

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
DTV CONSTRUCTION PERMIT
STATION WTOL-DT
TOLEDO, OHIO
CH 17 735 KW (MAX-DA) 263 M

Technical Narrative

This Technical Exhibit supports an application for digital television (DTV) station WTOL-DT which is paired with NTSC (analog) channel 11 at Toledo, Ohio. This application requests a modification of its construction permit (CP) for its digital television operation on channel 17 at Toledo. The Federal Communications Commission (FCC) assigned channel 17 as WTOL-DT's DTV allotment in the Memorandum, Opinion and Order (MO&O) concerning reconsideration of the 6th Report and Order in MM Docket No. 87-268. The FCC assigned an effective radiated power of 543.6 kilowatts with a directional antenna envelope and an antenna height above average terrain (HAAT) of 305 meters for the DTV allotment.

Proposed Facilities

Station WTOL-DT proposes to operate DTV channel 17 from its NTSC transmitter site. The proposed DTV antenna will be mounted below its NTSC antenna. It is proposed to operate with an Andrew ALP24M3-HSWR-17 directional antenna with a maximum average effective radiated power of 735 kilowatts. The proposed WTOL-DT

effective radiated power exceeds the Commission's allocated maximum effective radiated power. Therefore, an allocation study was completed to ensure no prohibited interference would occur.

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

41° 40' 22" North Latitude
83° 22' 47" West Longitude

Figure 2 are the horizontal and vertical plane radiation patterns for the proposed DTV antenna system.

Allocation Considerations

The proposed WTOL-DT Channel 17 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.¹ 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 WTOL-DT facility are summarized herein at Figure

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.

2. 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.²

Radiofrequency Electromagnetic Field Exposure

The proposed WTOL-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 WTOL-DT antenna is located 264 meters (866 feet) above ground level. The maximum effective radiated power is 735 kilowatts. A relative field value of 0.2 is assumed for the antenna's downward radiation (the vertical plane relative field does not exceed the 0.2 for all horizontal depression angles greater than 10 degrees, see Sheet 4 of Figure 2). The calculated power density at a point 2 meters above ground level is 0.014 mW/cm². This is less than 5 percent of the Commission's recommended limit of 0.33 mW/cm² for channel 17 for an "uncontrolled" environment.

Access to the transmitting site will be restricted and appropriately marked with warning signs. 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

² 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 WTOL-DT. This properly reflects the net interference change for determining compliance with the FCC DTV2%/10% *de minimis* standard.

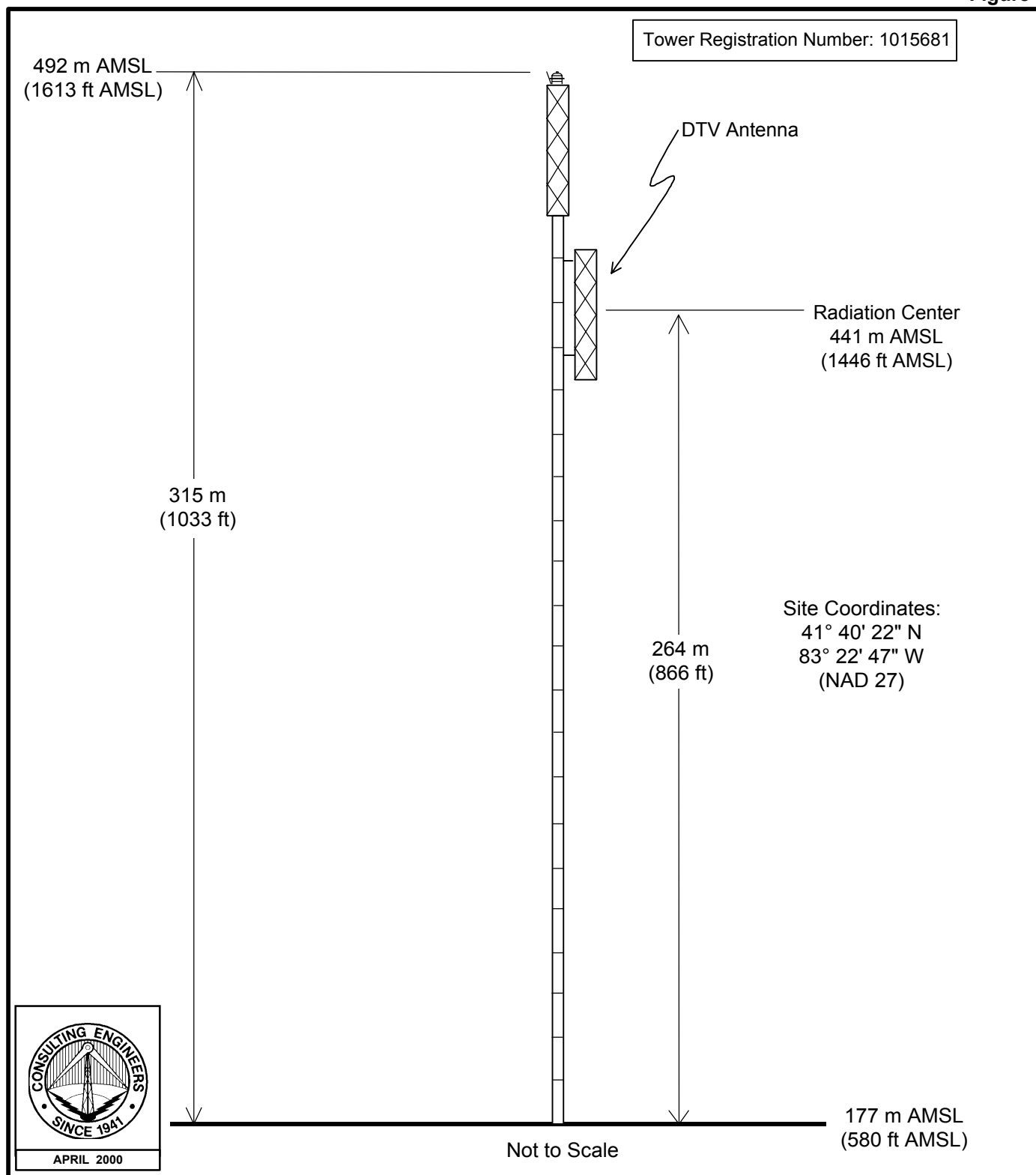
protective clothing and/or RFR exposure monitors or scheduling work when the stations are at reduced power or shut down. The proposed WTOL-DT operation appears to be otherwise categorically excluded from environmental processing.

Charles Cooper

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November 12, 2001

Figure 1

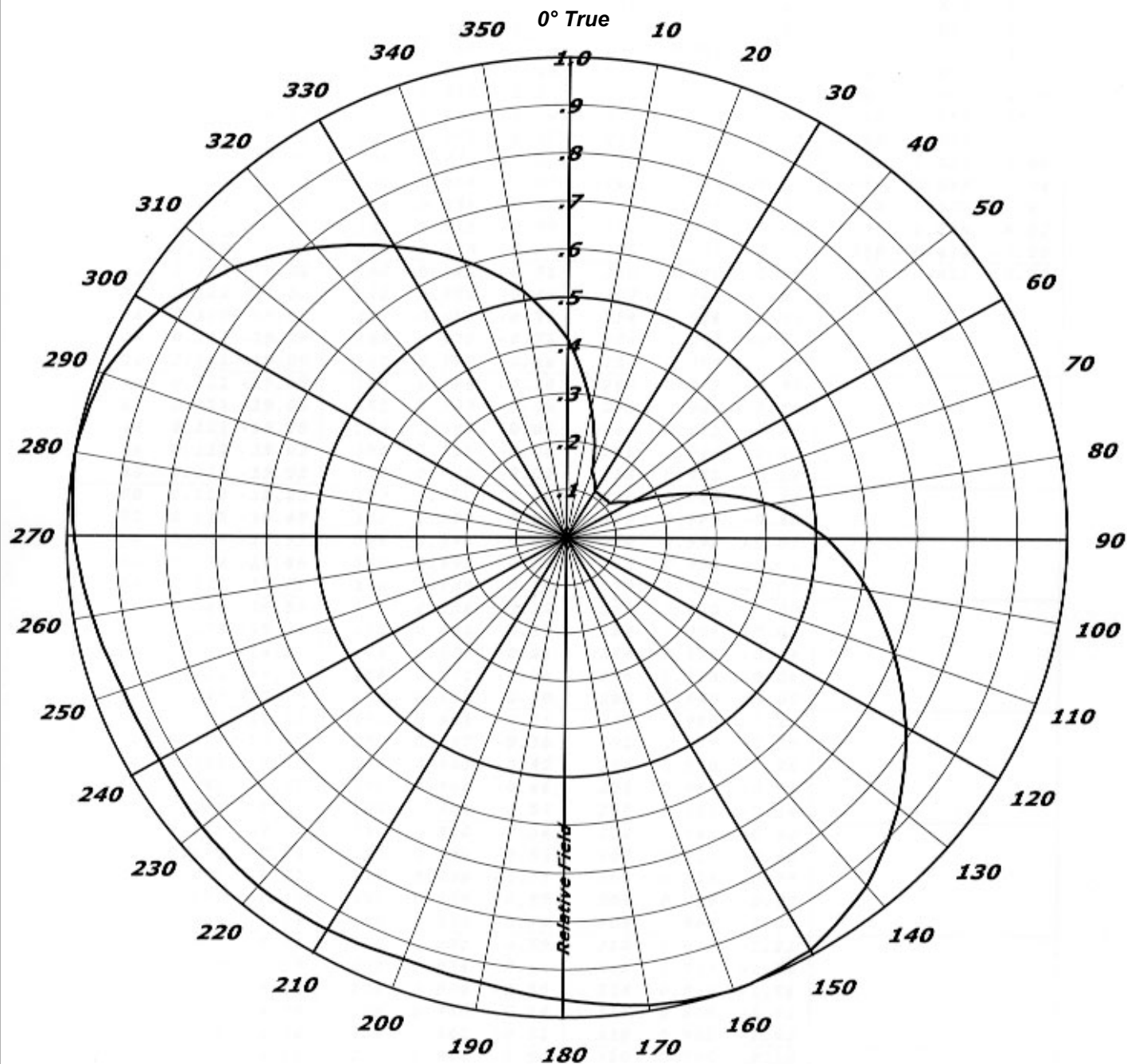


PROPOSED ANTENNA AND SUPPORTING STRUCTURE

TELEVISION STATION WTOL-DT
TOLEDO, OHIO

CH 17 735 KW (MAX-DA) 263 M

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



HORIZONTAL PLANE ANTENNA PATTERN

TELEVISION STATION WTOL-DT

TOLEDO, OHIO

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

0	0.412	-7.70	110	0.697	-3.14	220	0.950	-0.45	330	0.697	-3.14
2	0.384	-8.31	112	0.715	-2.91	222	0.949	-0.45	332	0.680	-3.35
4	0.356	-8.97	114	0.732	-2.71	224	0.948	-0.46	334	0.663	-3.57
6	0.328	-9.68	116	0.750	-2.50	226	0.946	-0.48	336	0.646	-3.80
8	0.300	-10.46	118	0.767	-2.30	228	0.945	-0.49	338	0.629	-4.03
10	0.272	-11.31	120	0.785	-2.10	230	0.944	-0.50	340	0.612	-4.26
12	0.247	-12.15	122	0.802	-1.92	232	0.942	-0.52	342	0.594	-4.52
14	0.222	-13.07	124	0.819	-1.73	234	0.940	-0.54	344	0.576	-4.79
16	0.198	-14.07	126	0.836	-1.56	236	0.938	-0.56	346	0.557	-5.08
18	0.173	-15.24	128	0.853	-1.38	238	0.936	-0.57	348	0.539	-5.37
20	0.148	-16.59	130	0.870	-1.21	240	0.934	-0.59	350	0.521	-5.66
22	0.141	-17.02	132	0.884	-1.07	242	0.935	-0.58	352	0.499	-6.04
24	0.134	-17.46	134	0.899	-0.92	244	0.936	-0.57	354	0.477	-6.43
26	0.126	-17.99	136	0.913	-0.79	246	0.938	-0.56	356	0.456	-6.82
28	0.119	-18.49	138	0.928	-0.65	248	0.939	-0.55	358	0.434	-7.25
30	0.112	-19.02	140	0.942	-0.52	250	0.940	-0.54	360	0.412	-7.70
32	0.112	-19.02	142	0.951	-0.44	252	0.944	-0.50			
34	0.112	-19.02	144	0.960	-0.35	254	0.948	-0.46			
36	0.111	-19.09	146	0.970	-0.26	256	0.953	-0.42			
38	0.111	-19.09	148	0.979	-0.18	258	0.957	-0.38			
40	0.111	-19.09	150	0.988	-0.10	260	0.961	-0.35			
42	0.111	-19.09	152	0.990	-0.09	262	0.966	-0.30			
44	0.111	-19.09	154	0.993	-0.06	264	0.971	-0.26			
46	0.112	-19.02	156	0.995	-0.04	266	0.976	-0.21			
48	0.112	-19.02	158	0.998	-0.02	268	0.981	-0.17			
50	0.112	-19.02	160	1.000	0.00	270	0.986	-0.12			
52	0.119	-18.49	162	0.997	-0.03	272	0.989	-0.10			
54	0.126	-17.99	164	0.994	-0.05	274	0.992	-0.07			
56	0.134	-17.46	166	0.992	-0.07	276	0.994	-0.05			
58	0.141	-17.02	168	0.989	-0.10	278	0.997	-0.03			
60	0.148	-16.59	170	0.986	-0.12	280	1.000	0.00			
62	0.173	-15.24	172	0.981	-0.17	282	0.998	-0.02			
64	0.198	-14.07	174	0.976	-0.21	284	0.995	-0.04			
66	0.222	-13.07	176	0.971	-0.26	286	0.993	-0.06			
68	0.247	-12.15	178	0.966	-0.30	288	0.990	-0.09			
70	0.272	-11.31	180	0.961	-0.35	290	0.988	-0.10			
72	0.300	-10.46	182	0.957	-0.38	292	0.979	-0.18			
74	0.328	-9.68	184	0.953	-0.42	294	0.970	-0.26			
76	0.356	-8.97	186	0.948	-0.46	296	0.960	-0.35			
78	0.384	-8.31	188	0.944	-0.50	298	0.951	-0.44			
80	0.412	-7.70	190	0.940	-0.54	300	0.942	-0.52			
82	0.434	-7.25	192	0.939	-0.55	302	0.928	-0.65			
84	0.456	-6.82	194	0.938	-0.56	304	0.913	-0.79			
86	0.477	-6.43	196	0.936	-0.57	306	0.899	-0.92			
88	0.499	-6.04	198	0.935	-0.58	308	0.884	-1.07			
90	0.521	-5.66	200	0.934	-0.59	310	0.870	-1.21			
92	0.539	-5.37	202	0.936	-0.57	312	0.853	-1.38			
94	0.557	-5.08	204	0.938	-0.56	314	0.836	-1.56			
96	0.576	-4.79	206	0.940	-0.54	316	0.819	-1.73			
98	0.594	-4.52	208	0.942	-0.52	318	0.802	-1.92			
100	0.612	-4.26	210	0.944	-0.50	320	0.785	-2.10			
102	0.629	-4.03	212	0.945	-0.49	322	0.767	-2.30			
104	0.646	-3.80	214	0.946	-0.48	324	0.750	-2.50			
106	0.663	-3.57	216	0.948	-0.46	326	0.732	-2.71			
108	0.680	-3.35	218	0.949	-0.45	328	0.715	-2.91			

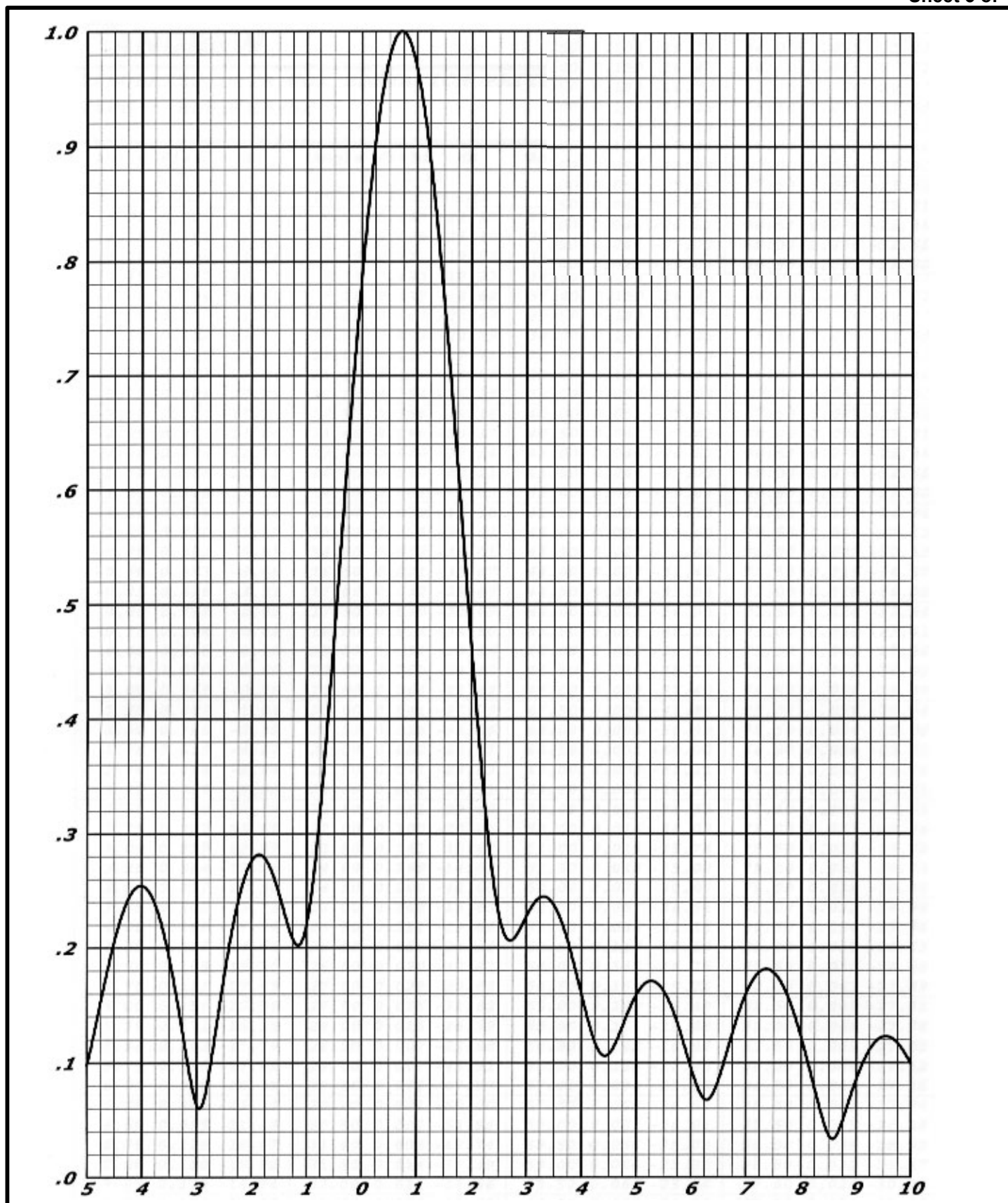
HORIZONTAL PLANE ANTENNA TABULATION

TELEVISION STATION WTOL-DT

TOLEDO, OHIO

CH 17 735 KW (MAX-DA) 263 M

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



VERTICAL PLANE ANTENNA PATTERN

TELEVISION STATION WTOL-DT

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-5.00	0.098	-20.16	8.75	0.049	-26.17	35.00	0.041	-27.75	62.50	0.050	-26.05
-4.75	0.152	-16.35	9.00	0.085	-21.40	35.50	0.034	-29.46	63.00	0.057	-24.87
-4.50	0.206	-13.74	9.25	0.112	-19.05	36.00	0.055	-25.13	63.50	0.059	-24.60
-4.25	0.242	-12.31	9.50	0.123	-18.23	36.50	0.103	-19.78	64.00	0.055	-25.23
-4.00	0.254	-11.89	9.75	0.117	-18.62	37.00	0.150	-16.47	64.50	0.046	-26.82
-3.75	0.237	-12.49	10.00	0.099	-20.07	37.50	0.183	-14.76	65.00	0.034	-29.37
-3.50	0.192	-14.33	10.50	0.073	-22.79	38.00	0.191	-14.36	65.50	0.026	-31.68
-3.25	0.125	-18.03	11.00	0.130	-17.71	38.50	0.174	-15.19	66.00	0.030	-30.42
-3.00	0.063	-23.94	11.50	0.186	-14.62	39.00	0.136	-17.31	66.50	0.043	-27.38
-2.75	0.096	-20.39	12.00	0.194	-14.25	39.50	0.090	-20.94	67.00	0.056	-25.00
-2.50	0.173	-15.23	12.50	0.156	-16.16	40.00	0.051	-25.81	67.50	0.067	-23.45
-2.25	0.239	-12.44	13.00	0.095	-20.47	40.50	0.041	-27.82	68.00	0.074	-22.61
-2.00	0.276	-11.18	13.50	0.040	-27.94	41.00	0.046	-26.67	68.50	0.076	-22.36
-1.75	0.278	-11.12	14.00	0.010	-40.21	41.50	0.044	-27.03	69.00	0.074	-22.66
-1.50	0.248	-12.12	14.50	0.001	-60.00	42.00	0.033	-29.64	69.50	0.067	-23.50
-1.25	0.208	-13.65	15.00	0.010	-40.30	42.50	0.021	-33.72	70.00	0.057	-24.94
-1.00	0.220	-13.15	15.50	0.015	-36.67	43.00	0.021	-33.60	70.50	0.044	-27.13
-0.75	0.322	-9.85	16.00	0.013	-38.01	43.50	0.027	-31.46	71.00	0.030	-30.32
-0.50	0.473	-6.49	16.50	0.021	-33.67	44.00	0.027	-31.42	71.50	0.019	-34.57
-0.25	0.636	-3.93	17.00	0.032	-29.87	44.50	0.020	-33.84	72.00	0.016	-36.09
0.00	0.786	-2.09	17.50	0.030	-30.49	45.00	0.011	-38.95	72.50	0.024	-32.54
0.25	0.904	-0.88	18.00	0.018	-34.90	45.50	0.010	-40.25	73.00	0.034	-29.42
0.50	0.978	-0.19	18.50	0.036	-28.86	46.00	0.015	-36.71	73.50	0.043	-27.36
0.75	1.000	0.00	19.00	0.060	-24.42	46.50	0.016	-35.77	74.00	0.050	-26.06
1.00	0.968	-0.28	19.50	0.064	-23.92	47.00	0.013	-37.40	74.50	0.054	-25.30
1.25	0.887	-1.04	20.00	0.041	-27.79	47.50	0.008	-41.86	75.00	0.056	-24.98
1.50	0.766	-2.32	20.50	0.016	-35.66	48.00	0.003	-50.92	75.50	0.056	-25.00
1.75	0.619	-4.17	21.00	0.050	-25.97	48.50	0.001	-60.00	76.00	0.054	-25.32
2.00	0.464	-6.68	21.50	0.071	-23.03	49.00	0.002	-56.21	76.50	0.051	-25.90
2.25	0.324	-9.80	22.00	0.061	-24.31	49.50	0.006	-44.27	77.00	0.046	-26.71
2.50	0.230	-12.77	22.50	0.051	-25.80	50.00	0.012	-38.55	77.50	0.041	-27.69
2.75	0.207	-13.69	23.00	0.100	-20.03	50.50	0.016	-36.03	78.00	0.037	-28.74
3.00	0.227	-12.87	23.50	0.161	-15.87	51.00	0.016	-35.74	78.50	0.033	-29.68
3.25	0.244	-12.25	24.00	0.199	-14.03	51.50	0.018	-35.02	79.00	0.031	-30.28
3.50	0.237	-12.50	24.50	0.200	-14.00	52.00	0.031	-30.07	79.50	0.030	-30.36
3.75	0.206	-13.73	25.00	0.165	-15.63	52.50	0.057	-24.94	80.00	0.032	-29.99
4.00	0.160	-15.94	25.50	0.111	-19.06	53.00	0.088	-21.16	80.50	0.034	-29.36
4.25	0.117	-18.61	26.00	0.059	-24.64	53.50	0.119	-18.50	81.00	0.037	-28.69
4.50	0.108	-19.36	26.50	0.030	-30.41	54.00	0.145	-16.75	81.50	0.039	-28.08
4.75	0.131	-17.63	27.00	0.029	-30.65	54.50	0.163	-15.76	82.00	0.042	-27.59
5.00	0.159	-15.99	27.50	0.026	-31.82	55.00	0.168	-15.48	82.50	0.043	-27.25
5.25	0.171	-15.35	28.00	0.015	-36.39	55.50	0.161	-15.88	83.00	0.044	-27.06
5.50	0.162	-15.79	28.50	0.007	-42.68	56.00	0.142	-16.98	83.50	0.045	-27.02
5.75	0.135	-17.42	29.00	0.007	-43.51	56.50	0.114	-18.85	84.00	0.044	-27.12
6.00	0.096	-20.38	29.50	0.004	-47.57	57.00	0.084	-21.53	84.50	0.043	-27.36
6.25	0.068	-23.33	30.00	0.001	-60.00	57.50	0.059	-24.58	85.00	0.041	-27.74
6.50	0.085	-21.43	30.50	0.002	-53.94	58.00	0.050	-26.01	85.50	0.039	-28.28
6.75	0.125	-18.07	31.00	0.005	-45.74	58.50	0.056	-25.03	86.00	0.036	-28.98
7.00	0.160	-15.92	31.50	0.014	-37.39	59.00	0.064	-23.91	86.50	0.032	-29.87
7.25	0.179	-14.94	32.00	0.021	-33.48	59.50	0.066	-23.66	87.00	0.028	-30.98
7.50	0.179	-14.97	32.50	0.022	-33.09	60.00	0.060	-24.43	87.50	0.024	-32.38
7.75	0.158	-16.01	33.00	0.014	-37.33	60.50	0.049	-26.20	88.00	0.020	-34.18
8.00	0.122	-18.27	33.50	0.010	-39.94	61.00	0.037	-28.56	88.50	0.015	-36.56
8.25	0.076	-22.35	34.00	0.028	-30.98	61.50	0.033	-29.60	89.00	0.010	-40.01
8.50	0.037	-28.71	34.50	0.041	-27.66	62.00	0.040	-28.02	89.50	0.005	-45.98

VERTICAL PLANE ANTENNA TABULATION

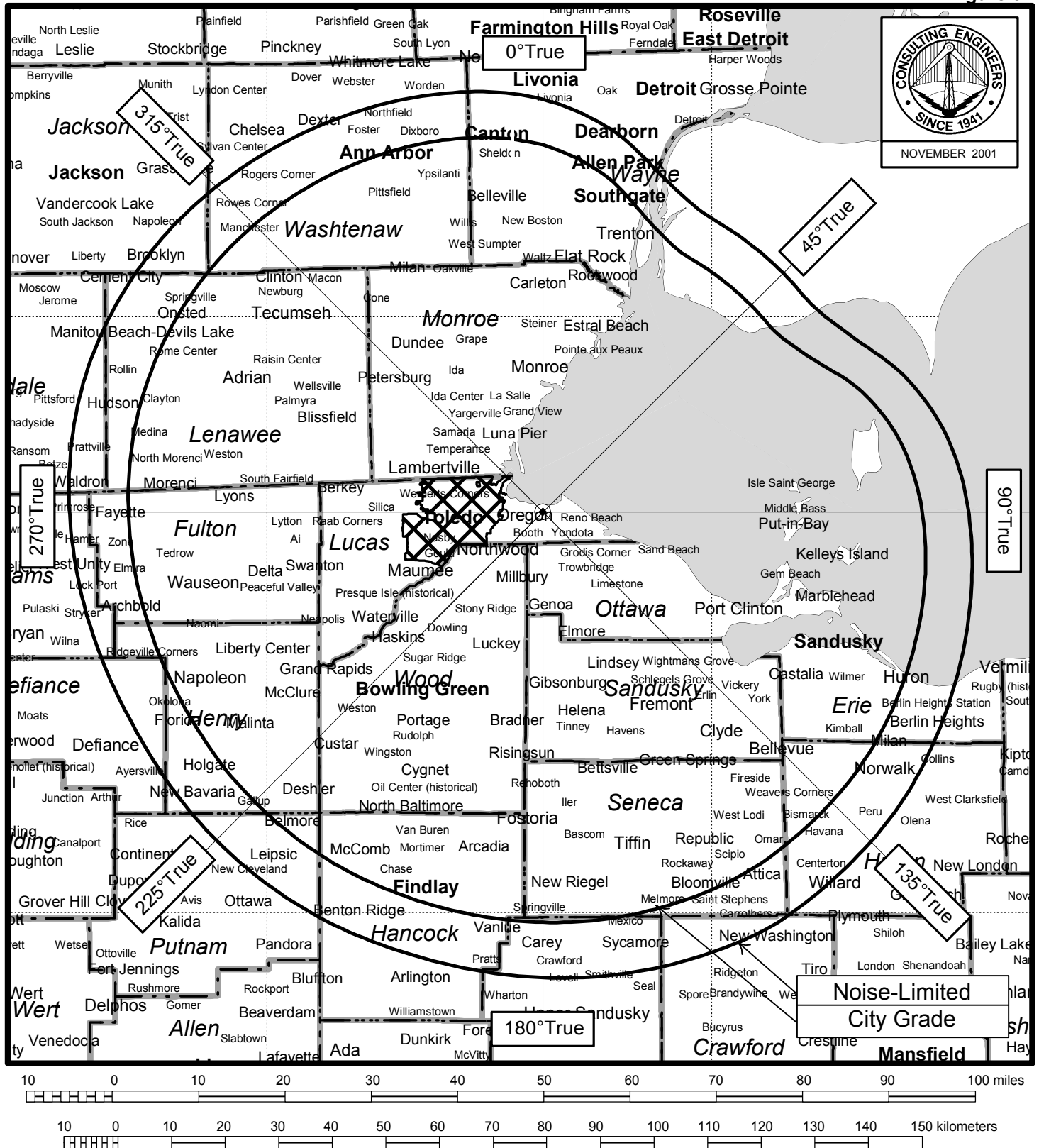
TELEVISION STATION WTOL-DT

TOLEDO, OHIO

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Figure 3



DTV FCC PREDICTED COVERAGE CONTOURS

TELEVISION STATION WTOL-DT
TOLEDO, OHIO
CH 17 735 KW (MAX-DA) 263 M

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

TECHNICAL EXHIBIT
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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 (%)
New DTV Ann Arbor, MI <i>BPRM-20000717AEE</i>	15	DTV	No Interference Predicted.			
WSMH-DT Flint, MI <i>BPCDT-19991028ACK</i>	16	DTV	No Interference Predicted.			
WSMH-DT Flint, MI <i>Allotment</i>	16	DTV	No Interference Predicted.			
CHWI-TV Chantham, ON	16	NTSC	No Interference Predicted.			
WYIN-DT Gary, IN <i>BPEDT-20000426ABE</i>	17	DTV	No Analysis Completed as Facility is Checklist Type.			
WYIN-DT Gary, IN <i>BMPEDT-20010705ABA</i>	17	DTV	No Interference Predicted.			
WYIN-DT Gary, IN <i>DTV Allotment</i>	17	DTV	No Interference Predicted.			
WKPC-DT Louisville, KY <i>DTV Allotment</i>	17	DTV	No Interference Predicted.			

Facility	Channel	NTSC or DTV?	Baseline Service Population (1990)	Permissible IX(%)	Net New IX Caused by Proposed (1990)	Percent of Baseline (%)
WXMI (TV) Grand Rapids, MI <i>BLCT-19911028KE</i>	17	NTSC	No New Interference Predicted.			
WCMW-DT Manistee, MI <i>BPEDT-20000403AAR</i>	17	DTV	No Interference Predicted.			
WCMW-DT Manistee, MI <i>DTV Allotment</i>	17	DTV	No Interference Predicted.			
WNED-TV Buffalo, NY <i>BLET-19870206KE</i>	17	NTC	No Interference Predicted.			
WDLI (TV) Canton, OH <i>BLCT-2558</i>	17	NTSC	No New Interference Predicted.			
WHCP-DT Portsmouth, OH <i>BPCDT-19991029AHD</i>	17	DTV	No New Interference Predicted.			
WUXA-DT Portsmouth, OH <i>DTV Allotment</i>	17	DTV	561,066	2.0	4,914	0.9%
SARNIA ON CANADA	17		No New Interference Predicted.			
WHTV (TV) Jackson, MI <i>BLCT-20001023ADV</i>	18	NTSC	No New Interference Predicted.			
WDCQ-DT University Center, MI <i>BPEDT-20000217ABB</i>	18	DTV	No Analysis Completed as Facility is Checklist Type.			
WUCM-DT University Center, MI <i>DTV Allotment</i>	18	DTV	No Interference Predicted.			
WBDT-DT Springfield, OH <i>BPCDT-19990813LF</i>	18	DTV	No Interference Predicted.			

Facility	Channel	NTSC or DTV?	Baseline Service Population (1990)	Permissible IX(%)	Net New IX Caused by Proposed (1990)	Percent of Baseline (%)
WTJC-DT Springfield, OH <i>DTV Allotment</i>	18	DTV	No Interference Predicted.			
WDWB (TV) Detroit, MI <i>BLCT-2597</i>	20	NTSC	No Interference Predicted.			
WDWB (TV) Detroit, MI <i>BPCT-19981203KE</i>	20	NTSC	No Interference Predicted.			
WNWO-TV Toledo, OH <i>BLCT-19830503KE</i>	24	NTSC	No Interference Predicted.			
WVIZ Cleveland, OH <i>BLET-19870422KF</i>	25	NTSC	No Interference Predicted.			