

ENGINEERING EXHIBIT

Application for Digital Television Station Construction Permit

prepared for

WNET

WNET(DT) Newark, NJ

Facility ID 18795

Ch. 13 4 kW 507 m

WNET is the licensee of digital television station WNET, pre-auction Channel 13, Facility ID 18795, Newark, NJ (file# 0000036411). WNET is licensed to operate with 9.3 kW effective radiated power (“ERP”) at an antenna height above average terrain (“HAAT”) of 405 meters with a nondirectional antenna atop the Empire State Building. The licensed WNET facility is the host (sharer) facility in a channel sharing agreement with sharee stations WMBQ-CD (Facility ID 14322, New York NY, file# 0000035123) and WEBR-CD (Facility ID 67866, Manhattan NY, file# 0000036476). *WNET* is also the licensee of sharee stations WMBQ-CD and WEBR-CD.

Reassignment of WNET from Channel 13 to Channel 12 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice* (“CCRPN”, DA 17-317, released April 13, 2017). This application concerns the pre-auction Channel 13 facility which *WNET* intends to relocate prior to the phase transition date when WNET will change to Channel 12.

A Construction Permit (“CP” BMPCDT-20090709AGX, granted May 15, 2015) authorizes relocation of WNET 4.6 km to the recently completed One World Trade Center building (“1WTC”) and operation at 8.1 kW ERP directional and 507 meters HAAT on Channel 13. *WNET* is preparing to implement that pre-auction Channel 13 CP but must utilize a nondirectional antenna and decreased ERP at 1WTC, while maintaining the same site location and antenna height. Customarily, an application for minor modification of the CP would be submitted to request the required changes to the authorization. Owing to the recent licensing of WNET as a channel share host station, the FCC’s electronic Licensing and Management System (“LMS”) will not permit a minor modification of the outstanding CP. Therefore, as discussed

with FCC staff, *WNET* proposes herein a minor modification of the licensed WNET (channel sharing) facility in order to obtain a new CP to specify operation at 1WTC with the required ERP decrease and change to nondirectional operation.

As with the pre-auction Channel 13 CP BMPCDT-20090709AGX, the proposed WNET facility will employ a shared antenna that is being installed on a portion of the mast atop the 1WTC building. The proposed ERP is 4.0 kW ERP utilizing a circularly polarized RFS model 662-16D VPT nondirectional antenna. The mast structure atop 1WTC is associated with FCC Antenna Structure Registration number 1263701. No change to the overall structure height will result.

Figure 1 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community. The proposed facility's predicted population exceeds 95 percent of the *CCRPN* baseline facility's population.

The proposed WNET Channel 13 facility complies with the April 5, 2013 (DA 13-618) freeze regarding any expansion in noise-limited service contour ("NLSC"). As shown in Figure 2, the proposed 4.0 kW nondirectional facility's NLSC (36 dB μ) does not extend beyond that of the Channel 13 facility authorized in the outstanding CP BMPCDT-20090709AGX (8.1 kW directional). Since there is no expansion beyond the presently authorized NLSC, interference analysis to other television facilities is not required.

The nearest FCC monitoring station is 295 km distant at Laurel MD. This exceeds by a large margin the threshold minimum distance specified in §73.1030(c)(3) that would suggest consideration of the monitoring station. The site is not located within the areas requiring coordination with "quiet" zones specified in §73.1030(a) and (b). There are no authorized AM stations within 3 kilometers of the site. The site location is beyond the border areas requiring international coordination.

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 assuming the worst case of 100 percent antenna relative field in downward elevations, the calculated signal density near the 1WTC building at two meters above ground level attributable to the proposed facility is $1.0 \mu\text{W}/\text{cm}^2$, which is 0.5 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. When the antenna's elevation pattern is considered the calculated signal density will be even lower.

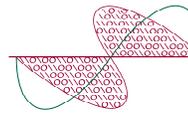
Access to the 1WTC rooftop, antenna support structure, and any areas within the building that may exceed exposure limits will be strictly controlled by the building owner. *WNET* will participate in the building's RF exposure safety program along with other broadcasters and FCC licensees that may utilize 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.

Engineering Exhibit

WNET

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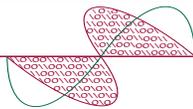
Radiofrequency Consulting Engineers
Digital Television and Radio

List of Attachments

Figure 1 Proposed Coverage Contours
Figure 2 Coverage Contour Comparison
Form 2100 Saved Version of Engineering Sections from FCC Form at Time of Upload

Chesapeake RF Consultants, LLC

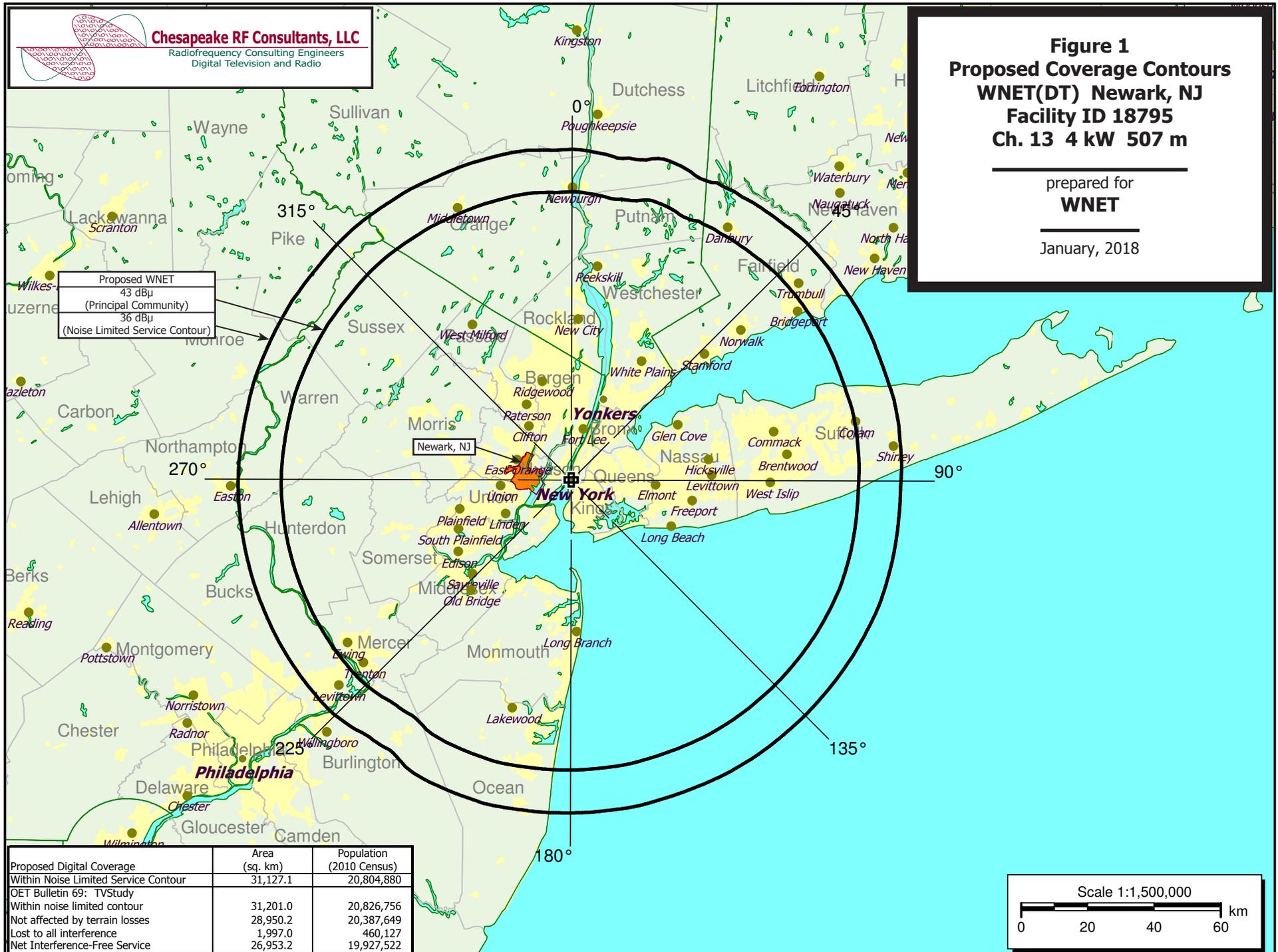
Joseph M. Davis, P.E. January 5, 2018
207 Old Dominion Road Yorktown, VA 23692 703-650-9600



Chesapeake RF Consultants, LLC
Radiofrequency Consulting Engineers
Digital Television and Radio

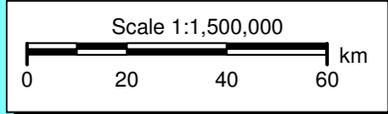
Figure 1
Proposed Coverage Contours
WNET(DT) Newark, NJ
Facility ID 18795
Ch. 13 4 kW 507 m

prepared for
WNET
January, 2018



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|---------------------------------|
| Proposed WNET |
| 43 dBμ |
| (Principal Community) |
| 36 dBμ |
| (Noise Limited Service Contour) |

| Proposed Digital Coverage | Area (sq. km) | Population (2010 Census) |
|--------------------------------------|---------------|--------------------------|
| Within Noise Limited Service Contour | 31,127.1 | 20,804,880 |
| OET Bulletin 69: TVStudy | | |
| Within noise limited contour | 31,201.0 | 20,826,756 |
| Not affected by terrain losses | 28,950.2 | 20,387,649 |
| Lost to all interference | 1,997.0 | 460,127 |
| Net Interference-Free Service | 26,953.2 | 19,927,522 |



Channel and Facility Information

| Section | Question | Response |
|--------------------------------------|---------------|---------------------------|
| Proposed Community of License | Facility ID | 18795 |
| | State | New Jersey |
| | City | NEWARK |
| | DTV Channel | 13 |
| Facility Type | Facility Type | Noncommercial Educational |
| | Station Type | Main |
| Zone | Zone | 1 |

Antenna Location Data

| Section | Question | Response |
|---------------------------------------|-----------------------------------------------------------------|------------------------------------------|
| Antenna Structure Registration | Do you have an FCC Antenna Structure Registration (ASR) Number? | Yes |
| | ASR Number | 1263701 |
| Coordinates (NAD83) | Latitude | 40° 42' 46.8" N+ |
| | Longitude | 074° 00' 47.3" W- |
| | Structure Type | BTWR-Building with TOWER /ANTENNA on top |
| | Overall Structure Height | 546.2 meters |
| | Support Structure Height | 406.8 meters |
| | Ground Elevation (AMSL) | 4.3 meters |
| Antenna Data | Height of Radiation Center Above Ground Level | 513.9 meters |
| | Height of Radiation Center Above Average Terrain | 507 meters |
| | Height of Radiation Center Above Mean Sea Level | 518.2 meters |
| | Effective Radiated Power | 4 kW |

**Antenna
Technical Data**

| Section | Question | Response |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-----------------|
| Antenna Type | Antenna Type | Non-Directional |
| | Do you have an Antenna ID? | |
| | Antenna ID | |
| Antenna Manufacturer and Model | Manufacturer: | RFS |
| | Model | 662-16D VPT |
| | Rotation | |
| | Electrical Beam Tilt | 2.5 |
| | Mechanical Beam Tilt | Not Applicable |
| | toward azimuth | |
| | Polarization | Circular |
| DTV and DTS: Elevation Pattern | Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt? | No |
| | Uploaded file for elevation antenna (or radiation) pattern data | |