146.5	11.5000	10.61	1.000	38.98	23.08
090	228.9	146.1	9.7972	9.91	0.923	37.62	22.21
135	272.2	102.8	2.8064	4.48	0.494	24.18	13.42
180	220.2	154.8	2.9912	4.76	0.510	29.29	17.04
225	237.6	137.4	10.6647	10.28	0.963	37.27	22.03
270	217.2	157.8	11.5000	10.61	1.000	40.33	23.86
315	202.8	172.2	11.5000	10.61	1.000	41.91	24.82

Ave El= 225.52 M HAAT= 149.48 M AMSL= 375 M