

TECHNICAL EXHIBIT  
DTV APPLICATION  
STATION WAXN-DT  
KANNAPOLIS, NORTH CAROLINA  
CH 50 91 KW 348 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station WAXN-DT for its DTV operation at Kannapolis, North Carolina. This application requests a construction permit (CP) for WAXN-DT digital television operation on channel 50 at Kannapolis with a non-directional effective radiated power of 91 kilowatts. WAXN-DT intends to use its existing Dielectric TUP-04-12-1 transmitting antenna for its increased power digital operation.

Proposed Facilities

Station WAXN-DT proposes to operate DTV channel 50 from its licensed DTV site. The antenna height above average terrain for the channel 50 DTV operation will be 348 meters. The proposed WAXN-DT effective radiated power exceeds the Commission's *Appendix B* allocated maximum effective radiated power in some azimuthal directions for WAXN-DT.<sup>1</sup> Therefore, an allocation study was completed to ensure no prohibited interference would occur.

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<sup>1</sup> See Seventh Report And Order And Eighth Further Notice Of Proposed Rule Making in the Matter of Advanced Television Systems and their

The proposed DTV transmitter site will be located atop the WAXN-TV tower. Therefore, the proposed site location is:

35° 15' 41" North Latitude  
80° 43' 38" West Longitude

A sketch of antenna and pertinent elevations are included as Figure 1.

Figure 2 is a map showing the proposed DTV predicted coverage contour and the associated DTV appendix B Noise-Limited coverage contour. The extent of the contours have been calculated using the normal FCC prediction method.

#### Population Served

The herein proposed WAXN-DT facility is predicted to serve 2,113,001 persons, pre-transition based upon the 2000 Census. WAXN-DT's associated Appendix B facility is predicted to serve 2,047,000 persons. Therefore, the herein proposed WAXN-DT facility would serve more than 100% of WAXN-DT's Appendix B population.

### Allocation Considerations

The proposed WAXN-DT Channel 50 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other Appendix B DTV allotments. Longley-Rice interference analyses were conducted pursuant to the requirements of the FCC Rules; OET Bulletin No. 69; and published FCC guidelines for preparation of such interference analyses. The Longley-Rice interference analyses were conducted using the software developed by du Treil, Lundin & Rackley, Inc. based on the FCC published software routines.<sup>2</sup> Stations selected for analysis were determined pursuant to the distance requirements outlined in the FCC DTV Processing Guidelines Public Notice. The proposed facility will meet the 0.5% criterion outlined in the FCC Rules and published guidelines with respect to all considered stations.<sup>3</sup>

### Radiofrequency Electromagnetic Field Exposure

The proposed WAXN-DT facilities were evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level to workers and the general public. The radiation center for the proposed WAXN-DT antenna is

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2 The duTreil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed.

3 Interference analysis results reflect the net change in interference to a given station considering the interference predicted to occur from all other stations (i.e. "masking") including the allotment facility for WAXN-DT. This properly reflects the net interference change for determining compliance with the FCC 0.5% *de minimis* standard.

located 304 meters above ground level. The effective radiated power is 91 kilowatts. A "worst case" downward relative field value of 0.25 is assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is  $0.002 \text{ mW/cm}^2$ . This is less than 5 percent of the Commission's recommended limit of  $0.46 \text{ mW/cm}^2$  for channel 50 for an "uncontrolled" environment.

Access to the transmitting site is restricted and appropriately marked with warning signs. As this is a multi-user site an agreement between the stations will control access. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed WAXN-DT operation appears to be otherwise categorically excluded from environmental processing.

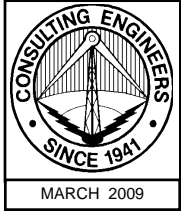
It is noted that this statement only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already have been provided to the FCC by the tower owner.

Charles Cooper

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941.329.6000

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Figure 1



ASRN: 1004745

591 m AMSL  
(1938 ft AMSL)

Proposed WAXN-DT Antenna

Radiation Center  
565 m AMSL  
(1854 ft AMSL)

330 m  
(1082 ft)  
(existing)

304 m  
(998 ft)

NAD27  
Site Coordinates:  
35° 15' 41" N  
80° 43' 38" W

261 m AMSL  
(856 ft AMSL)

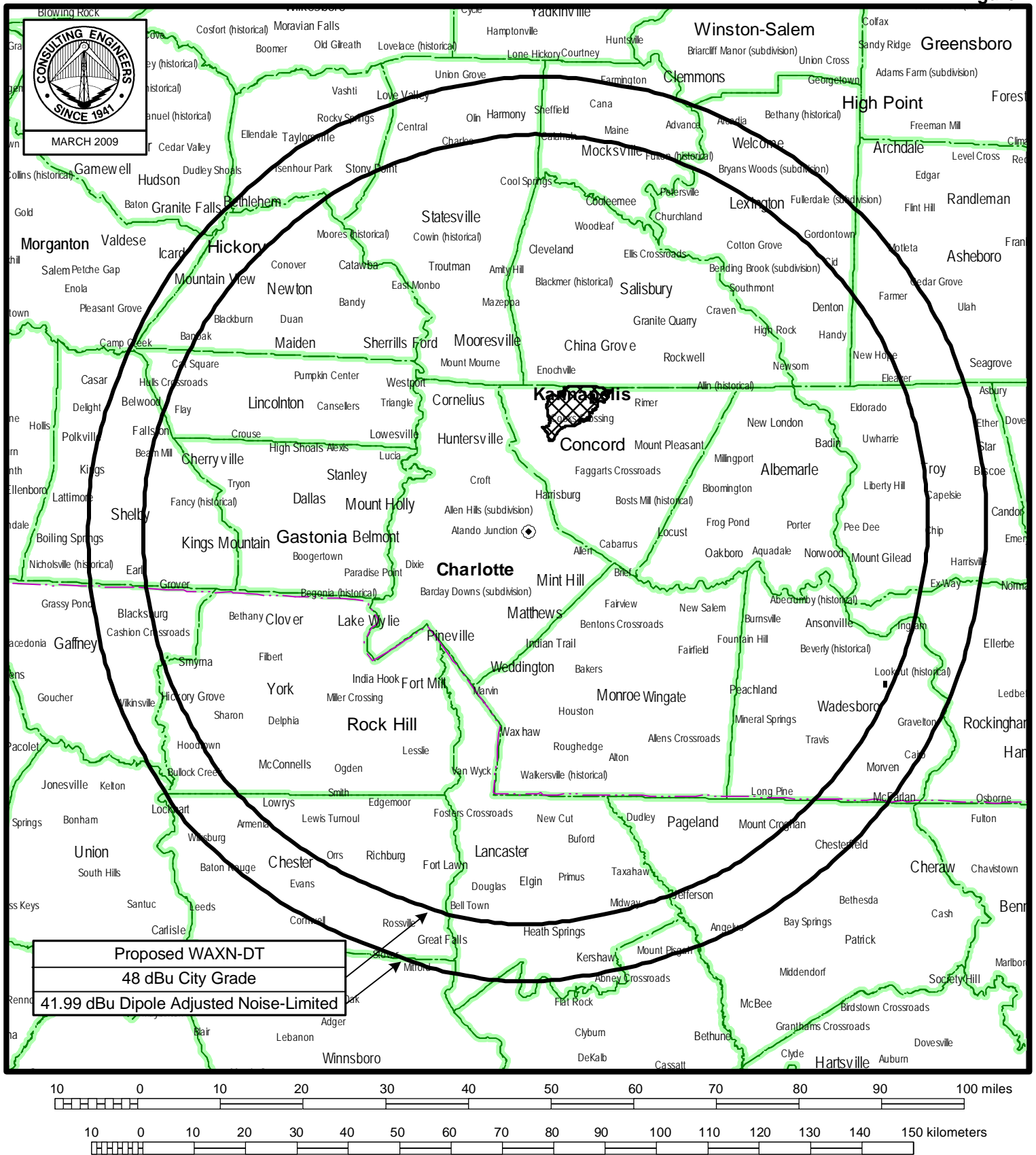
Not to Scale

## ANTENNA AND SUPPORTING STRUCTURE

DTV STATION WAXN-DT  
KANNAPOLIS, NORTH CAROLINA  
CH 50 91 KW 348 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 2



## PREDICTED COVERAGE CONTOURS

STATION WAXN-DT

KANNAPOLIS, NORTH CAROLINA

CH 50 91 KW 348 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida