

WTVJ Application for CP for Minor Modification of Licensed Facility

April 11, 2022

Engineering Exhibit

The purpose of this application is to request modification of the main license (file number BLCDD-20030707ABG) for WTVJ, Miami, FL, Facility ID 63154, licensed to NBC Telemundo License LLC.

This application proposes replacing the existing non-directional antenna with a new directional antenna with less electrical beam tilt and adding a vertically polarized component at an ERP of 521.3 kW. Horizontally polarized ERP is unchanged at 1,000 kW. The proposed antenna center of radiation is slightly reduced, to 312.22 meters AMSL with a height above average terrain (HAAT) of 310.5 meters.

A TVStudy 2.2.5 analysis of the proposed facility using the default 2 km cell size and 1 km terrain profile spacing showed no increase in interference created to any application or authorized facility in the LMS database dated April 11, 2022.

Antenna System

The proposed facility uses a TFU-18ETT/VP-R 4C140 top mounted slot antenna with 0.5 degrees electrical beam tilt. The main beam axis of symmetry is 292 degrees.

Tabular and plotted antenna data is attached. The antenna will be elliptically polarized. As shown in the main beam azimuth plots in the attached 73.625(c) data, the vertically polarized effective radiated power does not exceed the horizontally polarized effective radiated power in any direction.

In the "Antenna Technical Data" section the question "Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?" is checked "Yes" solely to allow upload of elevation pattern data and not because of a variation in elevation pattern.

Environmental Statement

The requested facility will replace an existing antenna on an existing tower at a site shared by other broadcasters. No new tower construction or increase in height is required for this application.

RF power density from the facility using a combined horizontal and vertically polarized ERP of 1,521.3 kW was calculated using the procedures described in FCC Office of Engineering and Technology Bulletin 65. The maximum calculated RF power density on the ground from the proposed facility, in any location around the tower, after including an additional 2 meters for the height of a person and an additional 61 meters to allow for surrounding neighborhood building roof tops is 0.002576 mW/cm² or 0.67% of the public exposure limit for an uncontrolled environment as specified in FCC rule §1.1310 for WTVJ's frequency of 575 Mhz. The tower itself is protected by fence and gate and is not accessible to the general public.

RF exposure in the main beam of the antenna is calculated to drop below the maximum permissible occupational limit for a controlled environment at horizontal distances greater than 163 meters from the tower and below 5% of the public exposure limit at distances greater than 1,641 meters from the tower. The tower is shared with other facilities and power will be reduced or shut off as required to protect workers on this tower from RF exposure above the limits specified in FCC rule §1.1310. There are no structures other than two broadcast/wireless towers above 61 meters in height within 1,641 meters of the tower. These towers are greater than 1,000 meters from the WTVJ and the maximum calculated main beam RF power density on those towers is less than 0.05083 mW/cm² (assuming maximum ERP) or 2.65% of the controlled environment exposure limit at 575 MHz.

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Broadcast Facility

Compliance with 73.616:

A study using TVStudy 2.2.5 and the FCC LMS database dated 04/11/2022 and the horizontal plane antenna pattern showed the proposed facility complies with the interference requirements of Section 73.616 with regards to any applications or authorized facilities when studied with the default settings of 2 km cell size and 1 km terrain profile point spacing. A copy of the TVStudy results is attached as separate exhibit "tvixstudy.txt".

Compliance with 73.622(i):

The proposed facility will operate on the channel currently assigned to WTVJ. The proposed facility has a reduced service area of 28,340.9 sq. km compared to its currently licensed coverage area of 31,054.5 sq. km as calculated in TVStudy and thus complies with the Section 73.622(f)(5) limit on permissible maximized coverage area and the ERP and HAAT limits in 73.622(f)(8) do not apply.

Compliance with 73.623(e):

Not applicable. This application does not change the assigned channel or location of the authorized station.

Compliance with 73.625:

The proposed facility will place a 48 dBμv/m principle community contour over Miami, FL, the community of license. See "WTVJ Proposed Coverage" map, attached.

Compliance with 73.1030:

A TVStudy analysis did not show a requirement for notification or coordination with any facility listed in Section 73.1030.

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