

ENGINEERING REPORT

FM Translator Construction Permit Application

W254BF – Ithaca, NY
File No. BMLFT-20100304AAN
Facility ID No. 25008

April, 2014

COPYRIGHT 2014

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

Exhibit 13.6 - Contour Protection Studies Toward WNYR-FM – Waterloo, NY

Exhibit 13.7 - §74.1204(d) Given Interference Waiver Request toward WHWK(FM) & WAAL(FM)

Exhibit 13.8 - Manufacturer's Vertical Radiation Pattern Data

Exhibit 13.9 - Manufacturer's Directional Antenna Pattern Data

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 Application for FM Translator W254BF – Ithaca, NY, License No. BMLFT-20100304AAN (Facility ID No. 25008). W254BF is licensed to operate on CH254D (98.7 MHz) with 0.035 kW of circularly polarized (H&V) directional power at an antenna COR of 529 meters AMSL. Modified operating parameters will be requested in this minor Form 349 Filing. Continued operation on Channel CH254D (98.7 MHz) with a power of 0.054 watts ERP is requested from an adjacent tower location. A new circularly polarized directional antenna (Scala CL-FM(Slant-45)) will be utilized. The new antenna COR will remain 529 meters AMSL. The translator will rebroadcast primary station WYXL(FM)-HD3 – Ithaca, NY, CH247B (Facility ID No. 18051) as a Fill-In FM Translator.

The facility will be located at the existing tower bearing Antenna Structure Registration Number 1048243. 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 interference to any existing FM broadcast station or facility with the exception of WHWK(FM) – Binghamton, NY (CH251B) and WAAL(FM) – Binghamton, NY (CH256B). General allocation details are found in **Exhibit 13.5**. Multiple §74.1204(d) Second and Third Adjacent Channel Given Interference Waivers are requested toward WHWK(FM) and WAAL(FM) as included in **Exhibit 13.7**. Full protection will be afforded each facility as the calculated interference area will not reach the ground nor a 7 meter artificial plane representing a standard two story building when taking into account the downward radiation characteristics of the antenna as supplied by the antenna manufacturer. A copy of the antenna manufacturer's antenna specifications has been included in **Exhibit 13.8**. There is one facility, existing or proposed, close enough to merit further study. Therefore supplemental contour studies toward WNYR-FM – Waterloo, NY (CH253A) have been 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 use of the NED 03 second terrain database for all allocation, contour and HAAT showings contained here-in.

The proposed 54 dB μ contour of the Fill-In Translator lies wholly inside of the WYXL(FM) primary 54 dB μ contour. A map of the proposed service area in relation to the primary station service contour has been included in **Exhibit 13.4**.

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 licensed 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).

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 §1.1310 of the Commission's rules. **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 NED 03 second terrain database.

N. Lat. = 422331.0 W. Lng. = 762830.0 HAAT and Distance to Contour, FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	291.1	237.9	0.1049	-9.79	0.916	16.09
030	330.2	198.8	0.0370	-14.32	0.544	11.41
060	439.2	89.8	0.0003	-35.05	0.050	2.21
090	352.3	176.7	0.0001	-39.49	0.030	1.95
120	454.7	74.3	0.0001	-38.40	0.034	1.66
150	417.9	111.1	0.0002	-36.99	0.040	2.09
180	420.4	108.6	0.0002	-36.99	0.040	2.08
210	434.5	94.5	0.0001	-39.49	0.030	1.65
240	411.5	117.5	0.0001	-39.49	0.030	1.76
270	360.7	168.3	0.0045	-23.46	0.190	6.14
300	335.5	193.5	0.0595	-12.25	0.690	12.61
330	216.8	312.2	0.1201	-9.21	0.980	19.25

Ave El= 372.08 M HAAT= 156.92 M AMSL= 529.0