

**ENGINEERING REPORT**

**MINOR CHANGE MODIFICATION**

**For**

**WYVN(FM) – Saugatuck, MI**

**Channel 224A - 92.7 MHz**

**File No. BLH-19870715KC**

**February 2002**

COPYRIGHT 2002

***MUNN-REESE, INC.***

Broadcast Engineering Consultants  
Coldwater, MI 49036

# **TABLE OF CONTENTS**

---

Discussion of Report

## **Allotment Requirement**

Exhibit 21.1 - Copy of Existing Antenna Structure Registration

Exhibit 21.2 - Vertical Plan of Antenna System

## **Community Coverage Requirement**

Exhibit 22.1 - Proposed Service Contour Study

Exhibit 22.2 - Tabulation of Population Served

## **Main Studio Location Requirement**

Exhibit 23.1 - Tabulation of Operating Conditions

## **Interference Requirements**

Separation Requirements

Exhibit 24.1 - Tabulation of Commercial Spacings

Contour Protection Requirements

Exhibit 28.1 - WQTX (max facilities) Contour Study

## **RF Radiation Study Requirement**

Exhibit 29 - RF Radiation Worksheet 3

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

**MUNN-REESE, INC.**

Broadcast Engineering Consultants  
Coldwater, MI 49036

# DISCUSSION OF REPORT

---

This firm was retained to prepare the required engineering report in support of a minor change application for WYVN(FM) License No. BLH-19870715KC. The WYVN(FM) license currently authorizes 2.15 kW (H)&(V) ERP at 118 meters HAAT on Channel 224A. WYVN(FM) currently serves Saugatuck, MI. This application seeks to increase power to 3.3 kW (H)&(V) ERP at the present antenna height. WYVN(FM) will continue to serve Saugatuck, MI.

The WYVN site will remain unchanged and will continue to meet all the spacing requirements of 47 C.F.R. §73.207 toward other stations in the allocation with the exception of one facility. A tabulation of the existing and required spacing toward each of the other relevant stations is found in **Exhibit 24.1**. Contour protections as required by §73.215 have been included in **Exhibit 28.1**, towards WQTX - Charlotte, MI. Operating parameters for WQTX have been increased to the maximum allowable Class A facilities to afford maximum protection.

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 as **Exhibit 22.1** of this report. This exhibit shows the 3.16 mV/m contour that serves the community of license, and the overall service that is provided by the 1.0 mV/m contour of the facility. The tabulation of the distances to the respective contours shown in this discussion is based on the use of the standard eight cardinal bearings, which were also used for the computation of the HAAT. However, the plotted contours shown in **Exhibit 22.1** and the contour used as the basis of the population figures shown in **Exhibit 22.2**, are based on the use of a full 360 terrain radials. Computation of HAAT has been manually adjusted for radials extending over Lake Michigan. An error in the current WYVN license was discovered upon calculation of the HAAT. While the current Height Above Average Terrain is listed as 118 meters HAAT, the use of a 3-second terrain database yields a HAAT of 114 meters with allowances for radials extending over water. This application requests a correction of HAAT to reflect this value.

The antenna make and model and placement on the tower will remain unchanged. Overall tower height will remain unchanged, therefore 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.

The FM Broadcast facility proposed in this application is within the controlled and uncontrolled limits as set forth in the RF Exposure Compliance Worksheets, Worksheet #3, issue May 1999. A copy of Worksheet #3 has been included in **Exhibit 29**. The RF radiation will not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified in §1.1310 of the Commission's rules. The facility will be properly marked with signs, and entry will be 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.

## DISCUSSION OF REPORT (continued)

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 3.3 kW at an HAAT of 114 meters. These distances have been calculated based on the FCC F(50-50) curves.

Munn-Reese, Inc. - Coldwater, MI 49036 N. Lat. = 42 41 10 W. Lng. = 86 10 05 HAAT and Distance to Contour - FCC Method - 03 Arc Sec.							
Azi.	AV EL	HAAT	kW	dBk	Field	60 .5	70 .5
000	194.4	116.6	3.3000	5.19	1.000	26.53	14.92
045	206.8	104.2	3.3000	5.19	1.000	25.24	14.07
090	210.9	100.1	3.3000	5.19	1.000	24.76	13.78
135	195.9	115.1	3.3000	5.19	1.000	26.38	14.82
180	196.7	114.3	3.3000	5.19	1.000	26.30	14.77
<b>225*</b>	<b>181.4</b>	<b>129.6</b>	<b>3.3000</b>	<b>5.19</b>	<b>1.000</b>	<b>27.68</b>	<b>15.77</b>
<b>270*</b>	<b>186.5</b>	<b>124.5</b>	<b>3.3000</b>	<b>5.19</b>	<b>1.000</b>	<b>27.24</b>	<b>15.43</b>
<b>315*</b>	<b>200.6</b>	<b>110.4</b>	<b>3.3000</b>	<b>5.19</b>	<b>1.000</b>	<b>25.90</b>	<b>14.50</b>
Ave El= 199.34 M HAAT= 114.36 M AMSL= 311							
<i>*radials have been truncated over Lake Michigan in accordance with §73.313(d)</i>							