

ENGINEERING REPORT

FM Translator “Long Form” Filing for Original Construction Permit Application

NEW283D – Buhl, MN
File No. BNPFT-20030314CHM
Facility ID No. 138656

Long-Form Filing pursuant to
DA 13-283 (AUC-03-83-D)
“Auction 83 Singleton”

COPYRIGHT 2013

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 Existing Antenna Structure Registration

Exhibit 13.2 - Vertical Plan of Existing Tower Structure

Exhibit 13.3 - Licensed 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

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 a minor Construction Permit “Long Form” Filing for FM Translator Application BNPFT-20030314CHM (Facility ID No. 138656). The Original “Short-Form” Application specified operation on CH283D (104.5 MHz) with 0.250 kW of non-directional power at an antenna COR of 497 meters AMSL. Amended Operating Parameters will be requested in this “Long-Form” Filing. Continued operation on Channel CH283D (104.5 MHz) with a power of 0.027 kW ERP is requested from a new site location. A circularly polarized non-directional antenna will be utilized at the new antenna COR height of 523 meters AMSL. The translator will rebroadcast primary station KDNW(FM) – Duluth, MN, CH247C1 (Facility ID No. 49797) as a regular (non-fill-in) non-commercial FM Translator.

Pursuant to Public Notice DA 13-283 (Report No. AUC-03-83-D) and its Attachment B, this “Long-Form” Filing proposes amended parameters more than 39 km from any Appendix A Market Grid. Therefore, the applicant is not required to submit supplemental LPFM Grid Test Showings. In addition, the amended site does not reside within any “out-of-grid” Top-50 Spectrum Limited Market Boundaries, therefore no supplemental Top-50 Transmitter Site Test Showings are required either.

The facility will be located at the existing tower bearing Antenna Structure Registration Number 1235253. A copy of the existing ASR has been included in **Exhibit 13.1**. The vertical antenna system has been plotted in **Exhibit 13.2**. As this proposal will not increase the overall tower height, it is believed the FAA need not be notified.

It has been determined the translator may be used in the area without given interference to any existing FM broadcast station or facility. General allocation details are found in **Exhibit 13.5**. It is believed sufficient clearance exists precluding the need for additional contour protection showings. The applicant would like to note the use of the Globe Terrain Database for the HAAT calculations contained here-in.

The proposed 60 dB μ contour of the Translator lies wholly outside of the KDNW(FM) primary daytime 60 dB μ contour. 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 KDNW(FM) directly off-air as a non-fill-in FM Translator.

The proposed operating parameters have been changed from the original “Short-Form” values, however the proposed service contour serves a portion of the present service area as seen in **Exhibit 13.3**.

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 FCC's Globe Terrain Database.

Antenna Height Above Average Terrain Calculations – Input	
Latitude	47 30 1.0 North
Longitude	92 52 14.0 West (NAD 27)
Height of antenna radiation center above mean sea level [RCAMSL] = 523.0 meters	
Number of Evenly Spaced Radials = 12	0° is referenced to True North
Results:	
Calculated HAAT= 68. meters (Antenna Height Above Average Terrain) (using 1 km GLOBE terrain data)	
Antenna Radiation Center Heights Above Individual Radials:	
0.0°	70.6 meters
30.0°	63.8 meters
60.0°	43.8 meters
90.0°	52.2 meters
120.0°	85.5 meters
150.0°	91.7 meters
180.0°	87.7 meters
210.0°	66.4 meters
240.0°	30.8 meters
270.0°	64.6 meters
300.0°	77.2 meters
330.0°	76.2 meters