

MULLANEY ENGINEERING, INC.

9049 SHADY GROVE COURT
GAITHERSBURG, MD 20877

ENGINEERING EXHIBIT EE:

**BROADCAST COMMUNICATIONS, INC.
WAYNESBURG, PENNSYLVANIA
CH 286D - FM TRANSLATOR**

AUGUST 26, 2003

**ENGINEERING STATEMENT IN SUPPORT OF
AN APPLICATION FOR A
NEW FM TRANSLATOR STATION
LONG FORM APPLICATION**

TRANSLATOR FACILITY ID: 156102
WINDOW FILE NO. BNPFT-20030317MDQ

INDEPENDENTLY OWNED

Primary Station: WRIJ(FM) - Facility ID: 26522

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TABLE OF CONTENTS:

1. F.C.C. Form 349.
2. Declaration of Engineer
3. Narrative Statement
4. Figure 1, Channel Study.
5. Figure 2, Channel Allocation Map.
6. Figure 3, 60 dBu Comparison Map.

Declaration

I, John J. Mullaney, declare and state that I am a graduate electrical engineer with a B.E.E.E. and my qualifications are known to the Federal Communications Commission, and that I am an principal engineer in the firm of Mullaney Engineering, Inc., and that I have provided engineering services in the area of telecommunications since 1977. My qualifications as an expert in radio engineering are a matter of record with the Federal Communications Commission.

The firm of Mullaney Engineering, Inc., has been requested by Broadcast Communications, Inc., to prepare the instant engineering exhibit in support of an application for Construction Permit for a new FM Translator facility to be rebroadcast an independently owned facility WRIJ(FM) at Masontown, PA (FCC Facility ID Number: 26522).

All facts contained herein are true of my own knowledge except where stated to be on information or belief, and as to those facts, I believe them to be true. I declare under penalty of perjury that the foregoing is true and correct.

/s/ John J. Mullaney

John J. Mullaney, Consulting Engineer

Executed on the 26th day of August 2003.

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WAYNESBURG, PENNSYLVANIA
CH 286D - FM TRANSLATOR**

NARRATIVE STATEMENT:

I. General:

This engineering statement has been prepared on behalf of Broadcast Communications, Inc. The purpose of this statement is to request a Construction Permit to build a new FM Translator facility on Channel 286D to serve Waynesburg, Pennsylvania, which will operate with an ERP of 0.01 KW and an average HAAT of 72 Meters (Facility ID: 156102). The Translator will rebroadcast **independently owned** facility WRIJ(FM) which operates on Ch. 295A at Masontown, PA. This application was originally submitted during the March 2003 filing window and was subsequently determined not to be mutually exclusive with any other simultaneously application.

The application is not a major environmental action, as defined by Section 1.1307 of the Commission's Rules. The proposed facility is in full compliance with both the "controlled" & "un-controlled" FCC Radiation Guidelines.

Answers to questions contained in F.C.C. Form 349 are incorporated in the following paragraphs and figures.

II. Engineering Discussion:

A. Proposed Location:

The applicant proposes to locate on the existing tower site of WANB-AM/FM located southeast of Waynesburg, PA. The ASR is 1037803.

The Regional Office of the FAA was not notified of this proposal since an existing structure with no change in overall height.

B. Antenna System and Tower:

A circularly polarized FM antenna will be pole mounted on the roof of an existing building. The antenna is a ERI LP-1E. The antenna will be mounted with a center of radiation of 70 meters AGL or 529 meters AMSL.

C. Effective Radiated Power:

Giving consideration for the maximum antenna gain, transmitter power and line loss, the maximum Effective Radiated Power is 0.01 KW-DA for the Horizontal & Vertical Components.

A FM translator station is restricted to a maximum of 0.25 KW (ERP) up to a maximum Height Above Average Terrain (HAAT) of 32 Meters (East of Mississippi River). This proposal will operate with an HAAT that exceeds the maximum and consequently must reduce its ERP to a maximum value of 0.01 kW (per Section 74.1235).

D. Channel Allocation:

Figure 1 is a translator channel study using the site proposed herein. Stations which have a "<" marked along the right hand side of the printout have possible overlap of contours. **Figure 2** is a map which shows the interfering contours of the translator and protected contour of the translators and other stations entitled to protection. It should be remembered that the translator is permitted to receive overlap but must not cause overlap on land. As can be seen, the proposed translator operation complies the protection criteria by not causing any overlap on land.

E. Licensed vs: Translator Coverage:

Figure 3 is a map of the translator coverage proposed herein and the licensed coverage of WRIJ(FM). As can be seen, the translator coverage is **only partially within** the licensed coverage of its primary facility. Reception will be achieved from the main frequency of the primary facility

F. Terrain Profile Data & Coverage:

Terrain profile data was extracted from the NGDC 30 Second Digitized Terrain Data Base provided out of Boulder, Colorado. At least seventy-two bearings (every 5 degrees) were used to obtain the proposed coverage data. The standard twelve bearings (every 30 degrees) were used to obtain the proposed HAAT.

The predicted service contours, as shown in **Figure 2** of the attached report, were computed using a mathematical model adapted for computer use of data shown in Figure 1 of Section 73.333. This is the Commission's computer program TV FM FS REPORT RS-76-01, dated January 1976.

G. Other Services in Area:

This is the existing AM site of WANB 1580 kHz. There are no other known AM Broadcast Stations within 3.2 kilometers of the proposed site. Besides what exists at this commonly owned site, there are no known transmission facilities within 60 meters (197 feet) of the proposed antenna.

There are other known FM or TV transmitters within 10 kilometers (6.2 miles) of the proposed site, however, based upon the type of transmitter proposed, and the frequency & power involved no intermodulation interference problems with existing transmitting facilities is expected. In the unlikely event some problems would occur, the applicant will investigate and correct such cases in accordance with the Commission's Rules.

H. Environmental Assessment Statement:

The applicant believes its proposal will not significantly affect the environment since it does not meet any of the criteria specified in Section 1.1307 of the rules. Since an existing site will be used with no significant change in overall height the only remaining environmental issue is R.F. Exposure. Specifically the proposed facility:

1. Will NOT involve the exposure of workers or the general public to levels of Radio Frequency radiation in excess of the guidelines recommended by the FCC - OET Bulletin 65 (August 25, 1997).

The following is a more detailed discussion of this protection standard:

A. National Environmental Policy Act of 1969:

In 1969, Congress enacted the National Environmental Policy Act (NEPA), which requires the FCC to evaluate the potential environmental significance of the facilities it regulates and authorizes. Human exposure to Radio Frequency (RF) radiation had been identified as an issue that the FCC must consider.

Beginning with the filing of applications after January 1, 1986, broadcast stations were required to “certify compliance” with FCC prescribed guidelines on human exposure to RF radiation. The FCC standard was based upon the American National Standards Institute’s (ANSI) RF radiation protection guides (ANSI C95.1-1982). These exposure limits are expressed in terms of milli-watts per square centimeter.

In October 1997, the FCC implemented a two tier evaluation criteria utilizing recommendations of the National Council on Radiation Protection and Measurement (NCRP). The “controlled” tier involves areas which have restricted access while the “un-controlled” tier involves areas which have unrestricted access. The Maximum Permissible Exposure (MPE) limits for “controlled” areas are the same as adopted in 1985, while the “un-controlled” limits for FM and TV frequencies are one-fifth or 20% of the limits for “controlled” areas.

These exposure limits are time-averaged over any six minute period and vary depending upon the frequency involved. The following are the Maximum Permissible Exposure (MPE) limits for “controlled” areas:

Frequency Range (MHz)	Power Density (mW/sq.cm)
*****	*****
0.3 to 3	100 AM
3 to 30	900/(Freq ²)
30 to 300	1.0 VHF TV & FM
300 to 1,500	Freq/300 UHF TV
1500 to 100,000	5.0

The applicant recognizes that compliance with the above criteria at sites involving multiple AM, FM and/or TV facilities is based upon the contributions of all such facilities. At the site discussed in this application, **the only significant facility** that will exist is the existing operation of WANB-FM. The operation of the proposed FM translator facility is not significant and is categorically excluded.

FM Broadcast Stations

For FM Broadcast Stations the following formula is used:

$$D = \frac{\text{SQRT}(F^2 * [HERP + VERP])}{1.667 * \text{SQRT}(PD) * 3.2808}$$

Where:

- D = the closest distance in meters that a human should come to an operating antenna (To obtain feet multiply by 3.2808)
- F = typical relative field factor in downward direction (F=1 is worst case main lobe)
- HERP = Horizontal ERP in watts (above a dipole)
- VERP = Vertical ERP in watts (above a dipole)
- PD = highest Power Density in milli-watts/cm²
- SQRT = Square Root
- Freq = Frequency in mega-cycles/sec. (MHz)

The vertical radiation pattern of the FM antenna specified in this application is narrow and, therefore, the power density as seen by an observer on the ground near the base of the tower will be less than 20 percent of the total ERP.

The application of the above equation (assuming absolute maximum ERP of 0.25 kW) and an “un-controlled” Power Density of 0.2 milli-watts results in a minimum distance of 9.2 meters (30 feet) from the antenna assuming dual polarization operation and 6.5 meters (22 feet) assuming a single polarization operation. Based upon the proposed mounting at a height in excess of 65 meters, it is evident that no hazard at 2 meters above ground level will exist. The area is posted with appropriate warning signs and is fenced off to members of the general public.

Workers employed to climb the tower or work in a potential overexposure location will not be permitted to enter the work area until cleared by the station manager or other responsible person. Appropriate warning signs will be posted to ensure safety. In addition, the applicant will establish and enforce work rules and safety procedures applicable in a potential over-exposure area. The rules will establish how close a worker can get to the antenna when it is operating at normal power and specify the power reduction required in order to make other locations safe. It is recognized that maintenance or installation work on or near the antenna may require the station to completely shutdown. All employees, contract and other persons having access to areas of potential exposure will be required to sign a site management guide indicating they are aware of and will comply with all safety rules. In the instance of a multiple use site, a single site access policy incorporating the above philosophy will be established. All procedures will be reviewed & updated as necessary.

III. SUMMARY:

Broadcast Communications, Inc., proposes to construct a new FM Translator facility on Channel 286D to serve Waynesburg, Pennsylvania and rebroadcast an independently owned facility WRIJ(FM). This engineering proposal is in full compliance with the Commission's Rules.

/s/ John J. Mullaney

John J. Mullaney, Consulting Engineer

August 26, 2003.