



**STATEMENT OF JOHN E. HIDLE, P.E.  
IN SUPPORT OF AN  
APPLICATION FOR A MINOR MODIFICATION OF A  
POST REPACK CONSTRUCTION PERMIT  
FILE # 0000034870  
WBSF - BAY CITY, MICHIGAN  
DTV - CH. 23 - 600 kW - 365 m HAAT**

Prepared for: FLINT (WBSF-TV) LICENSEE, INC.

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 FLINT (WBSF-TV) LICENSEE, INC., licensee of WBSF, channel 46, facility ID number 82627, licensed to Bay City, Michigan, 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 # 0000034870, that authorizes WBSF to use channel 23 for its post-reassignment broadcasting. The instant application proposes only to substitute a different antenna model number, a Dielectric model TFU-20JSC/VP-R 4C200, which has a slightly different horizontal azimuth pattern and an electrical beam tilt of 0.75 degrees. The applicant requests no other changes.

## **DIRECTIONAL ANTENNA**

The applicant proposes to install a new Dielectric model TFU-20JSC/VP-R 4C200 elliptically polarized directional transmitting antenna with its center of radiation located at a height above ground of 367 meters, and a height above average terrain of 365 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, Bay City, Michigan.

## **ALLOCATION CONSIDERATIONS**

### ***Post-Transition DTV Considerations***

A new study was performed, using the FCC's software, *tvstudy*, v. 2.2.5, to determine if the instant modification of its 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, shown in Appendix B, indicate that the modification request is predicted to cause no new interference exceeding 0.5% to the populations served by any relevant facility.

The new study also predicts substantial received interference to WBSF's service area from multiple sources, which reaches a "worst-case" predicted level of interference to 8.24% of WBSF's expansion application population. However, the applicant is willing to accept this predicted interference to WBSF.

### ***International DTV Considerations***

The WBSF site is located 107.7 kilometers from the nearest point on the US-Canadian border. The above study includes the relevant Canadian DTV facilities, and shows no predicted interference to any Canadian DTV facility. (See Appendix B)

## **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 facilities 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 1000 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 DTV stations, is determined for an “uncontrolled” environment by dividing the operating frequency in MHz by 1.5, and is determined for a “controlled” environment by dividing the operating frequency in MHz by 0.3.

The predicted emissions of WBSF must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For WBSF, which will operate on television Channel 23 (524-530 MHz), the MPE is 351.33 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

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“controlled” environment. The proposed WBSF facility will operate with a maximum ERP of 600 kW from an elliptically polarized directional transmitting antenna with a centerline height of 367meters above ground level (AGL). Considering a predicted vertical plane relative field factor of 0.300 the WBSF facility is predicted to produce a power density at two meters above ground level of  $27.084 \mu\text{W}/\text{cm}^2$ , which is 7.71% of the FCC guideline value for an “uncontrolled” environment, and 1.54% of the FCC’s guideline value for “controlled” environments. There is a licensed DTV facility, pre-repack WEYI-TV, channel 30, and DTV CP facility, post-repack WEYI-TV, channel 18, that are also located at the WBSF site. Therefore, the total estimated percentage of the ANSI value at the proposed site, including the cumulative radiation from all post-transition authorizations within the relevant proximity, is 11.24% of the limit applicable to “uncontrolled” environments, and 2.25% of the limit for “controlled” environments. (See Appendix A)

**OCCUPATIONAL SAFETY**

The licensee of WBSF remains committed to the protection of station personnel and/or tower contractors working in the vicinity of the WBSF 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.

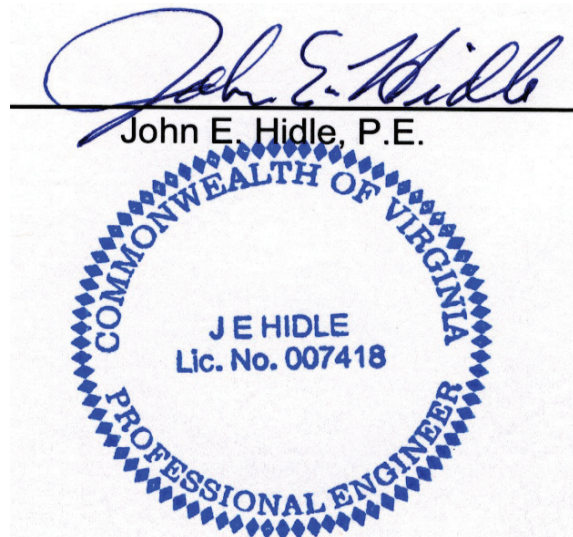
**SUMMARY**

It is submitted that the instant application seeking a modification of its expansion construction permit to substitute a different antenna model number, a Dielectric model TFU-20JSC/VP-R 4C200, which has a slightly different horizontal azimuth pattern and an

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electrical beam tile of 0.75 degrees, 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: March 28, 2019





## PREDICTED COVERAGE CONTOURS

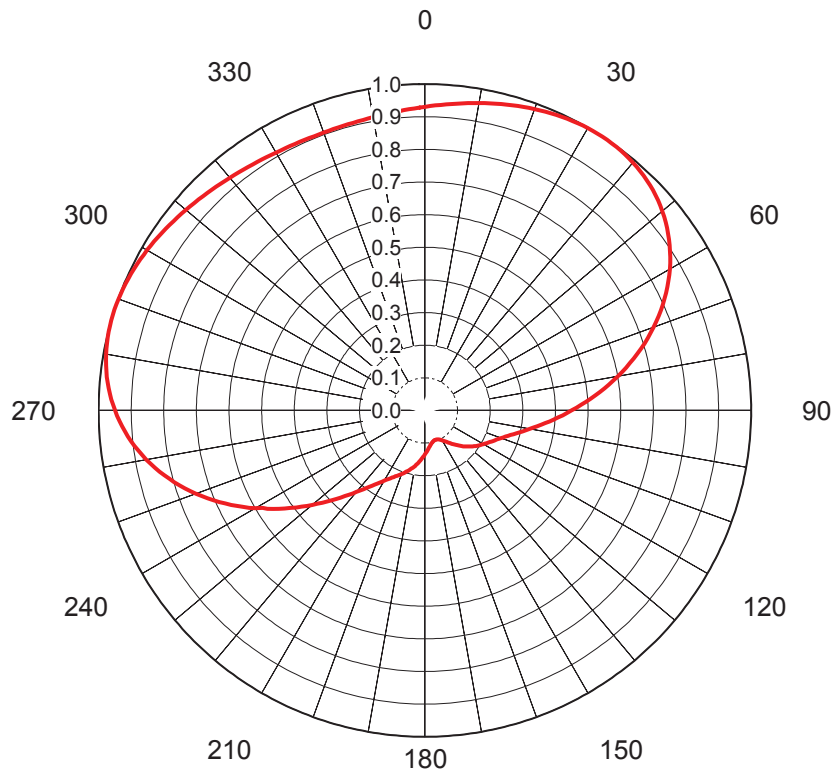
**WBSF(DT) - BAY CITY MICHIGAN**  
**DTV Channel 23 - 600 kW ERP - 365 M HAAT**  
**MARCH, 2019**

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



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





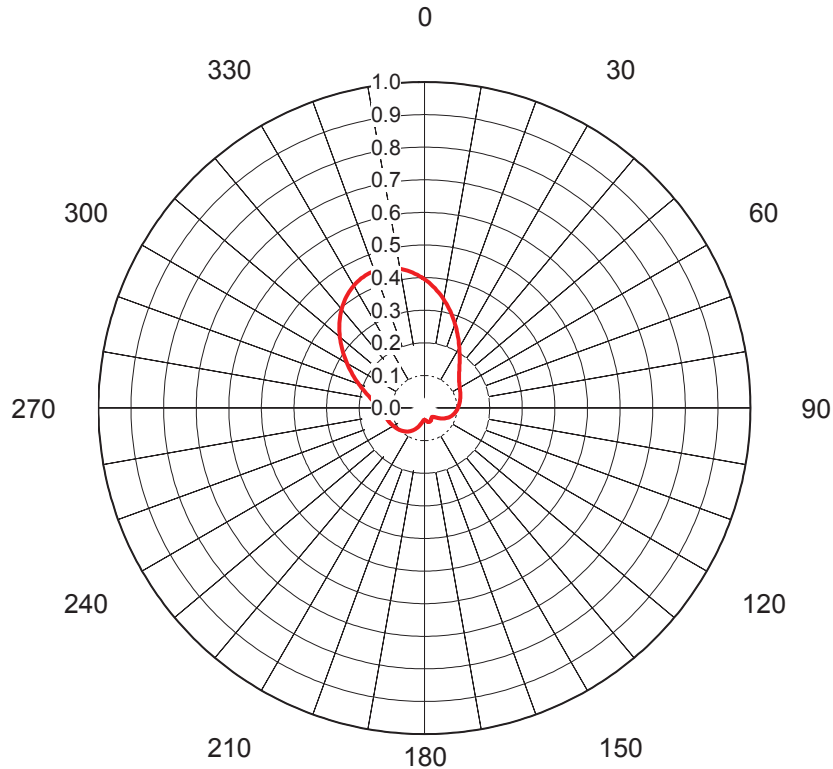
## AZIMUTH PATTERN Horizontal Polarization

Proposal No. **C-70168-6**  
 Date **1-May-18**  
 Call Letters **WBSF**  
 Channel **23**  
 Frequency **527 MHz**  
 Antenna Type **TFU-20JSC/VP-R-4C200**  
 Gain **2 (3dB)**  
**Calculated**  
  
 Drawing # **TFU-4C200**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.931	36	0.998	72	0.718	108	0.260	144	0.121	180	0.135	216	0.289	252	0.773	288	1.000	324	0.922
1	0.933	37	0.997	73	0.704	109	0.254	145	0.118	181	0.139	217	0.298	253	0.786	289	1.000	325	0.920
2	0.935	38	0.996	74	0.690	110	0.248	146	0.116	182	0.142	218	0.307	254	0.799	290	0.999	326	0.919
3	0.938	39	0.994	75	0.675	111	0.243	147	0.113	183	0.146	219	0.316	255	0.811	291	0.998	327	0.917
4	0.940	40	0.992	76	0.660	112	0.238	148	0.110	184	0.150	220	0.326	256	0.823	292	0.997	328	0.915
5	0.943	41	0.989	77	0.645	113	0.234	149	0.108	185	0.154	221	0.337	257	0.834	293	0.996	329	0.914
6	0.946	42	0.987	78	0.630	114	0.229	150	0.106	186	0.157	222	0.348	258	0.846	294	0.995	330	0.913
7	0.948	43	0.983	79	0.615	115	0.225	151	0.104	187	0.161	223	0.359	259	0.856	295	0.993	331	0.911
8	0.951	44	0.980	80	0.600	116	0.221	152	0.102	188	0.165	224	0.371	260	0.867	296	0.991	332	0.910
9	0.954	45	0.976	81	0.585	117	0.217	153	0.101	189	0.169	225	0.384	261	0.877	297	0.989	333	0.909
10	0.956	46	0.971	82	0.569	118	0.214	154	0.099	190	0.172	226	0.396	262	0.887	298	0.987	334	0.909
11	0.959	47	0.966	83	0.554	119	0.210	155	0.098	191	0.176	227	0.409	263	0.896	299	0.985	335	0.908
12	0.962	48	0.961	84	0.539	120	0.207	156	0.097	192	0.180	228	0.423	264	0.905	300	0.983	336	0.907
13	0.965	49	0.956	85	0.524	121	0.203	157	0.096	193	0.183	229	0.436	265	0.913	301	0.980	337	0.907
14	0.967	50	0.950	86	0.509	122	0.200	158	0.096	194	0.187	230	0.450	266	0.922	302	0.978	338	0.906
15	0.970	51	0.943	87	0.494	123	0.197	159	0.096	195	0.190	231	0.465	267	0.929	303	0.975	339	0.906
16	0.973	52	0.937	88	0.479	124	0.193	160	0.095	196	0.193	232	0.479	268	0.937	304	0.973	340	0.906
17	0.975	53	0.929	89	0.465	125	0.190	161	0.096	197	0.197	233	0.494	269	0.943	305	0.970	341	0.906
18	0.978	54	0.922	90	0.450	126	0.187	162	0.096	198	0.200	234	0.509	270	0.950	306	0.967	342	0.906
19	0.980	55	0.913	91	0.436	127	0.183	163	0.096	199	0.203	235	0.524	271	0.956	307	0.965	343	0.907
20	0.983	56	0.905	92	0.423	128	0.180	164	0.097	200	0.207	236	0.539	272	0.961	308	0.962	344	0.907
21	0.985	57	0.896	93	0.409	129	0.176	165	0.098	201	0.210	237	0.554	273	0.966	309	0.959	345	0.908
22	0.987	58	0.887	94	0.396	130	0.172	166	0.099	202	0.214	238	0.569	274	0.971	310	0.956	346	0.909
23	0.989	59	0.877	95	0.384	131	0.169	167	0.101	203	0.217	239	0.580	275	0.976	311	0.954	347	0.909
24	0.991	60	0.867	96	0.371	132	0.165	168	0.102	204	0.221	240	0.600	276	0.980	312	0.951	348	0.910
25	0.993	61	0.856	97	0.359	133	0.161	169	0.104	205	0.225	241	0.615	277	0.983	313	0.948	349	0.911
26	0.995	62	0.846	98	0.348	134	0.157	170	0.106	206	0.229	242	0.630	278	0.987	314	0.946	350	0.913
27	0.996	63	0.834	99	0.337	135	0.154	171	0.108	207	0.234	243	0.645	279	0.989	315	0.943	351	0.914
28	0.997	64	0.823	100	0.326	136	0.150	172	0.110	208	0.238	244	0.660	280	0.992	316	0.940	352	0.915
29	0.998	65	0.811	101	0.316	137	0.146	173	0.113	209	0.243	245	0.675	281	0.994	317	0.938	353	0.917
30	0.999	66	0.799	102	0.307	138	0.142	174	0.116	210	0.248	246	0.690	282	0.996	318	0.935	354	0.919
31	1.000	67	0.786	103	0.298	139	0.139	175	0.118	211	0.254	247	0.704	283	0.997	319	0.933	355	0.920
32	1.000	68	0.773	104	0.289	140	0.135	176	0.121	212	0.260	248	0.718	284	0.998	320	0.931	356	0.922
33	1.000	69	0.760	105	0.281	141	0.131	177	0.125	213	0.267	249	0.732	285	0.999	321	0.928	357	0.924
34	1.000	70	0.746	106	0.274	142	0.128	178	0.128	214	0.274	250	0.746	286	1.000	322	0.926	358	0.926
35	0.999	71	0.732	107	0.267	143	0.125	179	0.131	215	0.281	251	0.760	287	1.000	323	0.924	359	0.928

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## AZIMUTH PATTERN Vertical Polarization

Proposal No. **C-70168-6**  
 Date **1-May-18**  
 Call Letters **WBSF**  
 Channel **23**  
 Frequency **527 MHz**  
 Antenna Type **TFU-20JSC/VP-R-4C200**  
 Gain **4.48 (6.51dB)**  
**Calculated**

Drawing # **TFU-4C200-V**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.395	36	0.184	72	0.116	108	0.084	144	0.037	180	0.036	216	0.089	252	0.119	288	0.203
1	0.390	37	0.179	73	0.115	109	0.083	145	0.037	181	0.036	217	0.090	253	0.119	289	0.208
2	0.385	38	0.175	74	0.114	110	0.081	146	0.038	182	0.036	218	0.091	254	0.120	290	0.214
3	0.380	39	0.171	75	0.114	111	0.080	147	0.039	183	0.037	219	0.093	255	0.121	291	0.219
4	0.374	40	0.167	76	0.113	112	0.078	148	0.039	184	0.038	220	0.094	256	0.122	292	0.225
5	0.369	41	0.163	77	0.112	113	0.077	149	0.040	185	0.038	221	0.095	257	0.122	293	0.231
6	0.363	42	0.160	78	0.112	114	0.075	150	0.041	186	0.039	222	0.096	258	0.123	294	0.237
7	0.357	43	0.157	79	0.111	115	0.073	151	0.042	187	0.041	223	0.096	259	0.124	295	0.243
8	0.351	44	0.154	80	0.110	116	0.071	152	0.042	188	0.042	224	0.097	260	0.125	296	0.249
9	0.345	45	0.151	81	0.109	117	0.070	153	0.043	189	0.043	225	0.098	261	0.126	297	0.255
10	0.339	46	0.148	82	0.109	118	0.068	154	0.043	190	0.045	226	0.099	262	0.127	298	0.262
11	0.332	47	0.145	83	0.108	119	0.066	155	0.044	191	0.047	227	0.100	263	0.128	299	0.268
12	0.326	48	0.143	84	0.107	120	0.064	156	0.044	192	0.048	228	0.101	264	0.129	300	0.274
13	0.320	49	0.141	85	0.106	121	0.062	157	0.045	193	0.050	229	0.102	265	0.131	301	0.281
14	0.313	50	0.139	86	0.106	122	0.060	158	0.045	194	0.052	230	0.102	266	0.132	302	0.287
15	0.307	51	0.137	87	0.105	123	0.058	159	0.045	195	0.054	231	0.103	267	0.134	303	0.294
16	0.300	52	0.135	88	0.104	124	0.056	160	0.045	196	0.056	232	0.104	268	0.135	304	0.300
17	0.294	53	0.134	89	0.103	125	0.054	161	0.045	197	0.058	233	0.105	269	0.137	305	0.307
18	0.287	54	0.132	90	0.102	126	0.052	162	0.045	198	0.060	234	0.106	270	0.139	306	0.313
19	0.281	55	0.131	91	0.102	127	0.050	163	0.045	199	0.062	235	0.106	271	0.141	307	0.320
20	0.274	56	0.129	92	0.101	128	0.049	164	0.044	200	0.064	236	0.107	272	0.143	308	0.326
21	0.268	57	0.128	93	0.100	129	0.047	165	0.044	201	0.066	237	0.108	273	0.145	309	0.332
22	0.262	58	0.127	94	0.099	130	0.045	166	0.043	202	0.068	238	0.109	274	0.148	310	0.339
23	0.255	59	0.126	95	0.098	131	0.043	167	0.043	203	0.070	239	0.109	275	0.151	311	0.345
24	0.249	60	0.125	96	0.097	132	0.042	168	0.042	204	0.071	240	0.110	276	0.154	312	0.351
25	0.243	61	0.124	97	0.096	133	0.041	169	0.042	205	0.073	241	0.111	277	0.157	313	0.357
26	0.237	62	0.123	98	0.096	134	0.039	170	0.041	206	0.075	242	0.112	278	0.160	314	0.363
27	0.231	63	0.122	99	0.095	135	0.038	171	0.040	207	0.076	243	0.112	279	0.163	315	0.369
28	0.225	64	0.122	100	0.094	136	0.038	172	0.039	208	0.078	244	0.113	280	0.167	316	0.374
29	0.219	65	0.121	101	0.093	137	0.037	173	0.039	209	0.080	245	0.114	281	0.171	317	0.380
30	0.214	66	0.120	102	0.091	138	0.036	174	0.038	210	0.081	246	0.114	282	0.175	318	0.385
31	0.208	67	0.119	103	0.090	139	0.036	175	0.037	211	0.083	247	0.115	283	0.179	319	0.390
32	0.203	68	0.119	104	0.089	140	0.036	176	0.037	212	0.084	248	0.116	284	0.184	320	0.395
33	0.198	69	0.118	105	0.088	141	0.036	177	0.036	213	0.085	249	0.116	285	0.188	321	0.400
34	0.193	70	0.117	106	0.087	142	0.036	178	0.036	214	0.087	250	0.117	286	0.193	322	0.405
35	0.188	71	0.116	107	0.085	143	0.036	179	0.036	215	0.088	251	0.118	287	0.198	323	0.409

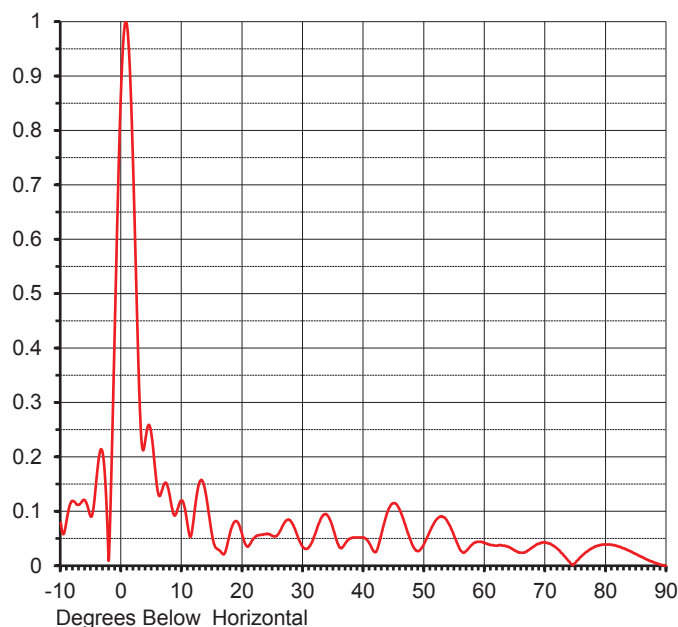
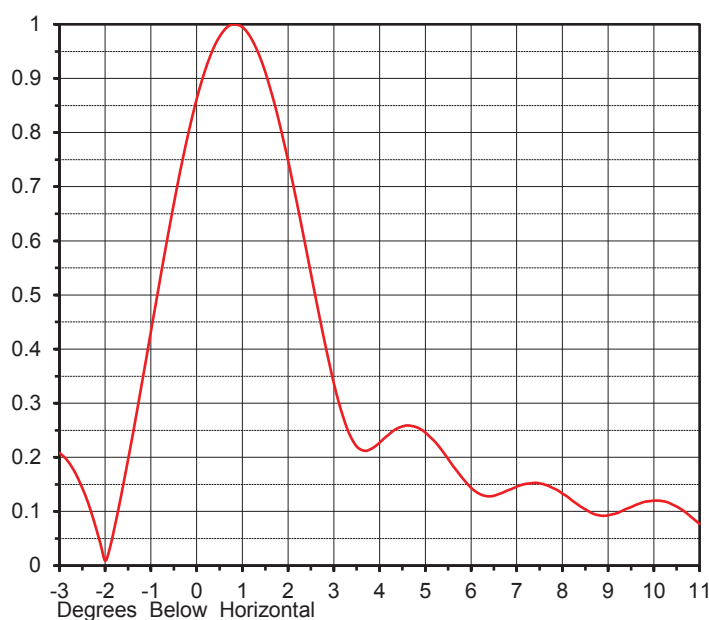
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## ELEVATION PATTERN

Proposal No. **C-70168-6**  
 Date **1-May-18**  
 Call Letters **WBSF**  
 Channel **23**  
 Frequency **527 MHz**  
 Antenna Type **TFU-20JSC/VP-R-4C200**

RMS Directivity at Main Lobe **19.4 ( 12.88 dB )**  
 RMS Directivity at Horizontal **14.4 ( 11.58 dB )**  
**Calculated**

Beam Tilt **0.75 deg**  
 Drawing Number **20J194075**



Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.079	10.0	0.120	30.0	0.034	50.0	0.041	70.0	0.043
-9.0	0.086	11.0	0.070	31.0	0.035	51.0	0.065	71.0	0.039
-8.0	0.119	12.0	0.093	32.0	0.059	52.0	0.085	72.0	0.031
-7.0	0.112	13.0	0.156	33.0	0.088	53.0	0.090	73.0	0.019
-6.0	0.120	14.0	0.128	34.0	0.093	54.0	0.078	74.0	0.007
-5.0	0.090	15.0	0.055	35.0	0.066	55.0	0.053	75.0	0.006
-4.0	0.172	16.0	0.030	36.0	0.034	56.0	0.028	76.0	0.018
-3.0	0.201	17.0	0.022	37.0	0.042	57.0	0.028	77.0	0.027
-2.0	0.032	18.0	0.063	38.0	0.051	58.0	0.040	78.0	0.034
-1.0	0.481	19.0	0.082	39.0	0.052	59.0	0.044	79.0	0.038
0.0	0.892	20.0	0.055	40.0	0.052	60.0	0.042	80.0	0.039
1.0	0.986	21.0	0.036	41.0	0.040	61.0	0.038	81.0	0.038
2.0	0.708	22.0	0.052	42.0	0.025	62.0	0.037	82.0	0.036
3.0	0.304	23.0	0.057	43.0	0.062	63.0	0.037	83.0	0.032
4.0	0.235	24.0	0.059	44.0	0.101	64.0	0.034	84.0	0.027
5.0	0.238	25.0	0.055	45.0	0.115	65.0	0.028	85.0	0.021
6.0	0.137	26.0	0.060	46.0	0.101	66.0	0.024	86.0	0.016
7.0	0.149	27.0	0.080	47.0	0.070	67.0	0.027	87.0	0.010
8.0	0.128	28.0	0.081	48.0	0.039	68.0	0.035	88.0	0.006
9.0	0.095	29.0	0.057	49.0	0.027	69.0	0.041	89.0	0.002
								90.0	0.000

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## APPENDIX A

### SUMMARY OF RADIOFREQUENCY RADIATION STUDY

WBSF

March 28, 2019

<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 (<math>\mu\text{W}/\text{cm}^2</math>)</u>	<u>FCC UNCONTROLLED LIMIT (<math>\mu\text{W}/\text{cm}^2</math>)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
WBSF	DT	23	527	H & V	367	600.000	0.300	27.084	351.33	7.71%
WEYI-TV	DT	30	569	H	355	193.000	0.300	4.657	379.33	1.23%
WEYI-TV	DT	18	497	H & V	394.6	300.000	0.300	11.705	331.33	3.53%
<b>TOTAL PERCENTAGE OF FCC GUIDELINE VALUE =</b>										<b>12.47%</b>

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



# **WBSF - BAY CITY, MICHIGAN** **Amended Appendix B** **Longley-Rice Interference Analysis** **March 2019**

tvstudy v2.2.5 (4uoc83)

Database: localhost, Study: WBSF 23 AP DIE JSC C-70168-6, Model: Longley-Rice  
 Start: 2019.03.25 16:54:59

Study created: 2019.03.25 16:54:59

Study build station data: LMS TV 2019-03-24

Proposal: WBSF D23 DT CP BAY CITY, MI  
 File number: WBSF 23 AP DIE JSC C-70168-6  
 Facility ID: 82627  
 Station data: User record  
 Record ID: 726  
 Country: U.S.  
 Zone: I

Search options:  
 Non-U.S. records included  
 Baseline record excluded if station has CP

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	WDWO-CD	D22	DC	CP	DETROIT, MI	BLANK0000028102	88.1 km
Yes	WLLA	D22	DT	CP	KALAMAZOO, MI	BLANK0000034932	159.0
No	WBGU-TV	D22	DT	LIC	BOWLING GREEN, OH	BLANK0000063785	231.7
No	WCIU-TV	D23	DT	CP	CHICAGO, IL	BLANK0000034608	353.3
No	WDTI	D23	DT	CP	INDIANAPOLIS, IN	BLANK0000034481	423.1
No	WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000034759	369.2
Yes	WNWO-TV	D23	DT	CP	TOLEDO, OH	BLANK0000033631	174.8
No	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000034876	434.0
No	WBAY-TV	D23	DT	LIC	GREEN BAY, WI	BMLCDT20040723ADS	368.0
No	WPTA	D24	DT	CP	FORT WAYNE, IN	BLANK0000068069	264.2
No	WPTA	D24	DT	LIC	FORT WAYNE, IN	BLANK0000068624	264.2
No	WPTA	D24	DT	LIC	FORT WAYNE, IN	BLANK0000064331	264.2
No	WCML	D24	DT	LIC	ALPENA, MI	BLEDT20110707ABQ	216.4
Yes	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000034355	88.1
No	WTLJ	D24	DT	LIC	MUSKEGON, MI	BLANK0000001674	179.3
Yes	CIII-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	265.4

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: 43 13 1.00 N (NAD83)  
 Longitude: 83 43 17.00 W  
 Height AMSL: 577.3 m  
 HAAT: 365.0 m  
 Peak ERP: 600 kW  
 Antenna: DIE JSC C-70168-6 0.0 deg  
 Elev Pattn: Generic  
 Elec Tilt: 0.75

# **Appendix B - Interference Analysis** **WBSF - Bay City, Michigan** **Channel 23 - 600 kW - Page 2**

39.7 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	520 kW	380.6 m	101.1 km
45.0	566	370.9	101.0
90.0	121	344.7	86.5
135.0	14.1	343.8	72.2
180.0	10.9	349.1	71.0
225.0	90.3	366.2	86.4
270.0	541	380.1	101.4
315.0	534	386.6	101.8

\*\*Proposal is within coordination distance of Canadian border  
Distance to Canadian border: 107.7 km

Distance to Mexican border: 2166.1 km

Conditions at FCC monitoring station: Allegan MI  
Bearing: 250.3 degrees Distance: 194.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 266.5 degrees Distance: 1811.9 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 BLANK0000034932 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance		
	WLLA	D22	DT	CP	KALAMAZOO, MI	BLANK0000034932			
Undesireds:	WBSF	D23	DT	BL	BAY CITY, MI	DTVBL82627	165.5 km		
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	159.0		
	WZPX-TV	D21	DT	APP	BATTLE CREEK, MI	BLANK0000068453	1.1		
	WLS-TV	D22	DT	CP	CHICAGO, IL	BLANK0000034300	194.7		
	WBGU-TV	D22	DT	LIC	BOWLING GREEN, OH	BLANK0000063785	204.2		
	WFRV-TV	D22	DT	CP	GREEN BAY, WI	BLANK0000034729	283.0		
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX		
21217.5 2,081,693		21209.5 2,081,436		20348.7 2,059,872		20348.7 2,059,872	0.00 0.00		
Undesired	Total IX			Unique IX, before		Unique IX, after			
WBSF D23 DT BL	0.0			0		0			
WBSF D23 DT CP	4.0			26		0.0 0			
WZPX-TV D21 DT APP	8.0			399		0.0 0			
WLS-TV D22 DT CP	852.9			21,386		833.0 20,779			
WBGU-TV D22 DT LIC	8.0			178		8.0 178			
WFRV-TV D22 DT CP	7.9			182		0.0 0			

## ----- Interference to BLANK0000034932 CP scenario 2

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WLLA	D22	DT	CP	KALAMAZOO, MI	BLANK0000034932	
Undesireds:	WBSF	D23	DT	BL	BAY CITY, MI	DTVBL82627	165.5 km
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	159.0
	WZPX-TV	D21	DT	CP	BATTLE CREEK, MI	BLANK0000034925	34.6
	WLS-TV	D22	DT	CP	CHICAGO, IL	BLANK0000034300	194.7
	WBGU-TV	D22	DT	LIC	BOWLING GREEN, OH	BLANK0000063785	204.2
	WFRV-TV	D22	DT	CP	GREEN BAY, WI	BLANK0000034729	283.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX

**Appendix B - Interference Analysis**  
**WBSF - Bay City, Michigan**  
**Channel 23 - 600 kW - Page 3**

21217.5 2,081,693 21209.5 2,081,436 19449.4 1,885,178 19449.4 1,885,178 0.00 0.00

Undesired		Total IX	Unique IX, before	Unique IX, after
WBSF D23 DT BL	0.0	0	0.0	0
WBSF D23 DT CP	4.0	26		0.0
WZPX-TV D21 DT CP	943.3	176,115	899.2	174,694
WLS-TV D22 DT CP	852.9	21,386	804.9	19,866
WBGU-TV D22 DT LIC	8.0	178	4.0	95
WFRV-TV D22 DT CP	7.9	182	0.0	0

-----  
Interference to BLANK0000033631 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WNWO-TV	D23	DT	CP	TOLEDO, OH	BLANK0000033631	
Undesireds:	WBSF	D23	DT	BL	BAY CITY, MI	DTVBL82627	204.8 km
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	174.8
	WDWO-CD	D22	DC	CP	DETROIT, MI	BLANK0000028102	90.8
	WBGU-TV	D22	DT	LIC	BOWLING GREEN, OH	BLANK0000063785	74.8
	WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000034759	194.4
	WPTA	D24	DT	CP	FORT WAYNE, IN	BLANK0000068069	164.9
	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000034355	90.8
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	23263.1	2,872,428	23259.1	2,872,250	22078.0	2,713,998	0.14 0.07
	2688.5	224,092	2688.5	224,092	2680.5	220,146	0.00 0.00 (in

Canada)

Undesired		Total IX	Unique IX, before	Unique IX, after
WBSF D23 DT BL	12.0	815	4.0	398
WBSF D23 DT CP	108.1	10,609		35.9
WDWO-CD D22 DC CP	76.4	55,538	0.0	0
WBGU-TV D22 DT LIC	462.8	15,627	462.8	15,627
WWHO D23 DT CP	574.3	29,236	514.1	21,531
WWHO D23 DT CP	8.0	3,946	8.0	3,946
WPXD-TV D24 DT CP	196.3	120,453	87.9	60,035

(in Canada)

-----  
Interference to BLANK0000034355 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000034355	
Undesireds:	WBSF	D23	DT	BL	BAY CITY, MI	DTVBL82627	118.3 km
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	88.1
	WNWO-TV	D23	DT	CP	TOLEDO, OH	BLANK0000033631	90.8
	WPTA	D24	DT	CP	FORT WAYNE, IN	BLANK0000068069	218.3
	WCML	D24	DT	LIC	ALPENA, MI	BLEDT20110707ABQ	302.8
	WTLJ	D24	DT	LIC	MUSKEGON, MI	BLANK0000001674	217.9
	WEAO	D24	DT	CP	AKRON, OH	BLANK0000034293	208.8
	WXYZ-TV	D25	DT	CP	DETROIT, MI	BLANK0000034678	5.3
	Service area		Terrain-limited		IX-free, before	IX-free, after	Percent New IX
	17583.3	5,249,447	17583.3	5,249,447	17259.1	5,165,821	0.74 0.29
	4373.5	406,662	4373.5	406,662	3892.3	379,289	0.00 0.00 (in

Canada)

Undesired		Total IX	Unique IX, before	Unique IX, after
WBSF D23 DT BL	15.9	2,002	8.0	211
WBSF D23 DT CP	155.3	17,473		135.4
WNWO-TV D23 DT CP	108.6	67,142	92.6	65,843
WPTA D24 DT CP	60.0	3,869	24.0	1,519
WCML D24 DT LIC	11.9	459	0.0	0
WTLJ D24 DT LIC	24.0	1,418	4.0	126
WEAO D24 DT CP	19.9	2,479	0.0	0
WEAO D24 DT CP	481.1	27,373	481.1	27,373
WXYZ-TV D25 DT CP	151.7	11,770	147.8	11,631

(in Canada)



**Appendix B - Interference Analysis**  
**WBSF - Bay City, Michigan**  
**Channel 23 - 600 kW - Page 4**

-----  
Interference to BLANK0000034355 CP scenario 2

	Call	Chan	Svc	Status	City, State	File Number	Distance	
Desired:	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000034355		
Undesireds:	WBSF	D23	DT	BL	BAY CITY, MI	DTVBL82627	118.3 km	
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	88.1	
	WNWO-TV	D23	DT	CP	TOLEDO, OH	BLANK0000033631	90.8	
	WPTA	D24	DT	LIC	FORT WAYNE, IN	BLANK0000068624	218.3	
	WCML	D24	DT	LIC	ALPENA, MI	BLEDT20110707ABQ	302.8	
	WTLJ	D24	DT	LIC	MUSKEGON, MI	BLANK0000001674	217.9	
	WEAO	D24	DT	CP	AKRON, OH	BLANK0000034293	208.8	
	WXYZ-TV	D25	DT	CP	DETROIT, MI	BLANK0000034678	5.3	
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX
17583.3	5,249,447	17583.3	5,249,447	17259.1	5,165,821	17131.6	5,150,809	0.74 0.29
4373.5	406,662	4373.5	406,662	3892.3	379,289	3892.3	379,289	0.00 0.00 (in
Canada)								
Undesired			Total IX		Unique IX, before		Unique IX, after	
WBSF D23 DT BL			15.9	2,002	8.0	211		
WBSF D23 DT CP			155.3	17,473			135.4	15,223
WNWO-TV D23 DT CP			108.6	67,142	92.6	65,843	92.6	65,843
WPTA D24 DT LIC			60.0	3,869	24.0	1,519	24.0	1,519
WCML D24 DT LIC			11.9	459	0.0	0	0.0	0
WTLJ D24 DT LIC			24.0	1,418	4.0	126	4.0	126
WEAO D24 DT CP			19.9	2,479	0.0	0	0.0	0
WEAO D24 DT CP			481.1	27,373	481.1	27,373	481.1	27,373 (in Canada)
WXYZ-TV D25 DT CP			151.7	11,770	147.8	11,631	147.8	11,631

-----  
Interference to BLANK0000034355 CP scenario 3

	Call	Chan	Svc	Status	City, State	File Number	Distance	
Desired:	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000034355		
Undesireds:	WBSF	D23	DT	BL	BAY CITY, MI	DTVBL82627	118.3 km	
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	88.1	
	WNWO-TV	D23	DT	CP	TOLEDO, OH	BLANK0000033631	90.8	
	WPTA	D24	DT	LIC	FORT WAYNE, IN	BLANK0000064331	218.3	
	WCML	D24	DT	LIC	ALPENA, MI	BLEDT20110707ABQ	302.8	
	WTLJ	D24	DT	LIC	MUSKEGON, MI	BLANK0000001674	217.9	
	WEAO	D24	DT	CP	AKRON, OH	BLANK0000034293	208.8	
	WXYZ-TV	D25	DT	CP	DETROIT, MI	BLANK0000034678	5.3	
Service area		Terrain-limited		IX-free, before		IX-free, after		Percent New IX
17583.3	5,249,447	17583.3	5,249,447	17279.1	5,166,720	17151.6	5,151,708	0.74 0.29
4373.5	406,662	4373.5	406,662	3892.3	379,289	3892.3	379,289	0.00 0.00 (in
Canada)								
Undesired			Total IX		Unique IX, before		Unique IX, after	
WBSF D23 DT BL			15.9	2,002	8.0	211		
WBSF D23 DT CP			155.3	17,473			135.4	15,223
WNWO-TV D23 DT CP			108.6	67,142	96.6	66,051	96.6	66,051
WPTA D24 DT LIC			24.0	2,090	4.0	620	4.0	620
WCML D24 DT LIC			11.9	459	0.0	0	0.0	0
WTLJ D24 DT LIC			24.0	1,418	4.0	126	4.0	126
WEAO D24 DT CP			19.9	2,479	0.0	0	0.0	0
WEAO D24 DT CP			481.1	27,373	481.1	27,373	481.1	27,373 (in Canada)
WXYZ-TV D25 DT CP			151.7	11,770	147.8	11,631	147.8	11,631

-----  
Interference to BLANKCANADA209 LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	CIII-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	

**Appendix B - Interference Analysis**  
**WBSF - Bay City, Michigan**  
**Channel 23 - 600 kW - Page 5**

Undesireds:	WBSF	D23	DT	BL	BAY CITY, MI	DTVBL82627	275.9 km
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	265.4
	WETM-TV	D23	DT	CP	ELMIRA, NY	BLANK0000029984	318.9
	WNWO-TV	D23	DT	CP	TOLEDO, OH	BLANK0000033631	297.3
	WPXI	D23	DT	CP	PITTSBURGH, PA	BLANK0000034876	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	19095.2 3,436,835	0.12 0.01

Undesired	Total IX	Unique IX, before	Unique IX, after
WBSF D23 DT BL	0.0	0	0
WBSF D23 DT CP	23.8	471	23.8 471
WETM-TV D23 DT CP	4.0	0	4.0 0
WNWO-TV D23 DT CP	4.0	0	0.0 0
WPXI D23 DT CP	8.0	0	4.0 0

-----  
Interference to proposal scenario 1  
8.24% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WBSF	D23	DT	CP	BAY CITY, MI	WBSF 23 AP DIE JSC C-7	
Undesireds:	WDWO-CD	D22	DC	CP	DETROIT, MI	BLANK0000028102	88.1 km
	WNWO-TV	D23	DT	CP	TOLEDO, OH	BLANK0000033631	174.8
	WPXD-TV	D24	DT	CP	ANN ARBOR, MI	BLANK0000034355	88.1
	CIII-DT	D23	DT	LIC	PARIS, ON	BLANKCANADA209	265.4

Service area	Terrain-limited	IX-free	Percent IX
25966.7 1,833,403	25942.7 1,829,306	25333.8 1,678,501	2.35 8.24

Undesired	Total IX	Unique IX	Prcnt Unique IX
WDWO-CD D22 DC CP	424.6	120,530	36.0 12,902 0.14 0.71
WNWO-TV D23 DT CP	428.8	111,023	80.2 13,649 0.31 0.75
WPXD-TV D24 DT CP	440.8	118,713	32.1 6,024 0.12 0.33
CIII-DT D23 DT LIC	43.9	8,277	23.9 3,719 0.09 0.20