

ENGINEERING EXHIBIT  
DISPLACEMENT APPLICATION FOR  
TELEVISION TRANSLATOR CONSTRUCTION PERMIT  
NEW YORK TIMES MANAGEMENT SERVICES  
STATION W69CE, TOWANDA, PENNSYLVANIA  
CH 15- 0.688 KW (MAX-DA)

Television translator Station W69CE, Towanda, Pennsylvania, is licensed to New York Times Management Services (hereafter, NYTMS), which, also, is the licensee of full service television Station WNEP-TV, Scranton, Pennsylvania. Station W69CE operates on Channel 69 with a directional antenna that produces a maximum effective radiated power of 1 kW. Since Channel 69 is out-of-core, a displacement application for a construction permit to an in-core channel is permitted without the need to await the opening of a filing window.

NYTMS, by means of the instant application, seeks permission to operate Station W69CE on Channel 15- with a directional antenna that produces a maximum effective radiated power of 0.688 kW. The site that is proposed to be employed is the same as is currently employed for the Channel 69 operation. The NAD 27 site coordinates are: 41° 40' 52" N. Latitude; 76° 28' 55" W. Longitude.

The antenna that will be employed is an off-the-shelf, Andrew (AND), model ALP4L1-HSER. This antenna is now manufactured by Electronics Research, Inc. (ERI), but the FCC's list of off-the-shelf antennas still shows the listing under the AND manufacturer identification code. In order to facilitate electronic processing, the AND designation for the antenna has been used herein.

The antenna has a power gain of 8.84 along the axis of maximum radiation (0° True). A 100 watt (peak visual) transmitter with an oscillator that has the requisite stability for satisfactory frequency offset operation will be used. Energy from the transmitter will be transferred to the antenna by means of the already in place 22.3 meter

length of Andrew, type LD4-50A, coaxial transmission line. The transmission line efficiency at Channel 15 (476-482 MHz) is 77.8% for the given length. Taking into account the transmitter peak visual power output of 0.1 kW, the transmission line efficiency of 77.8 %, and the antenna power gain of 8.44 at 0° True, the maximum peak visual effective radiated power that will be achieved is 0.688 kW.

The proposed Channel 15 operation entails several allocation concerns when the FCC's standard contour prediction methodology is employed. Therefore, consistent with the Rules, a waiver is requested for use of the Longley-Rice prediction methodology as a means for demonstrating that no interference is likely to occur.

The stations that are of particular concern and their distances from W69CE are:

- 1) WPSX-DT, Clearfield, PA, Channel 15, 810 kW, 413 m (175.2 km)
- 2) WNEP-TV, Scranton, PA, Channel 16, 1150 kW, 506 m (75.2 km)
- 3) WYOU-TV, Scranton, PA, Channel 22, 2950 kW, 506 m (75.1 km)

There are no interference concerns with respect to other translator or LPTV stations, or to land mobile facilities.

Using the FCC's "tv\_process\_lptv" program, with no changes in the default settings, no interference is caused to any of the three stations. In addition, since WNEP-TV is the station that is proposed for translation on first adjacent Channel 15, special care will be needed at the translator's Channel 16 receiving antenna to shield and isolate the received Channel 16 signal from the translated Channel 15 signal, otherwise self-destructive interference will occur, and prevent satisfactory operation.

The proposed Towanda, Channel 15, site is less than 100 kilometers from the site of Station WYOU-TV on Channel 22. For this seven channel differential situation, the Rules require a demonstration that the service area of the LPTV, or translator, station is not located in an area where the TV broadcast analog station is regularly viewed.

In compliance with this requirement, and as a supplement to the Longley-Rice study that demonstrated that no interference to Station WYOU-TV would result, an additional study has been made. Figure 1 is a map that shows the 74 dBu, F(50,50), service contour for the proposed W69CE operation on Channel 15-. The map shows, also, three radials from Station WYOU-TV toward the translator's 74 dBu contour.

Terrain profile graphs, using a 4/3 earth radius to correct for standard atmosphere refraction, have been drawn for the radials and are presented in Figures 2, 3 and 4. The location of the translator's 74 dBu contour is identified on each profile, and, except for one location on the 320° true radial, the WYOU-TV radio path is severely obstructed by terrain, thereby preventing satisfactory WYOU-TV viewing in the area that is proposed be served by the translator.

On the 320° true radial, the line of sight ray from the WYOU transmitting antenna is shown to pass across the mountaintop that serves to obstruct WYOU signals from penetrating into the translator's 74 dBu contour area. Except for the mountaintop, the remainder of the translator's 74 dBu service range is well shielded from WYOU signals (and, hence, WYOU viewership). The mountaintop is mostly part of the Tioga State Forest and is devoid of habitation. Thus, there are no viewers to be served atop the mountain.

The studies made demonstrate that the proposed W69CE operation on Channel 15 is not likely to cause interference to any station. WNEP-TV, L.P. recognizes that W69CE may receive interference from other proposals that may have been submitted earlier than the instant proposal and agrees to accept such interference.

Consideration has been given to environmental concerns as embodied in the FCC's Rules. In particular, only the environmental concerns relating to human exposure to radiofrequency radiation (rfr) are germane to the instant proposal.

Based on O.S.T. Bulletin 65 procedures, calculations were made to determine compliance with the adopted guidelines for uncontrolled location exposures. A calculation has been made to determine the power density from the proposed antenna at a target that is located 2 meters above ground level at the tower base. The calculation used the maximum peak visual ERP of 0.688 kW; maximum average aural ERP of 0.069 kW; and the maximum vertical plane relative field that occurs within the depression angle range of 11° to 90° below the horizontal plane, i. e., 0.28. The result represents the highest power density level that could occur anywhere within a radius of 88 meters from the tower base. The calculation yielded a power density level that is 0.9 % of the maximum permissible exposure (MPE) of  $0.32 \text{ mW/cm}^2$  for uncontrolled locations at channel 15. This contribution level is too low to warrant concern.

At distances beyond 88 meters from the tower base and using the maximum peak visual and maximum average aural ERP values, the maximum power density level that could occur anywhere turns out to be less than 0.5 % of the MPE. Again, this level of exposure is too low to warrant concern. For all the calculations, a ground reflection coefficient of 1.6, as recommended in O.S.T. Bulletin 65, was used.



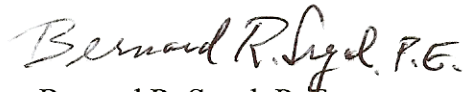
Engineering Exhibit  
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For worker, or controlled location conditions, excitation to the antenna is terminated whenever work must be performed on the tower. In this manner, exposure of workers to excessive rfr according to the adopted guidelines, is avoided.

The proposed operation of translator StationW69CE on Channel 15- fulfills all FCC criteria for the avoidance of interference to NTSC and DTV stations; translators and LPTV stations; and land mobile stations.

I declare under penalty of perjury that the foregoing is true and correct. Executed on September 8, 2005.

  
Bernard R. Segal, P. E.

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Steuben

Chemung



Chenango

Broome

Tioga

320°

328°

Bradford

312°

Susquehanna

TOWANDA, CH 15, 74 DBU

Wayne

Wyoming

Sullivan

Lackawanna

Lycoming

Clinton

Luzerne

WYOU, SCRANTON, CH 22

Delaware

N41°00'00.00"  
W77°00'00.00"

Montour

Columbia

Monroe

Centre

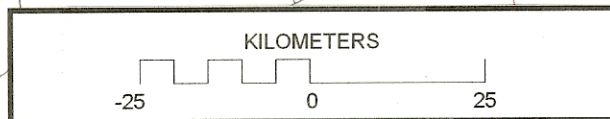
Carbon

Northumberland

Snyder

Mifflin

Northampton



Lehigh

Juniata

Pe

Bucks

## LOCATIONS OF TERRAIN PROFILE RADIALS (WYOU TOWARD PROPOSED 74 DBU CONTOUR)

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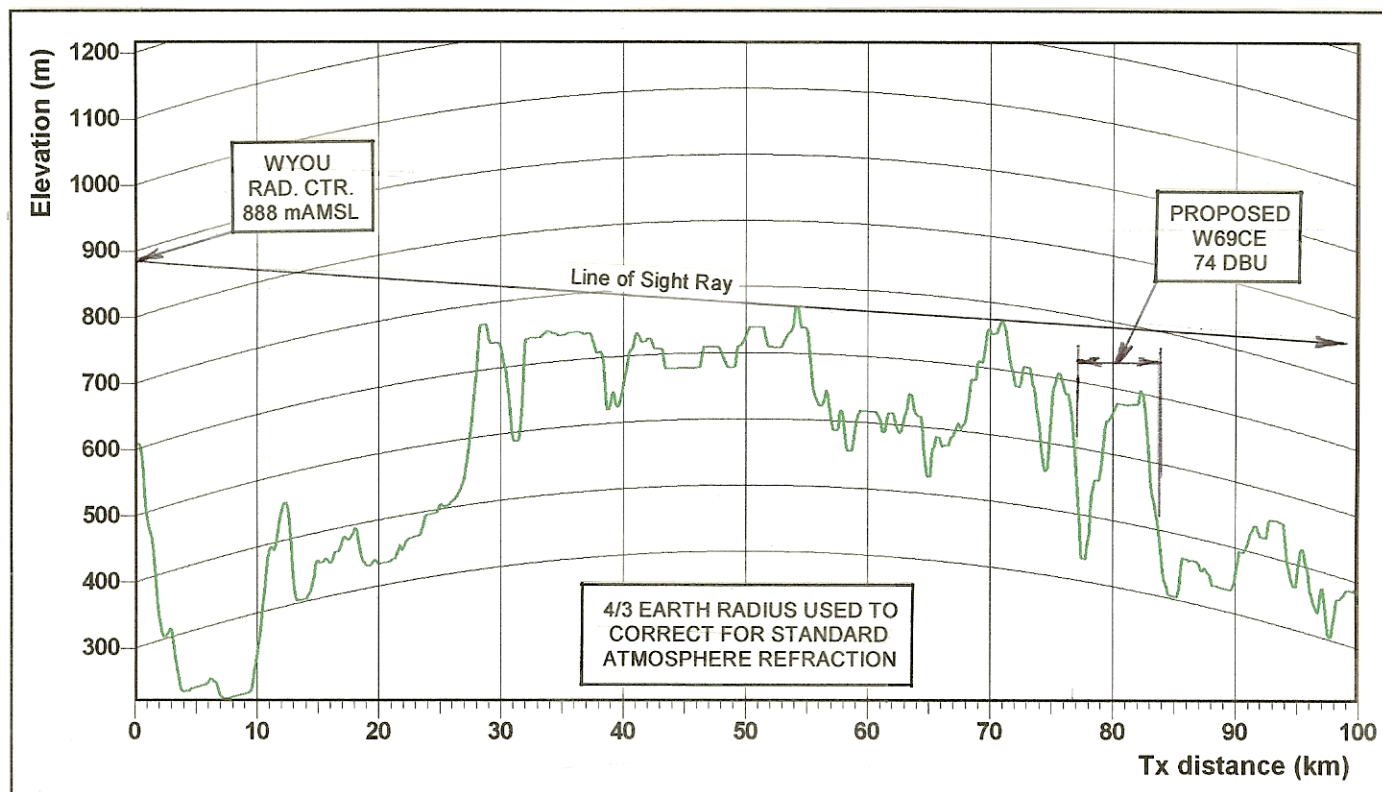
Consulting Engineer

Montgomery

Cum

Adams

FIGURE 2



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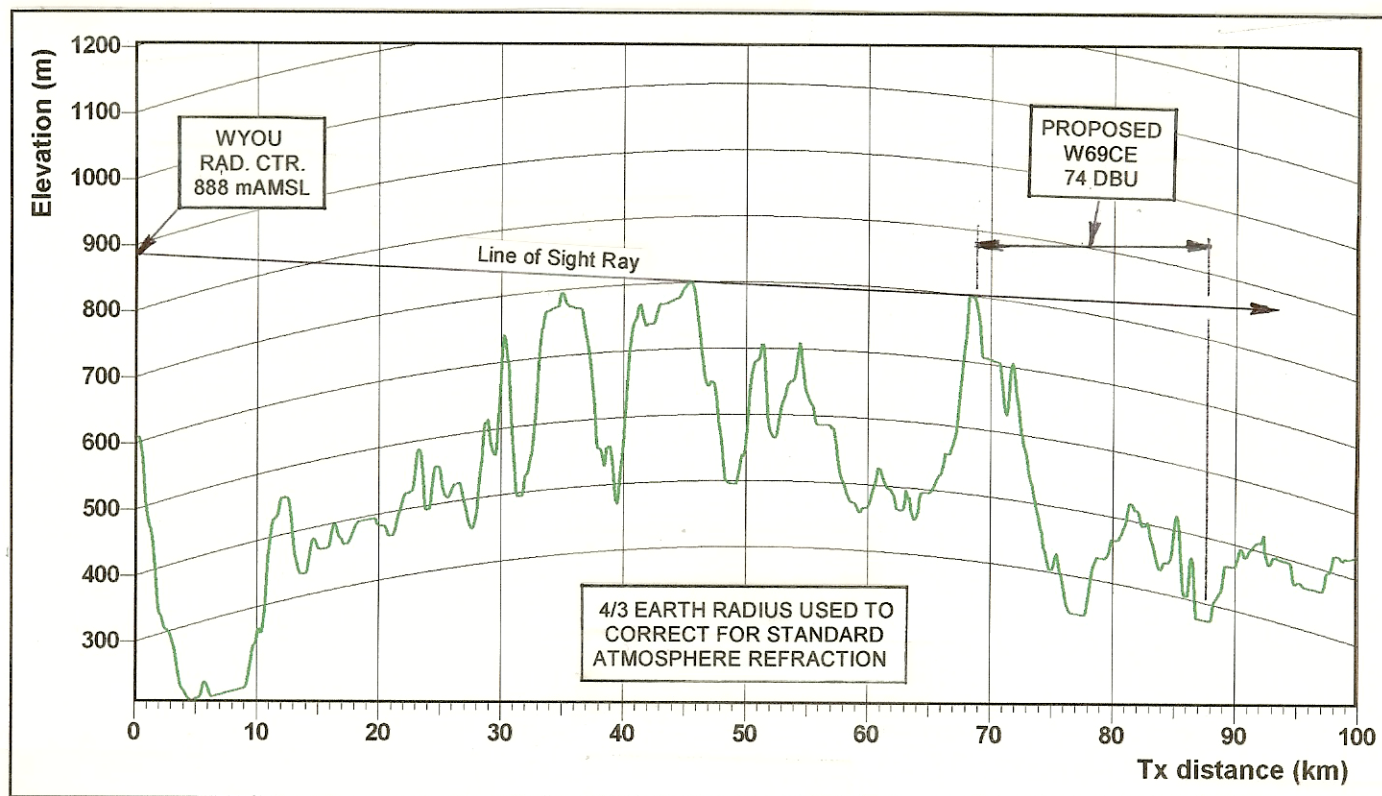
### 312° TRUE TERRAIN PROFILE FROM WYOU TOWARD PROPOSED 74 DBU CONTOUR

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FIGURE 3



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### 320° TRUE TERRAIN PROFILE FROM WYOU TOWARD PROPOSED 74 DBU CONTOUR

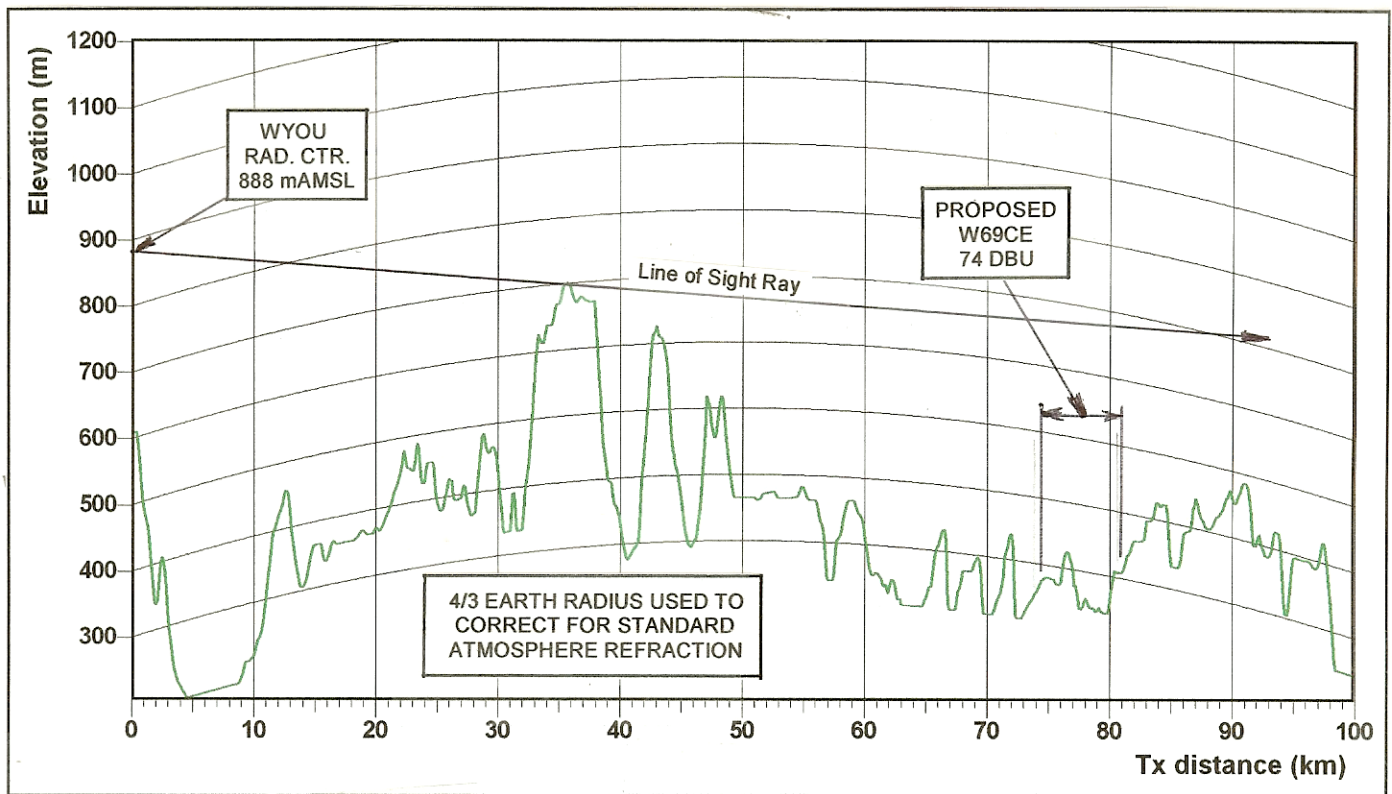
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FIGURE 4



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**328° TRUE TERRAIN PROFILE FROM  
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