

# **ENGINEERING REPORT**

**FM Translator Minor  
Construction Permit  
Modification**

for

**W218AX – Hazleton, PA  
Frequency Change to CH216D**

File No. BPFT-20070904ACI

November, 2007

COPYRIGHT 2007

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

# **TABLE OF CONTENTS**

---

Discussion of Report

**FM Booster/Fill-in Translator Requirements** (None)

**Interference Requirements**

Exhibit 12.1 - Copy of Existing Antenna Structure Registration

Exhibit 12.2 - Vertical Plan of Antenna System and Support Tower

Exhibit 12.3 - Present vs Proposed Service Contour Study

Exhibit 12.4 - Proposed vs Primary Station Service Contour Study

**Contour Overlap Requirements**

Exhibit 12.5 - Tabulation of Proposed Allocation

Exhibit 12.6 - Contour Protection toward Select Stations

Exhibit 12.7 - Second Adjacent Channel Waiver Request Towards WCIM.A & WCIM.C

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

**Unattended Operation Requirements** (See Discussion)

**Multiple Translator Requirements** (See Discussion)

**RF Radiation Study Requirement** (See Discussion)

(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 change modification for FM translator W218AX, Hazleton, PA, License No. BLFT-19980227TC. W218AX is presently licensed to operate on 91.5 MHz with 3 watts of circularly polarized non-directional power with an antenna COR of 586 meters AMSL. Due to an impending displacement by WCIM.C, W218AX also holds Construction Permit, BPFT-20070904ACI authorizing operation on CH216D, 91.1 MHz with 10 watts ERP at a COR of 607 meters AMSL from a new site location. This proposal will modify operation to CH215D with 2 watts of vertical only polarized power at a COR of 607 meters AMSL from the CP site. The translator will continue to rebroadcast parent station WRGN(FM), Sweet Valley, PA CH201A.

The proposed tower bears Antenna Structure Registration No. 1026748. Overall tower height will not be altered as a result of this proposal, therefore the FAA need not be notified. A copy of the existing ASR has been included in **Exhibit 12.1**. A copy of the vertical antenna system has been included in **Exhibit 12.2**.

It has been determined the translator may be used in the area without interference to any existing FM broadcast station or translator with the exception of WCIM.C and WCIM.A, CH218B1, Shenandoah, PA. Allocation details are found in **Exhibit 12.5**. A waiver request for second adjacent interference towards WCIM.C and WCIM.A showing a lack of population or housing within the interference area has been included in **Exhibit 12.7**. The translator site lies outside of the primary contour of WRGN(FM), and the 1 mV/m (60 dBu) contour extends beyond the WRGN(FM) station 1 mV/m contour. A map of the proposed service area in relation to the primary station service contour has been included in **Exhibit 12.4**.

Regarding protection of Canadian concerns, the present facility is and will remain within 320 km of the common border between the United States and Canada. No Canadian allotment nor Canadian facility has been noted in the proposed allocation.

The proposed operation offers full protection to all Channel 6 TV facilities as noted in **Exhibit 12.5**.

The proposed operating parameters have been changed from the licensed values, however the proposed service contour serves a portion of the present service area as seen in **Exhibit 12.3**.

The translator will employ a one bay vertically polarized Scala FMV antenna. As stated before, the antenna will be mounted on an existing tower, therefore the FAA need not be notified.

The proposed facility meets the requirements of the Rules for operation without a licensed operator in attendance. The transmitter site may be reached promptly at all hours and in all seasons. The transmitter will be equipped with proper control and interface circuits which will place the translator in a non-radiating condition in the event the proper incoming signal is absent. The transmitter and controls will be placed in a locked area to prevent unauthorized tampering with the equipment. A person or persons will be assigned to observe the signals of the station each day, and to take corrective action if required. The equipment proposed for operation is listed in the type-approved list of the Commission.

## Discussion (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 facility proposed in this application is in compliance with the provisions of the FCC Rules and Guidelines concerning human exposure to radiofrequency radiation to observers located on the ground. Since the facility will operate with an ERP of less than 100 watts, §1.1307(b)(1) categorically exempts the facility from the requirement for special showings.

***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.

N. Lat. = 405810.0    W. Lng. = 755710.0						
HAAT and Distance to Contour - FCC Method - NGDC 30 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	417.1	189.9	0.0007	-31.54	0.592	3.76
030	504.4	102.6	0.0006	-32.34	0.540	2.76
060	463.5	143.5	0.0006	-32.42	0.535	3.13
090	434.7	172.3	0.0006	-31.93	0.566	3.52
120	448.6	158.4	0.0009	-30.35	0.679	3.79
150	426.1	180.9	0.0014	-28.45	0.845	4.60
180	450.8	156.2	0.0018	-27.38	0.956	4.62
210	509.8	97.2	0.0020	-27.03	0.995	3.76
240	521.0	86.0	0.0020	-27.00	0.999	3.54
270	445.5	161.5	0.0019	-27.21	0.975	4.75
300	369.6	237.4	0.0016	-27.98	0.892	5.32
330	366.1	240.9	0.0011	-29.66	0.735	4.72
Ave El= 446.44 M    HAAT= 160.56 M    AMSL= 607.0						