

# **ENGINEERING REPORT**

## **FM Translator Construction Permit Modification Application**

**W288CU.C – Portland, ME**  
File No. BNPFT-20130809AAA  
Facility ID No. 150422

“Increase in Power”

December, 2013

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

## **Discussion**

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This firm has been retained to prepare the required engineering report in support of a Construction Permit Modification Application for W288CU.C – Portland, ME Construction Permit BNPFT-20130809AAA (Facility ID No. 150422). W288CU.C is presently authorized to operate on CH288D (105.5 MHz) with 0.019 kW of non-directional power at an antenna COR of 111 meters AMSL. A power increase will be requested in this Form 349 Filing. Continued operation on Channel CH288D (105.5 MHz) with a power of 0.200 kW ERP is requested from the same site location. A circularly polarized non-directional antenna will be utilized at the same antenna COR height of 111 meters AMSL. The translator will continue to rebroadcast primary station WMGX(FM) – Portland, ME, CH226B-HD3 (Facility ID No. 58548) as an FM HD3 Fill-In Translator.

The facility will be located on an existing tower which bears Antenna Structure Registration Number 1219887. A copy of ASR #1219887 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 interference to any existing FM broadcast station or facility with the exception of WBCI(FM) – Bath, ME (CH290B). General allocation details are found in **Exhibit 13.5**. A §74.1204(d) Second Adjacent Channel Given Interference Waiver is requested toward WBCI(FM) as included in **Exhibit(s) 13.7a&b**. Full protection will be afforded WBCI(FM) as the calculated interference area beyond 145 meters will not reach the ground nor a two meter artificial plane representing a standard human at ground level when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. The portion of the §74.1204(d) WBCI(FM) protection within 145 meters of the site is currently void of population, buildings (with the exception of the dedicated transmitter building) or major roads as noted in **Exhibit 13.7b**. There is one (1) facility, existing or proposed, close enough to merit further study. Therefore supplemental contour protection studies have been provided toward co-channel protection W288CW.C – Lewiston, ME (BNPFT-20130814ADL) as included in **Exhibit 13.6**. It is believed sufficient clearance exists precluding the need for additional contour protection showings.

The applicant would like to note the use of the NGDC 30 second terrain database for all allocation, contour and HAAT calculations contained here-in.

The proposed 54 dB $\mu$  contour of the Translator lies wholly inside of the WMGX(FM) Class B primary 54 dB $\mu$  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 WMGX(FM) as an FM HD3 Fill-In Translator.

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

## 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 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 NGDC 30 second terrain database.

N. Lat. = 434126.0    W. Lng. = 701905.0						
HAAT and Distance to Contour,						
FCC, FM 2-10 Mi, 51 pts Method - NGDC 30 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	68.0	43.0	0.2000	-6.99	1.000	8.00
030	30.0	81.0	0.2000	-6.99	1.000	11.04
060	11.9	99.1	0.2000	-6.99	1.000	12.13
090	3.9	107.1	0.2000	-6.99	1.000	12.60
<b>120</b>	<b>0.0</b>	<b>111.0</b>	<b>0.2000</b>	<b>-6.99</b>	<b>1.000</b>	<b>12.81</b>
150	11.0	100.0	0.2000	-6.99	1.000	12.19
180	14.9	96.1	0.2000	-6.99	1.000	11.96
210	28.0	83.0	0.2000	-6.99	1.000	11.16
240	34.2	76.8	0.2000	-6.99	1.000	10.77
270	52.3	58.7	0.2000	-6.99	1.000	9.52
300	50.4	60.6	0.2000	-6.99	1.000	9.67
330	67.5	43.5	0.2000	-6.99	1.000	8.05