



**STATEMENT OF JOHN E. HIDLE, P.E.
IN SUPPORT OF AN APPLICATION FOR
A MINOR MODIFICATION OF A
POST REPACK CONSTRUCTION PERMIT
FILE # 0000024772
WNWO-TV - TOLEDO, OHIO
DTV - CH. 23 - 275 kW - 423.5 m HAAT**

Prepared for: WNWO LICENSEE, LLC

I am a Consulting Engineer, an employee in the firm of Carl T. Jones Corporation, with offices located in Springfield, Virginia. My education and experience are a matter of record with the Federal Communications Commission. I am a Licensed Professional Engineer in the Commonwealth of Virginia, License No. 7418, and in the State of New York, License No. 63418.

GENERAL

This office has been authorized by WNWO LICENSEE, LLC, licensee of WNWO-TV, channel 49, facility ID number 73354, licensed to Toledo, Ohio, to prepare this statement, FCC Form 2100, Schedule A, its technical sections, and the associated exhibits in support of an application for a minor modification of its post-reassignment construction permit, file # 00000247722, that authorizes WNWO-TV to use channel 23 for its post-reassignment broadcasting. The instant application proposes only to increase WNWO-TV's ERP to 275 kW.

DIRECTIONAL ANTENNA

The applicant will install its authorized antenna, a Dielectric model TFU-12DSC/VP-R C190 elliptically polarized directional transmitting antenna with its center of radiation located at a height above ground of 424.7 meters, and a height above average terrain of 423.5 meters. The antenna manufacturer's horizontal plane azimuth radiation pattern for the horizontally polarized component is shown and tabulated in exhibit 2. The manufacturer's horizontal plane azimuth pattern for the vertically polarized component is shown and tabulated in exhibit 3. The manufacturer's vertical plane elevation radiation pattern, illustrating the antenna's radiation characteristics above and below the horizontal plane is shown and tabulated in Exhibit 4.

PREDICTED COVERAGE CONTOURS

The predicted coverage contours were calculated in accordance with the method described in Section 73.625(b) of the Rules, utilizing the appropriate F(50,90) propagation curves (47 CFR Section 73.699, Figure 9), proposed Effective Radiated Power, and antenna height above average terrain as determined for each profile radial. The average terrain on the eight cardinal radials from 3 kilometers to 16 kilometers from the site, was determined using the NED Three Second US Terrain Database as permitted in the FCC Rules. The antenna site elevation and coordinates were determined from FCC antenna registration data. Exhibit 1 shows the predicted Noise Limited (39.66 dBu) contour, and the principal community (48 dBu) contour. The 48 dBu contour completely encompasses the principal community of license, Toledo, Ohio.

ALLOCATION CONSIDERATIONS

Post-Transition DTV Considerations

A study was performed, using the FCC's software, tv_study, v. 2.2.3, to determine if the instant application for construction permit is predicted to cause new prohibited interference to post reassignment DTV stations, construction permits, DTV allotments or Class A DTV stations. The study results, which included Canadian stations, shown in Appendix B, indicate that the instant application for construction permit is predicted to cause no new interference exceeding 0.5% to the populations served by any post reassignment DTV station, construction permit, allotment or Class A DTV stations in the United States or Canada.

International DTV Considerations

The WNWO-TV site is located 32.3 kilometers from the nearest point on the US-Canadian border. The study shows no effect on any Canadian station. (See Appendix B)

BLANKETING AND INTERMODULATION INTERFERENCE

Other broadcast and non-broadcast facilities are either co-located with, or located within 10 km of the proposed WNWO-TV site. The applicant does recognize its responsibility to remedy complaints of interference that might result from this proposal in accordance with applicable Rules.

RADIO FREQUENCY IMPACT

The FCC's guidelines and procedures for evaluating environmental effects of radio frequency (RF) emissions are generally based on recommendations by the National

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Council on Radiation Protection and Measurements (NCRP) in NCRP Report No. 86 (1986) and by the American National Standards Institute and the Institute of Electrical and Electronic Engineers, LLC (IEEE) in ANSI/IEEE C95.1-1992 (IEEE C95.1-1991). The guidelines define a maximum permissible exposure (MPE) level for occupational or “controlled” situations, and for “uncontrolled” environments that apply in all other cases that might affect the general public. The FCC Office of Engineering and Technology’s technical bulletin No. 65 entitled, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields" (Edition 97-01, August 1997), provides assistance to determine whether FCC-regulated transmitting facilities, operations or devices comply with guidelines for human exposure to radio frequency electromagnetic fields as adopted by the Commission in 1996. OET Bulletin No. 65 contains the technical information necessary to evaluate compliance with the FCC’s policies and guidelines.

The Maximum Permitted Exposure (MPE) level for broadcast facilities that operate on a frequency between 30 MHz and 300 MHz is 200 microwatts per centimeter squared ($\mu\text{W}/\text{cm}^2$) for an “uncontrolled” environment, and is 1,000 microwatts per centimeter squared ($\mu\text{W}/\text{cm}^2$) for a “controlled” environment. The MPE level for broadcast facilities that operate on a frequency between 300 MHz and 1500 MHz, primarily UHF TV stations, is determined for an “uncontrolled” environment by dividing the operating frequency in MHz by 1.5, and is similarly determined for a “controlled” environment by dividing the operating frequency in MHz by 0.3.

The predicted emissions of WNWO-TV must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For WNWO-TV, which

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will operate on television Channel 23 (524-530 MHz), the MPE is 351.3 microwatts per centimeter squared ($\mu\text{W}/\text{cm}^2$) in an "uncontrolled" environment and 1,756.7 $\mu\text{W}/\text{cm}^2$ in a "controlled" environment. The proposed WNWO-TV facility will operate with a maximum ERP of 275 kW from an elliptically polarized directional transmitting antenna with a centerline height of 424.7 meters above ground level (AGL). Considering a predicted vertical plane relative field factor of 0.300 the WNWO-TV facility is predicted to produce a power density at two meters above ground level of 9.256 $\mu\text{W}/\text{cm}^2$, which is 2.63% of the FCC guideline value for an "uncontrolled" environment, and 0.526% of the FCC's guideline value for "controlled" environments. There are no other broadcast facilities that are located at the WNWO-TV site. Therefore, the total estimated percentage of the ANSI value at the proposed site, including the cumulative radiation from all authorizations within the relevant proximity, is 2.63% of the limit applicable to "uncontrolled" environments, and 0.526% of the limit for "controlled" environments. (See Appendix A)

OCCUPATIONAL SAFETY

The licensee of WNWO-TV is committed to the protection of station personnel and/or tower contractors working in the vicinity of the WNWO-TV antenna, and is committed to reducing power or ceasing operation during times of maintenance of the transmission systems, when necessary, to ensure protection to personnel.

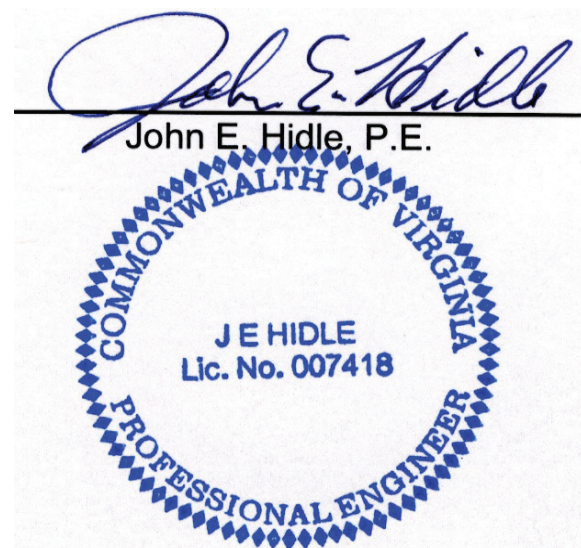
SUMMARY

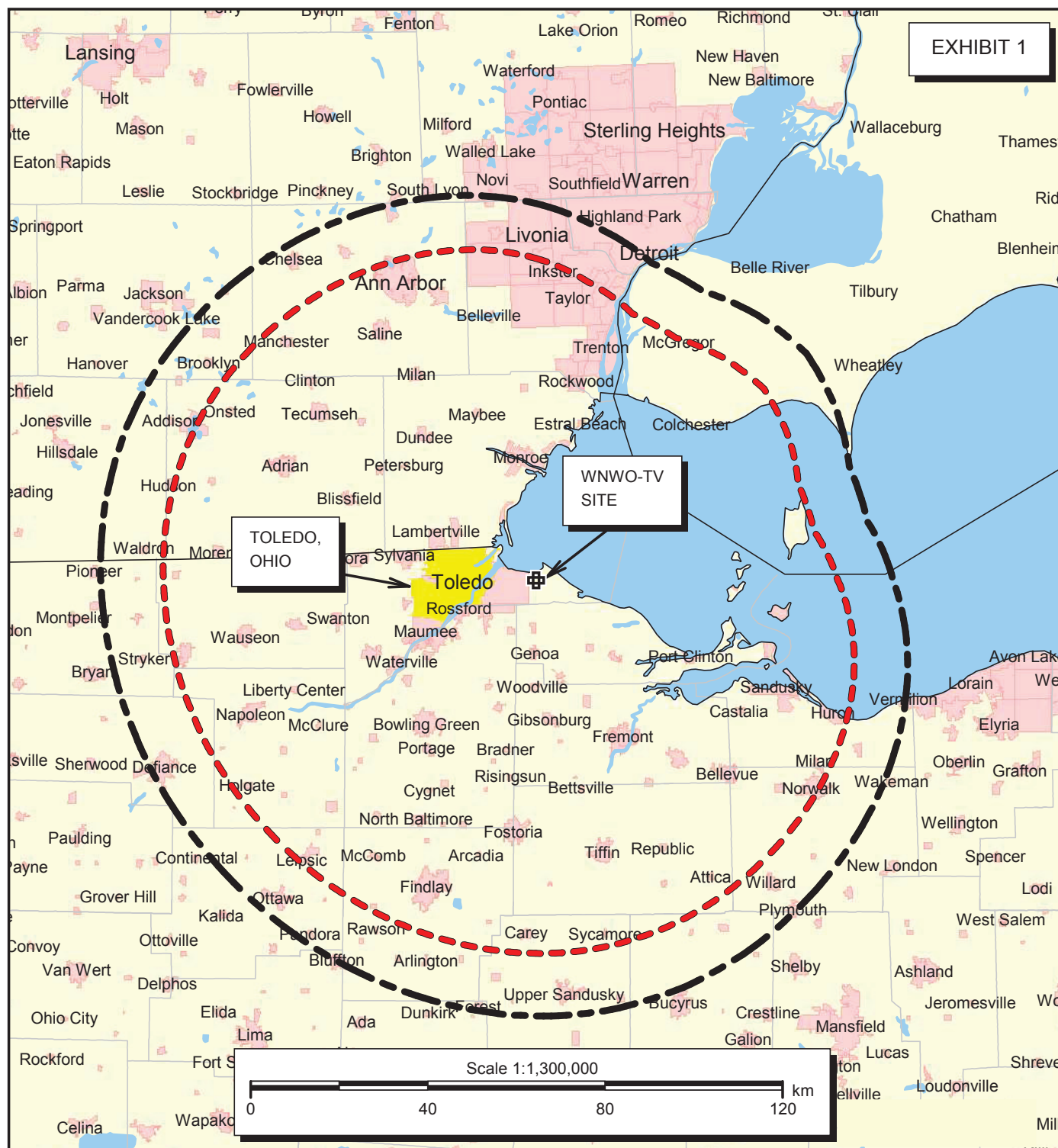
It is submitted that the instant application for a minor modification of its post-reassignment channel 23 construction permit to increase WNWO-TV's ERP to 275 kW,

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as described herein, complies with the Rules, Regulations and relevant Policies of the Federal Communications Commission. This statement, FCC Form 2100, its technical sections, and the attached exhibits were prepared by me or under my direct supervision and are believed to be true and correct to the best of my knowledge and belief.

DATED: October 9, 2017





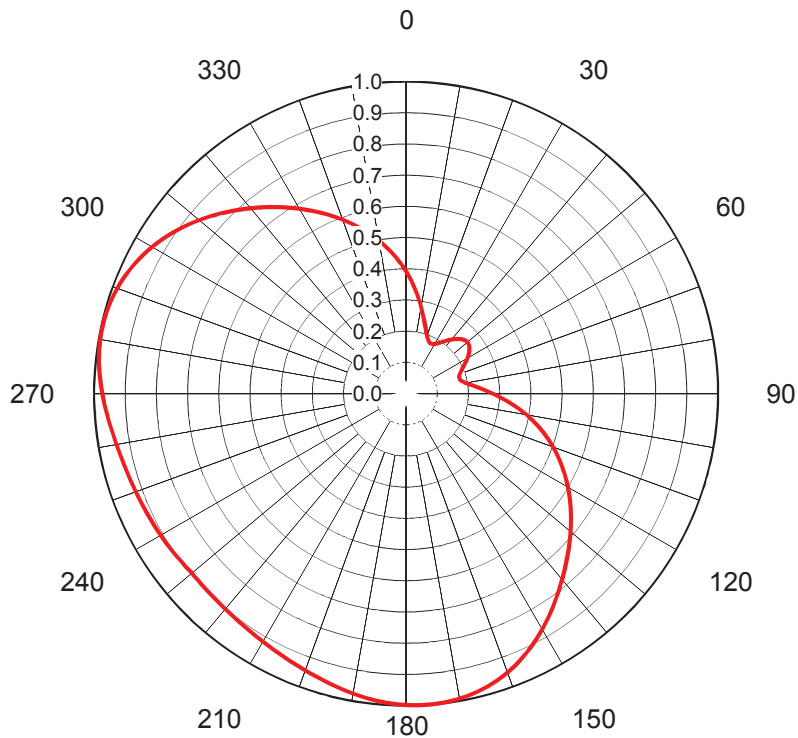
PREDICTED COVERAGE CONTOURS

WNWO-TV - TOLEDO, OHIO
DTV Channel 23 - 275 kW ERP - 423.5 M HAAT
OCTOBER, 2017

Predicted Noise Limited 39.66 dBu
 F(50,90) Coverage Contour



Predicted Principal Community 48 dBu
 F(50,90) Coverage Contour

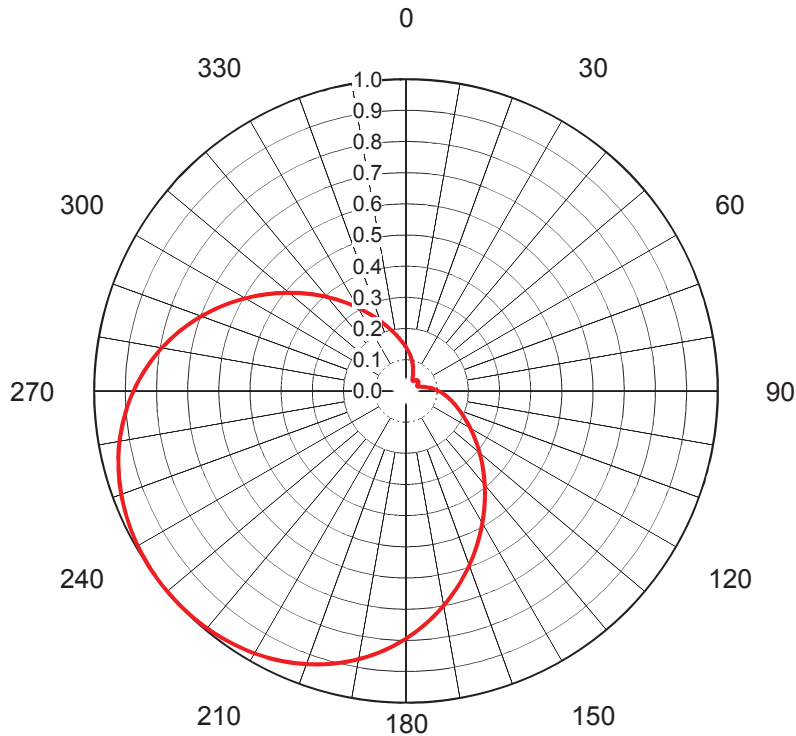


AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70051**
 Date **17-Feb-17**
 Call Letters **WNWO**
 Frequency **527 MHz**
 Channel **23**
 Antenna Type **TFU-12DSC/VP-R C190**
 Gain **1.88 (2.73dB)**
Calculated
 Directional
 Drawing # **TLP-M**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.392	36	0.207	72	0.179	108	0.481	144	0.816	180	0.998	216	0.907	252	0.925	288	0.990
1	0.381	37	0.211	73	0.178	109	0.491	145	0.826	181	0.997	217	0.905	253	0.926	289	0.988
2	0.370	38	0.216	74	0.178	110	0.502	146	0.835	182	0.996	218	0.904	254	0.928	290	0.985
3	0.358	39	0.221	75	0.178	111	0.512	147	0.845	183	0.994	219	0.903	255	0.930	291	0.982
4	0.347	40	0.226	76	0.180	112	0.522	148	0.854	184	0.992	220	0.901	256	0.932	292	0.979
5	0.335	41	0.231	77	0.182	113	0.532	149	0.863	185	0.990	221	0.900	257	0.935	293	0.975
6	0.324	42	0.235	78	0.185	114	0.542	150	0.873	186	0.987	222	0.899	258	0.937	294	0.971
7	0.313	43	0.240	79	0.189	115	0.552	151	0.882	187	0.985	223	0.899	259	0.940	295	0.967
8	0.302	44	0.244	80	0.194	116	0.561	152	0.890	188	0.982	224	0.898	260	0.942	296	0.962
9	0.291	45	0.247	81	0.200	117	0.571	153	0.899	189	0.979	225	0.897	261	0.945	297	0.957
10	0.280	46	0.250	82	0.206	118	0.580	154	0.907	190	0.976	226	0.897	262	0.948	298	0.952
11	0.270	47	0.253	83	0.214	119	0.590	155	0.916	191	0.973	227	0.896	263	0.951	299	0.946
12	0.260	48	0.255	84	0.221	120	0.599	156	0.923	192	0.970	228	0.896	264	0.954	300	0.940
13	0.250	49	0.256	85	0.229	121	0.608	157	0.931	193	0.967	229	0.896	265	0.958	301	0.934
14	0.241	50	0.257	86	0.238	122	0.617	158	0.938	194	0.964	230	0.895	266	0.961	302	0.927
15	0.232	51	0.256	87	0.248	123	0.626	159	0.945	195	0.960	231	0.897	267	0.964	303	0.920
16	0.224	52	0.255	88	0.257	124	0.635	160	0.951	196	0.957	232	0.898	268	0.967	304	0.913
17	0.216	53	0.253	89	0.267	125	0.644	161	0.957	197	0.954	233	0.900	269	0.971	305	0.906
18	0.209	54	0.251	90	0.278	126	0.653	162	0.963	198	0.951	234	0.901	270	0.974	306	0.898
19	0.203	55	0.248	91	0.289	127	0.662	163	0.968	199	0.947	235	0.902	271	0.977	307	0.890
20	0.197	56	0.245	92	0.300	128	0.671	164	0.972	200	0.944	236	0.904	272	0.980	308	0.882
21	0.192	57	0.241	93	0.311	129	0.680	165	0.977	201	0.941	237	0.905	273	0.983	309	0.874
22	0.188	58	0.236	94	0.322	130	0.688	166	0.981	202	0.938	238	0.906	274	0.985	310	0.865
23	0.184	59	0.232	95	0.334	131	0.697	167	0.984	203	0.935	239	0.907	275	0.988	311	0.857
24	0.182	60	0.227	96	0.346	132	0.706	168	0.987	204	0.933	240	0.908	276	0.990	312	0.848
25	0.180	61	0.222	97	0.357	133	0.715	169	0.990	205	0.930	241	0.910	277	0.992	313	0.839
26	0.179	62	0.217	98	0.369	134	0.724	170	0.993	206	0.927	242	0.911	278	0.993	314	0.830
27	0.179	63	0.212	99	0.381	135	0.733	171	0.995	207	0.925	243	0.912	279	0.994	315	0.821
28	0.180	64	0.207	100	0.393	136	0.742	172	0.996	208	0.922	244	0.913	280	0.995	316	0.812
29	0.182	65	0.202	101	0.404	137	0.751	173	0.998	209	0.920	245	0.914	281	0.996	317	0.803
30	0.184	66	0.198	102	0.415	138	0.760	174	0.999	210	0.918	246	0.916	282	0.996	318	0.794
31	0.187	67	0.194	103	0.427	139	0.769	175	1.000	211	0.916	247	0.917	283	0.996	319	0.784
32	0.190	68	0.190	104	0.438	140	0.778	176	1.000	212	0.914	248	0.918	284	0.996	320	0.775
33	0.194	69	0.186	105	0.449	141	0.788	177	1.000	213	0.912	249	0.920	285	0.995	321	0.766
34	0.198	70	0.183	106	0.460	142	0.797	178	1.000	214	0.910	250	0.921	286	0.993	322	0.757
35	0.202	71	0.181	107	0.470	143	0.807	179	0.999	215	0.908	251	0.923	287	0.992	323	0.748

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AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-70051**
 Date **17-Feb-17**
 Call Letters **WNWO**
 Frequency **527 MHz**
 Channel **23**
 Antenna Type **TFU-12DSC/VP-R C190**
 Gain **2.92 (4.66dB)**
Calculated
 Directional
 Drawing # **TFU-C190-V-D49**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value		
0	0.141	36	0.041	72	0.045	108	0.174	144	0.431	180	0.795	216	0.987	252	0.965	288	0.719	324	0.358
1	0.137	37	0.041	73	0.047	109	0.178	145	0.440	181	0.804	217	0.988	253	0.962	289	0.709	325	0.349
2	0.133	38	0.042	74	0.049	110	0.183	146	0.450	182	0.812	218	0.990	254	0.958	290	0.699	326	0.341
3	0.130	39	0.043	75	0.052	111	0.188	147	0.460	183	0.821	219	0.992	255	0.955	291	0.689	327	0.332
4	0.126	40	0.044	76	0.055	112	0.193	148	0.470	184	0.829	220	0.993	256	0.951	292	0.679	328	0.324
5	0.122	41	0.045	77	0.058	113	0.198	149	0.480	185	0.837	221	0.995	257	0.946	293	0.668	329	0.316
6	0.119	42	0.046	78	0.061	114	0.203	150	0.490	186	0.845	222	0.996	258	0.942	294	0.658	330	0.308
7	0.115	43	0.047	79	0.064	115	0.209	151	0.500	187	0.852	223	0.997	259	0.938	295	0.647	331	0.301
8	0.111	44	0.048	80	0.068	116	0.214	152	0.510	188	0.860	224	0.998	260	0.933	296	0.637	332	0.293
9	0.108	45	0.048	81	0.071	117	0.220	153	0.521	189	0.867	225	0.998	261	0.928	297	0.626	333	0.286
10	0.104	46	0.049	82	0.075	118	0.226	154	0.531	190	0.874	226	0.999	262	0.923	298	0.616	334	0.278
11	0.100	47	0.050	83	0.078	119	0.232	155	0.542	191	0.881	227	0.999	263	0.917	299	0.605	335	0.271
12	0.096	48	0.050	84	0.082	120	0.238	156	0.552	192	0.887	228	1.000	264	0.912	300	0.595	336	0.264
13	0.093	49	0.050	85	0.085	121	0.244	157	0.563	193	0.894	229	1.000	265	0.906	301	0.584	337	0.258
14	0.089	50	0.050	86	0.089	122	0.251	158	0.573	194	0.900	230	1.000	266	0.900	302	0.573	338	0.251
15	0.085	51	0.050	87	0.093	123	0.258	159	0.584	195	0.906	231	1.000	267	0.894	303	0.563	339	0.244
16	0.082	52	0.050	88	0.096	124	0.264	160	0.595	196	0.912	232	1.000	268	0.887	304	0.552	340	0.238
17	0.078	53	0.050	89	0.100	125	0.271	161	0.605	197	0.917	233	0.999	269	0.881	305	0.542	341	0.232
18	0.075	54	0.049	90	0.104	126	0.278	162	0.616	198	0.923	234	0.999	270	0.874	306	0.531	342	0.226
19	0.071	55	0.048	91	0.108	127	0.286	163	0.626	199	0.928	235	0.998	271	0.867	307	0.521	343	0.220
20	0.068	56	0.048	92	0.111	128	0.293	164	0.637	200	0.933	236	0.998	272	0.860	308	0.510	344	0.214
21	0.064	57	0.047	93	0.115	129	0.301	165	0.647	201	0.938	237	0.997	273	0.852	309	0.500	345	0.209
22	0.061	58	0.046	94	0.119	130	0.308	166	0.658	202	0.942	238	0.996	274	0.845	310	0.490	346	0.203
23	0.058	59	0.045	95	0.122	131	0.316	167	0.668	203	0.946	239	0.995	275	0.837	311	0.480	347	0.198
24	0.055	60	0.044	96	0.126	132	0.324	168	0.679	204	0.951	240	0.993	276	0.829	312	0.470	348	0.193
25	0.052	61	0.043	97	0.130	133	0.332	169	0.689	205	0.955	241	0.992	277	0.821	313	0.460	349	0.188
26	0.049	62	0.042	98	0.133	134	0.341	170	0.699	206	0.958	242	0.990	278	0.812	314	0.450	350	0.183
27	0.047	63	0.041	99	0.137	135	0.349	171	0.709	207	0.962	243	0.988	279	0.804	315	0.440	351	0.178
28	0.045	64	0.041	100	0.141	136	0.358	172	0.719	208	0.965	244	0.987	280	0.795	316	0.431	352	0.174
29	0.043	65	0.040	101	0.145	137	0.366	173	0.729	209	0.969	245	0.984	281	0.786	317	0.421	353	0.169
30	0.042	66	0.040	102	0.149	138	0.375	174	0.739	210	0.972	246	0.982	282	0.777	318	0.412	354	0.165
31	0.041	67	0.040	103	0.153	139	0.384	175	0.749	211	0.975	247	0.980	283	0.768	319	0.402	355	0.161
32	0.040	68	0.040	104	0.157	140	0.393	176	0.758	212	0.977	248	0.977	284	0.758	320	0.393	356	0.157
33	0.040	69	0.041	105	0.161	141	0.402	177	0.768	213	0.980	249	0.975	285	0.749	321	0.384	357	0.153
34	0.040	70	0.042	106	0.165	142	0.412	178	0.777	214	0.982	250	0.972	286	0.739	322	0.375	358	0.149
35	0.040	71	0.043	107	0.169	143	0.421	179	0.786	215	0.984	251	0.969	287	0.729	323	0.366	359	0.145

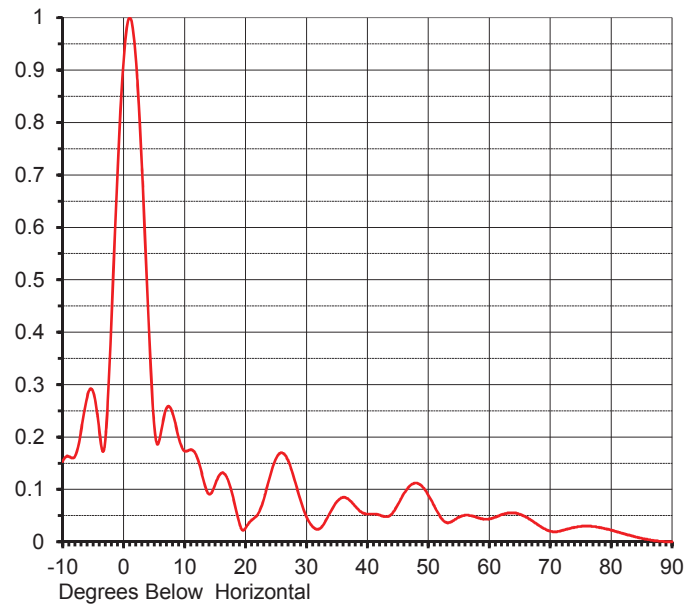
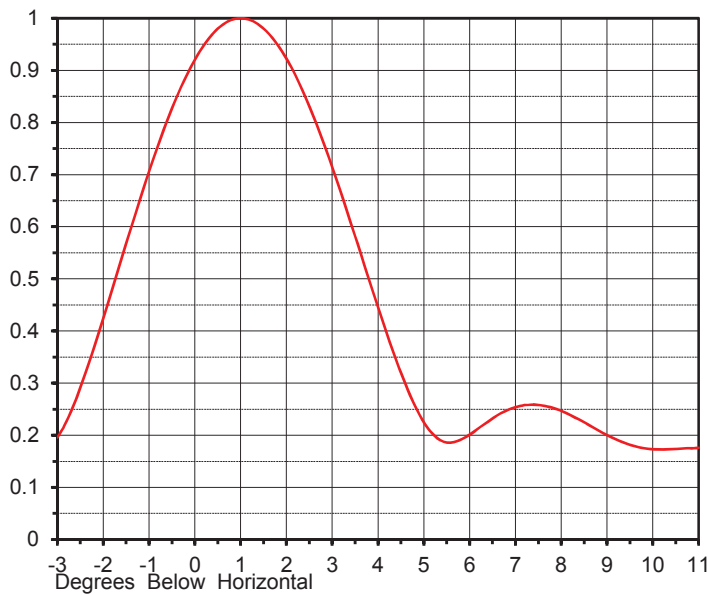
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ELEVATION PATTERN

Proposal No. **C-70051**
 Date **17-Feb-17**
 Call Letters **WNWO**
 Frequency **527 MHz**
 Channel **23**
 Antenna Type **TFU-12DSC/VP-R C190**

RMS Directivity at Main Lobe **12.00 (10.79 dB)**
 RMS Directivity at Horizontal **10.20 (10.09 dB)**
Calculated

Beam Tilt **1.00 deg**
 Drawing Number **12Q120100**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.153	10.0	0.173	30.0	0.048	50.0	0.089	70.0	0.020
-9.0	0.163	11.0	0.176	31.0	0.029	51.0	0.068	71.0	0.019
-8.0	0.163	12.0	0.163	32.0	0.024	52.0	0.047	72.0	0.022
-7.0	0.211	13.0	0.123	33.0	0.037	53.0	0.037	73.0	0.025
-6.0	0.276	14.0	0.091	34.0	0.058	54.0	0.040	74.0	0.028
-5.0	0.286	15.0	0.109	35.0	0.077	55.0	0.047	75.0	0.029
-4.0	0.213	16.0	0.131	36.0	0.085	56.0	0.051	76.0	0.030
-3.0	0.196	17.0	0.121	37.0	0.080	57.0	0.050	77.0	0.029
-2.0	0.424	18.0	0.083	38.0	0.068	58.0	0.046	78.0	0.028
-1.0	0.706	19.0	0.035	39.0	0.057	59.0	0.043	79.0	0.025
0.0	0.920	20.0	0.026	40.0	0.053	60.0	0.044	80.0	0.022
1.0	1.000	21.0	0.042	41.0	0.053	61.0	0.047	81.0	0.019
2.0	0.922	22.0	0.052	42.0	0.051	62.0	0.052	82.0	0.016
3.0	0.715	23.0	0.081	43.0	0.048	63.0	0.055	83.0	0.013
4.0	0.446	24.0	0.124	44.0	0.053	64.0	0.055	84.0	0.009
5.0	0.225	25.0	0.159	45.0	0.071	65.0	0.053	85.0	0.007
6.0	0.201	26.0	0.170	46.0	0.092	66.0	0.047	86.0	0.004
7.0	0.254	27.0	0.155	47.0	0.107	67.0	0.040	87.0	0.002
8.0	0.247	28.0	0.120	48.0	0.112	68.0	0.032	88.0	0.001
9.0	0.200	29.0	0.080	49.0	0.106	69.0	0.025	89.0	0.000
								90.0	0.000

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**SUMMARY OF RADIOFREQUENCY
RADIATION STUDY**

WNWO-TV, Toledo, OH
Channel 23, 275 kW, 423.5 m HAAT
October, 2017

<u>CALL</u>	<u>SERVICE</u>	<u>CHANNEL</u>	<u>FREQUENCY</u>	<u>POLAR- IZATION</u>	<u>ANTENNA HEIGHT</u>	<u>ERP (kW)</u>	<u>VERT. RELATIVE FIELD FACTOR</u>	<u>WORST-CASE PREDICTED POWER DENSITY ($\mu\text{W}/\text{cm}^2$)</u>	<u>FCC UNCONTROLLED LIMIT ($\mu\text{W}/\text{cm}^2$)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
WNWO-TV	DT	23	527	H & V	424.7	275.000	0.300	9.256	351.33	2.63%
TOTAL PERCENTAGE OF FCC GUIDELINE VALUE =										2.63%

* For television stations a very conservative vertical relative field factor of 0.3 was assumed pursuant to OET Bulletin 65.



WNWO-TV - TOLEDO, OHIO Longley-Rice Interference Analysis

tvstudy v2.2.3 (Dxtpx3)

Database: localhost, Study: WNWO-23 DA 275K 171009, Model: Longley-Rice

Start: 2017.10.09 15:47:52

Study created: 2017.10.09 15:46:58

Study build station data: LMS TV 2017-10-01 (38)

Proposal: WNWO-TV D23 DT CP TOLEDO, OH
File number: WNWO-23 DA 275K 171009
Facility ID: 73354
Station data: User record
Record ID: 1943
Country: U.S.
Zone: I

Search options:

Non-U.S. records included

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
WVPX-TV	D22	DT	CP	AKRON, OH	BLANK0000026965	162.4 km
WBGU-TV	D22	DT	CP	BOWLING GREEN, OH	BLANK0000027978	74.8
WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000027709	232.0
WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000025328	311.1
WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000027025	90.8
WEAO	D24	DT	CP	AKRON, OH	BLANK0000026421	157.7
CIII-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	297.3

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D23
Latitude: 41 40 3.00 N (NAD83)
Longitude: 83 21 22.00 W
Height AMSL: 601.2 m
HAAT: 423.5 m
Peak ERP: 275 kW
Antenna: DIE-TFU-12DSC/VP-R (ID 117937) 0.0 deg
Elev Pattn: Generic
Elec Tilt: 1.0

39.7 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	42.3 kW	427.4 m	85.1 km
45.0	16.0	427.3	78.7
90.0	21.3	427.3	80.6
135.0	148	424.3	93.7
180.0	274	417.5	98.3
225.0	222	417.0	96.5
270.0	261	421.2	98.2
315.0	185	427.6	95.7

**Proposal service area extends beyond baseline plus 1.0%

Proposal service area population is more than 95.0% of baseline

**Proposal is within coordination distance of Canadian border

Distance to Canadian border: 32.3 km

Appendix B - Interference Analysis **WNWO-TV - Toledo, Ohio** **Channel 23 - 275 kW - Page 2**

Distance to Mexican border: 2089.8 km

Conditions at FCC monitoring station: Allegan MI
 Bearing: 296.8 degrees Distance: 238.3 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
 Bearing: 272.0 degrees Distance: 1839.7 km

Study cell size: 2.00 km
 Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
 Maximum new IX to LPTV: 2.00%

 Interference to BLANK0000026965 CP, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WVPX-TV	D22	DT	CP	AKRON, OH	BLANK0000026965	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	162.4 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	162.4
	WPNT	D21	DT	CP	PITTSBURGH, PA	BLANK0000025702	147.1
	WDWO-CD	D22	DC	CP	DETROIT, MI	BLANK0000028102	213.1
	WBGU-TV	D22	DT	CP	BOWLING GREEN, OH	BLANK0000027978	194.8
	WTOO-CD	D22	DC	CP	BOLIVAR, PA	BLANK0000027766	268.7
	WWKH-CD	D22	DC	CP	UNIONTOWN, PA	BLANK0000027838	211.2
	WSAZ-TV	D22	DT	CP	HUNTINGTON, WV	BLANK0000025191	289.1
	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000025328	148.8
	CICO-DT-28D22	D22	DT	LIC	KITCHENER, ON	BLANKCANADA183	261.5

	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
25721.9	4,149,876	25208.3	4,110,458	24649.3	4,076,669	24649.3 4,076,669	0.00 0.00
237.0	0	237.0	0	233.0	0	233.0 0	0.00 0.00 (in
Canada)							

Undesired	Total IX	Unique IX, before	Unique IX, after
WNWO-TV D23 DT BL	0.0	0	0
WNWO-TV D23 DT CP	20.2	830	0.0 0
WPNT D21 DT CP	35.9	1,271	20.0 671
WDWO-CD D22 DC CP	24.1	1,411	0.0 0
WDWO-CD D22 DC CP	4.0	0	0.0 0 (in Canada)
WBGU-TV D22 DT CP	410.9	26,972	322.8 22,745 306.6 21,969
WBGU-TV D22 DT CP	4.0	0	0.0 0 (in Canada)
WTOO-CD D22 DC CP	8.0	202	0.0 0
WWKH-CD D22 DC CP	19.9	1,125	4.0 204
WSAZ-TV D22 DT CP	132.1	3,863	80.2 1,477
WPXI D23 DT CP	51.9	4,274	32.0 3,615
CICO-DT-28 D22 DT LIC	32.2	2,180	4.0 103 4.0 103

 Interference to BLANK0000027978 CP, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WBGU-TV	D22	DT	CP	BOWLING GREEN, OH	BLANK0000027978	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	74.8 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	74.8
	WWJ-TV	D21	DT	APP	DETROIT, MI	BLANK0000025826	157.9
	WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	149.3
	WXIN	D22	DT	CP	INDIANAPOLIS, IN	BLANK0000024883	238.4
	WDWO-CD	D22	DC	CP	DETROIT, MI	BLANK0000028102	157.6
	WVPX-TV	D22	DT	CP	AKRON, OH	BLANK0000026965	194.8

Service area Terrain-limited IX-free, before IX-free, after Percent New IX

Appendix B - Interference Analysis
WNWO-TV - Toledo, Ohio
Channel 23 - 275 kW - Page 3

22674.5 1,343,816 22674.5 1,343,816 22533.8 1,339,507 22457.3 1,338,889 0.34 0.05

Undesired		Total IX	Unique IX, before	Unique IX, after
WNWO-TV D23 DT BL	4.0	0	0.0	0
WNWO-TV D23 DT CP	116.6	1,559		76.4 618
WBNS-TV D21 DT LIC	4.0	32	4.0 32	4.0 32
WXIN D22 DT CP	4.0	22	4.0 22	4.0 22
WDWO-CD D22 DC CP	104.4	4,079	100.4 4,079	64.2 3,138
WVPX-TV D22 DT CP	28.3	176	28.3 176	28.3 176

Interference to BLANK0000027709 CP, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000027709	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	232.0 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	232.0
	WSAZ-TV	D22	DT	CP	HUNTINGTON, WV	BLANK0000025191	142.5
	WDTI	D23	DT	CP	INDIANAPOLIS, IN	BLANK0000024986	266.5
	WKPI-TV	D23	DT	CP	PIKEVILLE, KY	BLANK0000025330	261.1
	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000025328	281.8
	WDEM-CD	D24	DC	CP	COLUMBUS, OH	BLANK0000028258	43.1
	WVAH-TV	D24	DT	CP	CHARLESTON, WV	BLANK0000027764	167.7
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
28361.0	2,913,018	27568.7	2,850,942	27032.0	2,823,079	26968.0	2,809,677
							0.24 0.47

Undesired		Total IX	Unique IX, before	Unique IX, after
WNWO-TV D23 DT BL	52.3	2,391	28.1 1,930	
WNWO-TV D23 DT CP	184.4	17,352		92.2 15,332
WSAZ-TV D22 DT CP	167.9	3,233	76.0 1,405	76.0 1,405
WDTI D23 DT CP	15.9	3,963	15.9 3,963	7.9 3,719
WKPI-TV D23 DT CP	91.9	4,302	40.0 2,959	36.0 2,953
WPXI D23 DT CP	288.6	12,700	220.6 11,171	176.5 10,077
WDEM-CD D24 DC CP	12.1	3,347	12.1 3,347	12.1 3,347
WVAH-TV D24 DT CP	79.9	1,572	16.0 243	16.0 243

Interference to BLANK0000025328 CP, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000025328	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	311.1 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	311.1
	WVPX-TV	D22	DT	CP	AKRON, OH	BLANK0000026965	148.8
	WWKH-CD	D22	DC	CP	UNIONTOWN, PA	BLANK0000027838	73.8
	WDVM-TV	D23	DT	CP	HAGERSTOWN, MD	BLANK0000027603	195.0
	WMJF-CD	D23	DC	APP	TOWSON, MD	BLANK0000029914	312.9
	WETM-TV	D23	DT	APP	ELMIRA, NY	BLANK0000029984	319.1
	WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000027709	281.8
	WTAJ-TV	D24	DT	CP	ALTOONA, PA	BLANK0000028396	132.6
	CIII-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	313.1
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
27360.3	3,300,896	25833.1	3,197,864	25254.7	3,147,969	25254.7	3,147,969
							0.00 0.00

Undesired		Total IX	Unique IX, before	Unique IX, after
WNWO-TV D23 DT BL	0.0	0	0.0	0
WNWO-TV D23 DT CP	8.0	154		0.0 0
WVPX-TV D22 DT CP	59.8	9,433	31.9 2,475	31.9 2,475
WWKH-CD D22 DC CP	4.0	0	0.0 0	0.0 0
WDVM-TV D23 DT CP	425.9	39,297	313.5 23,726	313.5 23,726
WETM-TV D23 DT APP	4.0	35	4.0 35	4.0 35
WWHO D23 DT CP	176.9	14,647	104.6 7,926	104.6 7,926
WTAJ-TV D24 DT CP	12.1	143	8.0 96	8.0 96
CIII-DT D23 DT LIC	20.2	4,389	0.0 0	0.0 0

Appendix B - Interference Analysis
WNWO-TV - Toledo, Ohio
Channel 23 - 275 kW - Page 4

Interference to BLANK0000025328 CP, scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000025328	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	311.1 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	311.1
	WVPX-TV	D22	DT	CP	AKRON, OH	BLANK0000026965	148.8
	WWKH-CD	D22	DC	CP	UNIONTOWN, PA	BLANK0000027838	73.8
	WDVM-TV	D23	DT	CP	HAGERSTOWN, MD	BLANK0000027603	195.0
	WMJF-CD	D23	DC	APP	TOWSON, MD	BLANK0000029914	312.9
	WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000027709	281.8
	WTAJ-TV	D24	DT	CP	ALTOONA, PA	BLANK0000028396	132.6
	CIII-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	313.1

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
27360.3 3,300,896	25833.1 3,197,864	25258.7 3,148,004	25258.7 3,148,004	0.00 0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
WNWO-TV D23 DT BL	0.0 0	0.0 0	
WNWO-TV D23 DT CP	8.0 154		0.0 0
WVPX-TV D22 DT CP	59.8 9,433	31.9 2,475	31.9 2,475
WWKH-CD D22 DC CP	4.0 0	0.0 0	0.0 0
WDVM-TV D23 DT CP	425.9 39,297	313.5 23,726	313.5 23,726
WWHO D23 DT CP	176.9 14,647	104.6 7,926	104.6 7,926
WTAJ-TV D24 DT CP	12.1 143	8.0 96	8.0 96
CIII-DT D23 DT LIC	20.2 4,389	0.0 0	0.0 0

Interference to BLANK0000027025 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000027025	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	90.8 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	90.8
	WBSF	D23	DT	CP	BAY CITY, MI	BLANK0000027775	118.3
	WPTA	D24	DT	LIC	FORT WAYNE, IN	BLCDT20031031AGU	218.3
	WXYZ-TV	D25	DT	CP	DETROIT, MI	BLANK0000027142	5.3

Service area	Terrain-limited	IX-free, before	IX-free, after	Percent New IX
16105.7 5,097,455	16101.7 5,097,348	15890.0 5,082,149	15833.6 5,069,492	0.35 0.25
3868.3 400,185	3868.3 400,185	3868.3 400,185	3868.3 400,185	0.00 0.00 (in

Canada)

Undesired	Total IX	Unique IX, before	Unique IX, after
WNWO-TV D23 DT BL	0.0 0	0.0 0	
WNWO-TV D23 DT CP	60.3 12,865		56.3 12,657
WBSF D23 DT CP	4.0 359	4.0 359	4.0 359
WPTA D24 DT LIC	40.0 926	40.0 926	36.0 718
WXYZ-TV D25 DT CP	167.8 13,914	167.8 13,914	167.8 13,914

Interference to BLANK0000026421 CP, scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WEAO	D24	DT	CP	AKRON, OH	BLANK0000026421	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	157.7 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	157.7
	WPTA	D24	DT	LIC	FORT WAYNE, IN	BLCDT20031031AGU	297.5
	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000027025	208.8
	WPXJ-TV	D24	DT	CP	BATAVIA, NY	BLANK0000026968	360.4
	WTAJ-TV	D24	DT	CP	ALTOONA, PA	BLANK0000028396	274.5
	WVAH-TV	D24	DT	CP	CHARLESTON, WV	BLANK0000027764	298.2
	KDKA-TV	D25	DT	LIC	PITTSBURGH, PA	BLCDT20041004ACS	150.8

Appendix B - Interference Analysis
WNWO-TV - Toledo, Ohio
Channel 23 - 275 kW - Page 5

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
21379.6	3,919,169	21106.9	3,900,493	20568.4	3,829,450	20568.4	3,829,450	0.00	0.00
Undesired		Total IX		Unique IX, before		Unique IX, after			
WNWO-TV D23 DT BL		0.0	0	0.0	0				
WNWO-TV D23 DT CP		8.1	341			0.0	0		
WPTA D24 DT LIC		24.1	6,897	4.0	50	4.0	50		
WPXD-TV D24 DT CP		293.8	52,790	225.7	35,811	221.6	35,524		
WPXJ-TV D24 DT CP		8.1	253	0.0	0	0.0	0		
WTAJ-TV D24 DT CP		188.6	22,132	144.5	15,946	144.5	15,946		
WVAH-TV D24 DT CP		112.2	8,766	72.2	1,545	72.2	1,545		
KDKA-TV D25 DT LIC		8.0	300	8.0	300	8.0	300		

Interference to BLANKCANADA209 LIC, scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	CIIT-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	297.3 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	297.3
	WETM-TV	D23	DT	APP	ELMIRA, NY	BLANK0000029984	318.9
	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000025328	313.1

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
19191.0	3,492,205	19131.0	3,437,306	19119.0	3,437,306	19119.0	3,437,306	0.00	0.00
Undesired		Total IX		Unique IX, before		Unique IX, after			
WNWO-TV D23 DT BL		0.0	0	0.0	0				
WNWO-TV D23 DT CP		4.0	0			0.0	0		
WETM-TV D23 DT APP		4.0	0	4.0	0	4.0	0		
WPXI D23 DT CP		8.0	0	8.0	0	4.0	0		

Interference to BLANKCANADA209 LIC, scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	CIIT-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	
Undesireds:	WNWO-TV	D23	DT	BL	TOLEDO, OH	DTVBL73354	297.3 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	297.3
	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000025328	313.1

Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX	
19191.0	3,492,205	19131.0	3,437,306	19123.0	3,437,306	19123.0	3,437,306	0.00	0.00
Undesired		Total IX		Unique IX, before		Unique IX, after			
WNWO-TV D23 DT BL		0.0	0	0.0	0				
WNWO-TV D23 DT CP		4.0	0			0.0	0		
WPXI D23 DT CP		8.0	0	8.0	0	4.0	0		

Interference to proposal, scenario 1
2.77% interference

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WNWO-TV	D23	DT	CP	TOLEDO, OH	WNWO-23 DA 275K 171009	
Undesireds:	WDWO-CD	D22	DC	CP	DETROIT, MI	BLANK0000028102	90.8 km
	WBGU-TV	D22	DT	CP	BOWLING GREEN, OH	BLANK0000027978	74.8
	WBSF	D23	DT	CP	BAY CITY, MI	BLANK0000027775	204.8
	WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000027709	232.0
	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000027025	90.8

Service area		Terrain-limited		IX-free		Percent IX			
23263.1	2,872,428	23259.1	2,872,250	22655.9	2,792,583	2.59	2.77		
2688.5	224,092	2688.5	224,092	2688.5	224,092	0.00	0.00	(in Canada)	

Appendix B - Interference Analysis
WNWO-TV - Toledo, Ohio
Channel 23 - 275 kW - Page 6

Undesired		Total IX		Unique IX	Prcnt Unique IX	
WDWO-CD D22 DC CP	76.4	55,538	28.2	31,871	0.12	1.11
WBGU-TV D22 DT CP	462.8	15,627	462.8	15,627	1.99	0.54
WBSF D23 DT CP	8.0	641	8.0	641	0.03	0.02
WWHO D23 DT CP	4.0	19	4.0	19	0.02	0.00
WPXD-TV D24 DT CP	100.2	31,509	52.1	7,842	0.22	0.27