

TECHNICAL EXHIBIT
APPLICATION FOR DTV CONSTRUCTION PERMIT
DTV STATION WRNN-DT
KINGSTON, NEW YORK

January 28, 2002

CH 48 950 KW (MAX-DA) 378 M

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APPLICATION FOR DTV CONSTRUCTION PERMIT
STATION WRNN-DT
FACILITY ID: 98016
KINGSTON, NEW YORK
CH 48 950 KW (MAX-DA) 378 M

Technical Narrative

This Technical Exhibit supports an application for television (TV) station WRNN-TV on NTSC (analog) channel 62 at Kingston, New York. This application requests a construction permit (CP) for a digital television (DTV) operation on channel 48 at Kingston. In MM Docket No. 00-121, RM-9674, the FCC allotted channel 48 for WRNN-TV's DTV operation in place of channel 21. The FCC assigned a directional effective radiated power (ERP) of 200 kilowatts (kW) and an antenna radiation center height above average terrain (HAAT) of 388 meters for the DTV allotment.

Station WRNN-TV proposes to operate DTV channel 48 at the following site location (41-29-18 N, 73-56-56 W). It is proposed to operate with an Andrew ATW25H3-HTCX-48H "cardioid" type directional antenna with a maximum ERP of 950 kilowatts and an HAAT of 378 meters. These facilities exceed those allotted in MM Docket No. 00-121, RM-9674, therefore the application is not considered a "checklist application".

A sketch of antenna and pertinent elevations are included as Figure 1. The FCC antenna registration number for the existing tower is 1064695. It is proposed to increase the overall height of the existing tower from 90

meters (295 feet) to 100 meters (328 feet) above ground level. The FAA has been notified of the proposed increase in height, and once a Determination of No Hazard has been issued, the FCC registration will be revised to reflect the proposed height increase.

Figure 2 is data for the proposed Andrew ATW-25H3-HTCX-48H directional antenna. A graph and tabulation of both the horizontal and vertical antenna patterns are included.

AM station WBNR on 1260 kHz at Beacon, New York is the only no known authorized full service AM stations within 5 kilometers (3 miles) of the WRNN-DT transmitter site. The following is a list of those authorized FM and full service TV stations within 16 kilometers (10 miles) of the proposed DTV site. Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems which are a result of its proposed DTV operation.

<u>Station</u>	<u>Channel</u>	<u>Bearing (°True)</u>	<u>Distance (km)</u>
WGNV-FM, Newburgh, NY	276A	264	16.0
WSPK, Poughkeepsie, NY	284B	72	0.1
WTBY, Poughkeepsie, NY (DTV CP)	27	20	0.1

The proposed transmitter site is 333 kilometers from the closest point of the Canadian border. Therefore, if necessary coordination with Canada is respectfully requested.

The proposed DTV site is more than 2500 kilometers from the closest point of the Mexican border. The closest FCC monitoring station is at Canandaigua, New

York, approximately 316 kilometers to the northwest. The proposed DTV site is outside the National Radio Quiet Zone (VA/WVA), the closest point being more than 450 kilometers to the southwest. The closest point of the Table Mountain Radio Quiet Zone (CO) is more than 2600 kilometers to the west. The closest radio astronomy site operating on TV channel 37 is at Hancock, New Hampshire over 225 kilometers to the northeast. These separations are sufficient to not be a concern for coordination purposes.

Figure 3 is a map showing the DTV predicted coverage contours. The map provides the predicted 41 dBu f(50,90) noise limited contour and the 48 dBu f(50,90) city coverage contour. The extent of the contours has been calculated using the normal FCC prediction method, except the proposed HAAT was calculated based on 36 evenly spaced radials rather than eight. The Kingston city limits were derived from information contained in the 2000 U.S. Census for New York. As shown, the 48 dBu contour encompasses the entire city limits of Kingston.

Figure 4 is a DTV channel 48 separation study toward other NTSC and DTV allotments based on a 161 kilometer "buffer". Although the separation requirements are only applicable to new DTV allotments, they can be used as an indication of which stations have the potential of receiving interference from the proposed channel 48 DTV operation.

An interference analysis has been conducted using the procedures outlined in the FCC's OET-69 bulletin and employing a 2 kilometer grid. Results of the analysis indicate that the proposal complies with the interference

protection provisions of Section 73.623(c)(2).¹

Interference calculations for the proposed WRNN-DT operation are summarized below. It is noted that the summary only includes stations with which interference is calculated.

<u>Station</u>	<u>Channel</u>	<u>FCC Service Population</u>	<u>Prop. DTV Interference Population</u>
WXTV (CP), Paterson, NJ	NTSC-41	16,839,622	49 (0.00%)
WYDN-DT, Worcester, MA	DTV-47	3,875,127	93 (0.00%)
WNJU(CP), Linden, NJ	NTSC-47	17,622,974	6,745 (0.04%)
WNJU(LIC), Linden, NJ	NTSC-47	17,049,621	15,709 (0.09%)
WNJU(APP), Linden, NJ	NTSC-47	17,108,503	2,723 (0.02%)
WRC-DT, Washington, DC	DTV-48	6,541,255	0 (0.00%)
WYDN(CP), Worcester, MA	NTSC-48	3,213,293	794 (0.03%)
WYDN(LIC), Worcester, MA	NTSC-48	1,617,500	402 (0.03%)
WGTW(LIC), Burlington, NJ	NTSC-48	7,010,431	28,603 (0.41%)
WYDC(LIC), Corning, NY	NTSC-48	144,781	24 (0.02%)
WYDC(APP), Corning, NY	NTSC-48	264,772	639 (0.24%)
WEDW(LIC), Bridgeport, CT	NTSC-49	3,822,554	17,139 (0.45%)
WNJN(CP), Montclair, NJ	NTSC-50	16,018,357	1,977 (0.01%)
WNJN(LIC), Montclair, NJ	NTSC-50	15,353,734	563 (0.00%)

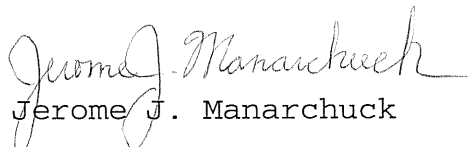
From the above, it is apparent that the proposed WRNN-DT operation on channel 48 complies with the FCC's 2%/10% interference standard toward all authorized analog and DTV assignments.

The proposed WRNN-DT operation was also studied to determine its potential impact on Class A LPTV stations. Based on our analysis the proposed operation will not adversely affect any Class A LPTV stations.

¹ 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.** An Alpha based processor computer system was employed.

The proposed WRNN-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 WRNN-DT antenna is located 93 meters above ground level. The maximum DTV ERP is 950 kW. A relative field value of 0.05 is presumed for the antenna's downward radiation (see Sheet 4 of Figure 2). The calculated power density at two meters above ground level is 0.0096 mW/cm^2 . This is 2.1% of the FCC's recommended limit of 0.45 mW/cm^2 for channel 48 for an "uncontrolled" environment. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the new RF emission rules.

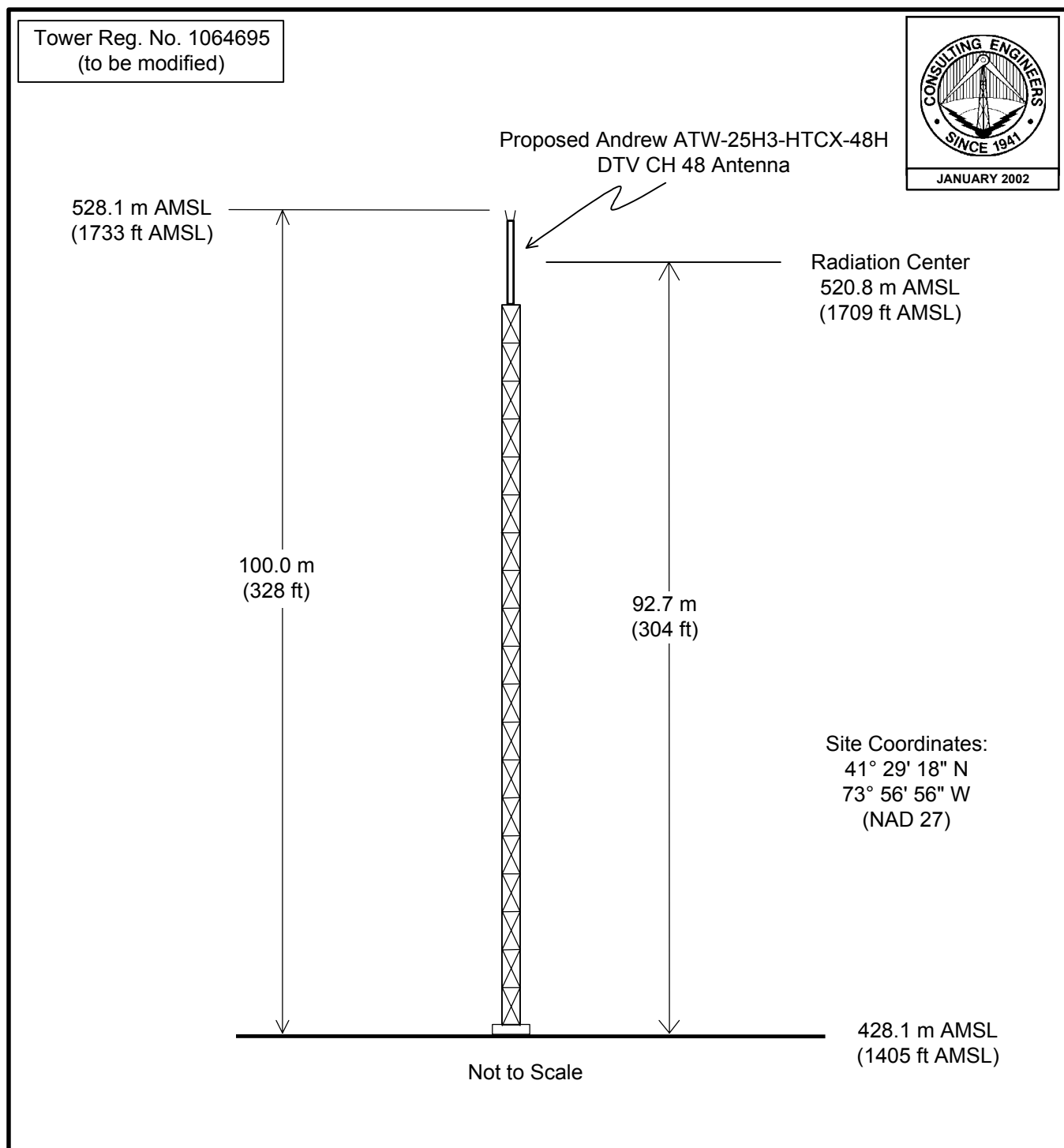
Access to the transmitting site will be restricted and appropriately marked with warning signs. As this is a multi-user site, an agreement will control access to the site. In the event that workers or other authorized personnel enter restricted areas or climb the tower, appropriate measures will be taken 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 WRNN-DT operation appears to be otherwise categorically excluded from environmental processing.


Jerome J. Manarchuck

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, Florida 34237

January 28, 2002

Figure 1



PROPOSED ANTENNA AND SUPPORTING STRUCTURE

DTV STATION WRNN-DT

KINGSTON, NEW YORK

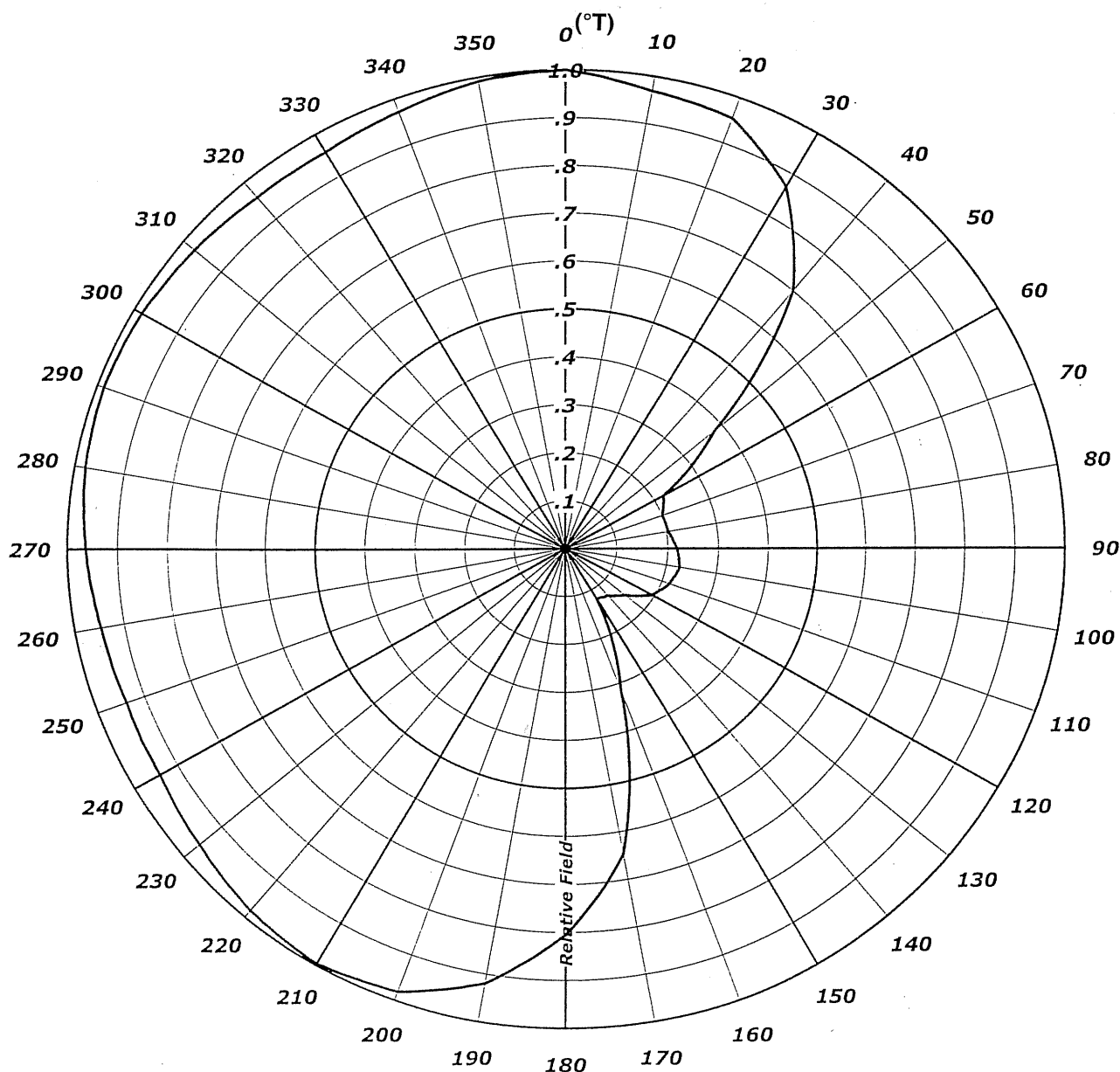
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du Treil, Lundin & Rackley, Inc., Sarasota, Florida

ANDREW
AZIMUTH PATTERN

Type: CH48AZ-H-BID-CX

	Numeric	dBd
Directivity:	<u>1.68</u>	<u>(2.25)</u>
Peak(s) At:	<u></u>	
Polarization:	<u>Horizontal</u>	
Channel:	<u>48</u>	
Location:	<u>Kingston, NY</u>	



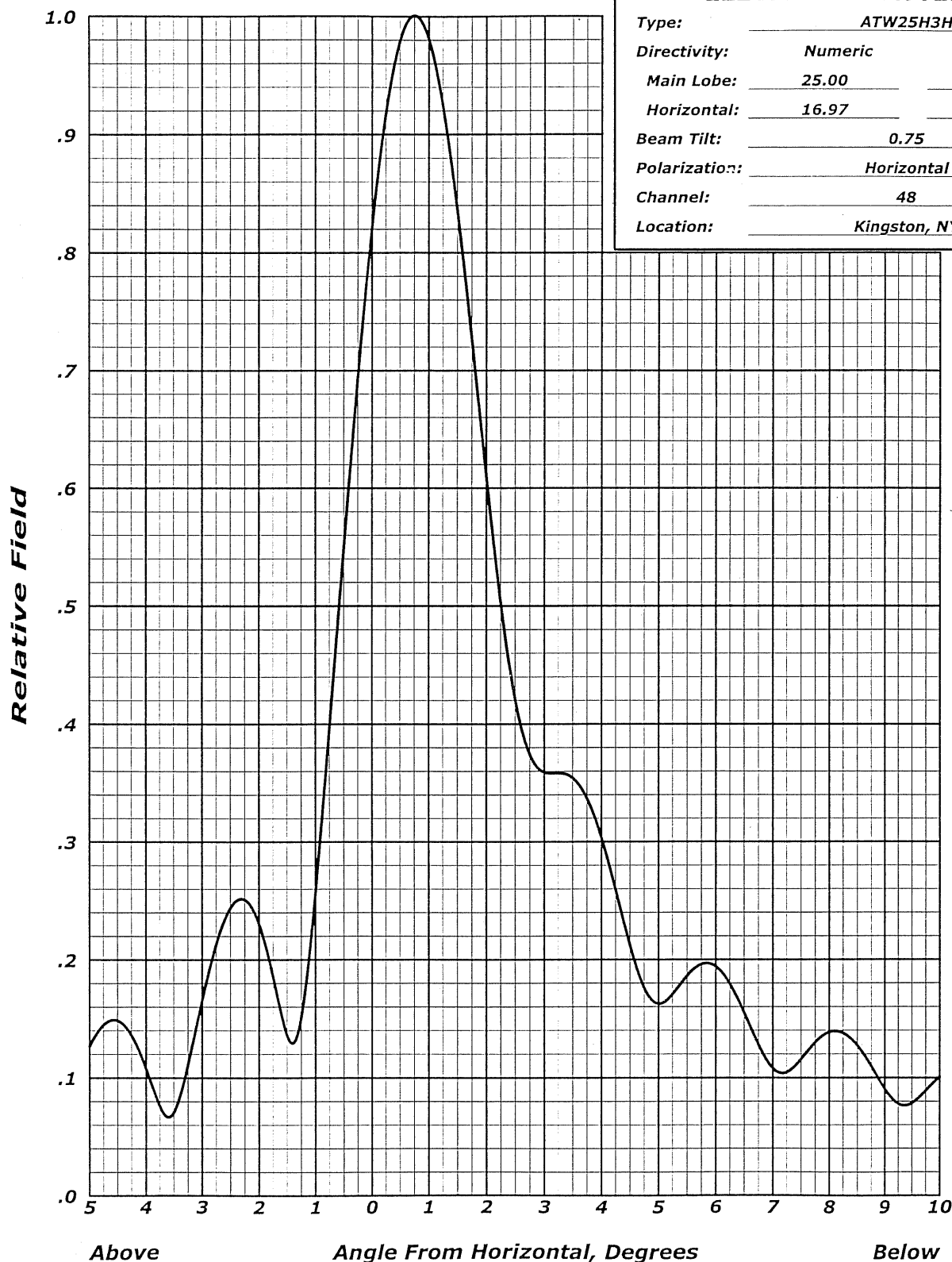
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Tabulation of Directional Antenna Pattern

<u>Azimuth</u> <u>(deg. true)</u>	<u>Relative</u> <u>Field</u>	<u>Effective</u> <u>Radiated Power (kW)</u>	<u>Azimuth</u> <u>(deg true)</u>	<u>Relative</u> <u>Field</u>	<u>Effective</u> <u>Radiated Power (kW)</u>
0	1.000	950.00	180	0.805	615.62
10	0.969	892.01	190	0.919	802.33
20	0.955	866.42	200	0.981	914.24
30	0.870	719.06	210	0.996	942.42
40	0.700	465.50	220	0.982	916.11
50	0.380	137.18	230	0.959	873.70
60	0.220	45.98	240	0.942	843.00
70	0.200	38.00	250	0.939	837.63
80	0.203	39.15	260	0.948	853.77
90	0.217	44.73	270	0.964	882.83
100	0.226	48.52	280	0.979	910.52
110	0.215	43.91	290	0.987	925.46
120	0.194	35.75	300	0.983	917.97
130	0.151	21.66	310	0.971	895.70
140	0.128	15.56	320	0.959	873.70
150	0.120	13.68	330	0.958	871.88
160	0.315	94.26	340	0.972	897.54
170	0.646	396.45	350	0.992	934.86

ANDREW
ELEVATION PATTERN

Type:	ATW25H3H	
Directivity:	Numeric	dBd
Main Lobe:	25.00	(13.98)
Horizontal:	16.97	(12.30)
Beam Tilt:	0.75	
Polarization:	Horizontal	
Channel:	48	
Location:	Kingston, NY	



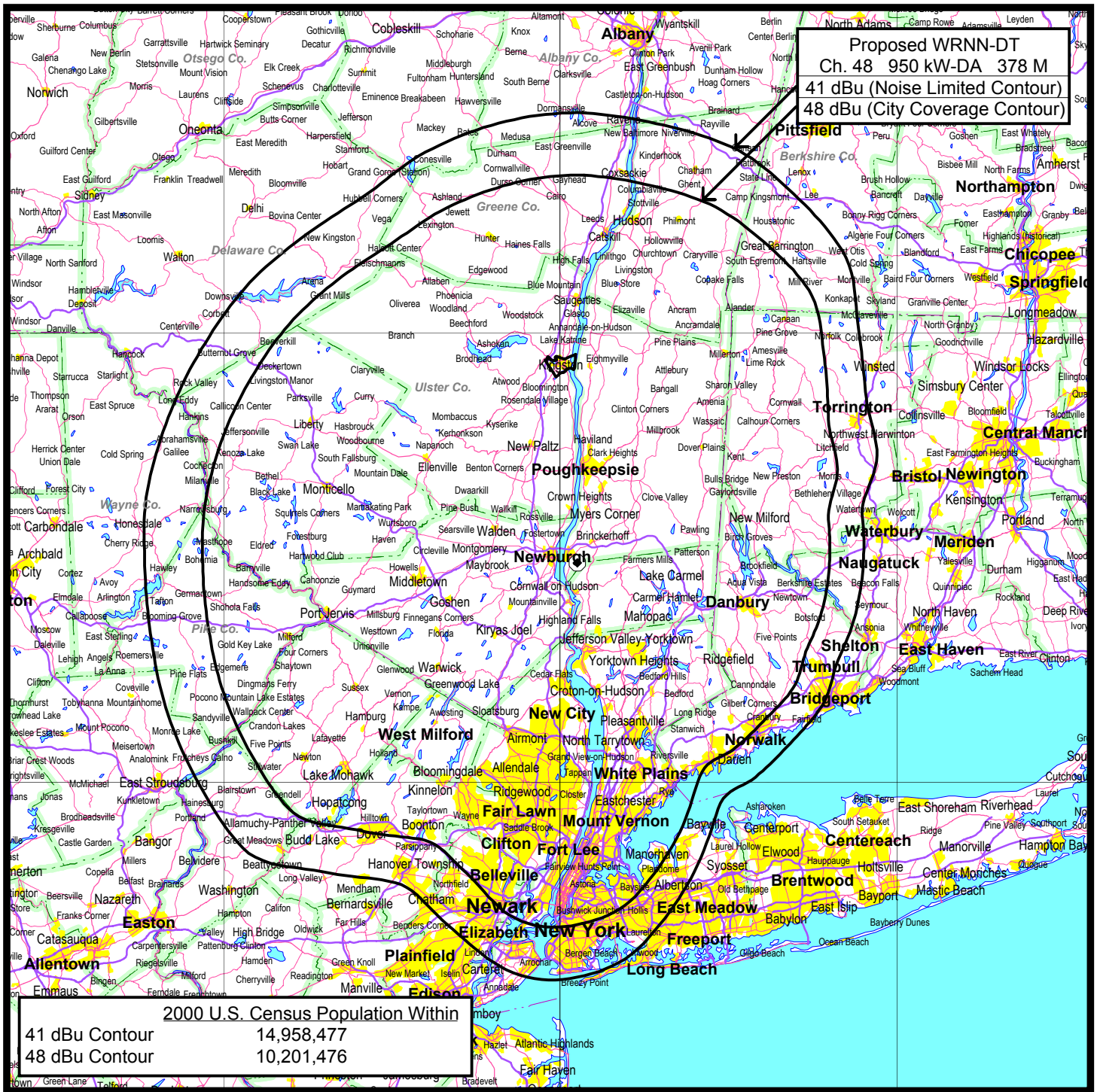


TABULATED DATA FOR ELEVATION PATTERN

TYPE : ATW25H3H

Angle Field dB -5 To 10 In 0.25 Increments	Angle Field dB 10 To 90 In 0.5 Increments	Angle Field dB	Angle Field dB
-5.00 0.127 -17.95	8.75 0.109 -19.22	35.00 0.020 -34.15	62.50 0.024 -32.57
-4.75 0.145 -16.78	9.00 0.090 -20.89	35.50 0.021 -33.76	63.00 0.032 -29.99
-4.50 0.148 -16.57	9.25 0.078 -22.17	36.00 0.031 -30.22	63.50 0.037 -28.72
-4.25 0.135 -17.37	9.50 0.079 -22.08	36.50 0.036 -28.87	64.00 0.038 -28.40
-4.00 0.108 -19.34	9.75 0.089 -20.99	37.00 0.032 -29.87	64.50 0.036 -28.95
-3.75 0.076 -22.41	10.00 0.101 -19.93	37.50 0.022 -33.27	65.00 0.030 -30.45
-3.50 0.071 -22.97	10.50 0.106 -19.50	38.00 0.017 -35.58	65.50 0.022 -33.23
-3.25 0.111 -19.06	11.00 0.083 -21.60	38.50 0.026 -31.82	66.00 0.012 -38.35
-3.00 0.165 -15.63	11.50 0.060 -24.37	39.00 0.034 -29.38	66.50 0.005 -45.92
-2.75 0.213 -13.43	12.00 0.073 -22.74	39.50 0.034 -29.25	67.00 0.012 -38.27
-2.50 0.244 -12.25	12.50 0.088 -21.16	40.00 0.027 -31.39	67.50 0.022 -33.26
-2.25 0.251 -12.01	13.00 0.078 -22.13	40.50 0.017 -35.48	68.00 0.030 -30.49
-2.00 0.230 -12.75	13.50 0.055 -25.26	41.00 0.019 -34.64	68.50 0.036 -28.89
-1.75 0.185 -14.66	14.00 0.052 -25.66	41.50 0.029 -30.81	69.00 0.039 -28.07
-1.50 0.136 -17.36	14.50 0.069 -23.18	42.00 0.035 -29.15	69.50 0.040 -27.87
-1.25 0.152 -16.38	15.00 0.072 -22.84	42.50 0.033 -29.61	70.00 0.039 -28.23
-1.00 0.257 -11.81	15.50 0.056 -25.10	43.00 0.024 -32.26	70.50 0.035 -29.16
-0.75 0.399 -7.99	16.00 0.041 -27.80	43.50 0.015 -36.35	71.00 0.029 -30.77
-0.50 0.550 -5.19	16.50 0.052 -25.74	44.00 0.019 -34.40	71.50 0.022 -33.32
-0.25 0.695 -3.16	17.00 0.062 -24.10	44.50 0.029 -30.73	72.00 0.013 -37.57
0.00 0.824 -1.69	17.50 0.056 -25.11	45.00 0.035 -29.22	72.50 0.004 -47.12
0.25 0.919 -0.74	18.00 0.038 -28.39	45.50 0.033 -29.67	73.00 0.005 -46.83
0.50 0.980 -0.18	18.50 0.037 -28.55	46.00 0.025 -32.15	73.50 0.013 -37.71
0.75 1.000 0.00	19.00 0.052 -25.73	46.50 0.015 -36.26	74.00 0.021 -33.65
1.00 0.981 -0.17	19.50 0.055 -25.20	47.00 0.018 -35.14	74.50 0.028 -31.21
1.25 0.923 -0.69	20.00 0.043 -27.40	47.50 0.027 -31.22	75.00 0.033 -29.61
1.50 0.835 -1.57	20.50 0.030 -30.59	48.00 0.034 -29.26	75.50 0.037 -28.56
1.75 0.726 -2.78	21.00 0.038 -28.38	48.50 0.035 -29.12	76.00 0.040 -27.91
2.00 0.610 -4.29	21.50 0.049 -26.17	49.00 0.029 -30.75	76.50 0.042 -27.58
2.25 0.503 -5.98	22.00 0.047 -26.64	49.50 0.019 -34.40	77.00 0.042 -27.50
2.50 0.420 -7.53	22.50 0.033 -29.70	50.00 0.014 -37.35	77.50 0.041 -27.66
2.75 0.374 -8.54	23.00 0.027 -31.28	50.50 0.021 -33.52	78.00 0.040 -28.03
3.00 0.359 -8.90	23.50 0.039 -28.15	51.00 0.031 -30.29	78.50 0.037 -28.60
3.25 0.358 -8.91	24.00 0.046 -26.77	51.50 0.036 -28.95	79.00 0.034 -29.37
3.50 0.354 -9.01	24.50 0.039 -28.07	52.00 0.035 -29.18	79.50 0.030 -30.34
3.75 0.337 -9.46	25.00 0.027 -31.50	52.50 0.028 -31.03	80.00 0.027 -31.53
4.00 0.303 -10.36	25.50 0.028 -31.15	53.00 0.018 -34.83	80.50 0.023 -32.96
4.25 0.259 -11.74	26.00 0.039 -28.09	53.50 0.012 -38.07	81.00 0.018 -34.66
4.50 0.212 -13.47	26.50 0.043 -27.34	54.00 0.020 -34.14	81.50 0.015 -36.70
4.75 0.176 -15.09	27.00 0.035 -29.20	54.50 0.029 -30.68	82.00 0.011 -39.19
5.00 0.163 -15.78	27.50 0.023 -32.61	55.00 0.035 -29.03	82.50 0.008 -42.29
5.25 0.171 -15.35	28.00 0.028 -31.18	55.50 0.036 -28.82	83.00 0.005 -46.32
5.50 0.186 -14.59	28.50 0.038 -28.36	56.00 0.032 -29.96	83.50 0.003 -51.35
5.75 0.196 -14.14	29.00 0.040 -27.97	56.50 0.023 -32.71	84.00 0.002 -53.36
6.00 0.194 -14.24	29.50 0.031 -30.13	57.00 0.013 -37.46	84.50 0.003 -50.20
6.25 0.179 -14.93	30.00 0.021 -33.52	57.50 0.012 -38.25	85.00 0.004 -47.58
6.50 0.155 -16.20	30.50 0.027 -31.50	58.00 0.021 -33.41	85.50 0.005 -46.02
6.75 0.128 -17.88	31.00 0.037 -28.70	58.50 0.030 -30.36	86.00 0.005 -45.22
7.00 0.108 -19.34	31.50 0.038 -28.33	59.00 0.036 -28.91	86.50 0.006 -45.00
7.25 0.105 -19.59	32.00 0.030 -30.44	59.50 0.037 -28.67	87.00 0.005 -45.28
7.50 0.116 -18.72	32.50 0.020 -34.03	60.00 0.033 -29.56	87.50 0.005 -46.04
7.75 0.130 -17.72	33.00 0.024 -32.34	60.50 0.026 -31.75	88.00 0.004 -47.36
8.00 0.139 -17.17	33.50 0.034 -29.30	61.00 0.016 -35.90	88.50 0.003 -49.40
8.25 0.138 -17.23	34.00 0.037 -28.62	61.50 0.008 -41.54	89.00 0.002 -52.60
8.50 0.127 -17.92	34.50 0.030 -30.36	62.00 0.014 -37.24	89.50 0.001 -58.44

Figure 3



PREDICTED COVERAGE CONTOURS

STATION WRNN-DT
 KINGSTON, NEW YORK
 CH 48 950 KW (DA) 378 M

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

DTV - TV Separation Study

Job Title :WRNN-DT
Zone : 1
Channel 48 (674-680 MHz)

Separation Buffer 161 km
FCC TV DB Date : 01/23/02
Coordinates : 41-29-18 73-56-56

Call Status	City St	FCC File No.	Channel Zone	ERP(kW) HAAT(m)	Latitude Longitude	Bear. True	Dist. (km)	Req. (km)
LMRS	NEW YORK NY	-	33 (o)	.000 0	40-45-06 73-59-39	182.7	81.91 0.00	0.0 LMRS
WFXV CP	UTICA NY BPCT	-19960111	33 (o) I	851 193	43-02-14 75-26-40	325.0	211.73 131.23	24.1/80.5 CLEAR
WFXV LIC	UTICA NY BLCT	-19861210	33 (o) I	42.7 DA 197	43-02-14 75-26-40	325.0	211.73 131.23	24.1/80.5 CLEAR
LMRS	NEW YORK NY	-	34 (o)	.000 0	40-45-06 73-59-39	182.7	81.91 0.00	0.0 LMRS
WIVT CP	BINGHAMTON NY BPCT	-19970807	34 (o) I	2820 DA 283	42-03-39 75-56-36	291.7	177.61 97.11	24.1/80.5 CLEAR
WIVT LIC	BINGHAMTON NY BLCT	-19871110	34 (o) I	1480 281	42-03-39 75-56-36	291.7	177.61 97.11	24.1/80.5 CLEAR
WGGB-T LIC	SPRINGFIELD MA BLCT	-19990429	40 (o) I	4270 DA 324	42-14-30 72-38-57	51.7	136.56 56.06	24.1/80.5 CLEAR
WICZ-T LIC	BINGHAMTON NY BLCT	-19900206	40 (-) I	468 375	42-03-22 75-56-39	291.5	177.49 96.99	24.1/80.5 CLEAR
WXTV LIC	PATERSON NJ BLCT	-19920218	41 (-) I	2340 DA 421	40-44-54 73-59-10	182.2	82.25 1.75	24.1/80.5 CLOSE
WXTV CP	PATERSON NJ BPCT	-20000202	41 (-) I	2340 DA 421	40-44-54 73-59-10	182.2	82.25 1.75	24.1/80.5 CLOSE
WNYW	NEW YORK NY BDSTA	-20011102	44	73.8 368	40-44-54 73-59-10	182.2	82.25 1.75	24.1/80.5 CLOSE
WRDM-L CP	HARTFORD CT BPTTL	-20000728	44 (+)	.118 0	41-46-07 72-40-26	73.2	110.73 30.23	24.1/80.5 CLEAR
WVIA-T LIC	SCRANTON PA BLET	-19830929	*44 (-) I	1000 509	41-10-55 75-52-17	258.7	164.50 84.00	24.1/80.5 CLEAR
WMHQ LIC	SCHENECTADY NY BLCT	-19850114	45 (o) I	2950 DA 338	42-37-37 74-00-38	357.7	126.58 46.08	24.1/80.5 CLEAR

DTV - DTV Separation Study

Job Title :WRNN-DT

Separation Buffer 161 km

Zone : 1

Channel 48 (674-680 MHz)

Coordinates : 41-29-18 73-56-56

Call Status	City St	FCC File No.	Channel Zone	ERP(kW) HAAT(m)	Latitude Longitude	Bear. True	Dist. (km)	Req. (km)
WTVH-D APP	SYRACUSE NY	BPCDT -19991027	47 I	1000 259	DA 42-56-40 76-07-08	312.9 131.39	241.39	24.0/110.0 CLEAR
DWTVH DTVALT	SYRACUSE NY		47 I	1000 290	42-57-19 76-06-34	313.2 131.60	241.60	24.0/110.0 CLEAR
WYDN APP	WORCESTER MA	BPEDT -20000501	*47 I	365 217	DA 42-18-27 71-13-27	67.1 133.74	243.74	24.0/110.0 CLEAR
DWYDN DTVALT	WORCESTER MA		47 I	101 398	42-08-32 72-13-28	62.5 50.64	160.64	24.0/110.0 CLEAR
WRNNTV APP	KINGSTON NY	BPRM -20000328	48 I	200 381	DA 41-29-19 73-56-52	71.8 0.11		
WLED-D CP	LITTLETON NH	BPEDT -20000217	*48 I	45 388	44-21-10 71-44-15	28.7 169.57	365.87	196.3 CLEAR
WNEP-D CP	SCRANTON PA	BPCDT -19990729	49 I	100 506	41-11-00 75-52-10	258.7 54.31	164.31	24.0/110.0 CLEAR
DWNEPTV DTVALT	SCRANTON PA		49 I	73.5 506	41-10-58 75-52-21	258.7 54.56	164.56	24.0/110.0 CLEAR
DWACITV DTVALT	ATLANTIC CITY NJ		49 I	98.5 133	39-36-48 74-15-50	187.4 99.91	209.91	24.0/110.0 CLEAR
WWSI-D APP	ATLANTIC CITY NJ	BPCDT -19991019	49 I	130 296	DA 39-37-53 74-21-12	189.5 103.04	209.04	24.0/110.0 CLEAR
DWEKWT DTVALT	KEENE NH		49 I	50 329	43-02-00 72-22-04	36.6 105.57	215.57	24.0/110.0 CLEAR
WEKW-D CP	KEENE NH	BPEDT -20000217	*49 I	43 330	43-02-00 72-22-04	36.6 105.58	215.58	24.0/110.0 CLEAR
DWLNETV DTVALT	NEW BEDFORD MA		49 I	1000 283	41-35-48 71-11-24	86.1 120.53	230.53	24.0/110.0 CLEAR
WLNE-D CP	NEW BEDFORD MA	BPCDT -19991026	49 I	380 264	41-51-54 71-17-15	78.4 115.54	225.54	24.0/110.0 CLEAR