

**ENGINEERING REPORT**

FCC Form 349

Minor Modification to FM Fill-In  
Translator Construction Permit

**BNPFT-20030828AUD**

**W251AO – Black Mountain, NC**

Change in Site Location

(As Amended)

**October, 2005**

COPYRIGHT 2005

# **TABLE OF CONTENTS**

---

Discussion of Report (As Amended)

**FM Booster/Fill-in Translator Requirements** (See Exhibit 12.4)

**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 (As Amended)

Exhibit 12.4 - Proposed vs Primary Station Service Contour Study (As Amended)

**Contour Overlap Requirements**

Exhibit 12.5 - Tabulation of Proposed Allocation (As Amended)

Exhibit 12.6 - Contour Protections towards Select Stations (As Amended)

**TV Channel 6 Protection Requirements** (none)

**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 (As Amended)**

---

This firm has been retained to prepare the required engineering report in support of a minor modification to currently authorized FM Fill-In Translator Construction Permit BNPFT-20030828AUD for W251AO, Black Mountain, NC. The Fill-In Translator rebroadcasts parent station WOXL-FM, Biltmore Forest, NC, 96.5 MHz. The proposed Fill-In Translator will continue to operate on Channel 251D with 30 watts at a max HAAT of 657 meters.

It has been determined the Fill-In Translator may be used in the area without interference to any existing FM broadcast station or translator. Allocation details are found in **Exhibit 12.5**. Contour protection maps have been supplied towards select stations in **Exhibit 12.6**. It is believed sufficient clearance exists with all other facilities to preclude the submittal of showings, however additional contour protection showings will be supplied upon request. The Fill-In Translator site is inside of the primary contour, and the 1 mV/m (60 dBu) contour is totally within the primary 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**.

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

The proposed Fill-In Translator is not located within 320 kilometers of the border between the United States of America and Canada or Mexico.

The Fill-In Translator will employ a stock one bay circularly polarized Scala HDCA-5-CP antenna. The antenna will be oriented at 47.0°T on existing Antenna Structure Registration Tower Number 1015320. The antenna will not increase the overall height, therefore the FAA need not be notified. A copy of the existing ASR has been included in **Exhibit 12.1**.

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)

Prompt suspension of the translator operation will be made, in the event of equipment failure that could cause operation outside the specifications of the Rules. The data contained in this report is responsive to the Rules of the Commission, and provides information for FCC Form 349.

**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. = 35 34 04    W. Lng. = 82 23 02 HAAT and Distance to Contour - FCC Method - 30 Arc Sec.						
Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	1178.1	167.9	0.0053	-22.76	0.420	6.40
030	967.3	378.7	0.0243	-16.15	0.900	14.10
060	807.7	538.3	0.0264	-15.79	0.938	17.21
090	838.2	507.8	0.0074	-21.32	0.496	11.58
120	784.7	561.3	0.0006	-32.37	0.139	4.69
150	839.1	506.9	0.0004	-34.48	0.109	3.76
180	826.6	519.4	0.0001	-40.30	0.056	2.05
210	689.5	656.5	0.0006	-32.51	0.137	4.73
240	801.3	544.7	0.0006	-32.29	0.140	4.71
270	746.8	599.2	0.0002	-37.82	0.074	2.70
300	736.5	609.5	0.0002	-37.06	0.081	2.92
330	853.5	492.5	0.0006	-32.30	0.140	4.65
Ave El= 839.12 M    HAAT= 506.88 M    AMSL= 1346						