

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF  
DTV CONSTRUCTION PERMIT  
STATION WETM-DT  
ELMIRA, NEW YORK  
CH 2 10 KW (MAX-DA) 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 a modification of its construction permit (CP) for a digital television operation on channel 2 at Elmira.<sup>1</sup> It is proposed by this modification, with respect to the current construction permit, to modify the directional antenna pattern and increase the maximum effective radiated power (ERP).

Proposed Facilities

Station WETM-DT proposes to operate DTV channel 2 from its currently authorized DTV transmitter site. It is proposed to operate with an Andrew ALBV2V2-HS03-2 directional type antenna with a maximum average effective radiated power of 10 kilowatts. The antenna will be oriented such that maximum radiation will occur along azimuth 76° true. The antenna height above average terrain (HAAT) for the channel 2 DTV operation will be 363 meters. 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-19991029ABG.

Based on the FCC's rules concerning maximum antenna ERP/HAAT (Section 73.622(f)(6)), the proposed WETM-DT operation would be limited to a lesser facility than proposed (i.e., reduced ERP and/or HAAT). Due to the difficulty that many broadcasters have been experiencing with low ERP levels with low band VHF stations, WETM-DT proposes to operate with directional ERP of 10 kW. The proposed ERP of 10 kW is well below the maximum allowable ERP based on OET-69 interference calculations and is also comparable in geographic coverage area to the WETM-DT authorized facility (CP). The proposed increase in coverage area from the WETM-DT CP is only 445 square kilometers. If a waiver of Section 73.622(f)(6) is necessary, it is respectfully requested.

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

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. The FCC Antenna Structure Registration Number for the existing structure is 1010439.

The Appendix contains the antenna manufacturer's horizontal and vertical plane radiation patterns for the proposed DTV antenna system.

Figure 3 is a map showing the predicted F(50,90) noise limited (41 dBu) and city grade (48 dBu) coverage

contours. The extent of the contours 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.

The proposed site is located approximately 170 kilometers from the U.S./Canadian Border. The proposed WETM-DT operation (Canadian Class VL) meets the minimum separation requirements to all Canadian stations and allotments. Therefore, compliance with the Canadian Letter of Understanding (LOU) is met and no Canadian coordination is necessary.

#### DTV and NTSC 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 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 WETM-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 WETM-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 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 756 meters above ground level. The maximum effective radiated power is 10 kilowatts. A conservative relative field value of 0.2 was assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is 0.000024 mW/cm<sup>2</sup>. This is less than 0.1 percent of the Commission's recommended limit of 0.2 mW/cm<sup>2</sup> for channel 2 in an "uncontrolled" environment.

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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 WETM-DT. This properly reflects the net interference change for determining compliance with the FCC DTV 2%/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.

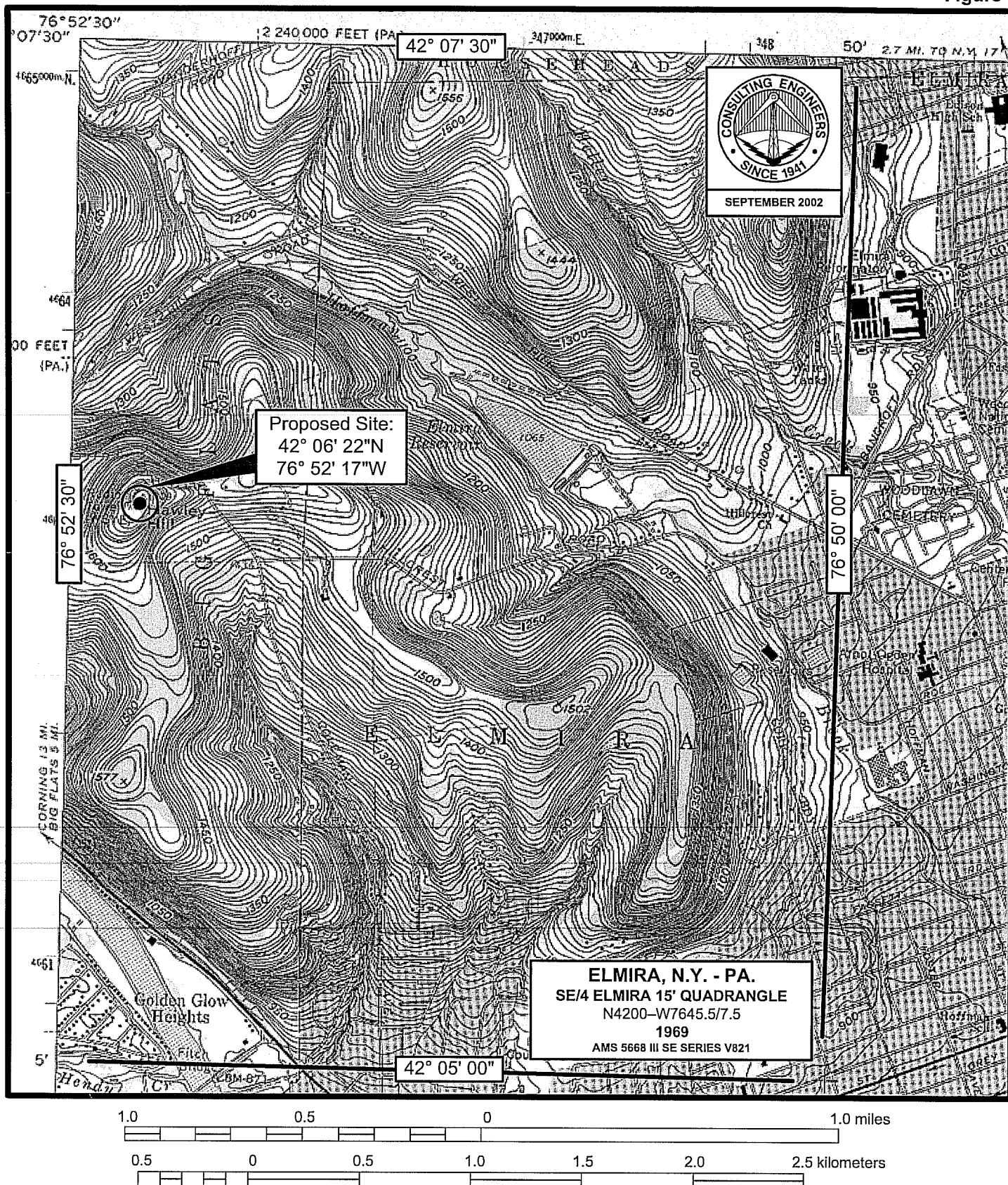


Jonathan N. Edwards

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

September 19, 2002

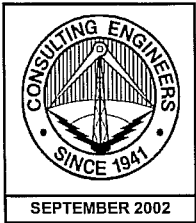
Figure 1



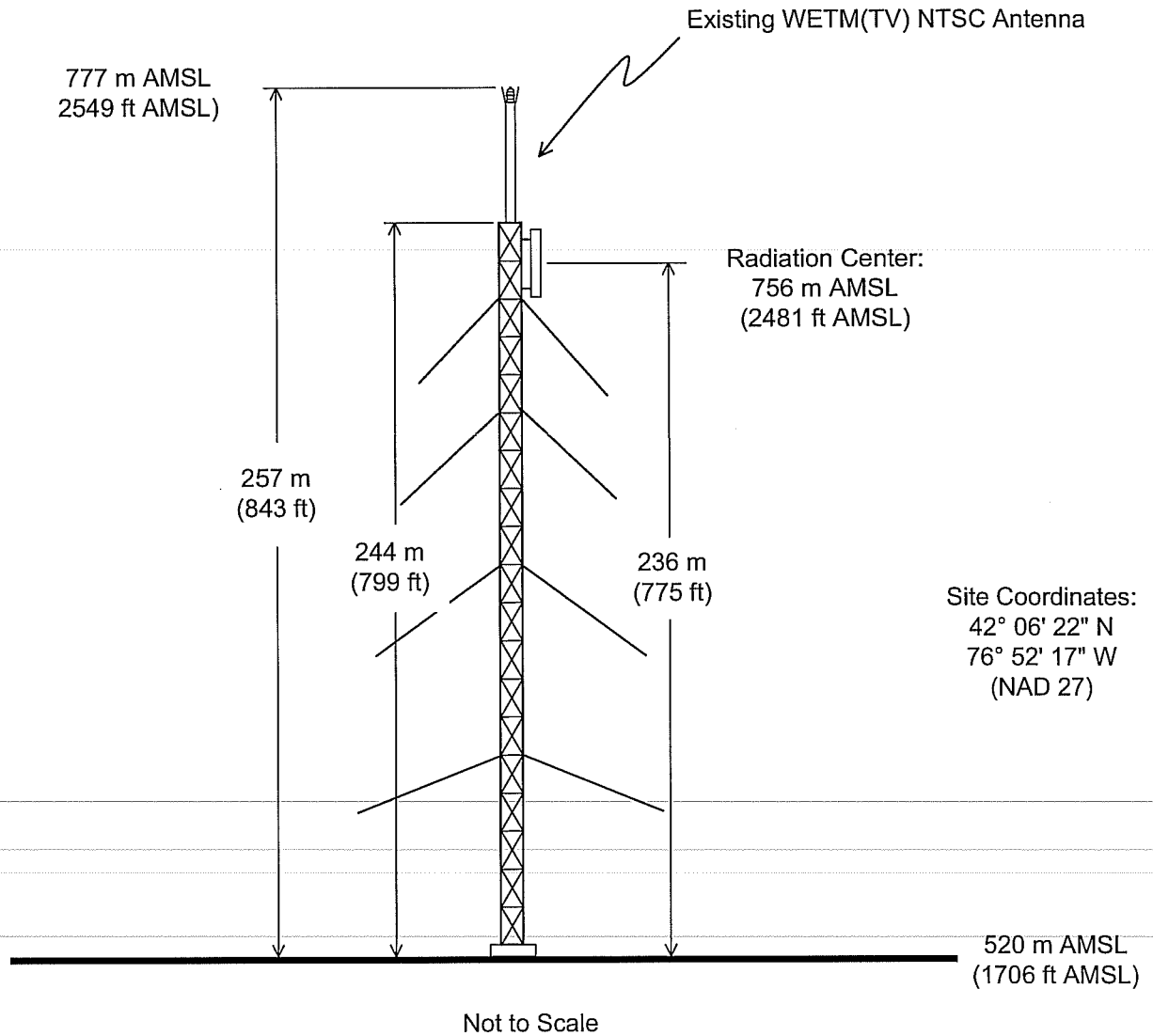
## PROPOSED TRANSMITTER LOCATION

STATION WETM-DT  
ELMIRA, NEW YORK  
CH 2 10 KW (MAX-DA) 363 M

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



Tower Reg. No. 1010439

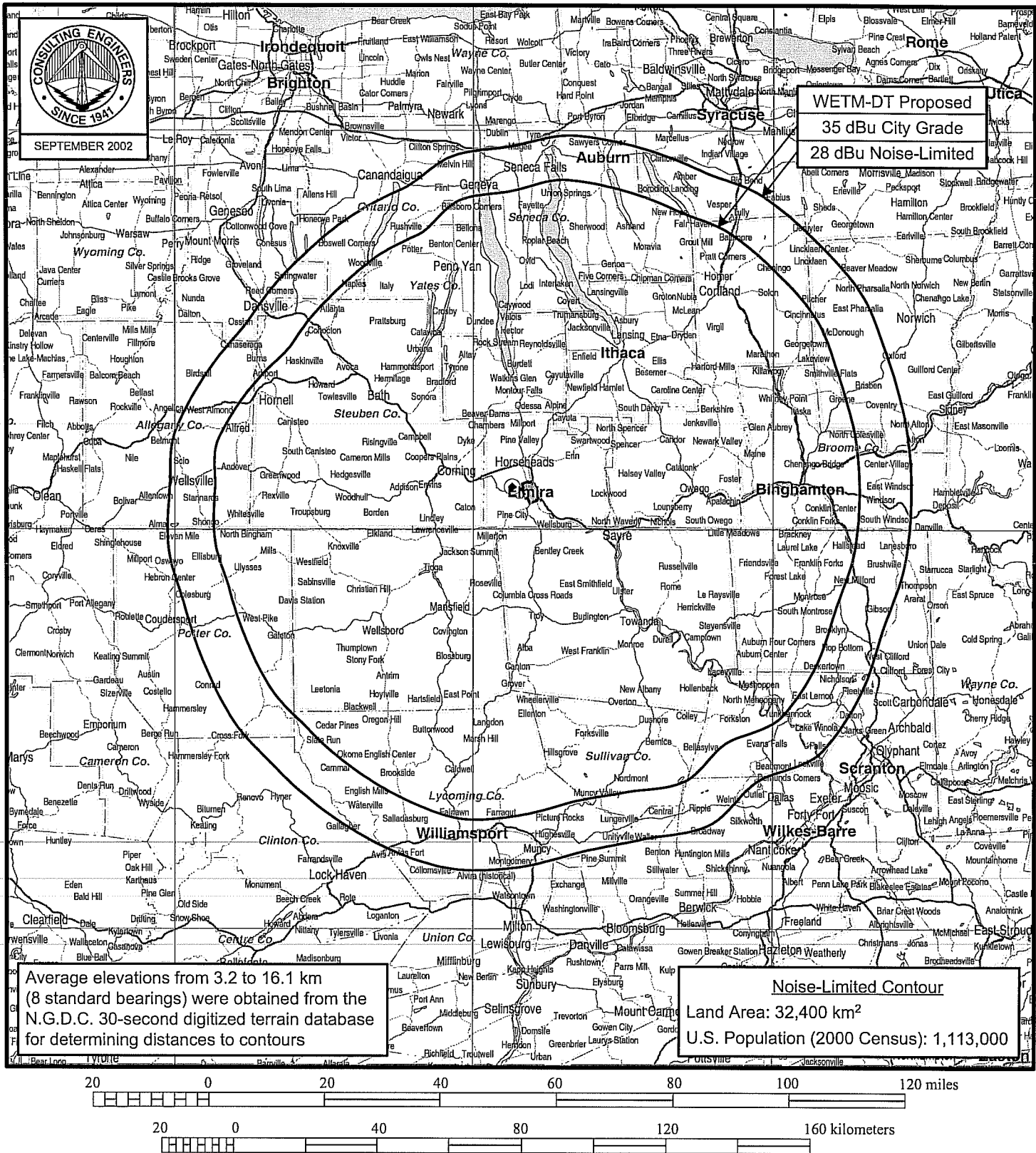


## PROPOSED ANTENNA AND SUPPORTING STRUCTURE

STATION WETM-DT  
ELMIRA, NEW YORK  
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du Treil, Lundin & Rackley, Inc., Sarasota, Florida

Figure 3



## PREDICTED F(50,90) COVERAGE CONTOURS

STATION WETM-DT

ELMIRA, NEW YORK

CH 2 10 KW (MAX-DA) 363 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida



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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 (%)
WMAR-TV Baltimore, MA <i>BLCT-20000718AAP</i>	2	NTSC	7,862,490	2.0	13,153	0.17
WGRZ-TV(Lic) Buffalo, NY <i>BMLCT-19970808KG</i>	2	NTSC	2,460,815	2.0	21,050	0.86
WGRZ-TV(CP) Buffalo, NY <i>BPCT-20020429AAI</i>	2	NTSC	2,448,103	2.0	22,340	0.91
WCBS-TV New York, NY <i>BLCT-20011123AAQ</i>	2	NTSC	18,702,976	2.0	12,504	0.07
WKTU(TV) Utica, NY <i>BLCT-2033</i>	2	NTSC	1,461,911	2.0	10,609	0.73
WKYC-DT(CP) Cleveland, OH <i>BPCDT-20000501ABZ</i>	2	DTV	No Interference Predicted			
WKYC-DT <i>Allotment</i>	2	DTV	No Interference Predicted			
KDKA-TV Pittsburg, PA <i>BLCT-20000420ABR</i>	2	NTSC	3,888,307	2.0	478	0.01
WSTM-TV(Lic) Syracuse, NY <i>BMLCT-19870325KR</i>	3	NTSC	1,675,054	2.0	217	0.01
WSTM-TV(CP) Syracuse, NY <i>BPCT-20020625AAD</i>	3	NTSC	1,648,833	2.0	289	0.02

WPSX-TV(Lic) Clearfield, PA <i>BLET-292</i>	3	NTSC	No Interference Predicted
WPSX-TV(CP) Clearfield, PA <i>BPET-20020607AAL</i>	3	NTSC	No Interference Predicted

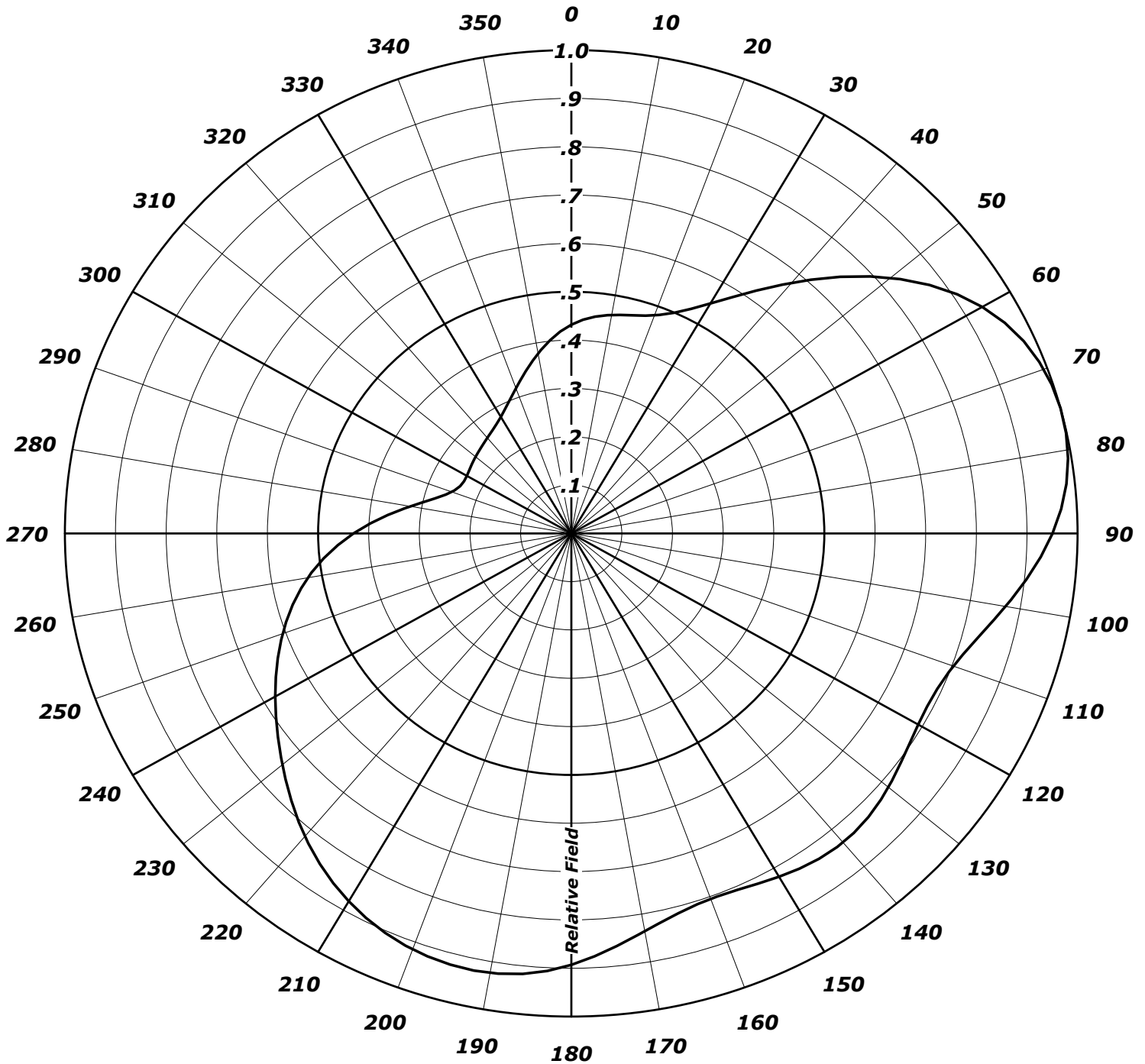
## APPENDIX

### MANUFACTURER TRANSMITTING ANTENNA SPECIFICATIONS

**ANDREW**  
**AZIMUTH PATTERN**

Type: ALBV-H1203-WCX

	Numeric	dBd
Directivity:	<u>2.036</u>	<u>( 3.09 )</u>
Peak(s) At:	<u></u>	
Polarization:	<u>Horizontal</u>	
Channel:	<u>2 (54-77MHz)</u>	
Location:	<u>Elmira, NY</u>	





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**TABULATED DATA FOR AZIMUTH PATTERN**  
**TYPE : ALBV-H1203-WCX**

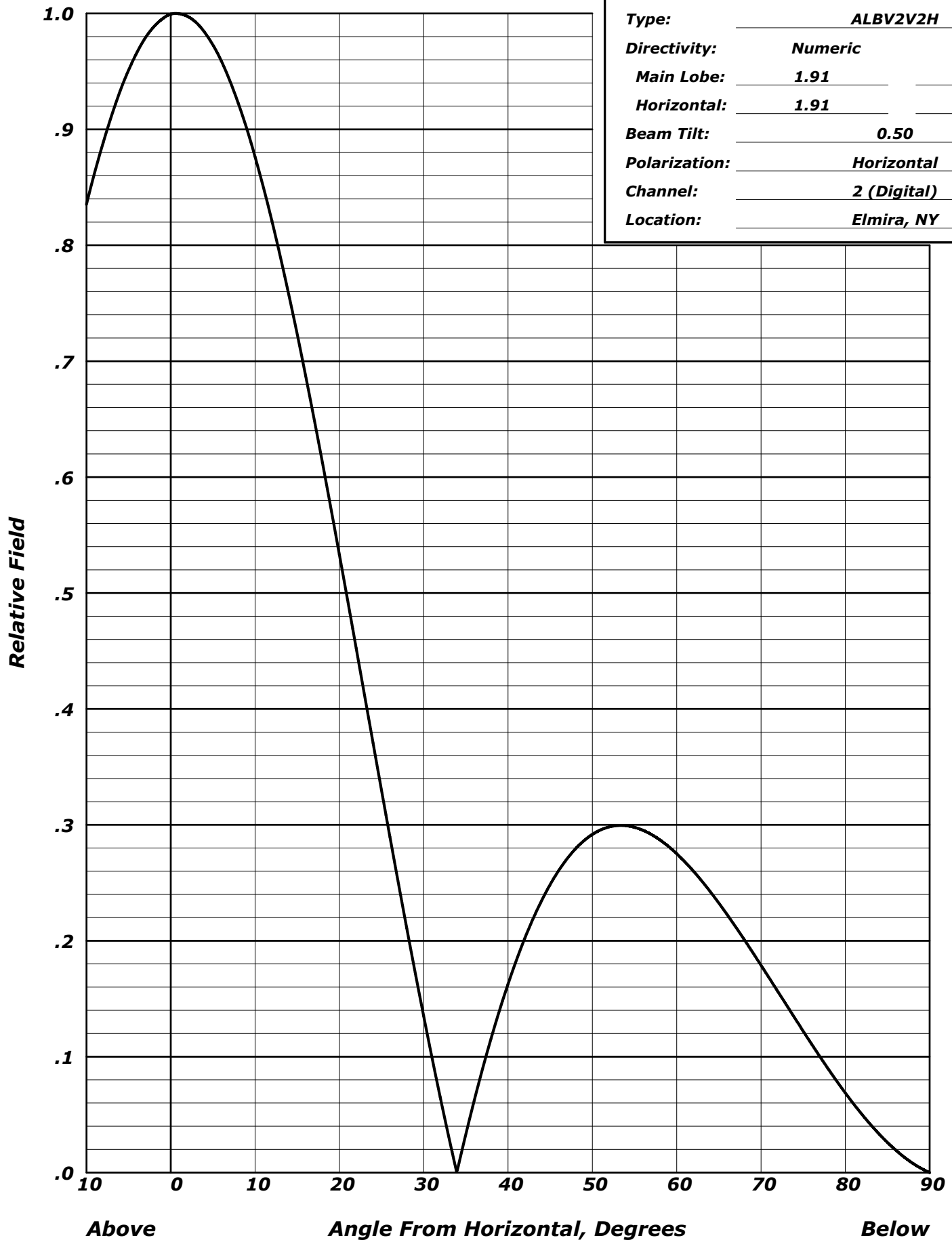
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Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	0.432	-7.29	110	0.803	-1.90	220	0.818	-1.74	330	0.278	-11.11
2	0.439	-7.15	112	0.796	-1.98	222	0.804	-1.89	332	0.285	-10.90
4	0.446	-7.02	114	0.791	-2.04	224	0.789	-2.06	334	0.293	-10.68
6	0.451	-6.92	116	0.789	-2.06	226	0.774	-2.22	336	0.301	-10.44
8	0.455	-6.84	118	0.789	-2.06	228	0.759	-2.39	338	0.310	-10.17
10	0.459	-6.77	120	0.791	-2.04	230	0.745	-2.56	340	0.320	-9.90
12	0.462	-6.70	122	0.795	-2.00	232	0.730	-2.73	342	0.330	-9.62
14	0.466	-6.64	124	0.799	-1.94	234	0.716	-2.90	344	0.342	-9.32
16	0.469	-6.57	126	0.805	-1.89	236	0.702	-3.07	346	0.354	-9.03
18	0.474	-6.49	128	0.811	-1.82	238	0.689	-3.24	348	0.366	-8.74
20	0.481	-6.36	130	0.817	-1.76	240	0.675	-3.41	350	0.378	-8.45
22	0.490	-6.20	132	0.823	-1.69	242	0.662	-3.59	352	0.390	-8.17
24	0.500	-6.02	134	0.827	-1.65	244	0.648	-3.77	354	0.402	-7.91
26	0.514	-5.77	136	0.831	-1.61	246	0.635	-3.95	356	0.413	-7.68
28	0.531	-5.50	138	0.834	-1.58	248	0.621	-4.14	358	0.423	-7.48
30	0.549	-5.20	140	0.834	-1.57	250	0.607	-4.34	360	0.432	-7.29
32	0.572	-4.86	142	0.834	-1.58	252	0.592	-4.55			
34	0.596	-4.50	144	0.832	-1.60	254	0.577	-4.77			
36	0.621	-4.14	146	0.829	-1.63	256	0.562	-5.01			
38	0.649	-3.76	148	0.825	-1.67	258	0.546	-5.26			
40	0.677	-3.39	150	0.820	-1.72	260	0.528	-5.54			
42	0.706	-3.02	152	0.815	-1.77	262	0.510	-5.84			
44	0.736	-2.66	154	0.811	-1.82	264	0.492	-6.17			
46	0.765	-2.32	156	0.807	-1.86	266	0.472	-6.53			
48	0.795	-2.00	158	0.805	-1.88	268	0.451	-6.91			
50	0.822	-1.70	160	0.805	-1.88	270	0.430	-7.33			
52	0.849	-1.42	162	0.807	-1.87	272	0.408	-7.78			
54	0.874	-1.17	164	0.811	-1.82	274	0.387	-8.26			
56	0.897	-0.94	166	0.818	-1.75	276	0.365	-8.77			
58	0.918	-0.74	168	0.826	-1.66	278	0.343	-9.29			
60	0.937	-0.56	170	0.836	-1.56	280	0.323	-9.81			
62	0.953	-0.42	172	0.847	-1.44	282	0.304	-10.35			
64	0.966	-0.30	174	0.858	-1.33	284	0.288	-10.83			
66	0.978	-0.19	176	0.870	-1.21	286	0.273	-11.27			
68	0.986	-0.12	178	0.882	-1.09	288	0.261	-11.68			
70	0.992	-0.07	180	0.893	-0.99	290	0.252	-11.97			
72	0.997	-0.03	182	0.902	-0.90	292	0.245	-12.21			
74	0.999	-0.01	184	0.910	-0.82	294	0.240	-12.38			
76	1.000	-0.00	186	0.916	-0.76	296	0.239	-12.45			
78	0.999	-0.01	188	0.920	-0.72	298	0.238	-12.47			
80	0.995	-0.04	190	0.923	-0.70	300	0.238	-12.46			
82	0.990	-0.09	192	0.925	-0.68	302	0.240	-12.41			
84	0.983	-0.15	194	0.924	-0.69	304	0.241	-12.35			
86	0.973	-0.23	196	0.922	-0.70	306	0.243	-12.28			
88	0.962	-0.33	198	0.920	-0.72	308	0.245	-12.22			
90	0.950	-0.45	200	0.916	-0.77	310	0.247	-12.15			
92	0.935	-0.58	202	0.910	-0.81	312	0.249	-12.08			
94	0.920	-0.72	204	0.905	-0.87	314	0.251	-12.01			
96	0.904	-0.88	206	0.897	-0.95	316	0.253	-11.93			
98	0.887	-1.04	208	0.888	-1.03	318	0.255	-11.85			
100	0.871	-1.20	210	0.879	-1.12	320	0.258	-11.76			
102	0.854	-1.37	212	0.868	-1.23	322	0.261	-11.66			
104	0.839	-1.52	214	0.857	-1.34	324	0.264	-11.55			
106	0.825	-1.67	216	0.845	-1.46	326	0.269	-11.42			
108	0.813	-1.80	218	0.832	-1.60	328	0.273	-11.27			



# ANDREW ELEVATION PATTERN

Type:	ALBV2V2H	
Directivity:	Numeric	dBd
Main Lobe:	1.91	( 2.80)
Horizontal:	1.91	( 2.80)
Beam Tilt:	0.50	
Polarization:	Horizontal	
Channel:	2 (Digital)	
Location:	Elmira, NY	





## TABULATED DATA FOR ELEVATION PATTERN TYPE : ALBV2V2H

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
-5 To 10			10 To 90								
In 0.25 Increments			In 0.5 Increments								
-5.00	0.951	-0.44	8.75	0.907	-0.85	35.00	0.033	-29.57	62.50	0.256	-11.84
-4.75	0.955	-0.40	9.00	0.901	-0.91	35.50	0.048	-26.36	63.00	0.251	-11.99
-4.50	0.959	-0.36	9.25	0.895	-0.96	36.00	0.062	-24.08	63.50	0.247	-12.15
-4.25	0.963	-0.33	9.50	0.889	-1.02	36.50	0.077	-22.33	64.00	0.242	-12.32
-4.00	0.966	-0.30	9.75	0.883	-1.08	37.00	0.090	-20.90	64.50	0.237	-12.49
-3.75	0.970	-0.27	10.00	0.876	-1.15	37.50	0.103	-19.72	65.00	0.233	-12.67
-3.50	0.973	-0.24	10.50	0.863	-1.28	38.00	0.116	-18.71	65.50	0.228	-12.86
-3.25	0.976	-0.21	11.00	0.850	-1.42	38.50	0.128	-17.83	66.00	0.222	-13.06
-3.00	0.979	-0.18	11.50	0.836	-1.56	39.00	0.140	-17.06	66.50	0.217	-13.26
-2.75	0.982	-0.16	12.00	0.821	-1.72	39.50	0.152	-16.38	67.00	0.212	-13.48
-2.50	0.984	-0.14	12.50	0.806	-1.88	40.00	0.163	-15.77	67.50	0.207	-13.70
-2.25	0.987	-0.12	13.00	0.790	-2.05	40.50	0.173	-15.23	68.00	0.201	-13.93
-2.00	0.989	-0.10	13.50	0.774	-2.23	41.00	0.183	-14.73	68.50	0.196	-14.17
-1.75	0.990	-0.08	14.00	0.757	-2.41	41.50	0.193	-14.28	69.00	0.190	-14.42
-1.50	0.992	-0.07	14.50	0.740	-2.61	42.00	0.202	-13.88	69.50	0.185	-14.68
-1.25	0.994	-0.05	15.00	0.723	-2.82	42.50	0.211	-13.51	70.00	0.179	-14.95
-1.00	0.995	-0.04	15.50	0.705	-3.03	43.00	0.220	-13.17	70.50	0.173	-15.23
-0.75	0.997	-0.03	16.00	0.687	-3.26	43.50	0.227	-12.86	71.00	0.168	-15.51
-0.50	0.998	-0.02	16.50	0.669	-3.49	44.00	0.235	-12.58	71.50	0.162	-15.81
-0.25	0.999	-0.01	17.00	0.650	-3.74	44.50	0.242	-12.33	72.00	0.156	-16.13
0.00	0.999	-0.01	17.50	0.631	-4.00	45.00	0.249	-12.09	72.50	0.151	-16.45
0.25	1.000	-0.00	18.00	0.612	-4.27	45.50	0.255	-11.88	73.00	0.145	-16.78
0.50	1.000	0.00	18.50	0.592	-4.55	46.00	0.260	-11.68	73.50	0.139	-17.13
0.75	1.000	-0.00	19.00	0.573	-4.84	46.50	0.266	-11.51	74.00	0.133	-17.49
1.00	1.000	-0.00	19.50	0.553	-5.15	47.00	0.271	-11.35	74.50	0.128	-17.87
1.25	0.999	-0.01	20.00	0.533	-5.47	47.50	0.275	-11.21	75.00	0.122	-18.27
1.50	0.999	-0.01	20.50	0.513	-5.80	48.00	0.279	-11.08	75.50	0.116	-18.68
1.75	0.998	-0.02	21.00	0.493	-6.15	48.50	0.283	-10.96	76.00	0.111	-19.10
2.00	0.997	-0.02	21.50	0.472	-6.51	49.00	0.286	-10.86	76.50	0.105	-19.54
2.25	0.996	-0.03	22.00	0.452	-6.90	49.50	0.289	-10.77	77.00	0.100	-20.01
2.50	0.995	-0.04	22.50	0.431	-7.30	50.00	0.292	-10.70	77.50	0.095	-20.49
2.75	0.994	-0.05	23.00	0.411	-7.72	50.50	0.294	-10.63	78.00	0.089	-20.99
3.00	0.992	-0.07	23.50	0.391	-8.16	51.00	0.296	-10.58	78.50	0.084	-21.52
3.25	0.990	-0.08	24.00	0.370	-8.63	51.50	0.297	-10.54	79.00	0.079	-22.07
3.50	0.988	-0.10	24.50	0.350	-9.12	52.00	0.298	-10.51	79.50	0.074	-22.65
3.75	0.986	-0.12	25.00	0.330	-9.64	52.50	0.299	-10.49	80.00	0.069	-23.25
4.00	0.984	-0.14	25.50	0.309	-10.19	53.00	0.299	-10.48	80.50	0.064	-23.89
4.25	0.981	-0.16	26.00	0.289	-10.78	53.50	0.299	-10.47	81.00	0.059	-24.56
4.50	0.979	-0.19	26.50	0.269	-11.40	54.00	0.299	-10.48	81.50	0.055	-25.27
4.75	0.976	-0.21	27.00	0.249	-12.06	54.50	0.299	-10.49	82.00	0.050	-26.02
5.00	0.973	-0.24	27.50	0.230	-12.77	55.00	0.298	-10.52	82.50	0.046	-26.81
5.25	0.970	-0.27	28.00	0.210	-13.54	55.50	0.297	-10.55	83.00	0.041	-27.66
5.50	0.966	-0.30	28.50	0.191	-14.37	56.00	0.295	-10.59	83.50	0.037	-28.55
5.75	0.963	-0.33	29.00	0.172	-15.29	56.50	0.294	-10.64	84.00	0.033	-29.53
6.00	0.959	-0.36	29.50	0.153	-16.29	57.00	0.292	-10.70	84.50	0.030	-30.57
6.25	0.955	-0.40	30.00	0.135	-17.41	57.50	0.290	-10.77	85.00	0.026	-31.70
6.50	0.951	-0.44	30.50	0.117	-18.67	58.00	0.287	-10.84	85.50	0.023	-32.95
6.75	0.946	-0.48	31.00	0.099	-20.12	58.50	0.284	-10.92	86.00	0.019	-34.29
7.00	0.942	-0.52	31.50	0.081	-21.85	59.00	0.282	-11.01	86.50	0.016	-35.83
7.25	0.937	-0.56	32.00	0.064	-23.94	59.50	0.278	-11.11	87.00	0.013	-37.55
7.50	0.933	-0.61	32.50	0.047	-26.64	60.00	0.275	-11.21	87.50	0.011	-39.50
7.75	0.928	-0.65	33.00	0.030	-30.52	60.50	0.272	-11.32	88.00	0.008	-41.91
8.00	0.923	-0.70	33.50	0.013	-37.40	61.00	0.268	-11.44	88.50	0.006	-44.86
8.25	0.917	-0.75	34.00	0.003	-51.55	61.50	0.264	-11.57	89.00	0.004	-48.75
8.50	0.912	-0.80	34.50	0.018	-34.87	62.00	0.260	-11.70	89.50	0.002	-55.30