

# **ENGINEERING REPORT**

## **FM Translator Minor Change Application**

**For**

**W291BQ – Plymouth, IN**  
File No. BLFT-20070926AJU  
Facility ID No. 147705

May, 2014

COPYRIGHT 2014

**MUNN-REESE, INC.**  
Broadcast Engineering Consultants  
Coldwater, MI 49036

# **Table of Contents**

---

Discussion of Report

**FM Booster/Fill-in Translator Requirements** (See Discussion)

**Interference Requirements**

Exhibit 13.1 - Copy of Topographical Map Showing Proposed Site

Exhibit 13.2 - Vertical Plan of Existing Tower Structure

Exhibit 13.3 - Present vs Proposed Service Contour Study

Exhibit 13.4 - Proposed vs Primary Station Service Contour Study

**Contour Overlap Requirements**

Exhibit 13.5 - Tabulation of Proposed Allocation

Exhibit 13.6 – Detailed Protection Study for WUBU(FM) – South Bend, IN

**TV Channel 6 Protection Requirements** (See Discussion)

**Unattended Operation Requirements** (See Discussion)

**Multiple Translator Requirements** (See Discussion)

**RF Radiation Study Requirement**

Exhibit 17.1 - RF Compliance Study

(Exhibit numbering is in response to FCC Online Form 349, Section III-A)

## **Discussion**

---

This firm has been retained to prepare the required engineering report in support of an Minor Change Application for FM Translator W291BQ – Plymouth, IN, BLFT-20070926AJU (Facility ID No. 147705). W291BQ is licensed on Channel 291D, 106.1 MHz, with an ERP of 0.099 kW at a center of radiation (COR) of 275 meters AMSL. It is proposed to move W291BQ to a new transmitter site, operating on the same channel, with an ERP of 0.25 kW at a COR of 278 meters AMSL. A circularly polarized non-directional antenna will be utilized. The translator will rebroadcast primary station WTCA(AM) – Plymouth, IN, 1050 kHz, (Facility ID No. 13002) as an AM (fill-in) Translator. The translator will continue to serve the community of Plymouth, IN.

The facility will be located on a structure without an Antenna Structure Registration Number. A copy of a topographical map from The National Map program has been included in **Exhibit 13.1**. The vertical antenna system has been plotted in **Exhibit 13.2**. The existing structure does not pass the TOWAIR program and Antenna Structure Registration has been initiated.

It has been determined the translator may be used in the area without interference to any existing FM broadcast station or facility. General allocation details are found in **Exhibit 13.5**. Full protection is afforded all facilities as shown in this exhibit. Detailed protection showings are included as **Exhibit 13.6** for WUBU(FM) – South Bend, IN.

The applicant would like to note the use of the USGS 03 SEC Terrain Database for all allocation, contour and HAAT calculations contained here-in.

The proposed 60 dB $\mu$  contour of the Translator lies wholly inside of the WTCA-AM primary 2 mV/m contour and a 25 mile radius from the WTCA-AM transmitter site. A map of the proposed service contour in relation to the primary station service contour has been included in **Exhibit 13.4**. The Translator will rebroadcast WTCA-AM as a “fill-in” FM Translator.

Regarding protection of international concerns, the facility is within 320 km of the common border between the United States and Canada. However, the proposed 34 dB $\mu$  f(50:10) interference contour does not enter Canadian territory.

The proposed service contour will serve a portion of the present service contour as shown in **Exhibit 13.3**, thus qualifying as a Minor Change Application.

**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).

## Discussion (continued)

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 17.1** 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 following tabulation of the distances to the proposed service contours results from calculations performed in accordance with §73.313(d) and §73.333 Figure 1 utilizing the USGS 03 second terrain database.

N. Lat. = 412030.0    W. Lng. = 861837.0						
HAAT and Distance to Contour,						
FCC, FM 2-10 Mi, 51 pts Method - USGS 03 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	254.8	23.5	0.2500	-6.02	1.000	7.09
030	249.0	29.3	0.2500	-6.02	1.000	7.09
060	244.1	34.2	0.2500	-6.02	1.000	7.51
090	250.7	27.6	0.2500	-6.02	1.000	7.09
120	251.3	27.0	0.2500	-6.02	1.000	7.09
150	255.0	23.3	0.2500	-6.02	1.000	7.09
180	242.7	35.6	0.2500	-6.02	1.000	7.68
210	239.8	38.5	0.2500	-6.02	1.000	7.99
240	234.7	43.6	0.2500	-6.02	1.000	8.57
270	242.5	35.8	0.2500	-6.02	1.000	7.69
300	236.0	42.3	0.2500	-6.02	1.000	8.43
330	241.7	36.6	0.2500	-6.02	1.000	7.78
Ave El= 245.18 M    HAAT= 33.12 M    AMSL= 278.3						