

ENGINEERING REPORT
FM Translator Minor
Modification to Construction
Permit Application

for

W292DO.C – Grand Rapids, MI
(Facility ID: 145316)

Construction Permit :
BPFT-20160729AMK

as an AM Fill-In Translator for
WPRR(AM) - Ada, MI

Change to AMSL and ERP

December 2016

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(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 Modification of a Construction Permit Application for FM Translator W292DO – Grand Rapids, MI (Facility ID: 145316). Operation on CH273D (102.5 MHz) with 0.250 kW ERP (H&V) at 297 meters AMSL is granted under Construction Permit BPFT-20160729AMK and serves the community of Grand Rapids, MI. This Translator proposal requests a new AMSL of 316 meters AMSL from 297 meters AMSL and a new ERP of 0.155 kW (H&V) from 0.250 kW (H&V). The Fill-In Translator will rebroadcast Class B AM Primary Station WPRR(AM) - Ada, MI (1680 kHz); Facility ID No. 87106.

The Translator as proposed will continue to be mounted on the existing tower bearing Antenna Structure Registration Number 1063467 as granted in Construction Permit BPFT-20160729AMK (with the only changes being to AMSL and ERP). A copy of the existing ASR has been included in **Exhibit 13.1**. The vertical antenna system has been included 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 WFUR-FM. General allocation details are found in **Exhibit 13.5**. The applicant would like to note the existence of a §74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward WFUR-FM - Grand Rapids, MI (CH275B) as noted in **Exhibit 13.7**. Protection has been based on the worst case calculated 132.2 dB μ F(50:10) Interference Contour, corresponding to the worst case 92.2 dB μ F(50:50) Protected Contour. Protection has been demonstrated through a downward vertical radiation study. Full protection will be afforded the facility as the interference area will not reach the ground nor a seven meter artificial plane representing a standard two story home when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer specifications has also been included in **Exhibit 13.8**. There are facilities, existing or proposed, close enough to merit further study. Therefore supplemental contour protection studies have been included for each as noted in **Exhibit(s) 13.6(a-b)**. It is believed sufficient clearance exists precluding the need for additional contour protection showings. As the proposed and granted translator are located on the same tower, contour overlap of both contours is implied.

The applicant would like to note use of the USGS 03 second terrain database for all allocation, contour and HAAT showings contained here-in.

The proposed 60 dB μ contour of the Fill-In Translator lies wholly inside of the AM primary daytime 2.0 mV/m contour and a 25 mile radius around the AM site. A map of the proposed service area in relation to the primary station service contour has been included in **Exhibit 13.4**. In addition, this exhibit also demonstrates the physical relocation of the Translator is less than 250 miles (402.3 km) in accordance with the Commission's Policy concerning this "250 Mile Window Application" under the granted construction permit BPFT-20160729AMK.

Regarding protection of international concerns, the facility is and will remain within 320 km of the common border between the United States and Canada. The applicant certifies the proposed Translator 34 dB μ F(50:10) interference contour does not enter Canadian territory. Documentation of the proposed 34 dB μ F(50:10) interference contour will be supplied upon request.

Discussion (continued)

The proposed operating parameters have been changed from the present values. A map of the proposed service contour has been included 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).

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.

N. Lat. = 430158.0 W. Lng. = 854147.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - USGS 03 SEC						
W292DO.C, ,						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	238.3	77.7	0.1550	-8.10	1.000	10.18
030	230.4	85.6	0.1550	-8.10	1.000	10.65
060	219.0	97.0	0.1550	-8.10	1.000	11.30
090	227.8	88.2	0.1550	-8.10	1.000	10.81
120	229.2	86.8	0.1550	-8.10	1.000	10.72
150	216.7	99.3	0.1550	-8.10	1.000	11.43
180	196.6	119.4	0.1550	-8.10	1.000	12.46
210	213.1	102.9	0.1550	-8.10	1.000	11.62
240	218.1	97.9	0.1550	-8.10	1.000	11.35
270	217.3	98.7	0.0388	-14.12	0.500	8.07
300	236.3	79.7	0.0075	-21.25	0.220	4.83
330	259.1	56.9	0.0248	-16.06	0.400	5.52

Ave El= 225.17 M HAAT= 90.83 M AMSL= 316 M