

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
STATION WETM-DT  
ELMIRA, NEW YORK  
CH 2    0.27 KW    363 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station WETM-DT which is paired with NTSC (analog) channel 18 at Elmira, New York. This application requests modification of its construction permit (CP) for its digital television operation on channel 2 at Elmira.<sup>1</sup> The Federal Communications Commission (FCC) assigned channel 2 as WETM-DT's DTV allotment in the Memorandum, Opinion and Order (MO&O) concerning reconsideration of the 6<sup>th</sup> Report and Order in MM Docket No. 87-268. WETM-DT has been operating under a special temporary authority (STA) with a non-directional effective radiated power of 0.27 kW and an antenna height above average terrain of 363 meters. This application seeks to authorization for this facility.

Proposed Facilities

Station WETM-DT proposes to operate DTV channel 2 from its NTSC transmitter site. The proposed DTV antenna will be side-mounted below its NTSC antenna. It is proposed to operate with a Scala TVO-2 non-directional antenna with an effective radiated power of 0.27 kilowatts.

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<sup>1</sup> See FCC File Number: BMPCDT-20021021AAR.

The proposed WETM-DT noise-limited contour from this facility is encompassed by the noise-limited contour of its construction permit as shown by the map provided in Figure 3.

The proposed DTV transmitter site will be located at its NTSC transmitter site. Therefore, the proposed site location is:

42° 06' 22" North Latitude  
76° 52' 17" West Longitude

A map of the transmitter site is provided in Figure 1. A sketch of antenna and pertinent elevations are included as Figure 2.

Within the Appendix is the vertical plane radiation pattern for the proposed DTV antenna system.

Figure 3 is a map showing the DTV predicted coverage contour. The map provides the predicted F(50,90) noise limited contour. The extent of the contour has been calculated using the normal FCC prediction method. The Elmira city limits were derived from information contained in the 2000 U.S. Census of Population and Housing.

#### Allocation Considerations

The proposed WETM-DT Channel 2 facility meets the requirements of Section 73.623 of the FCC Rules concerning predicted interference to other existing NTSC facilities and DTV allotments and assignments. 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 results of the interference analyses for the proposed WETM-DT facility are summarized herein at Figure 4. As indicated therein, the proposed facility will meet the 2%/10% criterion outlined in the FCC Rules and published guidelines with respect to all considered stations.<sup>3</sup>

#### Radiofrequency Electromagnetic Field Exposure

The proposed WETM-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 WETM-DT antenna is located 236 meters above ground level. The maximum effective radiated power is 0.27 kilowatt. A "worst-case" relative field value of 1.0 is assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is less than 0.001 mW/cm<sup>2</sup>. This is less than 5 percent of the Commission's recommended limit for channel 2 for an "uncontrolled" environment.

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<sup>2</sup> 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.

<sup>3</sup> 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 WETM-DT. This properly reflects the net interference change for determining compliance with the FCC DTV2%/10% *de minimis* standard.

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 to the site. 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 WETM-DT operation appears to be otherwise categorically excluded from environmental processing.

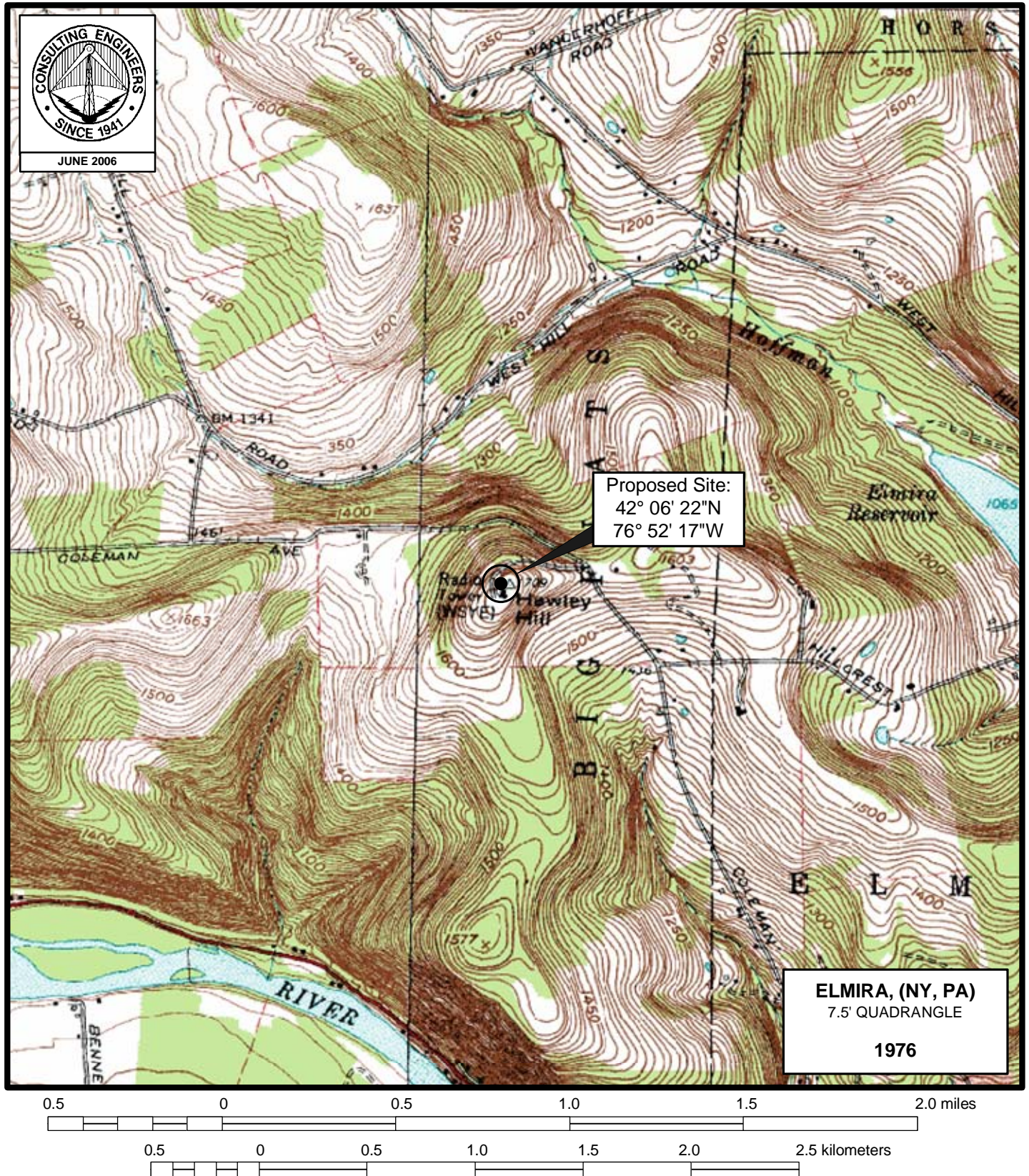
Charles Cooper

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 324237  
941.329.6000

June 8, 2006



Figure 1

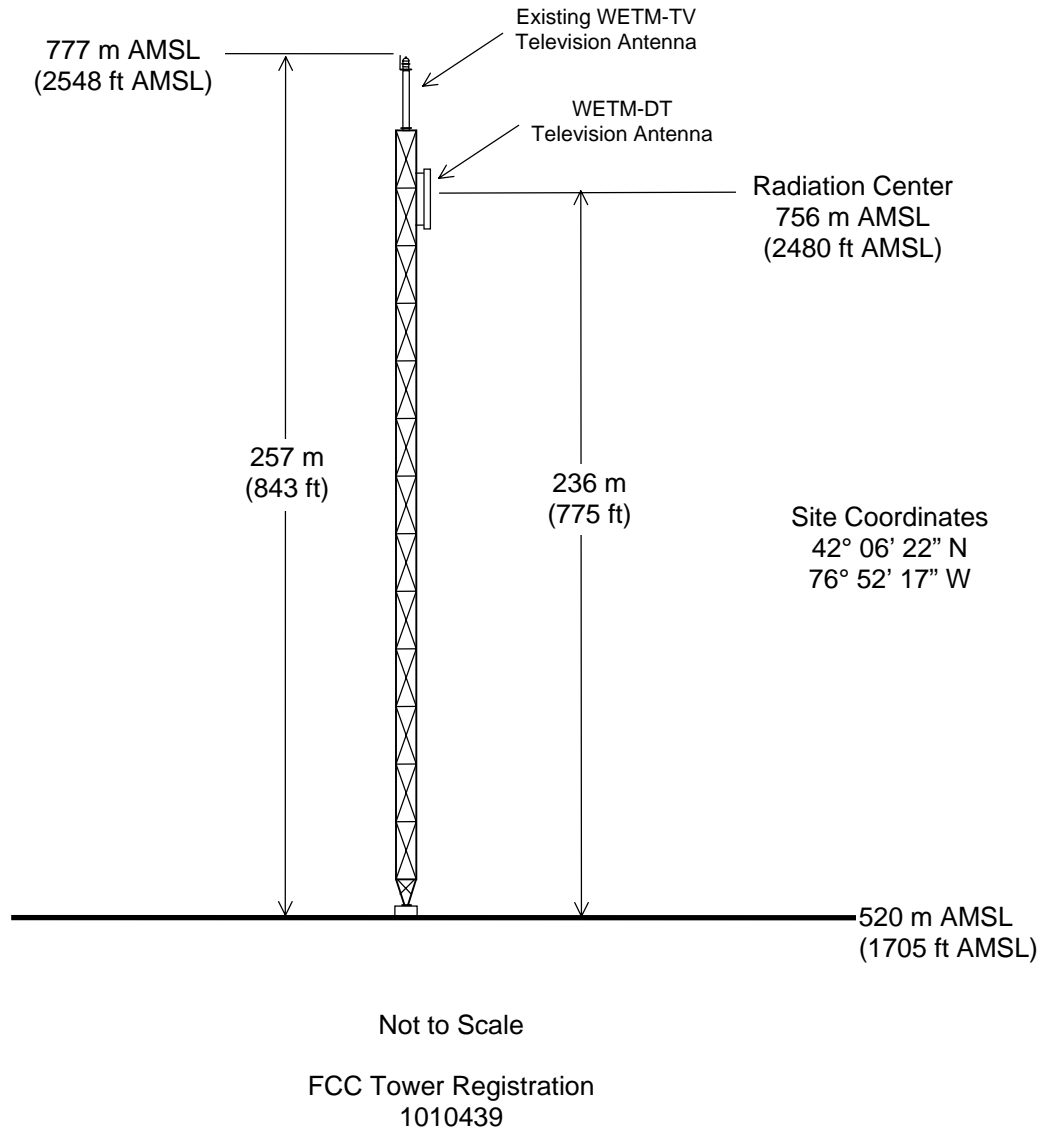


**PROPOSED TRANSMITTER SITE**  
**DIGITAL TELEVISION STATION WETM-DT**  
**ELMIRA, NEW YORK**  
**CH 2 0.27 KW 363 M**

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



Figure 2

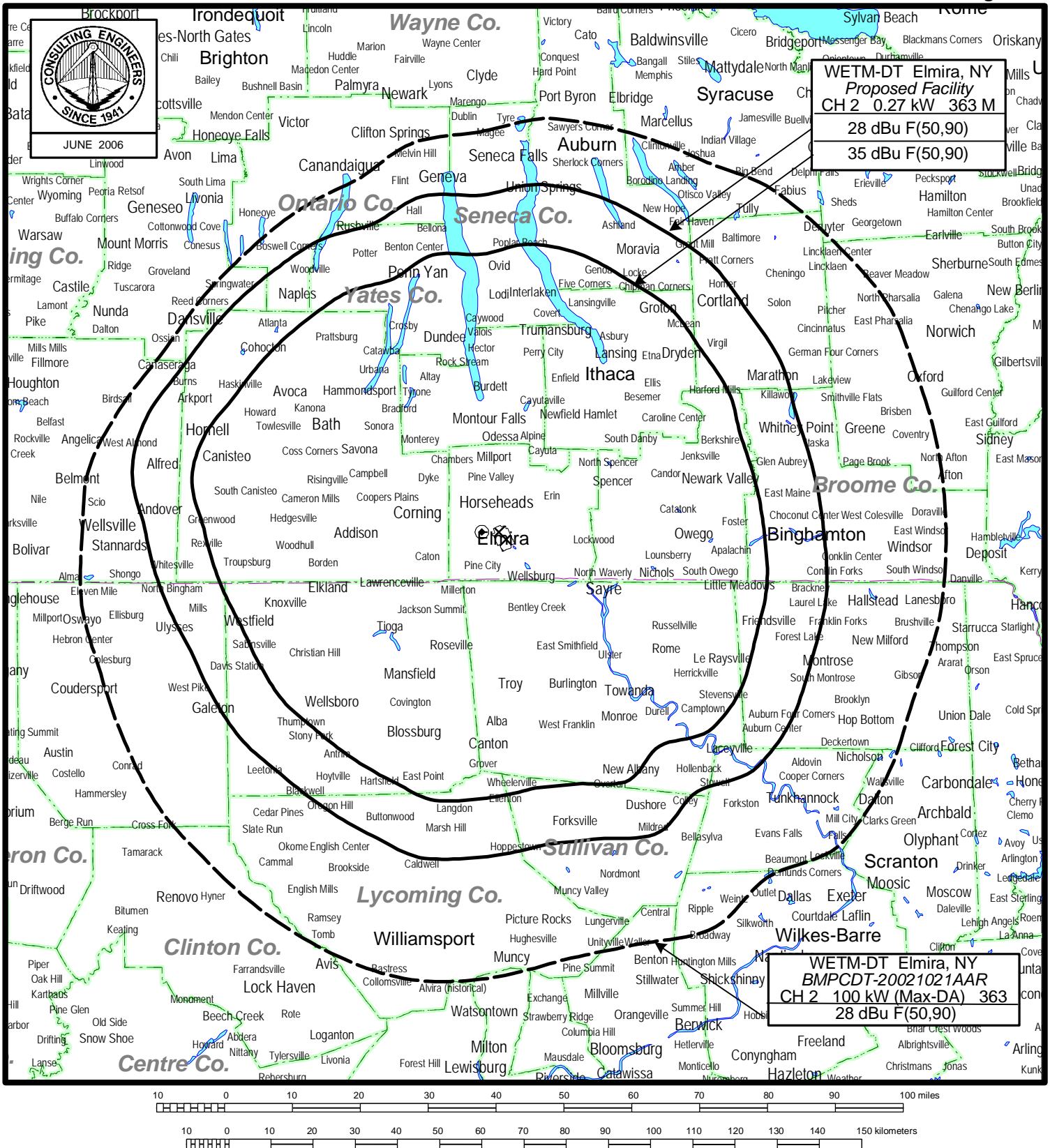


## PROPOSED ANTENNA AND SUPPORTING STRUCTURE

DIGITAL TELEVISION STATION WETM-DT  
ELMIRA, NEW YORK  
CH 2 0.27 KW 363 M

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

**Figure 3**



## PREDICTED COVERAGE CONTOURS

DIGITAL TELEVISION STATION WETM-DT

ELMIRA, NEW YORK

CH 2 0.27 KW 363 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida

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Summary of Allocation Analysis

Facility	Channel	NTSC or DTV?	Baseline Service Population (1990)	Permissible IX(%)	Net New IX Caused by Proposed (1990)	Percent of Baseline (%)
WMAR-TV Baltimore, MD BLCT-20000718AAP	2	NTSC	No Interference Predicted.			
WGRZ-TV Buffalo, NY WLCT-20020723ABE	2	NTSC	No Additional Interference Predicted.			
WCBS-TV New York, NY BLCT-20011123AAQ	2	NTSC	No Interference Predicted.			
WKTV(TV) Utica, NY BLCT-2033	2	NTSC	No Additional Interference Predicted.			
WKYC-DT Cleveland, OH BLCDT-20020404AAW	2	DTV	No Interference Predicted.			
WKYC-DT Cleveland, OH DTV Allotment	2	DTV	No Interference Predicted.			
KDKA-TV Pittsburg, PA BLCT-20000420ABR	2	NTSC	No Interference Predicted.			
WVBK-CA Manchester, VA BLTVA-20040713ACD	2	NTSC	No Interference Predicted.			
WSTM-TV Syracuse, NY BLCT-20030714AFR	3	NTSC	No New Interference Predicted.			



Facility	Channel	NTSC or DTV?	Baseline Service Population (1990)	Permissible IX(%)	Net New IX Caused by Proposed (1990)	Percent of Baseline (%)
WPSU-TV Clearfield, PA <i>BLET-20021220AAE</i>	3	NTSC	<i>No Interference Predicted.</i>			

## APPENDIX

### TRANSMITTING ANTENNA VERTICAL PLANE RADIATION PATTERN

## TVO series

### OMNIDIRECTIONAL ANTENNA

-3, 0, or 3 dBd gain  
54 to 216 MHz (Channels 2–13)

The Kathrein Scala Division TVO is a ruggedly built, horizontally polarized VHF-TV transmit antenna with an omnidirectional pattern.

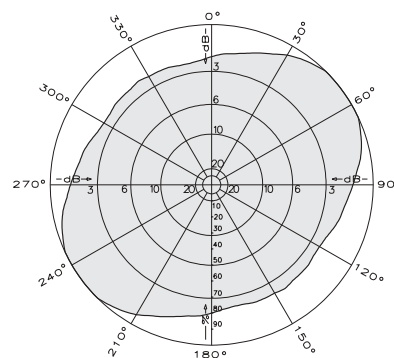
Like all Kathrein Scala Division antennas, the TVO is made of the finest materials using state of the art electrical and mechanical designs resulting in superior performance and long service life.

The TVO is available as a single bay antenna or in vertically stacked arrays for additional gain.

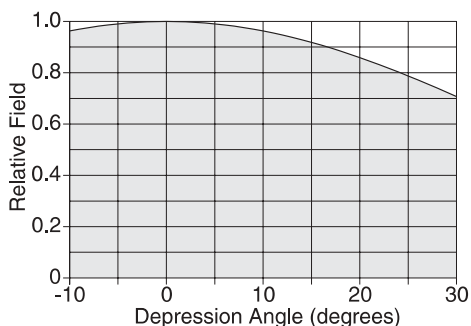
#### Specifications:

Frequency range	Any specified VHF-TV channel 54 to 216 MHz	
Gain	TVO (one bay) -3 dBd TVO-2 (two bays) 0 dBd ( $\frac{1}{2}$ spacing) TVO-4 (four bays) 3 dBd ( $\frac{1}{2}$ spacing)	
Impedance	50 or 75 ohms	
VSWR	<1.3:1	
Polarization	Horizontal	
Input power (per bay)	50 $\Omega$ model 250 watts 75 $\Omega$ model 100 watts	
Azimuth pattern	Omni	
Connector	N female	
Weight (approx.)	TVO (one bay) 9 lb (4.1 kg) TVO-2 (two bays) 22.6 lb (10.3 kg) TVO-4 (four bays) 50.6 lb (23 kg)	
Height	TVO (one bay) 18 inches (458 mm) TVO-2 (two bays) See reverse TVO-4 (four bays) See reverse	
Equivalent flat plate area	1.71 ft <sup>2</sup> (0.159 m <sup>2</sup> ) per bay (maximum)	
Wind survival rating*	120 mph (200 kph)	
Mounting	For masts of 2.375 inches (60 mm) OD.	

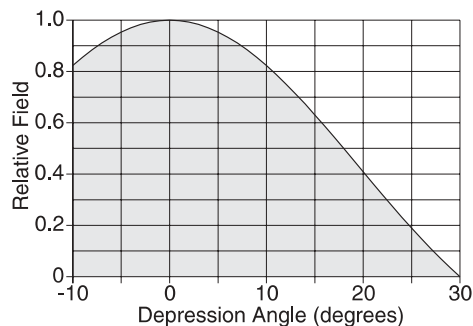
\* Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.



Azimuth pattern



Elevation pattern (two bays)



Elevation pattern (four bays)



10274-B