

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
STATION WIVT-DT  
BINGHAMTON, NEW YORK  
CH 4    1.5 KW    263 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station WIVT-DT which is paired with NTSC (analog) channel 34 at Binghamton, New York. This application requests a modification of its construction permit (CP) for a digital television operation on channel 4 at Binghamton.<sup>1</sup> It is proposed by this modification, with respect to the current construction permit, to increase the effective radiated power to 1.5 kilowatt.

Proposed Facilities

Station WIVT-DT proposes to operate DTV channel 4 from its currently authorized DTV transmitter site. It is proposed to operate with a Scala TVO-4 non-directional with an average effective radiated power of 1.5 kilowatt. An allocation study was completed to ensure no prohibited interference would occur.

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<sup>1</sup> See FCC Construction Permit File Number: BPCDT-19991101AGJ.

The proposed transmitter site location is described by the following coordinates (referenced to NAD-27):

42° 03' 39" North Latitude  
75° 56' 36" 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.

The Appendix contains the antenna manufacturer's for the proposed DTV antenna system.

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

The proposed site is located approximately 188 kilometers from the U.S./Canadian Border. It is believed that this proposal is in compliance with the Canadian Letter of Understanding (LOU) is satisfied.

#### DTV and NTSC Allocation Considerations

The proposed WIVT-DT Channel 4 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 FCC's software obtained by du Treil, Lundin & Rackley, Inc. 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 WIVT-DT facility are summarized herein as 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>2</sup>

#### Class A Allocation Considerations

The proposed WIVT-DT facility is not involved in any prohibited contour overlap, defined pursuant to Section 73.613 of the Commission's Rules, with respect to any Class A or Class A eligible low powered television stations. Therefore, it is believed the proposal complies with the FCC rules regarding Class A stations.

#### Radiofrequency Electromagnetic Field Exposure

The proposed WIVT-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 WIVT-DT antenna is located 148 meters (485 feet) above ground level. The

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<sup>2</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 WIVT-DT. This properly reflects the net interference change for determining compliance with the FCC DTV 2%/10% *de minimis* standard.

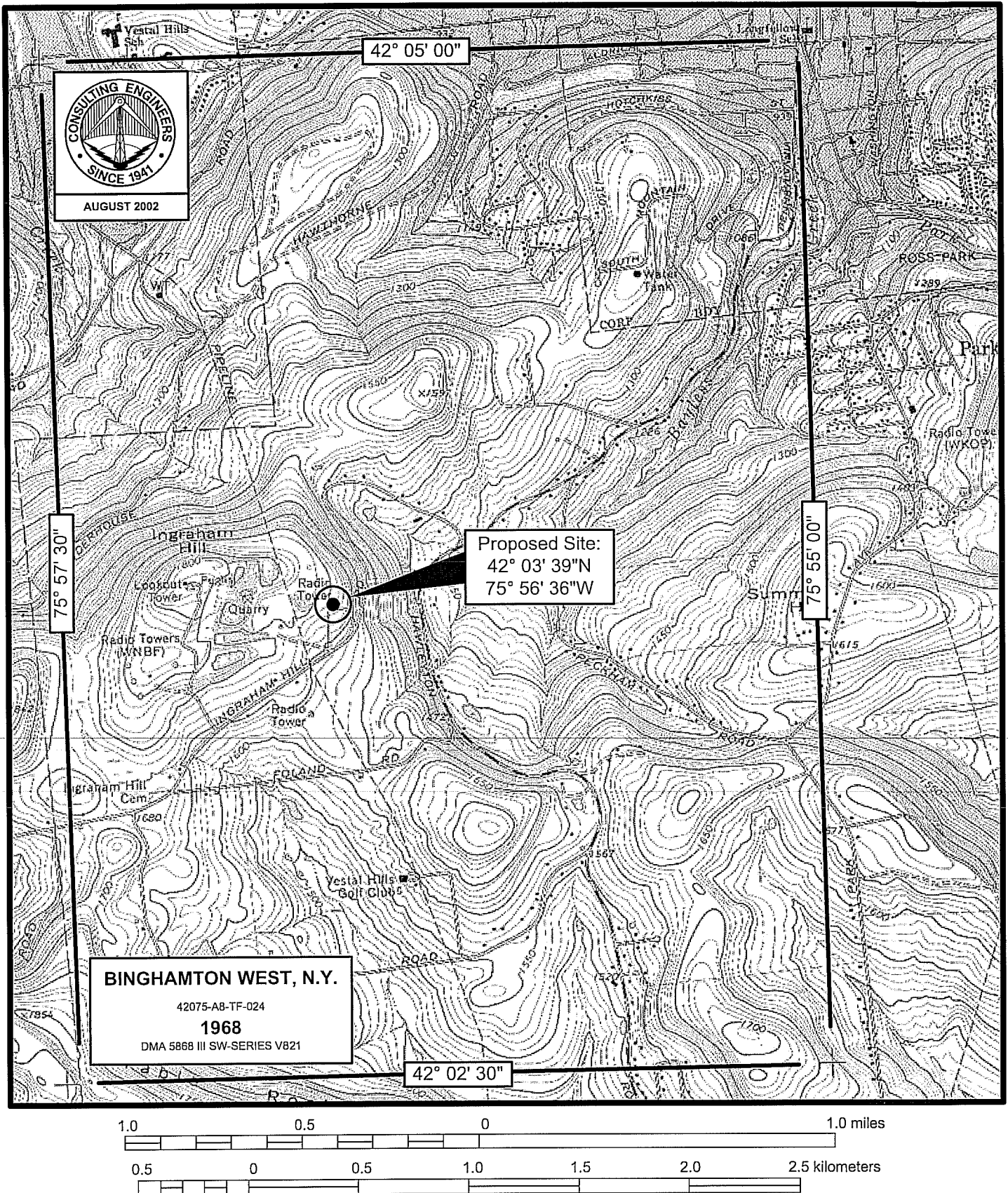
effective radiated power is 1.5 kilowatt. A conservative relative field value of 0.5 was assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is  $0.0006 \text{ mW/cm}^2$ . This is less than 5 percent of the Commission's recommended limit of  $0.2 \text{ mW/cm}^2$  for channel 4 in an "uncontrolled" 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 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.

Charles A. Cooper

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

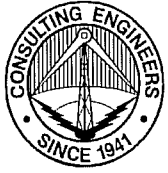
December 2, 2002



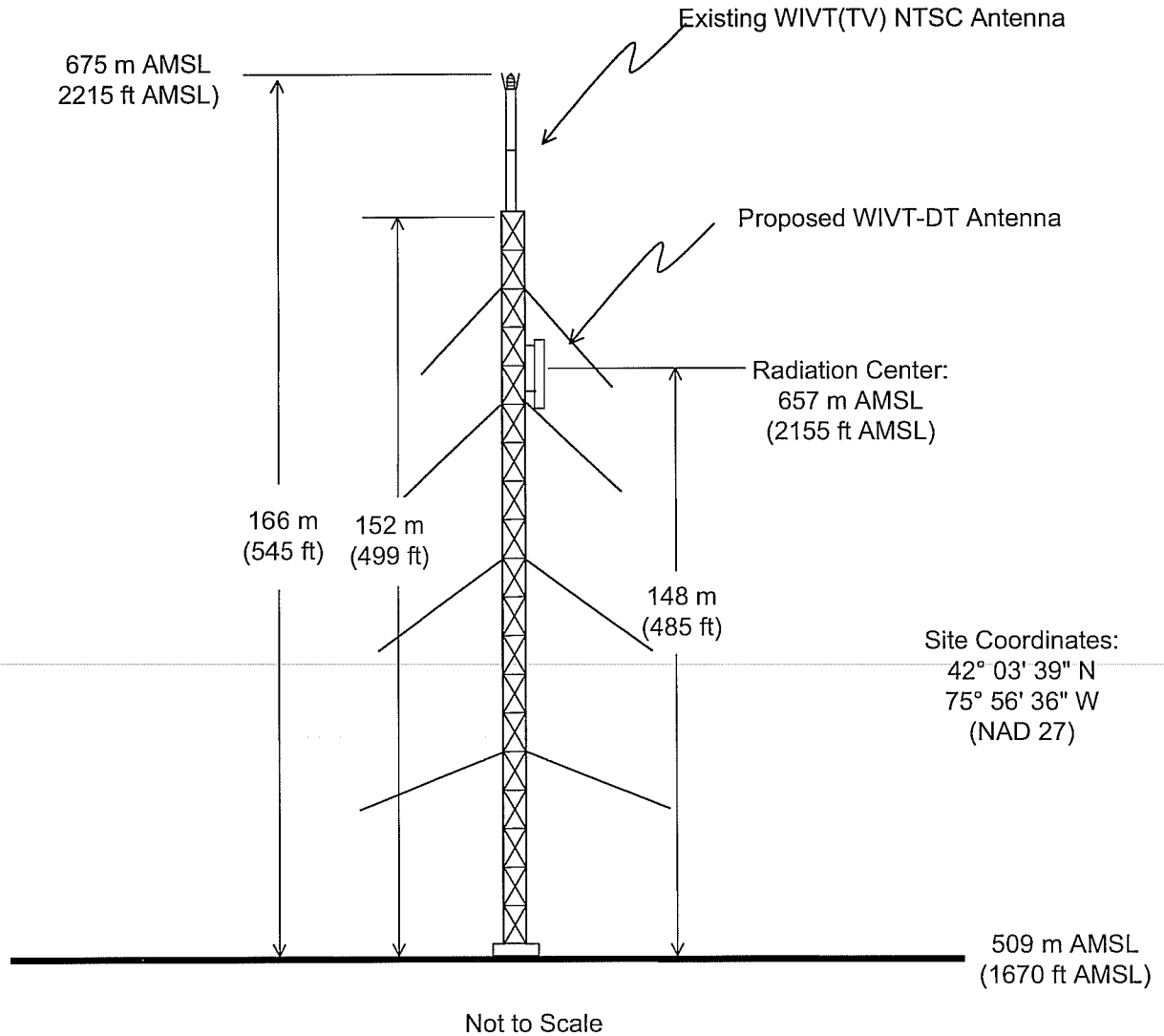
## PROPOSED TRANSMITTER LOCATION

TELEVISION STATION WIVT-DT  
BINGHAMTON, NEW YORK  
CH 4 1.5 KW 263 M

Tower Reg. No. 1007060



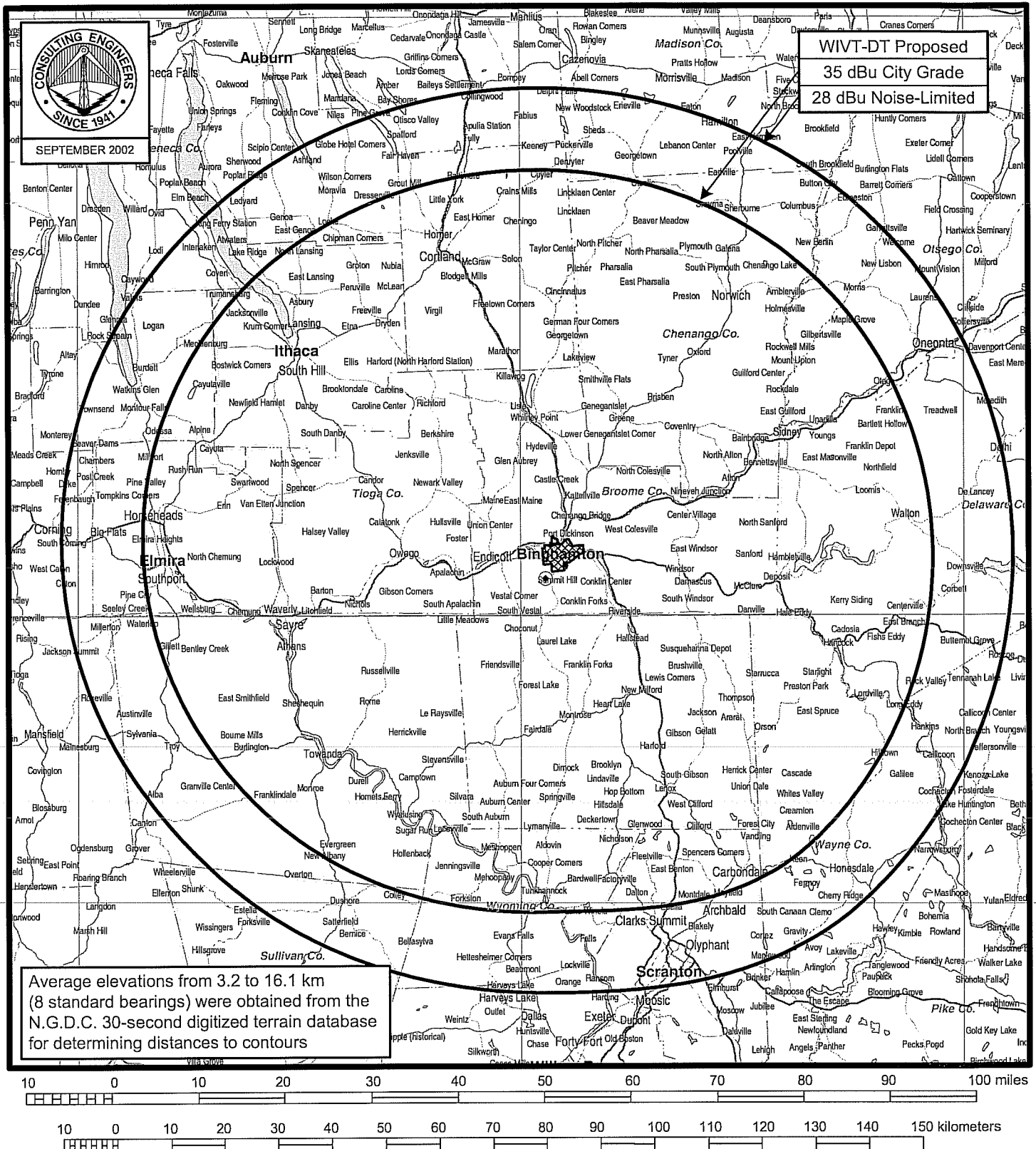
AUGUST 2002



## PROPOSED ANTENNA AND SUPPORTING STRUCTURE

TELEVISION STATION WIVT-DT  
 BINGHAMTON, NEW YORK  
 CH 4 1.5 KW 263 M

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



## PREDICTED F(50,90) COVERAGE CONTOURS

STATION WIVT-DT

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Summary of DTV and NTSC OET-69 Allocation Analysis

Facility	Channel	NTSC or DTV?	Baseline Service Population (1990)	Permissible IX(%)	Net New IX Caused by Proposed (1990)	Percent of Baseline (%)
WSTM-TV Syracuse, NY <i>BPCT-20020625AAD</i>	3	NTSC	1,675,054	2.0	455	<0.1
WSTM-TV Syracuse, NY <i>BMLCT-19870325KR</i>	3	NTSC	1,675,054	2.0	75	<0.1
WRC-TV Washington, DC <i>BLCT-19981230KE</i>	4	NTSC	6,786,527	2.0	131	<0.1
WBZ-TV Boston, MA <i>BLCT-20010228ABA</i>	4	NTSC	<i>No Interference Predicted</i>			
WXXA-DT Albany, NY <i>BPCDT-19991027ABR</i>	4	DTV	1,287,000	2.0	1,071	<0.1
WXXA-DT Albany, NY <i>Allotment</i>	4	DTV	1,287,000	2.0	212	<0.1
WIVB-TV Buffalo, NY <i>BPCT-20000928ABK</i>	4	NTSC	2,482,329	2.0	9,796	0.4
WIVB-TV Buffalo, NY <i>BPCT-19921014KF</i>	4	NTSC	2,482,329	2.0	41,473	1.7
WNBC(TV) New York, NY <i>BLCT-19840312KG</i>	4	NTSC	18,666,308	2.0	3,622	<0.1



**Figure 4**  
**Sheet 2 of 2**

WHP-DT Harrisburg, PA <i>Allotment</i>	4	DTV	1,864,000	2.0	2,606	0.14
WHB-DT Harrisburg, PA <i>BLCDT-20020508AAD</i>	4	DTV	1,864,000	2.0	2,368	0.13
WTAE-DT Pittsburg, PA <i>BMLCT-19941031KL</i>	4	DTV	No Additional Interference Predicted.			
COBT <i>Ottawa, Ontario</i>	4	NTSC	No Interference Predicted.			

## APPENDIX

### MANUFACTURER TRANSMITTING ANTENNA SPECIFICATIONS

## 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.

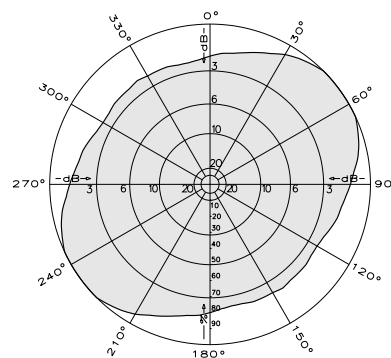
Like all Kathrein Scala Division antennas, the TVO is made of the finest materials using state of the art electrical and mechanical designs resulting in superior performance and long service life.

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

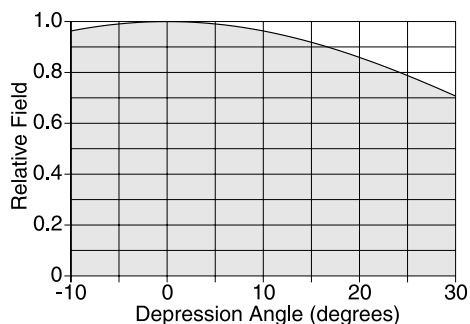
#### Specifications:

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.	

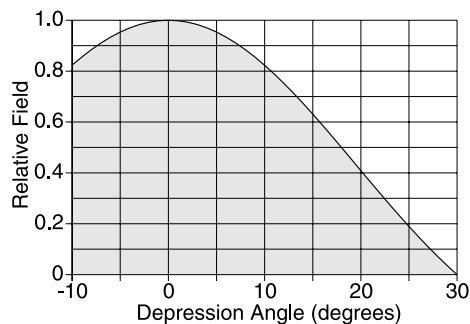
\* Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.



Azimuth pattern



Elevation pattern (two bays)



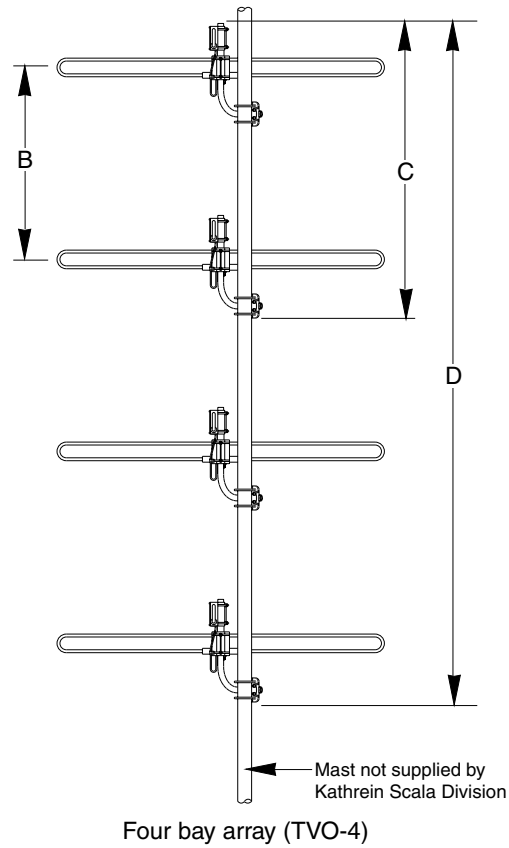
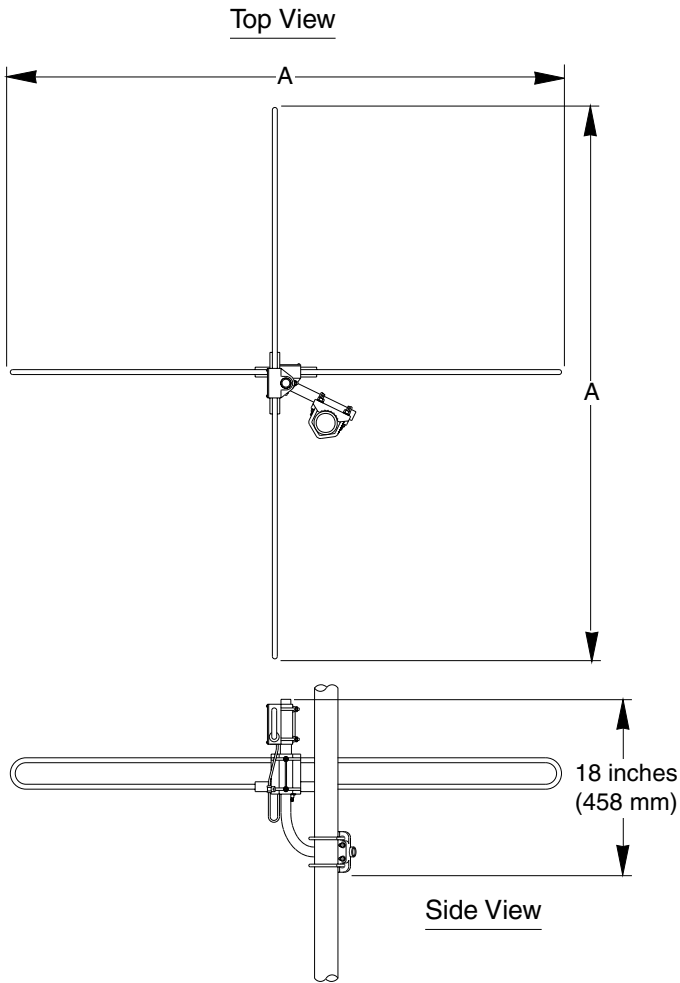
Elevation pattern (four bays)



10274-B

## TVO series OMNIDIRECTIONAL ANTENNA

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



Dimensions: Frequency range	A inches (mm)	B inches (mm)	Two bays C	Four bays D
54–60 MHz	96 (2439)	104 (2642)	122 (3099)	329 (8357)
60–66 MHz	87.5 (2223)	94 (2388)	112 (2845)	299 (7595)
66–72 MHz	79.5 (2020)	86 (2185)	104 (2642)	275 (6985)
76–82 MHz	69.5 (1766)	75 (1905)	93 (2363)	242 (6147)
82–88 MHz	65 (1651)	70 (1778)	88 (2236)	227 (5766)
174–180 MHz	31 (788)	33 (839)	51 (1296)	116 (2947)
180–186 MHz	30 (750)	32 (813)	50 (1270)	113 (2871)
186–192 MHz	29 (737)	31 (788)	49 (1245)	110 (2794)
192–198 MHz	28 (712)	30 (762)	48 (1220)	107 (2718)
198–204 MHz	27.5 (699)	29 (737)	47 (1194)	104 (2642)
204–210 MHz	26.5 (674)	28 (712)	46 (1169)	101 (2566)
210–216 MHz	26 (661)	28 (712)	46 (1169)	101 (2566)

### Order Information:

Contact Kathrein Scala Division Customer Service for detailed order information.

All specifications are subject to change without notice