

WNJU Application for Post-Repack Construction Permit

July 8, 2017

Engineering Exhibit

The purpose of this application is to request authority to construct a post-repack broadcast facility for operation on channel 35 for WNJU, Linden, NJ, Facility ID 73333, licensed to NBC Telemundo License LLC.

This application specifies use of a shared non-directional broadband panel antenna at a radiation center height of 506.0m AMSL (RC-AMSL) on an existing structure, One World Trade Center (1WTC). The WNJU replication baseline specifies an effective radiated power (ERP) of 519 kW using a directional antenna at 530.4m RC-AMSL. The ERP with the proposed facility was reduced to 425 kW to avoid extending the contour beyond the 1% threshold. TVStudy 2.2.2 analysis at 425 kW ERP and computed HAAT of 496m showed the contour of the proposed facility will not exceed the authorized post-repack contour by more than 1% in any direction, will not cause new interference above 0.5% to any other station and will reach 98.8% of the replication population (worst case scenarios 3, 7, 11, 15, 19, 23, 27, and 31).

Antenna System

The proposed facility will use a non-directional antenna with circular polarization and equal ERP at horizontal and vertical polarization.

Environmental Statement

The requested facility will use a shared antenna installed on an existing structure, One World Trade Center, shared with other broadcasters. The proposed side mount antenna will not increase the height of the structure.

RF power density from the facility using combined horizontal and vertically polarized ERP was calculated using the procedures described in FCC Office of Engineering and Technology Bulletin 65. To allow for the numerous high-rise buildings around the site, RF power density was calculated at different heights above ground. At all locations with heights up to 214m (702') above ground, RF power density is below 5% of the maximum permissible exposure (MPE) limit of 0.399 mw/cm² at 599 MHz for an uncontrolled environment. Above 214m and up to 405m (1329'), calculated power density remains below 5% of the MPE for an uncontrolled environment for any structures more than 124m (407') from 1WTC. One building within this range is high enough to receive a calculated RF power density above 5% of MPE for an uncontrolled environment. On the northeast corner of the roof of the 7 World Trade Center at 227m, maximum RF power density is calculated to be 0.02177 mw/cm² or 5.45% of the MPE for an uncontrolled environment. Measurements will be made to verify RF power density from the combined transmissions from 1WTC do not exceed allowable exposure levels.

Access to the spire is restricted with locked doors and a security system. WNJU will reduce power or shut off as required to protect workers on the spire from RF exposure above the limits specified in FCC rule §1.1310.

Broadcast Facility

The facility proposed in this application provides similar coverage to the current authorized facility and matches, within the tolerances allowed, the post-repack facility assigned by the FCC.

Doug Lung, July 8, 2017