TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
DTV CONSTRUCTION PERMIT
STATION WWTI-DT
WATERTOWN, NEW YORK
CH 21 25 KW (MAX-DA) 331 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station WWTI-DT which is paired with NTSC (analog) channel 50 at Watertown, New York. This application requests a modification of its construction permit (CP) for a digital television operation on channel 21 at Watertown.[1] It is proposed by this modification, with respect to the current construction permit, to decrease the antenna radiation center height above ground level by 6 meters, modify the directional antenna pattern, and decrease the maximum effective radiated power.

Proposed Facilities

Station WWTI-DT proposes to operate DTV channel 21 from its currently authorized DTV transmitter site. It is proposed to operate with an Andrew ALP16L4-HSW-21 directional type antenna with a maximum average effective radiated power of 25 kilowatts. The antenna height above average terrain for the channel 21 DTV operation will be 331 meters. An allocation study was completed to ensure no prohibited interference would occur.

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

43° 52′ 47″ North Latitude
75° 43′ 12″ 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's Antenna Structure Registration Number for the existing is 1005424.

The Appendix contains the antenna manufacturer's horizontal and vertical plane radiation patterns for the proposed DTV antenna system. The proposed "cardioid" type antenna will be oriented such that the main lobe will be at 340° true.

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 Watertown city limits were derived from information contained in the 2000 U.S. Census of Population and Housing.

DTV and NTSC Allocation Considerations

The proposed WWTI-DT Channel 21 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-

[1] See FCC Construction Permit File Number: BPCDT-19991029ABH.

Rice interference analyses were conducted using the software developed by du Treil, Lundin & Rackley, Inc. based on the FCC published software routines.[2] 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 WWTI-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.[3]

Class A Allocation Considerations

The proposed WWTI-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.

Canadian Allocation Considerations

The proposed site is located approximately 57 km from the closest point on the border with Canada and is located within the Canadian border area governed by the U.S.-Canada Letter of Understanding (LOU) concerning digital television.[4] The proposed WWTI-DT facility would be

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 WWTI-DT. This properly reflects the net interference change for determining compliance with the FCC DTV2%/10% *de minimis* standard.
[4]See Letter Of Understanding Between The Federal Communications Commission Of The United States Of America And Industry Canada Related

considered a "Class VU" facility for the purposes of the analysis under the terms of the LOU.

A spacing analysis was conducted according to the separation requirements of Appendix 2 of LOU using a "buffer" distance exceeding 125 km beyond the minimum spacing requirement. The following table summarizes the spacing analysis for the pertinent Canadian allotments identified:

Channel	Type	Location	Class	Required Spacing (km)	Actual Spacing (km)	Result
19	NTSC	Kingston, ON	B	85.0	73.8	Contour Analysis
21	DTV	Golden Lake, ON	B	344.0	224.1	Contour Analysis
21	DTV	Montreal, QU	VU	352.0	247.2	Contour Analysis
21	DTV	Hamilton, ON	C	340.0	336.1	Contour Analysis
22	DTV	Gananoque, ON	A	87.0	61.8	Contour Analysis
23	NTSC	Kingston, ON	B	84.0	73.8	Contour Analysis

Since the separation requirements to the above stations are not met, contour analyses were conducted pursuant to the principles outlined in Appendix 2 of the LOU. Accordingly, the 12.4 dBu, 59.1 dBu, 82.1 dBu, and 85.1 dBu f(50,10) interfering contours[5] were calculated to determine the

To The Use Of The 54-72 MHz, 76-88 MHz, 174-216 MHz And 470-806 MHz Bands For The Digital Television Broadcasting Service Along The Common Border, September 22, 2000.

[5] This is based on a protected contour of 39 dBu, f(90,90) contour, with a co-channel D/U figure of 7.2 dB for NTSC into DTV interference from Appendix 2 of the LOU.

interference potential between WWTI-DT and the stations tabulated above. The contour analysis is illustrated in Figure 5. As shown, there is predicted contour overlap between the WWTI-DT allotment and four of the Canadian facilities tabulated above. In every case, the proposed WWTI-DT facility will reduce the amount of contour overlap with respect to the WWTI-DT allotment. With regard to the channel 19 and channel 23 NTSC allotments at Kingston, Ontario, there is no predicted overlap. Thus the 82.1 and 85.1 interfering contours were not shown for the WWTI-DT allotment.

Since, the proposal will ultimately lessen or eliminate the amount of contour overlap toward each of the pertinent Canadian stations, it is believed Canada should accept the herein proposal.

Radiofrequency Electromagnetic Field Exposure

The proposed WWTI-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 WWTI-DT antenna is located 244 meters above ground level. The maximum effective radiated power is 25 kilowatts. A conservative relative field value of 0.3 is assumed for the antenna's downward radiation. The calculated power density at a point 2 meters above ground level is 0.0009 mW/cm^2, or less than 5% of the maximum permissible exposure limit for general population / uncontrolled environments.

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

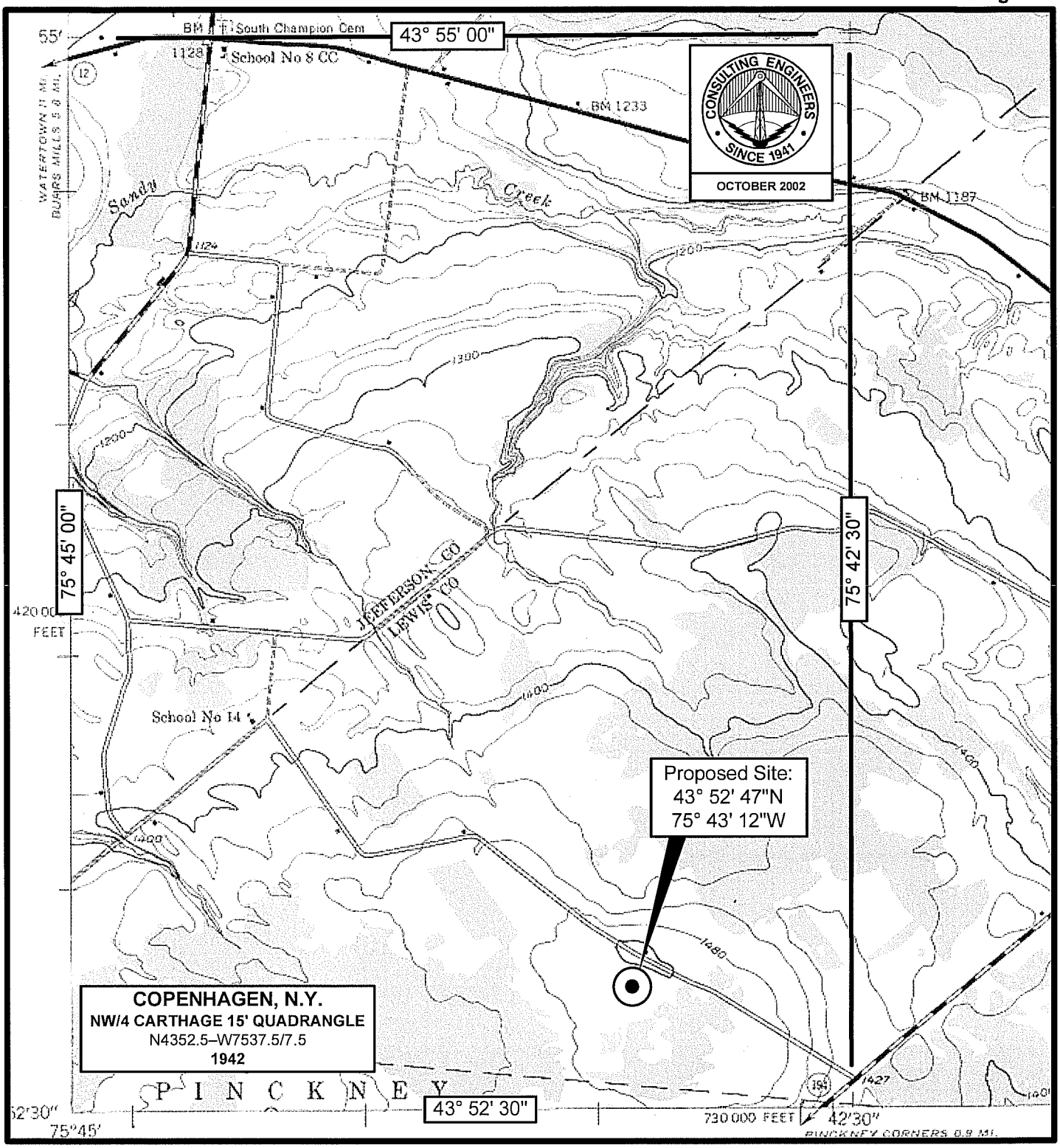
to the site. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such measures include reducing the average exposure by spreading out the work 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.

Jerome J. Manarchuck

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

October 3, 2002

Figure 1



PROPOSED TRANSMITTER LOCATION

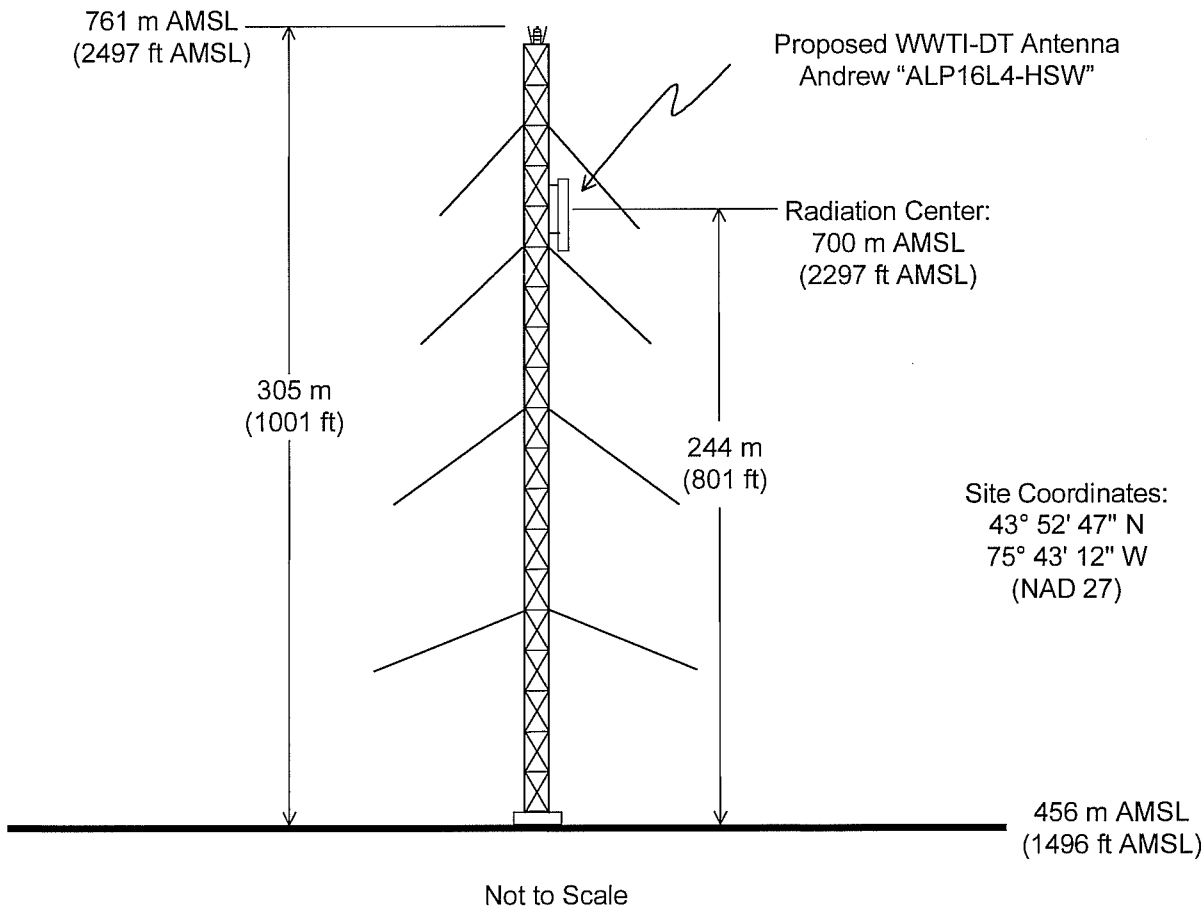
TELEVISION STATION WWTI-DT
WATERTOWN, NEW YORK
CH 21 25 KW (MAX-DA) 331 M

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

CONSULTING ENGINEERS SINCE 1941

OCTOBER 2002

Tower Reg. No. 1005424

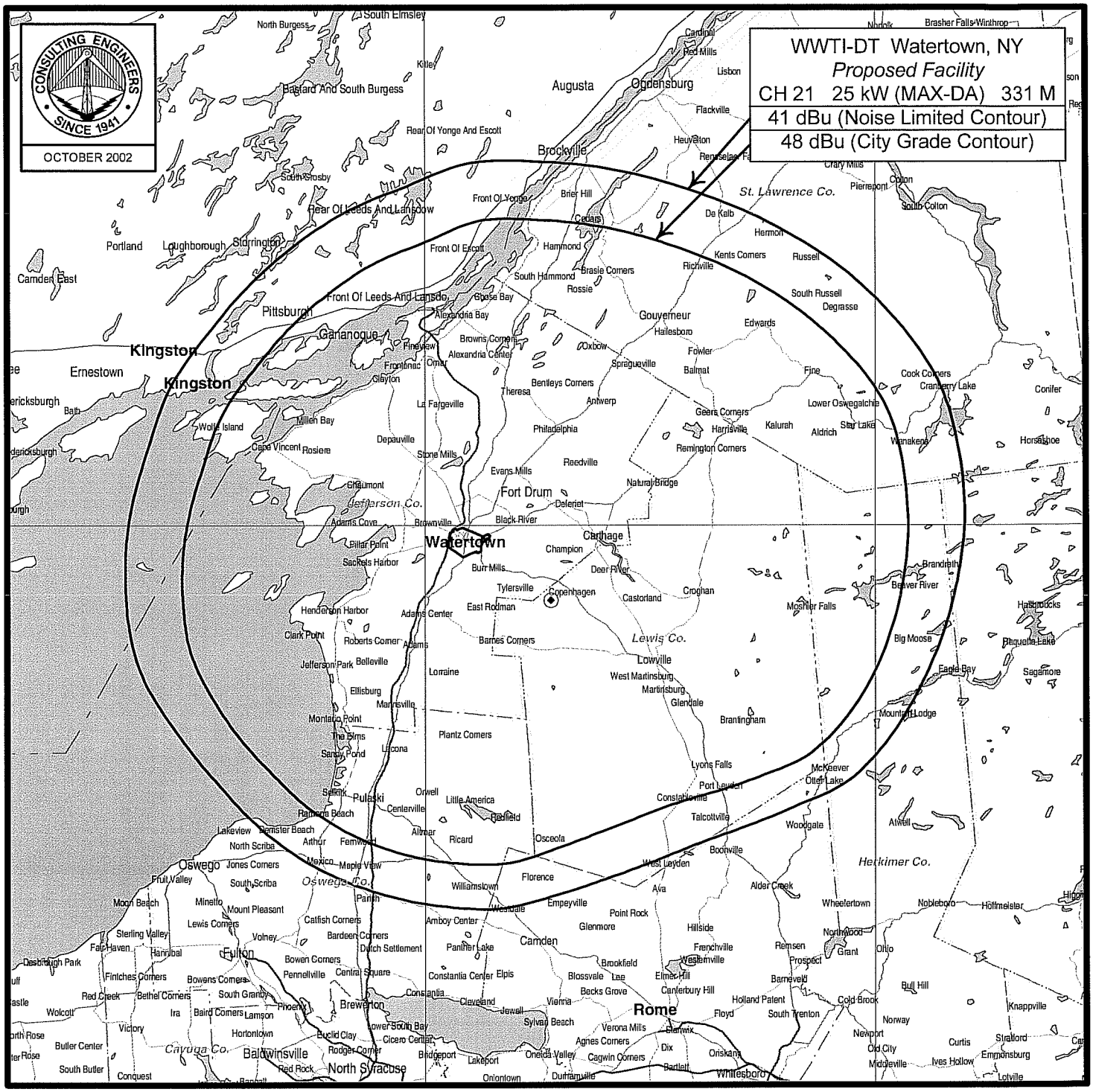


Not to Scale

PROPOSED ANTENNA AND SUPPORTING STRUCTURE

TELEVISION STATION WWTI-DT
WATERTOWN, NEW YORK
CH 21 25 KW (MAX-DA) 331 M

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



PREDICTED COVERAGE CONTOURS

TELEVISION STATION WWTI-DT
WATERTOWN, NEW YORK
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du Treil, Lundin & Rackley, Inc., Sarasota, Florida

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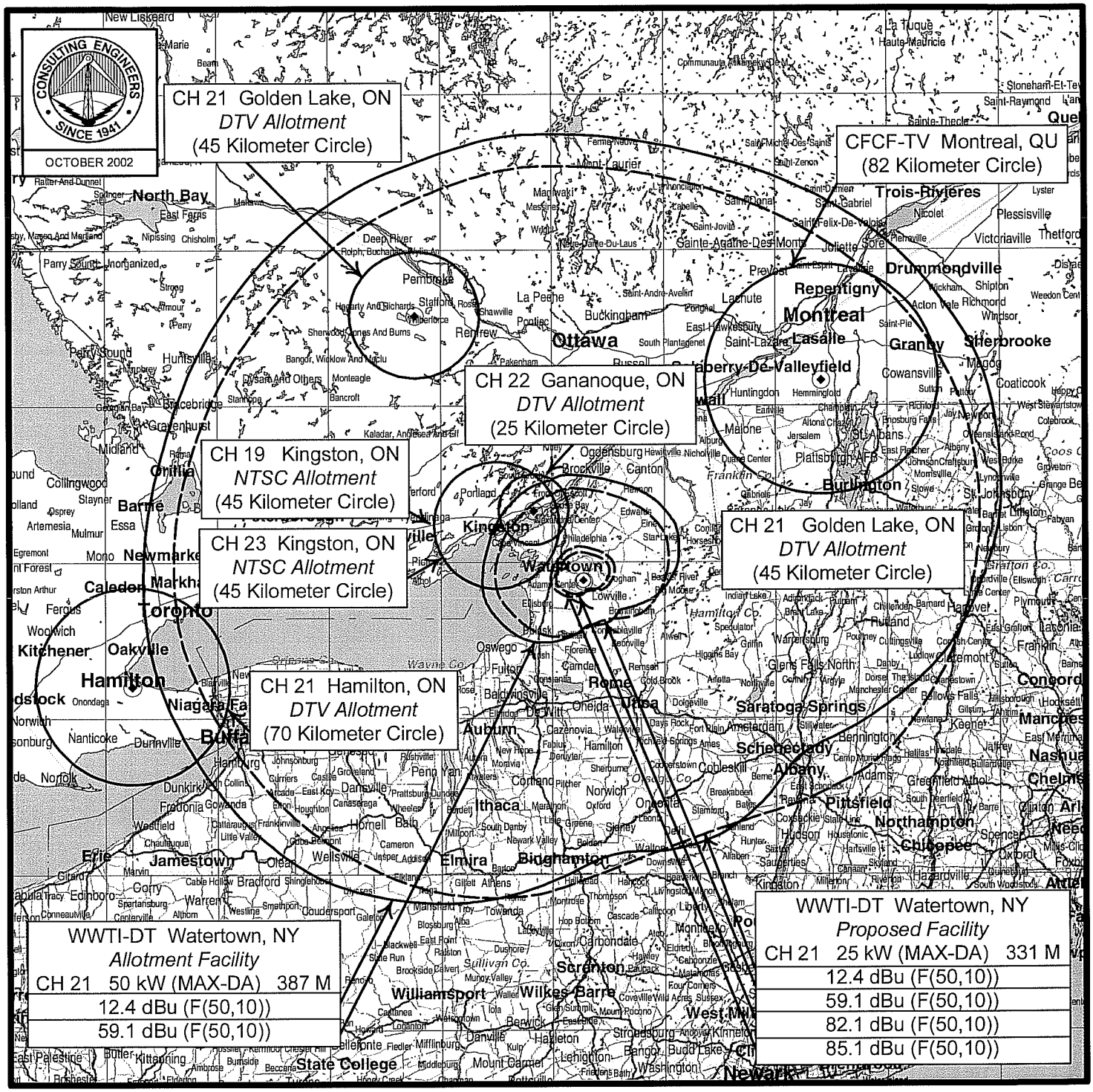
Summary of DTV and NTSC OET-69 Allocation Analysis

Facility	Channel	NTSC or DTV?	Baseline Service Population (1990)	Permissible IX(%)	Net New IX Caused by Proposed (1990)	Percent of Baseline (%)
WNPI-TV Norwood, NY *BMLET-19910906KG*	18	NTSC	No New Interference Predicted			
WUTR(TV) Utica, NY *BLCT-1970*	20	NTSC	No New Interference Predicted			
WPXG(TV) Concord, NH *BLCT-19840425KF*	21	NTSC	No New Interference Predicted			
WPXG(TV) Concord, NH *BPCT-20020320ACO*	21	NTSC	No New Interference Predicted			
WPXG(TV) *Concord, NH* *BPCT-20020320ACO*	21	NTSC	No New Interference Predicted			
WLIW(TV) Garden City, NY *BLCT-19790131LQ*	21	NTSC	No New Interference Predicted			
WRNN-DT Kingston, NY DTV Allotment	21	DTV	No New Interference Predicted			
WXXI-TV Rochester, NY BLET-19800813KE	21	NTSC	No New Interference Predicted			
WHP-TV Harrisburg, PA BLCT-2171	21	NTSC	No New Interference Predicted			
WSBE-DT Providence, RI BPEDT-20000216AAZ	21	DTV	No New Interference Predicted			
WSBE-DT Providence, RI *DTV Allotment*	21	DTV	No New Interference Predicted			
WCNY-TV Syracuse, NY BLET-19850912KT	24	NTSC	No New Interference Predicted			
WCNY-TV Syracuse, NY BPET-20000302AAJ	24	NTSC	No New Interference Predicted			



CANADIAN ALLOCATION STUDY

TELEVISION STATION WWTI-DT
WATERTOWN, NEW YORK
CH 21 25 KW (MAX-DA) 331 M

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

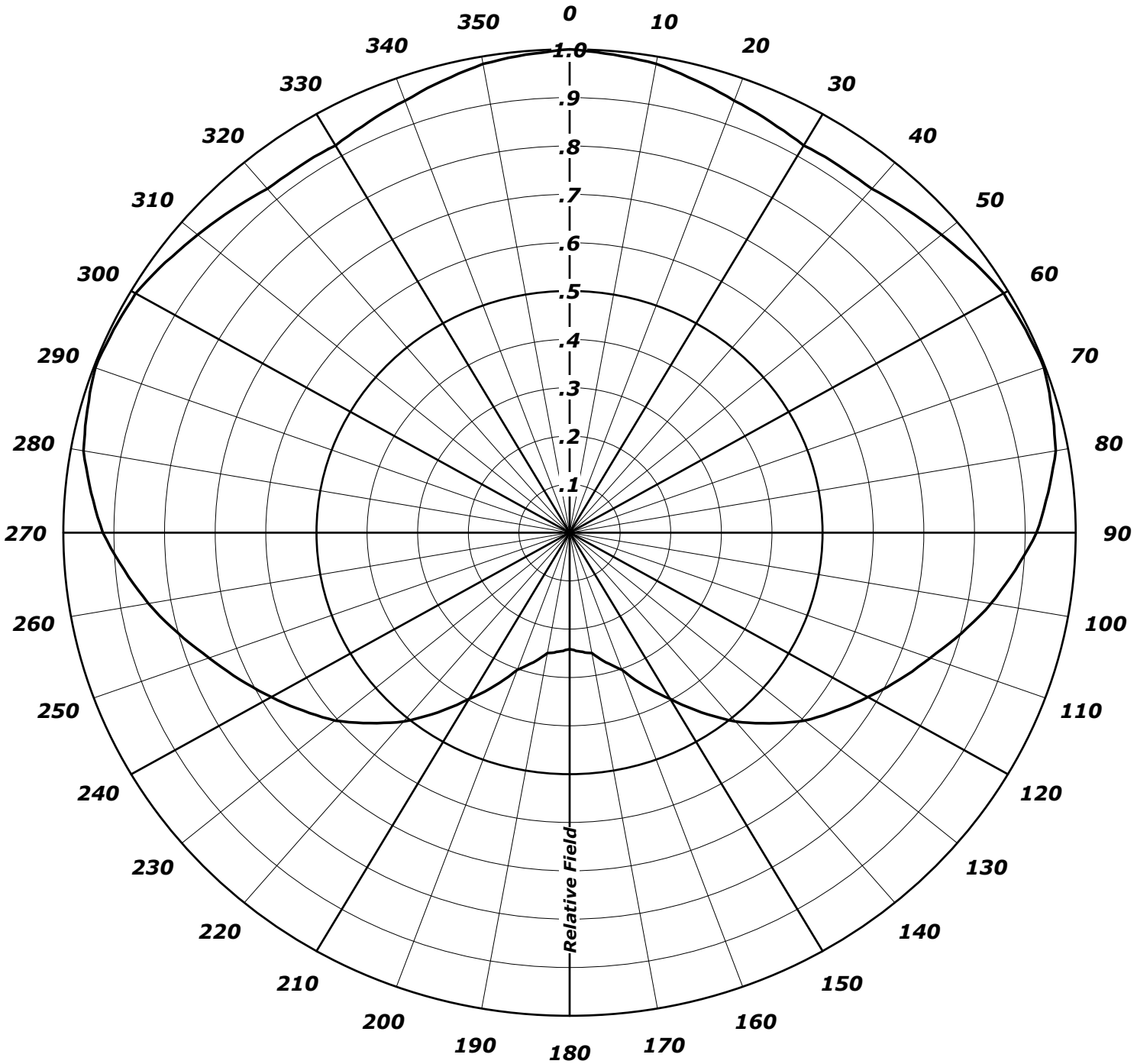
APPENDIX

MANUFACTURER TRANSMITTING ANTENNA SPECIFICATIONS

ANDREW

AZIMUTH PATTERN

Type:	ALP-W	
	Numeric	**dBd**
Directivity:	1.56	(1.93)
Peak(s) At:		
Polarization:		
Channel:		
Location:		



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

ANDREW

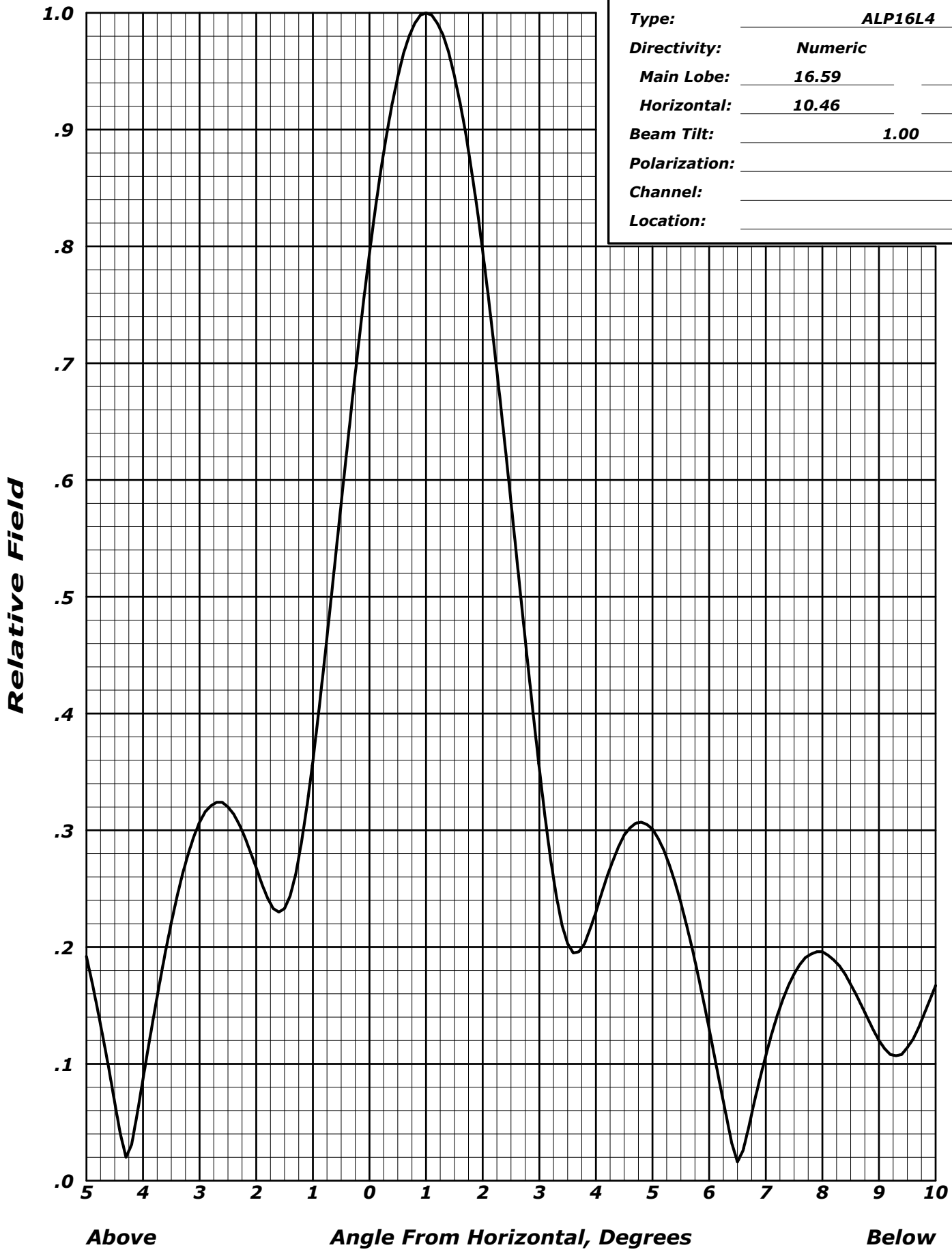
TABULATED DATA FOR AZIMUTH PATTERN
TYPE : ALP-W

Angle	Field	dB	Angle	Field	dB	Angle	Field	dB	Angle	Field	dB
0	1.000	0.00	110	0.758	-2.41	220	0.510	-5.85	330	0.925	-0.68
2	0.997	-0.03	112	0.742	-2.59	222	0.529	-5.53	332	0.930	-0.63
4	0.994	-0.05	114	0.727	-2.77	224	0.548	-5.22	334	0.935	-0.58
6	0.991	-0.08	116	0.711	-2.96	226	0.567	-4.93	336	0.941	-0.53
8	0.988	-0.10	118	0.696	-3.15	228	0.586	-4.64	338	0.946	-0.48
10	0.985	-0.13	120	0.680	-3.35	230	0.605	-4.36	340	0.951	-0.44
12	0.978	-0.19	122	0.665	-3.54	232	0.620	-4.15	342	0.958	-0.37
14	0.971	-0.26	124	0.650	-3.74	234	0.635	-3.94	344	0.965	-0.31
16	0.965	-0.31	126	0.635	-3.94	236	0.650	-3.74	346	0.971	-0.26
18	0.958	-0.37	128	0.620	-4.15	238	0.665	-3.54	348	0.978	-0.19
20	0.951	-0.44	130	0.605	-4.36	240	0.680	-3.35	350	0.985	-0.13
22	0.946	-0.48	132	0.586	-4.64	242	0.696	-3.15	352	0.988	-0.10
24	0.941	-0.53	134	0.567	-4.93	244	0.711	-2.96	354	0.991	-0.08
26	0.935	-0.58	136	0.548	-5.22	246	0.727	-2.77	356	0.994	-0.05
28	0.930	-0.63	138	0.529	-5.53	248	0.742	-2.59	358	0.997	-0.03
30	0.925	-0.68	140	0.510	-5.85	250	0.758	-2.41	360	1.000	0.00
32	0.926	-0.67	142	0.487	-6.25	252	0.775	-2.21			
34	0.927	-0.66	144	0.465	-6.65	254	0.793	-2.01			
36	0.927	-0.66	146	0.442	-7.09	256	0.810	-1.83			
38	0.928	-0.65	148	0.420	-7.54	258	0.828	-1.64			
40	0.929	-0.64	150	0.397	-8.02	260	0.845	-1.46			
42	0.935	-0.58	152	0.378	-8.45	262	0.860	-1.31			
44	0.941	-0.53	154	0.359	-8.90	264	0.876	-1.15			
46	0.947	-0.47	156	0.340	-9.37	266	0.891	-1.00			
48	0.953	-0.42	158	0.321	-9.87	268	0.907	-0.85			
50	0.959	-0.36	160	0.302	-10.40	270	0.922	-0.71			
52	0.965	-0.31	162	0.292	-10.69	272	0.933	-0.60			
54	0.971	-0.26	164	0.282	-11.00	274	0.943	-0.51			
56	0.978	-0.19	166	0.273	-11.28	276	0.954	-0.41			
58	0.984	-0.14	168	0.263	-11.60	278	0.964	-0.32			
60	0.990	-0.09	170	0.253	-11.94	280	0.975	-0.22			
62	0.991	-0.08	172	0.251	-12.01	282	0.979	-0.18			
64	0.993	-0.06	174	0.248	-12.11	284	0.984	-0.14			
66	0.994	-0.05	176	0.246	-12.18	286	0.988	-0.10			
68	0.996	-0.03	178	0.243	-12.29	288	0.993	-0.06			
70	0.997	-0.03	180	0.241	-12.36	290	0.997	-0.03			
72	0.993	-0.06	182	0.243	-12.29	292	0.996	-0.03			
74	0.988	-0.10	184	0.246	-12.18	294	0.994	-0.05			
76	0.984	-0.14	186	0.248	-12.11	296	0.993	-0.06			
78	0.979	-0.18	188	0.251	-12.01	298	0.991	-0.08			
80	0.975	-0.22	190	0.253	-11.94	300	0.990	-0.09			
82	0.964	-0.32	192	0.263	-11.60	302	0.984	-0.14			
84	0.954	-0.41	194	0.273	-11.28	304	0.978	-0.19			
86	0.943	-0.51	196	0.282	-11.00	306	0.971	-0.26			
88	0.933	-0.60	198	0.292	-10.69	308	0.965	-0.31			
90	0.922	-0.71	200	0.302	-10.40	310	0.959	-0.36			
92	0.907	-0.85	202	0.321	-9.87	312	0.953	-0.42			
94	0.891	-1.00	204	0.340	-9.37	314	0.947	-0.47			
96	0.876	-1.15	206	0.359	-8.90	316	0.941	-0.53			
98	0.860	-1.31	208	0.378	-8.45	318	0.935	-0.58			
100	0.845	-1.46	210	0.397	-8.02	320	0.929	-0.64			
102	0.828	-1.64	212	0.420	-7.54	322	0.928	-0.65			
104	0.810	-1.83	214	0.442	-7.09	324	0.927	-0.66			
106	0.793	-2.01	216	0.465	-6.65	326	0.927	-0.66			
108	0.775	-2.21	218	0.487	-6.25	328	0.926	-0.67			

ANDREW

ELEVATION PATTERN

Type:	ALP16L4	
Directivity:	Numeric	dBd
Main Lobe:	16.59	(12.20)
Horizontal:	10.46	(10.20)
Beam Tilt:	1.00	
Polarization:		
Channel:		
Location:		



ANDREW CORPORATION
10500 W. 153rd Street
Orland Park, Illinois U.S.A. 60462

ANDREW

TABULATED DATA FOR ELEVATION PATTERN
TYPE : ALP16L4

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	0.192	-14.33	8.75	0.144	-16.83	35.00	0.148	-16.59	62.50	0.087	-21.21
-4.75	0.133	-17.49	9.00	0.120	-18.42	35.50	0.166	-15.60	63.00	0.093	-20.63
-4.50	0.067	-23.48	9.25	0.107	-19.37	36.00	0.171	-15.34	63.50	0.094	-20.54
-4.25	0.025	-31.87	9.50	0.114	-18.86	36.50	0.162	-15.81	64.00	0.091	-20.82
-4.00	0.087	-21.21	9.75	0.137	-17.27	37.00	0.141	-17.02	64.50	0.083	-21.62
-3.75	0.157	-16.05	10.00	0.167	-15.55	37.50	0.111	-19.09	65.00	0.075	-22.50
-3.50	0.221	-13.11	10.50	0.222	-13.07	38.00	0.077	-22.27	65.50	0.067	-23.48
-3.25	0.271	-11.32	11.00	0.248	-12.11	38.50	0.049	-26.20	66.00	0.064	-23.88
-3.00	0.307	-10.26	11.50	0.240	-12.40	39.00	0.042	-27.54	66.50	0.070	-23.10
-2.75	0.323	-9.83	12.00	0.202	-13.89	39.50	0.054	-25.35	67.00	0.084	-21.51
-2.50	0.320	-9.90	12.50	0.147	-16.65	40.00	0.065	-23.74	67.50	0.102	-19.83
-2.25	0.300	-10.47	13.00	0.089	-21.01	40.50	0.068	-23.35	68.00	0.123	-18.20
-2.00	0.268	-11.44	13.50	0.042	-27.54	41.00	0.062	-24.15	68.50	0.143	-16.89
-1.75	0.238	-12.49	14.00	0.012	-38.42	41.50	0.047	-26.56	69.00	0.163	-15.76
-1.50	0.233	-12.65	14.50	0.001	-60.00	42.00	0.028	-31.06	69.50	0.180	-14.89
-1.25	0.276	-11.17	15.00	0.010	-40.00	42.50	0.008	-41.94	70.00	0.196	-14.15
-1.00	0.359	-8.90	15.50	0.024	-32.40	43.00	0.013	-37.72	70.50	0.208	-13.64
-0.75	0.466	-6.64	16.00	0.036	-28.87	43.50	0.027	-31.37	71.00	0.217	-13.27
-0.50	0.580	-4.73	16.50	0.038	-28.40	44.00	0.036	-28.87	71.50	0.223	-13.03
-0.25	0.691	-3.20	17.00	0.027	-31.37	44.50	0.038	-28.40	72.00	0.227	-12.88
0.00	0.794	-2.00	17.50	0.005	-46.02	45.00	0.035	-29.12	72.50	0.227	-12.88
0.25	0.880	-1.11	18.00	0.028	-31.06	45.50	0.027	-31.37	73.00	0.225	-12.96
0.50	0.945	-0.49	18.50	0.056	-25.04	46.00	0.020	-33.98	73.50	0.220	-13.15
0.75	0.985	-0.13	19.00	0.074	-22.62	46.50	0.014	-37.08	74.00	0.213	-13.43
1.00	1.000	0.00	19.50	0.076	-22.38	47.00	0.014	-37.08	74.50	0.205	-13.76
1.25	0.986	-0.12	20.00	0.064	-23.88	47.50	0.013	-37.72	75.00	0.195	-14.20
1.50	0.946	-0.48	20.50	0.058	-24.73	48.00	0.010	-40.00	75.50	0.184	-14.70
1.75	0.881	-1.10	21.00	0.087	-21.21	48.50	0.002	-53.98	76.00	0.173	-15.24
2.00	0.796	-1.98	21.50	0.136	-17.33	49.00	0.010	-40.00	76.50	0.161	-15.86
2.25	0.694	-3.18	22.00	0.184	-14.70	49.50	0.025	-32.04	77.00	0.148	-16.59
2.50	0.581	-4.72	22.50	0.218	-13.23	50.00	0.041	-27.74	77.50	0.136	-17.33
2.75	0.464	-6.67	23.00	0.231	-12.73	50.50	0.057	-24.88	78.00	0.124	-18.13
3.00	0.353	-9.04	23.50	0.221	-13.11	51.00	0.069	-23.22	78.50	0.113	-18.94
3.25	0.259	-11.72	24.00	0.191	-14.38	51.50	0.077	-22.27	79.00	0.101	-19.91
3.50	0.203	-13.85	24.50	0.147	-16.65	52.00	0.080	-21.94	79.50	0.091	-20.82
3.75	0.199	-14.00	25.00	0.099	-20.09	52.50	0.076	-22.38	80.00	0.081	-21.83
4.00	0.230	-12.77	25.50	0.056	-25.04	53.00	0.068	-23.35	80.50	0.072	-22.85
4.25	0.268	-11.45	26.00	0.033	-29.63	53.50	0.055	-25.19	81.00	0.063	-24.01
4.50	0.296	-10.57	26.50	0.036	-28.87	54.00	0.043	-27.33	81.50	0.056	-25.04
4.75	0.306	-10.27	27.00	0.040	-27.96	54.50	0.036	-28.87	82.00	0.049	-26.20
5.00	0.301	-10.43	27.50	0.036	-28.87	55.00	0.040	-27.96	82.50	0.043	-27.33
5.25	0.276	-11.17	28.00	0.026	-31.70	55.50	0.052	-25.68	83.00	0.037	-28.64
5.50	0.238	-12.47	28.50	0.014	-37.08	56.00	0.065	-23.74	83.50	0.032	-29.90
5.75	0.188	-14.52	29.00	0.004	-47.96	56.50	0.074	-22.62	84.00	0.028	-31.06
6.00	0.130	-17.72	29.50	0.001	-60.00	57.00	0.079	-22.05	84.50	0.024	-32.40
6.25	0.068	-23.35	30.00	0.001	-60.00	57.50	0.077	-22.27	85.00	0.021	-33.56
6.50	0.016	-35.92	30.50	0.006	-44.44	58.00	0.070	-23.10	85.50	0.018	-34.89
6.75	0.057	-24.88	31.00	0.013	-37.72	58.50	0.058	-24.73	86.00	0.015	-36.48
7.00	0.107	-19.41	31.50	0.018	-34.89	59.00	0.041	-27.74	86.50	0.013	-37.72
7.25	0.148	-16.59	32.00	0.020	-33.98	59.50	0.022	-33.15	87.00	0.011	-39.17
7.50	0.177	-15.04	32.50	0.021	-33.56	60.00	0.006	-44.44	87.50	0.009	-40.92
7.75	0.193	-14.31	33.00	0.033	-29.63	60.50	0.023	-32.77	88.00	0.007	-43.10
8.00	0.196	-14.15	33.50	0.058	-24.73	61.00	0.044	-27.13	88.50	0.005	-46.02
8.25	0.186	-14.59	34.00	0.089	-21.01	61.50	0.062	-24.15	89.00	0.003	-50.46
8.50	0.168	-15.49	34.50	0.121	-18.34	62.00	0.077	-22.27	89.50	0.002	-53.98