

## **ENGINEERING EXHIBIT**

### **Incentive Auction Channel Reassignment**

#### **Application for Digital Television Station Auxiliary Antenna Construction Permit**

prepared for

#### **WNET**

WLIW(DT) Garden City, NY  
Facility ID 38336  
Ch. 32 58 kW 520 m

*WNET* is the licensee of digital television station WLIW, Facility ID 38336, Garden City NY. Reassignment of WLIW from Channel 21 to Channel 32 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice* (DA 17-317, released April 13, 2017). A Construction Permit (“CP”, file# 0000074687) authorizes construction of the WLIW post-auction facility on Channel 32. *WNET* herein seeks authorization for an auxiliary antenna for WLIW on its post-auction Channel 32.

The authorized main antenna for WLIW is one of the shared antenna systems (RFS model PEP96L) which have been installed on the mast atop the One World Trade Center building (“1WTC”). The mast structure atop 1WTC is associated with FCC Antenna Structure Registration number 1263701. The proposed auxiliary facility will utilize a separate broadband UHF antenna (RFS model PEP40E) which is on a higher section of the mast and centered 24.4 meters above the WLIW main antenna. No change to the overall structure height will result.

This is one of two separate auxiliary antenna applications to be submitted for WLIW’s reassignment Channel 32 operations. Under a separate proposal, another auxiliary antenna facility will be sited at a location 48.1 km from that proposed herein.

The reassignment CP authorizes WLIW to operate with a nondirectional antenna at 72 kW effective radiated power (ERP) and 496 meters height above average terrain (HAAT). The proposed WLIW auxiliary facility will operate on Channel 32 at 58 kW ERP (nondirectional) and an antenna HAAT of 520 meters.

The nondirectional RFS PEP40E antenna will be configured for circular polarization for WLIW's auxiliary antenna operation. That is, WLIW will employ 100 percent vertical polarization, such that the horizontally polarized ERP is 58 kW and the vertically polarized ERP is 58 kW.<sup>1</sup>

Figure 1 shows that the 41 dBμ noise limited service contour of the proposed auxiliary facility matches that of the authorized main facility. Thus the proposal complies with §73.1675(a).

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 15 percent antenna relative field in downward elevations (pattern data shows less than 15 percent relative field at angles 10 to 90 degrees below the antenna), the calculated signal density near the 1WTC building at two meters above ground level attributable to the proposed facility is  $0.3 \mu\text{W}/\text{cm}^2$ , which is 0.1 percent of the general population / uncontrolled maximum permitted exposure limit. This is well below the five percent threshold limit described in §1.1307(b)(3) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

Access to the 1WTC rooftop, antenna support structure, and any areas within the building that may exceed exposure limits will be strictly controlled by the building owner. *WNET* will

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<sup>1</sup>The proposed antenna provides for adjustable vertical polarization. The antenna provides separate inputs for horizontally polarized and vertically polarized radiators, which permits each of the television stations that share the antenna to individually choose how much vertical polarization to utilize.

participate in the building's RF exposure safety program along with other broadcasters and FCC licensees that may utilize the 1WTC as a transmission site. As necessary, based on calculations or actual measurements considering all emitters, exposure abatement procedures will be established. The RF safety program will be employed protecting maintenance and installation workers from excessive exposure when work must be performed in locations where high RF levels may be present. Such areas will be placed under strict restricted access and properly identified.

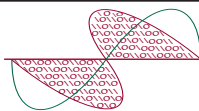
The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. The applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, mast, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This exhibit is limited to the evaluation of exposure to RF electromagnetic field.

*List of Attachments*

Figure 1                      Proposed Auxiliary Contours

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**Chesapeake RF Consultants, LLC**  
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**Figure 1**  
**Proposed Auxiliary Contours**  
**WLIW(DT) Garden City, NY**  
**Facility ID 38336**  
**Ch. 32 58 kW 520 m**

prepared for  
**WNET**  
June, 2019

Ch. 32 Construction Permit  
LMS File# 0000074687  
72 kW 496 m nondirectional  
41 dBu Contour (red-dashed)

Proposed Auxiliary Ch. 32  
58 kW 520 m nondirectional  
48 dBu  
(Principal Community)  
41 dBu  
(Noise Limited Service Contour)

Garden  
City, NY

