

TECHNICAL EXHIBIT  
APPLICATION FOR MINOR CHANGE  
MODIFICATION OF CONSTRUCTION PERMIT  
STATION WTXX-DT (FACILITY ID 14050)  
WATERBURY, CONNECTICUT

MAY 28, 2004

CH 12 1.7 KW-ND 515 M

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Technical Narrative

This Technical Exhibit supports a minor change application to modify the construction permit (CP) of digital television (DTV) station WTXS-DT at Waterbury, Connecticut (Facility ID 14050). Station WTXS-DT currently has a CP to operate on DTV channel 12 (BPCDT-19991101AKD). Station WTXS-DT is authorized to use a non-directional (ND) antenna system. The effective radiated power (ERP) is 1.7 kilowatts (kW). The antenna center of radiation is 396 meters above ground level (AGL), and 606.3 meters above mean sea level (AMSL). The antenna height above average terrain (HAAT) is 507 meters. The transmitter site coordinates are 41-42-11, 72-49-55 (NAD-27). The FCC antenna structure registration number for the tower is 1227803.

Proposed DTV Facilities

This minor change application proposes to relocate the WTXS-DT antenna to another nearby existing tower and slightly increase the antenna height. The FCC antenna structure registration number for the new tower is 1041624 and the site coordinates are 41-42-13, 72-49-57. The new location is only 0.1 kilometer northwest of the WTXS-DT CP site. It is proposed to mount a Dielectric TF-2HT-H non-directional antenna system on the structure with the center of radiation at 397.5 meters AGL, and 613.9 meters AMSL (see Figure 1). The proposed antenna HAAT will be 515 meters. There is no proposed change in channel (12), ERP (1.7 kW) or city of assignment (Waterbury, CT).

The WTXX-DT transmitter site is approximately 368 kilometers from the closest point of the Canadian border. This is within the border zone (400 km) specified in the US/Canada Letter of Understanding (LOU) concerning the implementation of digital television stations. The proposed WTXX-DT operation (1.7 kW, 515 m) is considered Class VU. The closest Canadian allotment on channel 12 is Class VU analog station CFCF-TV at Montreal, Quebec. The minimum separation requirement contained in the LOU for co-channel Class VL DTV and Class VU NTSC stations is 283 kilometers. Therefore, the proposed WTXX-DT operation complies with the US/Canada LOU.

The WTXX-DT site is more than 2600 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Canandaigua, New York, approximately 388 kilometers to the west-northwest. The closest point of the National Radio Quiet Zone (VA/WV) is more than 550 kilometers to the southwest. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 2700 kilometers to the west. The closest radio astronomy site operating on TV channel 37 is at Hancock, New Hampshire, approximately 153 kilometers to the north-northeast. These separations are considered sufficient to not be a coordination concern.

According to the FCC database, the proposed WTXX-DT transmitter site is also used by the following TV, DTV and FM operations.

WTIC-TV, Channel 61, Hartford, CT, Facility ID 147

WTIC-DT, Channel 31, Hartford, CT, Facility ID 147

WEDH-DT, Channel 45, Hartford, CT, Facility ID 13602

WRCH(FM), Channel 263B, New Britain, CT, Facility ID 1910

The only AM station within 5 kilometers (3 miles) of the WTXX-DT site is station WLAT(AM) on 910 kHz at New Britain, Connecticut (Facility ID 1911, 5 kW-U, DA-N). The WLAT site is 2.3 kilometers northeast of the WTXX-DT site. No adverse electromagnetic interaction is expected. The supporting structure exists and the proposed addition of the WTXX-DT antenna to the structure, with no change in the overall height, is

not expected to have an adverse impact. The applicant recognizes that it is responsible to remedy prohibited electromagnetic problems that its proposed operation may create.

Figure 2 provides the antenna vertical plane relative field pattern for the proposed Dielectric TF-2HT-H antenna system.

Figure 3 is a map showing the predicted 43 dBu and 36 dBu F(50,90) DTV contours for the proposed WTXX-DT operation. The city limits of Waterbury, as defined in the 2000 US Census for Connecticut, are identified. The estimated population (2000 Census) and land area within the predicted 36 dBu contour is 4,695,094 people and 23,644 square kilometers, respectively. As shown on Figure 3, the predicted 43 dBu contour encompasses all of the Waterbury city limits.

#### Allocation Study

An allocation study was conducted using the procedures outlined in the FCC's OET-69 Bulletin and a 2 kilometers grid. The proposed WTXX-DT operation complies with the FCC's interference standards.

#### Radiofrequency Electromagnetic Field Exposure

The proposed WTXX-DT facilities were evaluated in terms of potential radio frequency (RF) energy exposure at ground level to workers and the general public. The radiation center for the proposed antenna is located 397.5 meters above ground level. The ERP is 1.7 kW. A relative field value of 1.0 was assumed for the antenna's downward radiation (see Figure 2). The calculated power density at a point 2 meters (6.6 feet) above ground level is  $0.00036 \text{ mW/cm}^2$ . This is less than 1% of the FCC's recommended limit of  $0.2 \text{ mW/cm}^2$  for channel 12 for an "uncontrolled" environment. The calculated power density is also less than 1% of the FCC's recommended limit for a "controlled" environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. As this is a multi-user site an agreement 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.

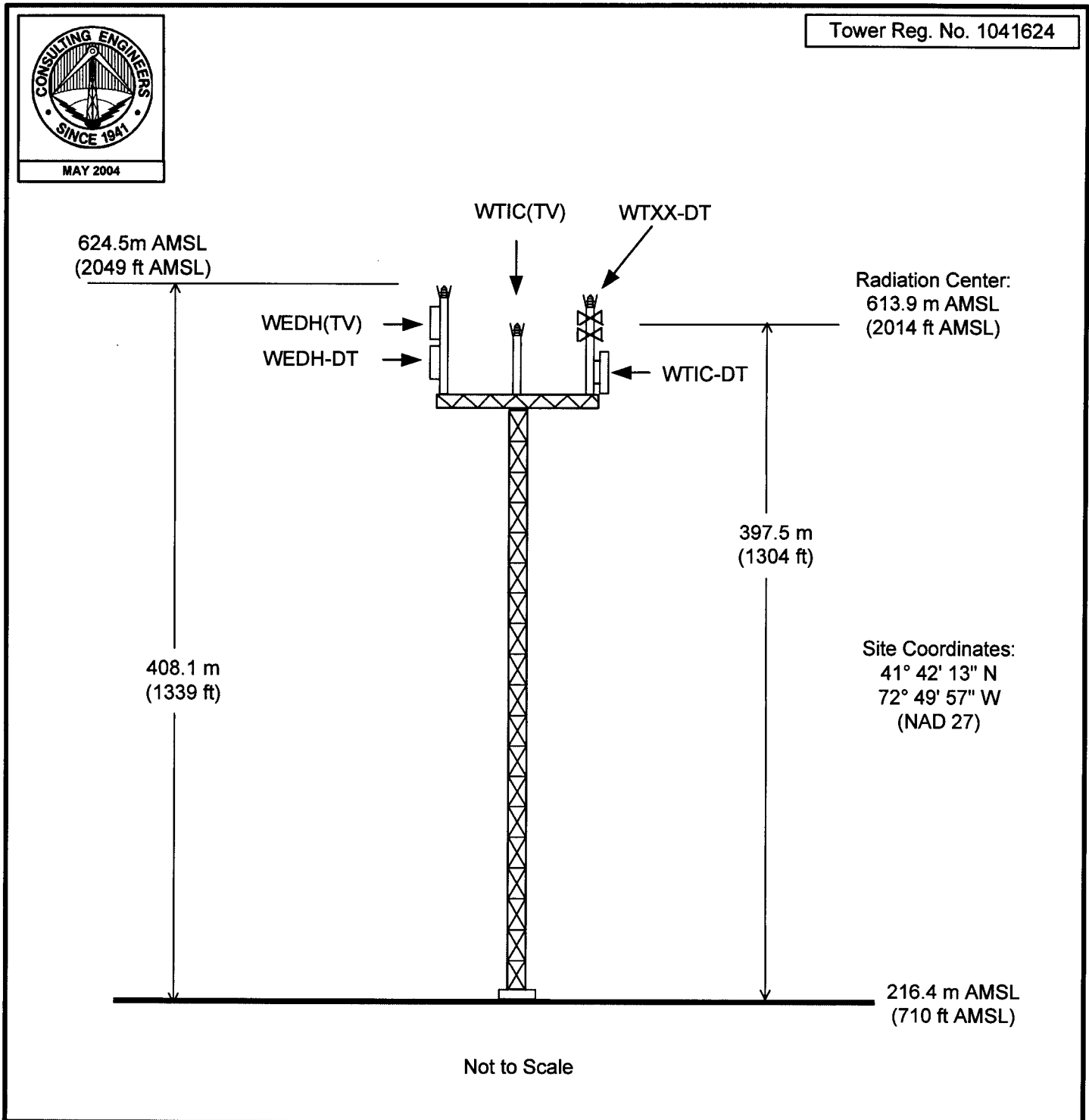
If there are questions concerning the technical portion of this application, please contact the office of the undersigned.

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May 28, 2004

Figure 1



## **PROPOSED ANTENNA AND SUPPORTING STRUCTURE**

**STATION WTXX-DT**

**WATERBURY, CONNECTICUT**

**CH 12 1.7 KW-ND 515 M**

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

Figure 2

# Dielectric

Date	27 May 2004		
Call Letters	WTXX-DT	Channel	12
Location	Waterbury, CT		
Customer			
Antenna Type	TF-2HT		

## ELEVATION PATTERN

RMS Gain at Main Lobe	2.3 (3.62 dB)	Beam Tilt	0.00 Degrees
RMS Gain at Horizontal	2.3 (3.62 dB)	Frequency	207.00 MHz
Calculated / Measured	Calculated	Drawing #	02S023000-90

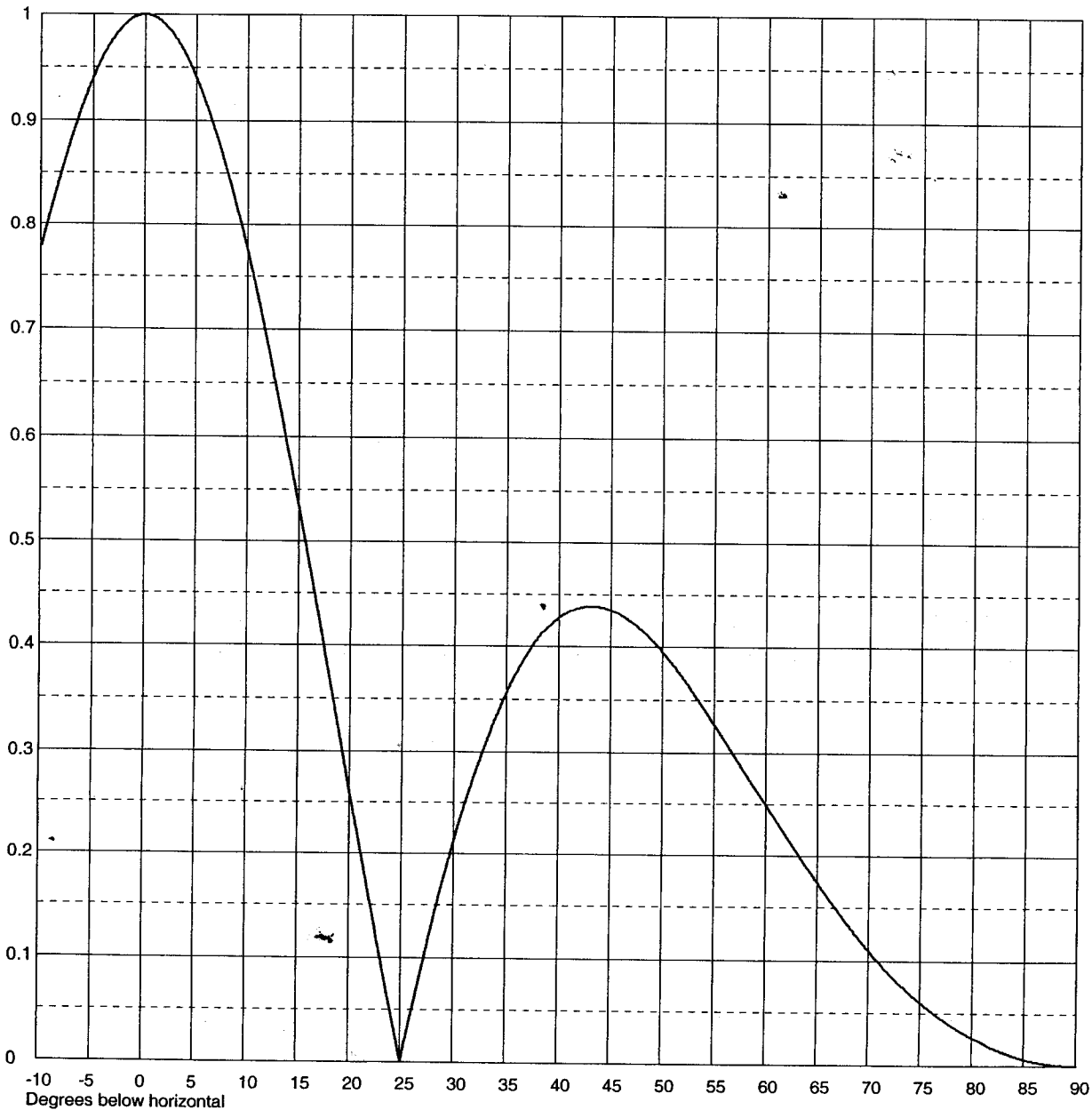




Figure 3

