Consulting Engineers
CTJC
CARL T. JONES CORPORATION

STATEMENT OF JOHN E. HIDLE, P.E.
IN SUPPORT OF A REQUEST FOR
SPECIAL TEMPORARY AUTHORIZATION
WNWO-TV - TOLEDO, OHIO
DTV - CH. 23 - 120 kW - 221.9 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, No. 7418, and in New York State, 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 a request for Special Temporary Authorization to allow WNWO-TV to continue use its temporary antenna that is located at WTVG's site, to broadcast on DTV channel 23, its post-reassignment channel for broadcasting.

DISCUSSION

Since the applicant continues to be unable to install the antenna that is authorized in WNWO-TV's construction permit, file # 0000033631, at its authorized site because WNWO-TV's existing tower does still require extensive repairs and modification that cannot be accomplished in a timely manner, the instant request seeks a temporary authorization

to continue WNWO-TV's post-repack operation on channel 23 using its temporary antenna that is located at WTVG's broadcast site. The temporary ERP is 120 kW, which maintains the station's noise limited contour wholly within the currently authorized noise limited contour, and does not contribute any new interference to any other pertinent facility.

DIRECTIONAL ANTENNA

The applicant is using its Dielectric model TFU-8WB/VP C160 elliptically polarized directional transmitting antenna with its center of radiation located at a height above ground of 223.8 meters, and a height above average terrain of 221.9 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.

STA PREDICTED NOISE LIMITED CONTOUR

The predicted STA and authorized noise limited 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 terrains on the eight cardinal radials from 3 kilometers to

16 kilometers from each site, were determined using the NED Three Second US Terrain Database as permitted in the FCC Rules. The antenna site elevations and coordinates were determined from FCC antenna registration data. Exhibit 1 shows the predicted Noise Limited (39.66 dBu) contours for WNWO-TV's authorized and proposed STA sites. The proposed STA noise limited contour is contained wholly within WNWO-TV's authorized noise limited contour.

ALLOCATION CONSIDERATIONS

Post-Transition DTV Considerations

A study was performed, using the FCC's software, *tvstudy*, v. 2.2.5, 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, indicate that the instant request for STA 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 STA site is located 34.9 kilometers from the nearest point on the US-Canadian border. The study shows no effect on any Canadian station.

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 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 ($\mu W/cm^2$) for an "uncontrolled" environment, and is 1,000 microwatts per centimeter squared ($\mu W/cm^2$) 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 will operate on television Channel 23 (524-530 MHZ), the MPE is 351.3 microwatts per centimeter squared ($\mu W/cm^2$) in an "uncontrolled" environment and 1,756.7 $\mu W/cm^2$ in a "controlled" environment. The proposed WNWO-TV STA facility will operate with a maximum ERP of 120 kW from an elliptically polarized directional transmitting antenna with a centerline height of 223.8 meters above ground level (AGL). Considering a predicted vertical plane relative field factor of 0.300 the WNWO-TV STA facility is predicted to produce a power density at two meters above ground level of 14.669 $\mu W/cm^2$, which is 4.18% of the FCC guideline value for an "uncontrolled" environment, and 0.836% of the FCC's guideline value for "controlled" environments. There is one other full-power DTV facility that is located at the WNWO-TV/WTVG site. The total estimated percentage of the ANSI value at the proposed site, including the cumulative radiation from all authorizations located within the relevant proximity, is 4.44% of the limit applicable to "uncontrolled" environments, and 0.89% of the limit for "controlled" environments. (See Appendix A)

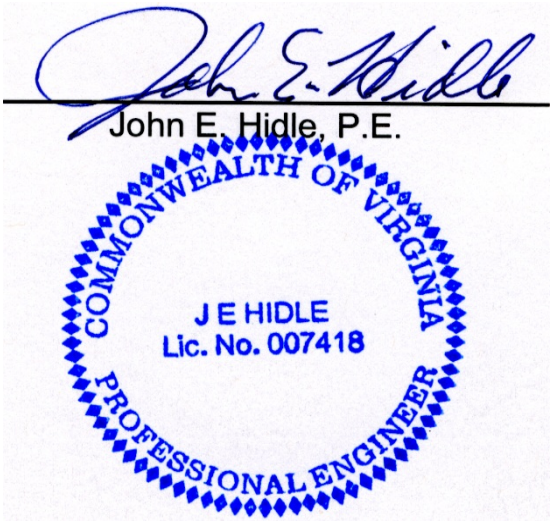
OCCUPATIONAL SAFETY

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.

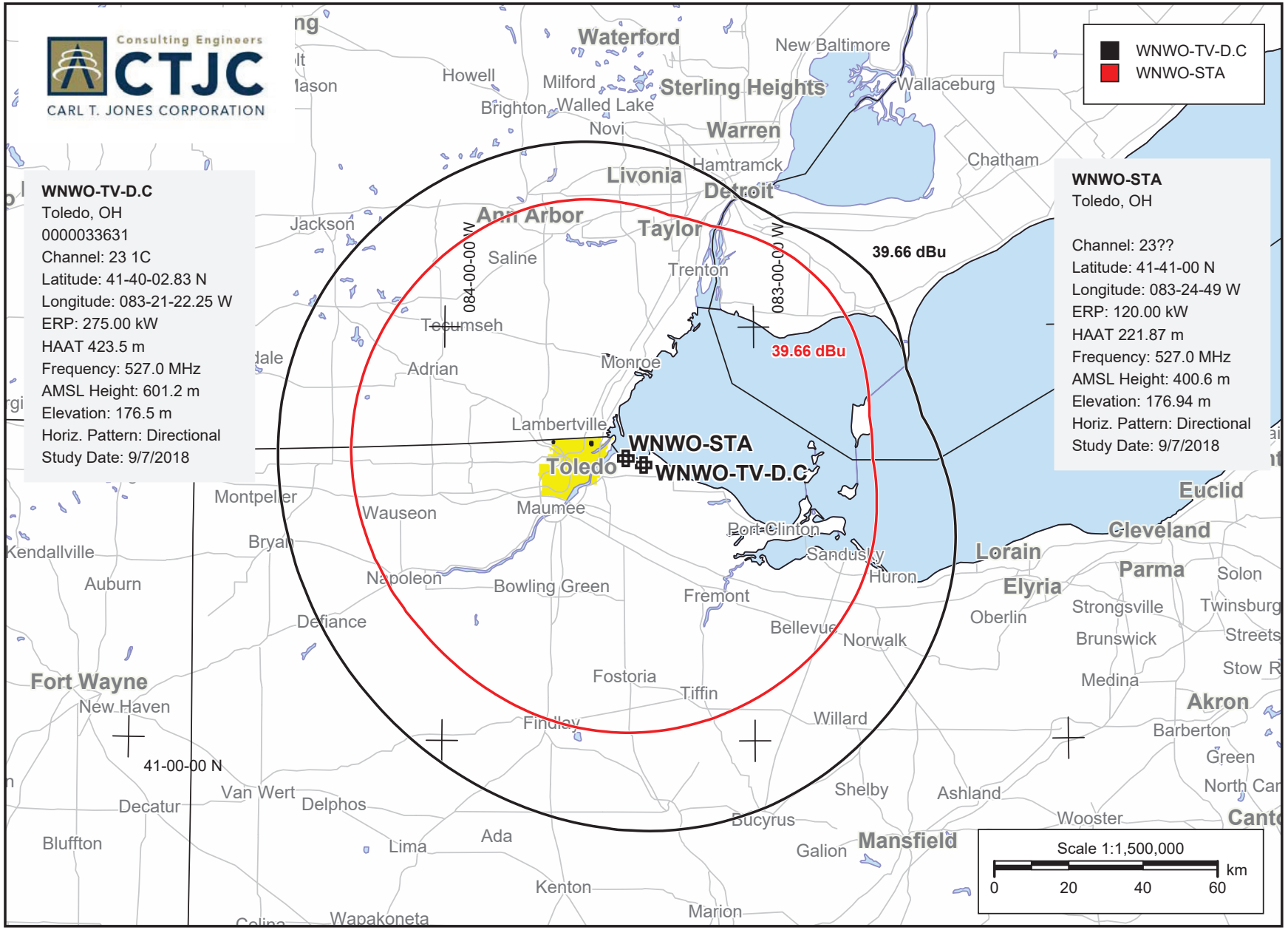
SUMMARY

It is submitted that the instant request for STA for WNWO-TV to continue its post-transition broadcasting using its temporary antenna located at WTVG's broadcast site for its post-transition operation while the WNWO-TV tower is repaired and modified to permit the installation of WNWO-TV's authorized antenna, 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: June 15, 2020



WNWO-TV STA Request



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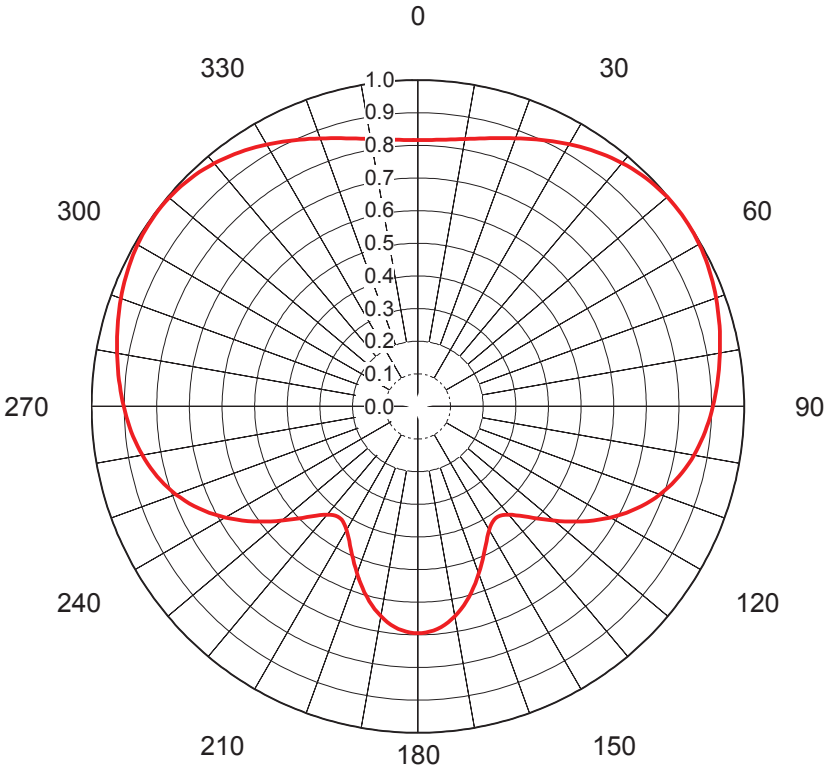

AZIMUTH PATTERN
Horizontal Polarization

Proposal No.	**C-06522**
Date	**8-Feb-17**
Call Letters	**WNWO-TV**
Frequency	**527 MHz**
Antenna Type	**TFU-8WB/VP-R C160**
Gain	**1.54 (1.88dB) Calculated**
Directional Drawing #	**WB-C160H**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.817	36	0.957	72	0.966	108	0.806	144	0.418	180	0.695	216	0.417	252	0.805	288	0.962	324	0.956
1	0.817	37	0.962	73	0.963	109	0.798	145	0.417	181	0.695	217	0.419	253	0.813	289	0.965	325	0.951
2	0.817	38	0.966	74	0.960	110	0.789	146	0.419	182	0.693	218	0.422	254	0.821	290	0.968	326	0.947
3	0.818	39	0.970	75	0.957	111	0.780	147	0.421	183	0.691	219	0.427	255	0.828	291	0.971	327	0.942
4	0.819	40	0.974	76	0.954	112	0.771	148	0.425	184	0.688	220	0.433	256	0.834	292	0.974	328	0.937
5	0.821	41	0.977	77	0.950	113	0.761	149	0.431	185	0.684	221	0.440	257	0.841	293	0.977	329	0.932
6	0.822	42	0.981	78	0.947	114	0.751	150	0.437	186	0.680	222	0.448	258	0.847	294	0.980	330	0.927
7	0.824	43	0.984	79	0.943	115	0.740	151	0.445	187	0.674	223	0.458	259	0.852	295	0.982	331	0.922
8	0.827	44	0.986	80	0.940	116	0.729	152	0.454	188	0.668	224	0.468	260	0.858	296	0.984	332	0.916
9	0.829	45	0.989	81	0.937	117	0.718	153	0.464	189	0.661	225	0.480	261	0.863	297	0.986	333	0.911
10	0.832	46	0.991	82	0.933	118	0.706	154	0.474	190	0.653	226	0.491	262	0.868	298	0.988	334	0.906
11	0.836	47	0.993	83	0.930	119	0.694	155	0.485	191	0.644	227	0.504	263	0.873	299	0.990	335	0.900
12	0.839	48	0.995	84	0.926	120	0.681	156	0.496	192	0.635	228	0.517	264	0.877	300	0.992	336	0.895
13	0.843	49	0.997	85	0.923	121	0.668	157	0.508	193	0.625	229	0.530	265	0.882	301	0.993	337	0.890
14	0.847	50	0.998	86	0.919	122	0.655	158	0.520	194	0.615	230	0.544	266	0.886	302	0.994	338	0.884
15	0.851	51	0.999	87	0.915	123	0.642	159	0.533	195	0.604	231	0.558	267	0.890	303	0.995	339	0.879
16	0.855	52	0.999	88	0.912	124	0.628	160	0.545	196	0.593	232	0.572	268	0.894	304	0.996	340	0.874
17	0.860	53	1.000	89	0.908	125	0.614	161	0.557	197	0.581	233	0.586	269	0.898	305	0.997	341	0.869
18	0.864	54	1.000	90	0.904	126	0.600	162	0.570	198	0.569	234	0.600	270	0.901	306	0.997	342	0.864
19	0.869	55	1.000	91	0.900	127	0.586	163	0.582	199	0.557	235	0.614	271	0.905	307	0.997	343	0.860
20	0.874	56	0.999	92	0.896	128	0.572	164	0.593	200	0.545	236	0.628	272	0.909	308	0.997	344	0.855
21	0.879	57	0.999	93	0.892	129	0.558	165	0.604	201	0.532	237	0.642	273	0.912	309	0.996	345	0.851
22	0.885	58	0.998	94	0.888	130	0.544	166	0.615	202	0.520	238	0.655	274	0.916	310	0.995	346	0.847
23	0.890	59	0.997	95	0.884	131	0.531	167	0.626	203	0.508	239	0.668	275	0.919	311	0.994	347	0.843
24	0.895	60	0.996	96	0.879	132	0.517	168	0.635	204	0.496	240	0.681	276	0.923	312	0.993	348	0.839
25	0.901	61	0.994	97	0.875	133	0.504	169	0.644	205	0.485	241	0.693	277	0.926	313	0.991	349	0.836
26	0.906	62	0.992	98	0.870	134	0.492	170	0.653	206	0.474	242	0.706	278	0.929	314	0.989	350	0.832
27	0.912	63	0.990	99	0.865	135	0.480	171	0.661	207	0.463	243	0.717	279	0.933	315	0.987	351	0.829
28	0.917	64	0.988	100	0.859	136	0.469	172	0.668	208	0.454	244	0.729	280	0.936	316	0.984	352	0.827
29	0.922	65	0.986	101	0.854	137	0.458	173	0.674	209	0.445	245	0.740	281	0.940	317	0.982	353	0.824
30	0.928	66	0.984	102	0.848	138	0.449	174	0.680	210	0.437	246	0.750	282	0.943	318	0.979	354	0.822
31	0.933	67	0.981	103	0.842	139	0.440	175	0.684	211	0.430	247	0.761	283	0.946	319	0.975	355	0.821
32	0.938	68	0.978	104	0.835	140	0.433	176	0.688	212	0.425	248	0.770	284	0.950	320	0.972	356	0.819
33	0.943	69	0.975	105	0.828	141	0.427	177	0.691	213	0.421	249	0.780	285	0.953	321	0.968	357	0.818
34	0.948	70	0.973	106	0.821	142	0.423	178	0.693	214	0.418	250	0.789	286	0.956	322	0.964	358	0.817
35	0.953	71	0.970	107	0.814	143	0.419	179	0.695	215	0.417	251	0.797	287	0.959	323	0.960	359	0.817

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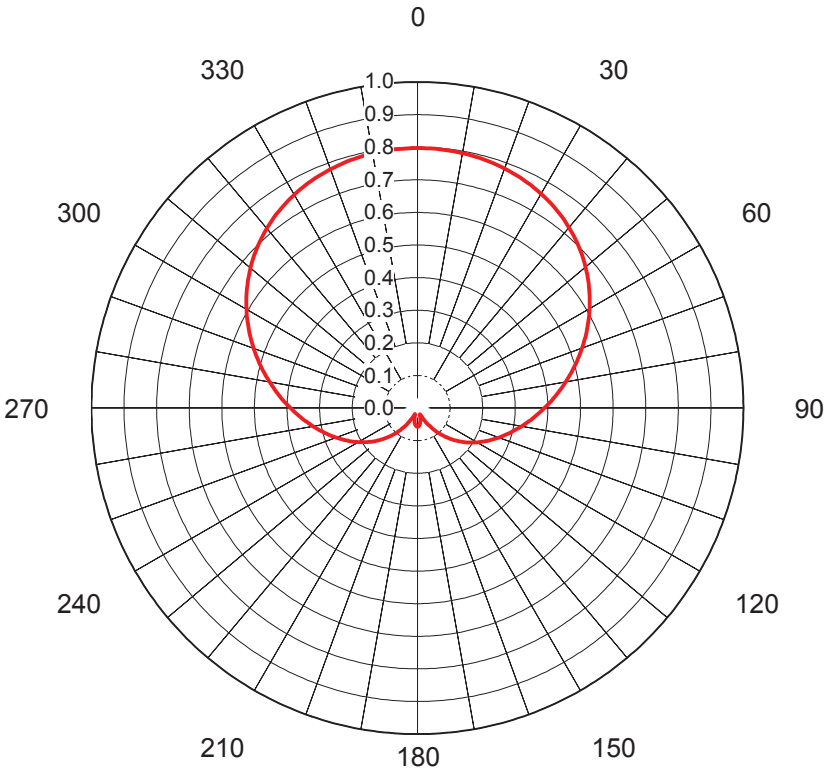

AZIMUTH PATTERN
Vertical Polarization

Proposal No.	**C-06522**
Date	**8-Feb-17**
Call Letters	**WNWO-TV**
Frequency	**527 MHz**
Antenna Type	**TFU-8WB/VP-R C160**
Gain	**2.61 (4.17dB) Calculated**
Directional Drawing #	**WB C160V**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.797	36	0.739	72	0.522	108	0.276	144	0.077	180	0.058	216	0.074	252	0.277	288	0.520	324	0.735
1	0.797	37	0.735	73	0.515	109	0.271	145	0.072	181	0.058	217	0.079	253	0.283	289	0.527	325	0.739
2	0.797	38	0.731	74	0.507	110	0.265	146	0.066	182	0.057	218	0.085	254	0.288	290	0.534	326	0.743
3	0.797	39	0.727	75	0.500	111	0.260	147	0.061	183	0.057	219	0.091	255	0.294	291	0.542	327	0.746
4	0.797	40	0.723	76	0.492	112	0.254	148	0.056	184	0.056	220	0.096	256	0.300	292	0.549	328	0.750
5	0.797	41	0.719	77	0.484	113	0.249	149	0.051	185	0.055	221	0.102	257	0.306	293	0.556	329	0.753
6	0.796	42	0.714	78	0.477	114	0.243	150	0.046	186	0.054	222	0.108	258	0.312	294	0.564	330	0.756
7	0.796	43	0.710	79	0.469	115	0.238	151	0.041	187	0.053	223	0.113	259	0.318	295	0.571	331	0.759
8	0.795	44	0.705	80	0.462	116	0.232	152	0.037	188	0.051	224	0.119	260	0.325	296	0.578	332	0.762
9	0.795	45	0.700	81	0.454	117	0.227	153	0.033	189	0.049	225	0.125	261	0.331	297	0.585	333	0.764
10	0.794	46	0.695	82	0.447	118	0.221	154	0.029	190	0.047	226	0.130	262	0.337	298	0.592	334	0.767
11	0.793	47	0.689	83	0.440	119	0.216	155	0.026	191	0.045	227	0.136	263	0.343	299	0.599	335	0.769
12	0.792	48	0.684	84	0.432	120	0.211	156	0.023	192	0.043	228	0.142	264	0.350	300	0.606	336	0.772
13	0.791	49	0.679	85	0.425	121	0.205	157	0.021	193	0.040	229	0.147	265	0.356	301	0.612	337	0.774
14	0.790	50	0.673	86	0.418	122	0.200	158	0.021	194	0.038	230	0.153	266	0.363	302	0.619	338	0.776
15	0.789	51	0.667	87	0.411	123	0.194	159	0.021	195	0.035	231	0.159	267	0.370	303	0.626	339	0.778
16	0.788	52	0.661	88	0.404	124	0.189	160	0.022	196	0.032	232	0.164	268	0.376	304	0.632	340	0.780
17	0.786	53	0.655	89	0.397	125	0.183	161	0.024	197	0.030	233	0.170	269	0.383	305	0.638	341	0.781
18	0.785	54	0.649	90	0.390	126	0.178	162	0.026	198	0.027	234	0.176	270	0.390	306	0.645	342	0.783
19	0.783	55	0.643	91	0.383	127	0.172	163	0.029	199	0.025	235	0.181	271	0.397	307	0.651	343	0.785
20	0.782	56	0.636	92	0.376	128	0.167	164	0.031	200	0.022	236	0.187	272	0.404	308	0.657	344	0.786
21	0.780	57	0.630	93	0.369	129	0.161	165	0.034	201	0.021	237	0.192	273	0.411	309	0.663	345	0.788
22	0.778	58	0.623	94	0.362	130	0.156	166	0.037	202	0.020	238	0.198	274	0.418	310	0.668	346	0.789
23	0.776	59	0.616	95	0.356	131	0.150	167	0.039	203	0.020	239	0.204	275	0.425	311	0.674	347	0.790
24	0.774	60	0.610	96	0.349	132	0.145	168	0.042	204	0.021	240	0.209	276	0.432	312	0.680	348	0.791
25	0.772	61	0.603	97	0.343	133	0.139	169	0.044	205	0.023	241	0.215	277	0.439	313	0.685	349	0.792
26	0.769	62	0.596	98	0.336	134	0.133	170	0.046	206	0.026	242	0.220	278	0.446	314	0.690	350	0.793
27	0.767	63	0.589	99	0.330	135	0.128	171	0.048	207	0.030	243	0.226	279	0.453	315	0.695	351	0.794
28	0.764	64	0.581	100	0.324	136	0.122	172	0.050	208	0.034	244	0.231	280	0.461	316	0.700	352	0.794
29	0.762	65	0.574	101	0.318	137	0.116	173	0.052	209	0.038	245	0.237	281	0.468	317	0.705	353	0.795
30	0.759	66	0.567	102	0.312	138	0.111	174	0.053	210	0.043	246	0.243	282	0.475	318	0.710	354	0.796
31	0.756	67	0.560	103	0.306	139	0.105	175	0.055	211	0.048	247	0.248	283	0.483	319	0.715	355	0.796
32	0.753	68	0.552	104	0.300	140	0.099	176	0.056	212	0.053	248	0.254	284	0.490	320	0.719	356	0.797
33	0.750	69	0.545	105	0.294	141	0.094	177	0.057	213	0.058	249	0.259	285	0.498	321	0.723	357	0.797
34	0.746	70	0.537	106	0.288	142	0.088	178	0.057	214	0.063	250	0.265	286	0.505	322	0.727	358	0.797
35	0.743	71	0.530	107	0.282	143	0.083	179	0.058	215	0.068	251	0.271	287	0.512	323	0.731	359	0.797

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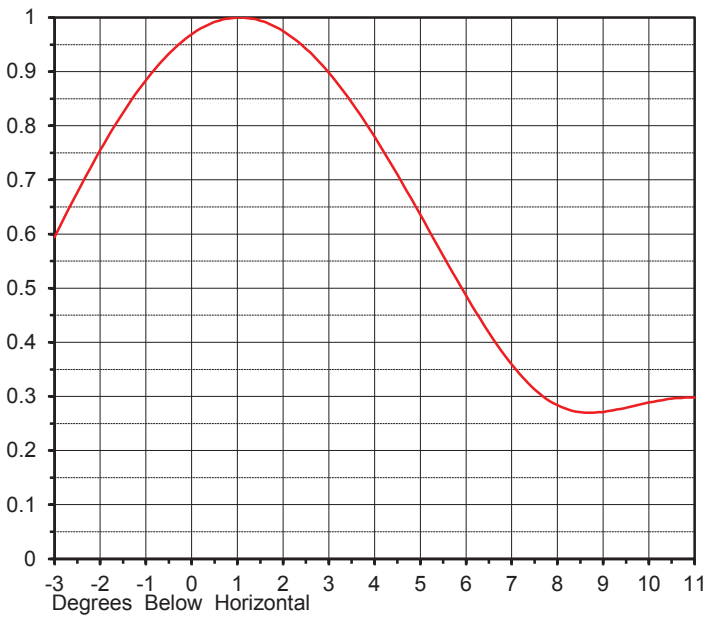
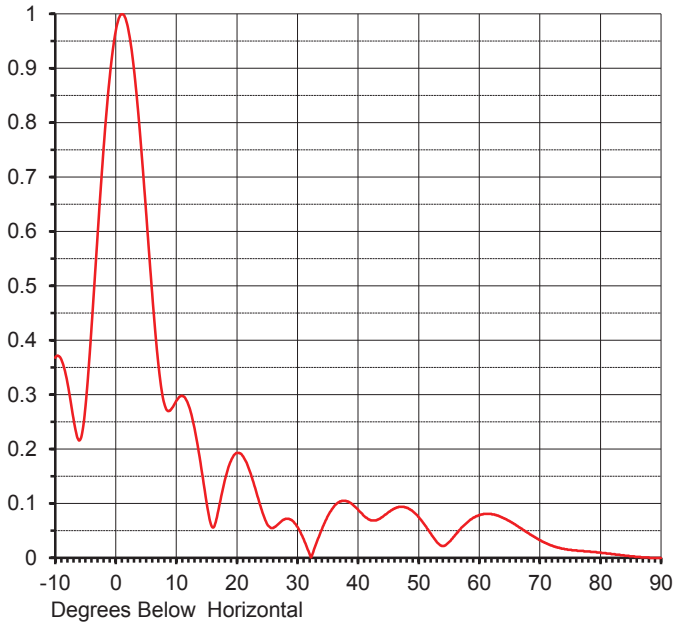
ELEVATION PATTERN

Proposal No.	**C-06522**
Date	**8-Feb-17**
Call Letters	**WNWO-TV** **23**
Frequency	**527 MHz**
Antenna Type	**TFU-8WB/VP-R C160**

RMS Directivity at Main Lobe	**7.84 (8.94 dB)**	Beam Tilt	**1.05 deg**
RMS Directivity at Horizontal	**7.40 (8.69 dB)**	Drawing Number	**08W078105**
	Calculated		





Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.368	10.0	0.289	30.0	0.057	50.0	0.075	70.0	0.033
-9.0	0.365	11.0	0.298	31.0	0.035	51.0	0.061	71.0	0.027
-8.0	0.323	12.0	0.281	32.0	0.007	52.0	0.045	72.0	0.023
-7.0	0.257	13.0	0.238	33.0	0.024	53.0	0.029	73.0	0.019
-6.0	0.216	14.0	0.174	34.0	0.052	54.0	0.022	74.0	0.017
-5.0	0.279	15.0	0.101	35.0	0.077	55.0	0.029	75.0	0.015
-4.0	0.425	16.0	0.056	36.0	0.094	56.0	0.042	76.0	0.014
-3.0	0.594	17.0	0.091	37.0	0.104	57.0	0.055	77.0	0.013
-2.0	0.755	18.0	0.143	38.0	0.105	58.0	0.065	78.0	0.012
-1.0	0.884	19.0	0.178	39.0	0.099	59.0	0.074	79.0	0.011
0.0	0.969	20.0	0.193	40.0	0.089	60.0	0.079	80.0	0.010
1.0	1.000	21.0	0.187	41.0	0.077	61.0	0.081	81.0	0.008
2.0	0.975	22.0	0.163	42.0	0.070	62.0	0.081	82.0	0.007
3.0	0.898	23.0	0.129	43.0	0.069	63.0	0.078	83.0	0.006
4.0	0.780	24.0	0.091	44.0	0.075	64.0	0.073	84.0	0.004
5.0	0.636	25.0	0.062	45.0	0.084	65.0	0.068	85.0	0.003
6.0	0.487	26.0	0.055	46.0	0.091	66.0	0.061	86.0	0.002
7.0	0.359	27.0	0.064	47.0	0.094	67.0	0.054	87.0	0.001
8.0	0.284	28.0	0.072	48.0	0.092	68.0	0.046	88.0	0.001
9.0	0.271	29.0	0.070	49.0	0.086	69.0	0.039	89.0	0.000
								90.0	0.000

APPENDIX A

SUMMARY OF RADIOFREQUENCY RADIATION STUDY

WNWO-TV - STA request, Toledo, OH
Channel 23, 120 kW, 221.9 m HAAT
September, 2018

CALL	SERVICE	CHANNEL	FREQUENCY	POLAR-IZATION	ANTENNA HEIGHT	ERP (kW)	VERT. RELATIVE FIELD FACTOR	WORST-CASE PREDICTED POWER DENSITY (μW/cm²)	FCC UNCONTROLLED LIMIT (μW/cm²)	PERCENT OF UNCONTROLLED LIMIT
WNWO-TV	DT	23	527	H & V	223.8	120.000	0.300	14.669	351.33	4.18%
WTVG	DT	13	213	H	308.6	16.700	0.300	0.534	200.00	0.27%
								TOTAL PERCENTAGE OF FCC GUIDELINE VALUE =		4.44%

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

Consulting Engineers
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