

**TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF LICENSE
FM TRANSLATOR STATION W292DV
NEW YORK, NEW YORK
Technical Statement**

This Technical Exhibit was prepared on behalf of FM translator station W292DV, Long Island City, New York, in support of an application for modification of license. The instant application proposes a change in transmitter location and proposed facilities.

Fill-In Translator Compliance

Figure 1 demonstrates that the FM translator's 60 dBu contour does not extend beyond the 60 dBu contour of primary station WVIP(FM) on channel 228A at New Rochelle, New York.

Minor Change Application

Processing with a waiver of 74.1233(a)(1) as afforded "Cromwell" in DA 11-1495 is requested. The proposed facilities are mutually exclusive with the existing facilities, as demonstrated by the overlap of the 40 dBu F.1 and the 60 dBu F.5 contours as shown in Figure 2.

Predicted Coverage Contours

The predicted coverage contours shown herein were calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km from the proposed site were computed using the U.S.G.S. 30-second terrain database. The distances to the predicted coverage contours were determined using the average elevations of radials spaced every

1-degrees of azimuth. The antenna radiation center height above average terrain and the ERP in each radial direction were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to the contour.

Allocation Considerations

Figure 3 summarizes the allocation study for the proposed facility. It is noted that the IF related separation requirements are not applicable to the proposal pursuant to Section 74.1204(g) of the FCC Rules as the ERP will be less than 100 Watts. The tabulation at Figure 3 lists the results of a numerical analysis of the potential for contour overlap for all nearby co-channel and first-, second-, and third-adjacent-channel facilities. For the purposes of the numerical study, the maximum HAAT and maximum ERP values were used in determining the maximum distance in any direction to the predicted coverage and interfering contours.

Below as Figure 3 is a spacing study from which it can be determined that this proposal is within the protected contour of station WLTW-FM and is within the protected contour of both the licensed and applied for facilities of WQXR-FM. Section 74.1204(d) states that "The provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable."

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We will demonstrate that a lack of population and/ or other factors allow this proposal to be compliant with 74.1204. The process commonly called “Living Way”, as recently described in FCC 08-242 in connection with BPFT-19981001TA, allows for the use of U/D Analysis, also known as “signal strength ratio methodology” to be utilized. In this instant case the facilities of WLTW and WQXR are 2nd adjacent and are to be afforded protection from signals 40 dB stronger.

Figure 4 is a map showing the predicted signal contours of WLTW and WQXR at the proposed transmitter location utilizing the FCC F50:50 curve. WLTW is predicted to present 76.3dBu F50:50signal at the translator tower location, and WQXR licensed facilities, is predicted to produce 66.5dBu at the translator tower. Figure 4a is an image of the antenna location over which a contour of 106.5dBu, 40 dB greater than WQXR signal of 66.5dBu, has been projected. The projection does not take into account the vertical plane radiation pattern of the translator antenna and can be thought to exist only in the same plane as the radiating antenna. Figure 4b is a plot provided by the antenna manufacturer which was used to develop the table in Figure 5.

Figure 5 depicts the predicted signal strength from the translator both at ground level, and at receiving antenna locations up to 91 meters above ground level of the translator, the 91 meter data is identified in the table as the “artificial plane”, and as can be determined by the columns colored green, at no location from

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ground level to 91 meters above ground does the predicted signal exceed that of 40 dB greater than WQXR.

A careful examination of the area inside the contour depicted in Figure 4a has found 1 structure which has habitable space at 91 meters above ground. The building North Shore Towers 3, which one is located to the south east of the translator. This building has occupancy at 91 meters above ground level. At a maximum reported height of 367 Ft. (112 m) the building penetrates well into the spherical area predicted to receive a signal greater than 106.5 dBu from the translator. However, at heights greater than 30 Ft. (9.1 m) the predicted 66.5 dBu receive signal of WQXR is no longer valid as the F50:50 tables used to predict the 66.5 dBu signal assumes a receive antenna height of only 30 Ft. above ground¹. The habitable locations 91 meters and higher will receive a stronger signal from WQXR than is predicted by the F50:50 curves. As receive height is increased the impacts of terrain and obstacles becomes less and the propagation path becomes increasingly a pure "Line of Sight" or "Free Space" described path. In Figure 6 a path profile is presented from the WQXR transmitter site to the other buildings with terrain, field strength, 0.6 Fresnel zone, and line of sight path presented.

To more accurately predict the signal from WQXR that would be presented to receivers located 91 m and more above ground at the North Shore Towers, a propagation model that takes receive antenna height into consideration is

¹ Repot No. R-6602; Development of VHF and UHF Propagation Curves for TV and FM Broadcasting" September 7, 1966

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required. The FCC has been known to accept four propagation models, the F50:50 curves, free space, Point to Point, and Longley- Rice. Only Point to Point and Longley-Rice take a variable for the receive antenna height into consideration in calculating signal strength. It is worth noting that the free space formula is not considerate to receive height and might be applicable in cases involving path profiles demonstrated free of external attenuations of ground cover and terrain along the path.

The Longley Rice propagation model as implemented in the computer program “ComStudy” has been utilized to calculate the signal received at the North Shore Towers for an antenna located at the height of 91.4 meters, the result of this calculation is presented in a table as Figure 7, with individual calculation given in Figure 8. The geographic location used in the calculation is the corner of the North Shore Tower 3. Those data refine what is observable in the profile path in Figure 6, that a “free space” propagation pathway exists and that it is free of any intervening terrain or other attenuations, and that a 73.0 dBu signal from WQXR should be expected.

The value to be protected from a 40 dB greater translator signal is 113.0 dBu. Figure 9 is a profile between the translator location and the location of the North Shore Tower 3; it indicates the distance between those locations to be 108.0 m and there is no material change in elevation between those locations.

Utilizing the line of sight equation “ $=106.92-(20*(\text{LOG}_{10}[\text{Dist Meters}/1000]))+[ERP \text{ in dBk}]$ ” which was used to develop the table in Figure 5, it

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has been determined that a 113.0dBu signal is developed by 10 watts, as proposed, isotropic emitter extends only out to a distance of 59 m. as this is 49m short of the other North Shore Towers 3, the provisions of the rules section concerning prohibited overlap will not apply as it has been demonstrated that no actual interference will occur due to a lack of population and other factors as applied in this instant proposal.

The proposed facility will not preclude a LPFM facility.

The present facility is located in the same Arbitron market as the proposed facility.

A waiver of Section 74.1204 of the FCC Rules is requested to the extent

Environmental Considerations

The Proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation."

In accordance with 47 C.F.R. 1.1307(b)(1) Table 1, only "Part 74 – Subpart L" facilities with an ERP greater than 100 watts, are subject to routine environmental evaluation. Since the facility proposed in this application will operate with an ERP of less than 100 watts, it is "categorically excluded " The licensee will fully cooperate with other site users to temporarily reduce power or cease broadcasting, as necessary, to protect workers and others having access to the site from excessive levels of RF Radiation.

