



**STATEMENT OF JOHN E. HIDLE, P.E.  
IN SUPPORT OF AN APPLICATION FOR  
CONSTRUCTION PERMIT  
WKEF - DAYTON, OHIO  
DTV - CH. 18 - 525 kW - 351 m HAAT**

Prepared for: WKEF Licensee L.P.

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 WKEF Licensee L.P., licensee of WKEF, channel 51, licensed to Dayton, Ohio, to prepare this statement, FCC Form 2100, its technical Sections, and the associated exhibits in support of an application for construction permit in accordance with the Report and Order in MB Docket No. 14-159, RM-11735, DA 14-1885, to substitute DTV channel 18 for DTV channel 51 for post-transition use.

**DIRECTIONAL ANTENNA**

The applicant proposes to install a new Dielectric model TFU-20GTH/VP-R 6T140 elliptically polarized directional transmitting antenna with its center of radiation located at a height above ground of 343 meters, and a height above average terrain of 351 meters. The antenna manufacturer's horizontal plane azimuth radiation pattern for the horizontally polarized component is shown in exhibit 1 and is tabulated in exhibit 2. The horizontal

plane azimuth pattern for the vertically polarized component is shown in exhibit 3 and is tabulated in exhibit 4. The manufacturer's vertical plane elevation radiation pattern, illustrating the antenna's radiation characteristics above and below the horizontal plane, due to electrical beam tilt, is shown in Exhibits 5 and 6, and is tabulated in Exhibit 7.

### **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 8 shows the predicted Noise Limited (41 dBu) contour, and the principal community (48 dBu) contour. The 48 dBu contour completely encompasses the principal community of license, Dayton, Ohio.

### **ALLOCATION CONSIDERATIONS**

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

A study was performed, using the FCC's software, tv\_process, to determine if the instant petition to amend the post-transition Table of Allotments is predicted to cause new prohibited interference to DTV stations, construction permits or DTV allotments. Please note the use of 2 km cells and **0.1 km** terrain profile increments. Results of the study indicate that the instant petition is predicted to cause no new interference greater than

0.5% to the populations served by any DTV station, construction permit or allotment.

The study identified one DTV station that is predicted to be minimally affected by the proposed facility. WISE-TV, Fort Wayne, IN, channel 18 is predicted to receive new interference to 0.4871% of its baseline population. See Appendix B. These results comply with the 0.5% limit for new post-transition interference set forth in §73.616(e) of the Commission's Rules.

**International DTV Considerations**

The WKEF site is located 254.3 kilometers from the nearest point on the US-Canadian border. Since the nearest Canadian co-channel station is 433 km away and the nearest adjacent channel station is 388 km away, there is a vanishingly small probability that the current proposal will have any effect on any Canadian television facility. .

**Class A Television Allocation Considerations**

As required in Section 73.616(f) of the FCC's Rules, a study was performed, using the FCC's application processing software. The study revealed No Spacing violations or contour overlap to Class A stations. The Longley-Rice section of the study results show that there are five Class A LPTV stations included in the list of potentially affected stations. However, the study indicates that none of these Class A stations, neither analog nor digital, is predicted to receive any interference from the instant proposal.

**AM station considerations**

The study also states that the "Proposed station is OK toward AM broadcast stations".

## **BLANKETING AND INTERMODULATION INTERFERENCE**

Other broadcast and non-broadcast facilities are either co-located with, or located within 10 km of the proposed KGAN 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**

Effective October 15, 1997 the FCC adopted new guidelines and procedures for evaluating environmental effects of radio frequency (RF) emissions. The guidelines 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 that apply in cases that 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 0.2 milliwatts per centimeter squared

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**WKEF - Dayton, Ohio**  
**PAGE 5**

(mW/cm<sup>2</sup>) for an “uncontrolled” environment, and is 1.0 milliwatts per centimeter squared (mW/cm<sup>2</sup>) 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 1500, and is similarly determined for a “controlled” environment by dividing the operating frequency in MHz by 300. The predicted emissions of WKEF operating on channel 18 must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For WKEF, which will operate on television Channel 18 (494-500 MHz), the MPE is 0.331 milliwatts per centimeter squared (mW/cm<sup>2</sup>) in an “uncontrolled” environment and 1.655 mW/cm<sup>2</sup> in a “controlled” environment. The proposed WKEF facility will operate with a maximum ERP of 525 kW from an elliptically polarized directional transmitting antenna with a centerline height of 343 meters above ground level (AGL). Considering a very conservative vertical plane relative field factor of 0.300, the WKEF facility is predicted to produce a power density at two meters above ground level of 0.02714 mW/cm<sup>2</sup>, which is 8.19% of the FCC guideline value for an “uncontrolled” environment, and 1.638% of the FCC’s guideline value for “controlled” environments (see Appendix A). There are two other full-service DTV stations, two LPTV stations, and one non-commercial Class B FM station, located within the relevant proximity of 315 meters. The total percentage of the ANSI value at the proposed site, including the cumulative radiation from all FM and DTV stations within the relevant proximity is 21.04% of the limit applicable to “uncontrolled” environments, and 4.208% of the limit for “controlled” environments.

**OCCUPATIONAL SAFETY**

The licensee of WKEF is committed to the protection of station personnel and/or tower contractors working in the vicinity of the WKEF 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 construction permit to re-locate WKEF from channel 51 to channel 18, 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: January 7, 2015





Proposal Number

**C-06150**

**Exhibit 1**

Date

**20-May-14**

Call Letters

**WKEF**

Channel

**18**

Location

**Dayton, Ohio**

Customer

**Sinclair**

Antenna Type

**TFU-20GTH/VP-R 6T140**

## AZIMUTH PATTERN

Gain

**1.40**

**( 1.46 dB)**

Frequency

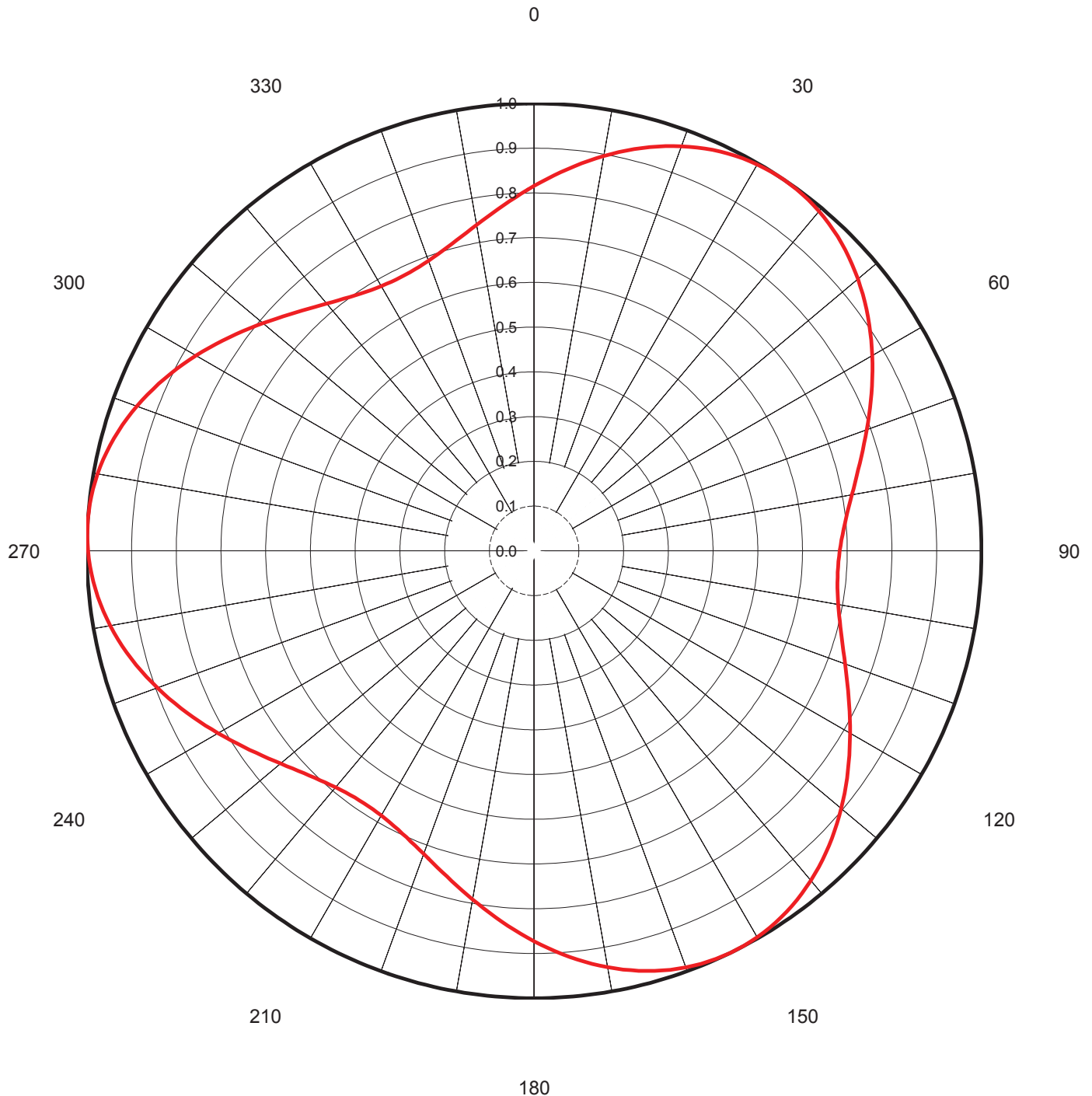
**497.00 MHz**

Calculated / Measured

**Calculated**

Drawing #

**TFU-6T140**





Proposal Number

**C-06150****Exhibit 2**

Date

**20-May-14**

Call Letters

**WKEF**

Channel

**18**

Location

**Dayton, Ohio**

Customer

**Sinclair**

Antenna Type

**TFU-20GTH/VP-R 6T140****TABULATION OF AZIMUTH PATTERN**Azimuth Pattern Drawing #: **TFU-6T140**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.816	45	0.972	90	0.683	135	0.932	180	0.873	225	0.711	270	0.997	315	0.754
1	0.824	46	0.968	91	0.682	136	0.939	181	0.865	226	0.716	271	0.998	316	0.747
2	0.832	47	0.962	92	0.681	137	0.945	182	0.857	227	0.721	272	1.000	317	0.740
3	0.840	48	0.957	93	0.681	138	0.951	183	0.848	228	0.727	273	1.000	318	0.733
4	0.848	49	0.951	94	0.680	139	0.957	184	0.840	229	0.733	274	1.000	319	0.727
5	0.856	50	0.945	95	0.681	140	0.962	185	0.832	230	0.740	275	0.999	320	0.721
6	0.865	51	0.939	96	0.682	141	0.967	186	0.824	231	0.747	276	0.999	321	0.716
7	0.873	52	0.932	97	0.683	142	0.972	187	0.816	232	0.754	277	0.997	322	0.710
8	0.881	53	0.925	98	0.685	143	0.977	188	0.807	233	0.761	278	0.996	323	0.706
9	0.888	54	0.918	99	0.688	144	0.981	189	0.799	234	0.768	279	0.993	324	0.701
10	0.896	55	0.911	100	0.690	145	0.984	190	0.791	235	0.776	280	0.991	325	0.697
11	0.904	56	0.904	101	0.694	146	0.988	191	0.784	236	0.783	281	0.988	326	0.693
12	0.911	57	0.896	102	0.697	147	0.991	192	0.776	237	0.791	282	0.985	327	0.690
13	0.918	58	0.888	103	0.701	148	0.994	193	0.768	238	0.799	283	0.981	328	0.687
14	0.925	59	0.881	104	0.706	149	0.995	194	0.761	239	0.807	284	0.977	329	0.685
15	0.932	60	0.873	105	0.711	150	0.997	195	0.754	240	0.816	285	0.972	330	0.683
16	0.939	61	0.865	106	0.716	151	0.998	196	0.747	241	0.824	286	0.968	331	0.682
17	0.945	62	0.857	107	0.721	152	1.000	197	0.740	242	0.832	287	0.962	332	0.681
18	0.951	63	0.848	108	0.727	153	1.000	198	0.733	243	0.840	288	0.957	333	0.681
19	0.957	64	0.840	109	0.733	154	1.000	199	0.727	244	0.848	289	0.951	334	0.680
20	0.962	65	0.832	110	0.740	155	0.999	200	0.721	245	0.856	290	0.945	335	0.681
21	0.967	66	0.824	111	0.747	156	0.999	201	0.716	246	0.865	291	0.939	336	0.682
22	0.972	67	0.816	112	0.754	157	0.997	202	0.710	247	0.873	292	0.932	337	0.683
23	0.977	68	0.807	113	0.761	158	0.996	203	0.706	248	0.881	293	0.925	338	0.685
24	0.981	69	0.799	114	0.768	159	0.993	204	0.701	249	0.888	294	0.918	339	0.688
25	0.984	70	0.791	115	0.776	160	0.991	205	0.697	250	0.896	295	0.911	340	0.690
26	0.988	71	0.784	116	0.783	161	0.988	206	0.693	251	0.904	296	0.904	341	0.694
27	0.991	72	0.776	117	0.791	162	0.985	207	0.690	252	0.911	297	0.896	342	0.697
28	0.994	73	0.768	118	0.799	163	0.981	208	0.687	253	0.918	298	0.888	343	0.701
29	0.995	74	0.761	119	0.807	164	0.977	209	0.685	254	0.925	299	0.881	344	0.706
30	0.997	75	0.754	120	0.816	165	0.972	210	0.683	255	0.932	300	0.873	345	0.711
31	0.998	76	0.747	121	0.824	166	0.968	211	0.682	256	0.939	301	0.865	346	0.716
32	1.000	77	0.740	122	0.832	167	0.962	212	0.681	257	0.945	302	0.857	347	0.721
33	1.000	78	0.733	123	0.840	168	0.957	213	0.681	258	0.951	303	0.848	348	0.727
34	1.000	79	0.727	124	0.848	169	0.951	214	0.680	259	0.957	304	0.840	349	0.733
35	0.999	80	0.721	125	0.856	170	0.945	215	0.681	260	0.962	305	0.832	350	0.740
36	0.999	81	0.716	126	0.865	171	0.939	216	0.682	261	0.967	306	0.824	351	0.747
37	0.997	82	0.710	127	0.873	172	0.932	217	0.683	262	0.972	307	0.816	352	0.754
38	0.996	83	0.706	128	0.881	173	0.925	218	0.685	263	0.977	308	0.807	353	0.761
39	0.993	84	0.701	129	0.888	174	0.918	219	0.688	264	0.981	309	0.799	354	0.768
40	0.991	85	0.697	130	0.896	175	0.911	220	0.690	265	0.984	310	0.791	355	0.776
41	0.988	86	0.693	131	0.904	176	0.904	221	0.694	266	0.988	311	0.784	356	0.783
42	0.985	87	0.690	132	0.911	177	0.896	222	0.697	267	0.991	312	0.776	357	0.791
43	0.981	88	0.687	133	0.918	178	0.888	223	0.701	268	0.994	313	0.768	358	0.799
44	0.977	89	0.685	134	0.925	179	0.881	224	0.706	269	0.995	314	0.761	359	0.807

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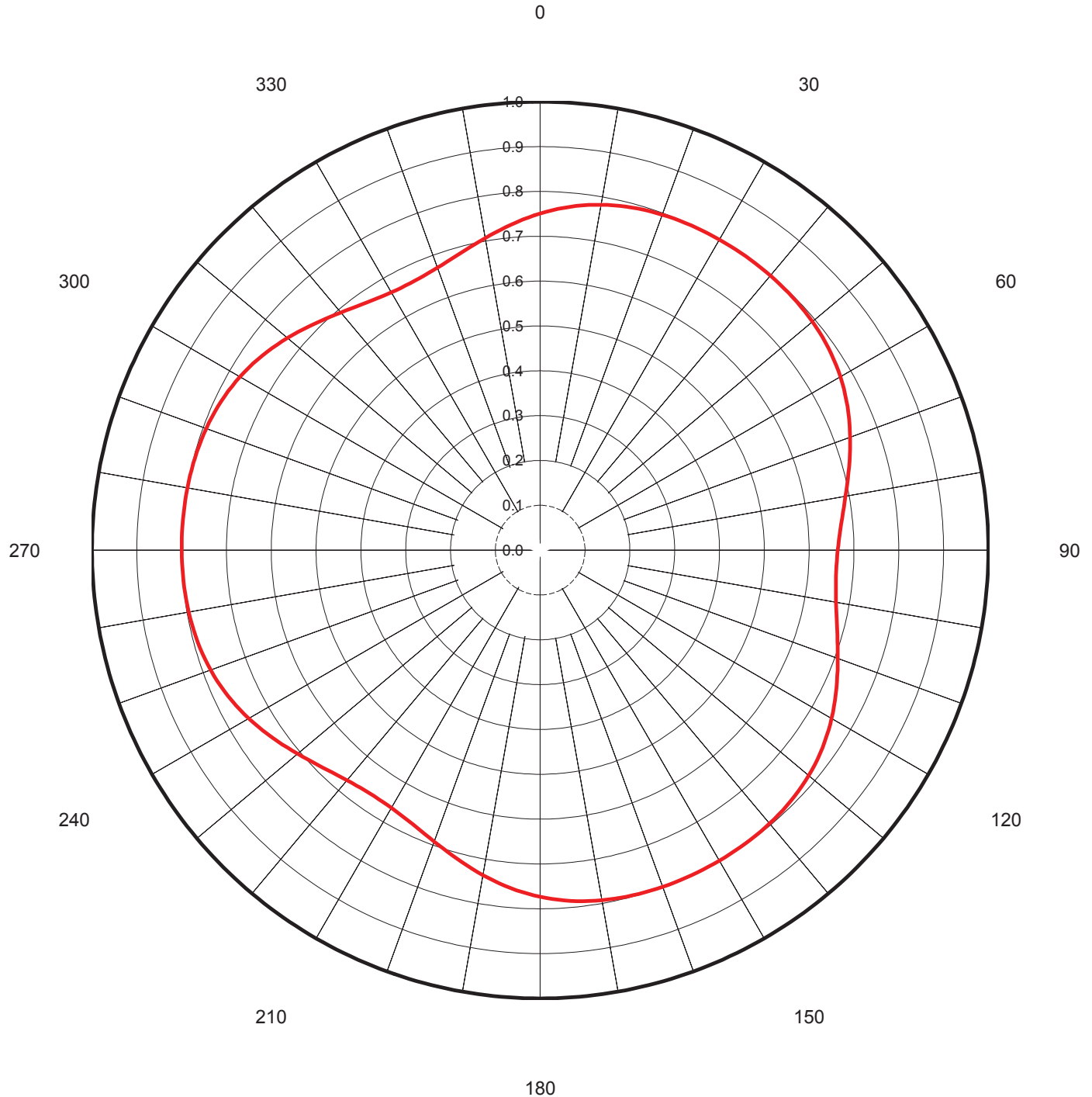


Proposal Number	<b>C-06150</b>	Exhibit 3
Date	<b>20-May-14</b>	
Call Letters	<b>WKEF</b>	Channel <b>18</b>
Location	<b>Dayton, Ohio</b>	
Customer	<b>Sinclair</b>	
Antenna Type	<b>TFU-20GTH/VP-R 6T140</b>	

## AZIMUTH PATTERN/VERTICAL POLARIZATION

Gain **1.10** **(0.41 dB)**  
Calculated / Measured **Calculated**

Frequency **497.00 MHz**  
Drawing # **6T140-V**





Proposal Number

**C-06150****Exhibit 4**

Date

**20-May-14**

Call Letters

**WKEF**

Channel

**18**

Location

**Dayton, Ohio**

Customer

**Sinclair**

Antenna Type

**TFU-20GTH/VP-R 6T140****TABULATION OF AZIMUTH PATTERN/VERTICAL POLARIZATION**Azimuth Pattern Drawing #: **6T140-V**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
0	0.751	45	0.797	90	0.664	135	0.791	180	0.773	225	0.686	270	0.800	315	0.713
1	0.755	46	0.797	91	0.663	136	0.792	181	0.770	226	0.690	271	0.800	316	0.709
2	0.759	47	0.796	92	0.662	137	0.794	182	0.767	227	0.694	272	0.800	317	0.704
3	0.762	48	0.795	93	0.662	138	0.795	183	0.764	228	0.698	273	0.800	318	0.700
4	0.766	49	0.794	94	0.662	139	0.795	184	0.760	229	0.702	274	0.800	319	0.696
5	0.769	50	0.793	95	0.663	140	0.796	185	0.757	230	0.707	275	0.800	320	0.692
6	0.772	51	0.792	96	0.663	141	0.797	186	0.753	231	0.711	276	0.800	321	0.688
7	0.775	52	0.790	97	0.665	142	0.798	187	0.749	232	0.716	277	0.800	322	0.684
8	0.777	53	0.789	98	0.666	143	0.798	188	0.745	233	0.720	278	0.800	323	0.681
9	0.780	54	0.787	99	0.668	144	0.798	189	0.740	234	0.725	279	0.799	324	0.677
10	0.782	55	0.785	100	0.670	145	0.799	190	0.736	235	0.729	280	0.799	325	0.674
11	0.784	56	0.783	101	0.673	146	0.799	191	0.732	236	0.734	281	0.799	326	0.672
12	0.786	57	0.781	102	0.676	147	0.799	192	0.727	237	0.738	282	0.799	327	0.669
13	0.788	58	0.779	103	0.679	148	0.800	193	0.723	238	0.743	283	0.798	328	0.667
14	0.790	59	0.776	104	0.682	149	0.800	194	0.718	239	0.747	284	0.798	329	0.665
15	0.791	60	0.773	105	0.686	150	0.800	195	0.713	240	0.751	285	0.797	330	0.664
16	0.792	61	0.770	106	0.690	151	0.800	196	0.709	241	0.755	286	0.797	331	0.663
17	0.794	62	0.767	107	0.694	152	0.800	197	0.704	242	0.759	287	0.796	332	0.662
18	0.795	63	0.764	108	0.698	153	0.800	198	0.700	243	0.762	288	0.795	333	0.662
19	0.795	64	0.760	109	0.702	154	0.800	199	0.696	244	0.766	289	0.794	334	0.662
20	0.796	65	0.757	110	0.707	155	0.800	200	0.692	245	0.769	290	0.793	335	0.663
21	0.797	66	0.753	111	0.711	156	0.800	201	0.688	246	0.772	291	0.792	336	0.663
22	0.798	67	0.749	112	0.716	157	0.800	202	0.684	247	0.775	292	0.790	337	0.665
23	0.798	68	0.745	113	0.720	158	0.800	203	0.681	248	0.777	293	0.789	338	0.666
24	0.798	69	0.740	114	0.725	159	0.799	204	0.677	249	0.780	294	0.787	339	0.668
25	0.799	70	0.736	115	0.729	160	0.799	205	0.674	250	0.782	295	0.785	340	0.670
26	0.799	71	0.732	116	0.734	161	0.799	206	0.672	251	0.784	296	0.783	341	0.673
27	0.799	72	0.727	117	0.738	162	0.799	207	0.669	252	0.786	297	0.781	342	0.676
28	0.800	73	0.723	118	0.743	163	0.798	208	0.667	253	0.788	298	0.779	343	0.679
29	0.800	74	0.718	119	0.747	164	0.798	209	0.665	254	0.790	299	0.776	344	0.682
30	0.800	75	0.713	120	0.751	165	0.797	210	0.664	255	0.791	300	0.773	345	0.686
31	0.800	76	0.709	121	0.755	166	0.797	211	0.663	256	0.792	301	0.770	346	0.690
32	0.800	77	0.704	122	0.759	167	0.796	212	0.662	257	0.794	302	0.767	347	0.694
33	0.800	78	0.700	123	0.762	168	0.795	213	0.662	258	0.795	303	0.764	348	0.698
34	0.800	79	0.696	124	0.766	169	0.794	214	0.662	259	0.795	304	0.760	349	0.702
35	0.800	80	0.692	125	0.769	170	0.793	215	0.663	260	0.796	305	0.757	350	0.707
36	0.800	81	0.688	126	0.772	171	0.792	216	0.663	261	0.797	306	0.753	351	0.711
37	0.800	82	0.684	127	0.775	172	0.790	217	0.665	262	0.798	307	0.749	352	0.716
38	0.800	83	0.681	128	0.777	173	0.789	218	0.666	263	0.798	308	0.745	353	0.720
39	0.799	84	0.677	129	0.780	174	0.787	219	0.668	264	0.798	309	0.740	354	0.725
40	0.799	85	0.674	130	0.782	175	0.785	220	0.670	265	0.799	310	0.736	355	0.729
41	0.799	86	0.672	131	0.784	176	0.783	221	0.673	266	0.799	311	0.732	356	0.734
42	0.799	87	0.669	132	0.786	177	0.781	222	0.676	267	0.799	312	0.727	357	0.738
43	0.798	88	0.667	133	0.788	178	0.779	223	0.679	268	0.800	313	0.723	358	0.743
44	0.798	89	0.665	134	0.790	179	0.776	224	0.682	269	0.800	314	0.718	359	0.747

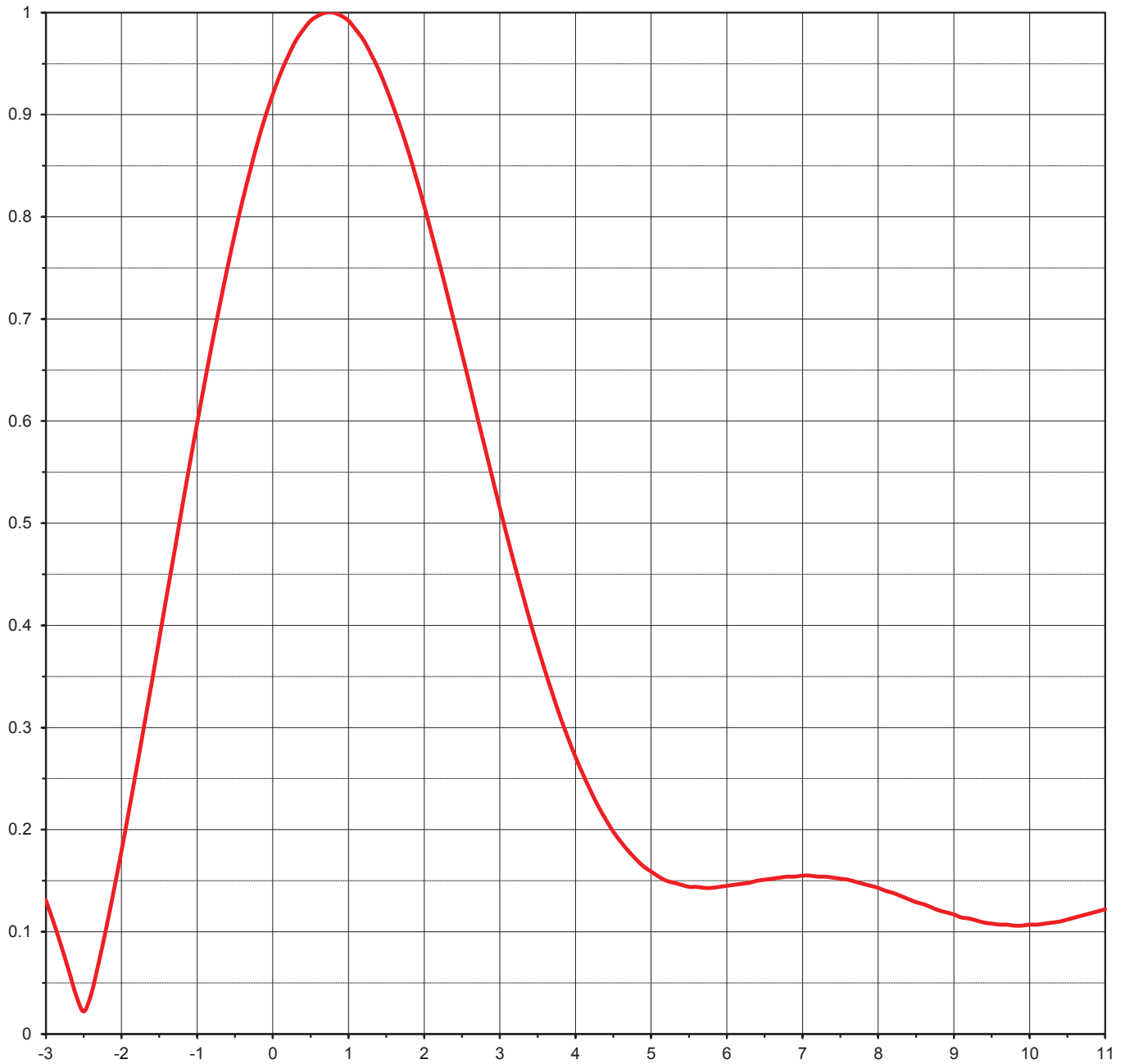
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Proposal Number	<b>C-06150</b>	Exhibit 5
Date	<b>20-May-14</b>	
Call Letters	<b>WKEF</b>	Channel <b>18</b>
Location	<b>Dayton, Ohio</b>	
Customer	<b>Sinclair</b>	
Antenna Type	<b>TFU-20GTH/VP-R 6T140</b>	

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>18.0 ( 12.55 dB )</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>15.2 ( 11.82 dB )</b>	Frequency	<b>497.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>20G180075</b>



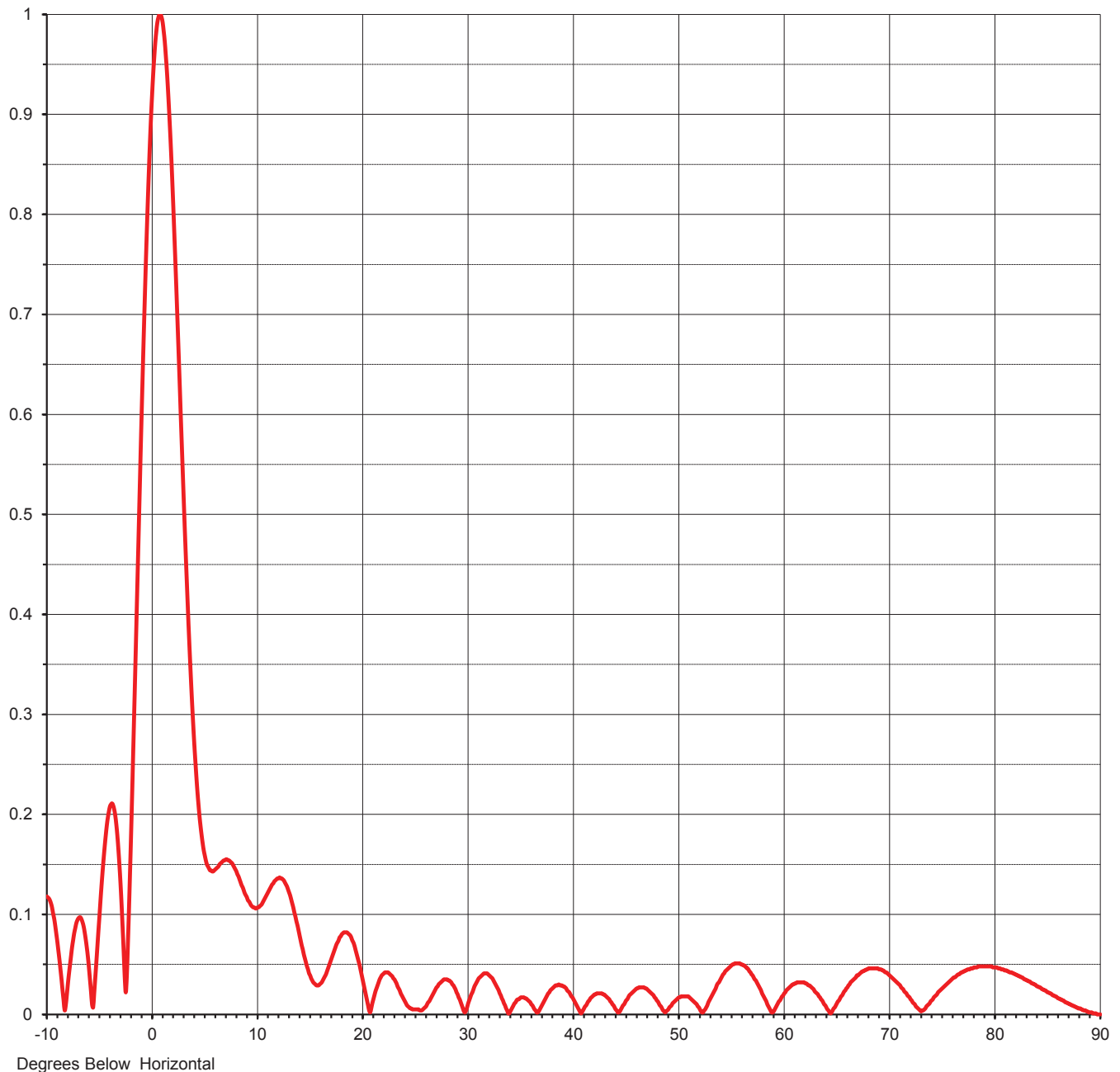
Degrees Below Horizontal



Proposal Number	<b>C-06150</b>	<b>Exhibit 6</b>
Date	<b>20-May-14</b>	
Call Letters	<b>WKEF</b>	Channel <b>18</b>
Location	<b>Dayton, Ohio</b>	
Customer	<b>Sinclair</b>	
Antenna Type	<b>TFU-20GTH/VP-R 6T140</b>	

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>18.0 ( 12.55 dB )</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>15.2 ( 11.82 dB )</b>	Frequency	<b>497.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>20G180075-90</b>





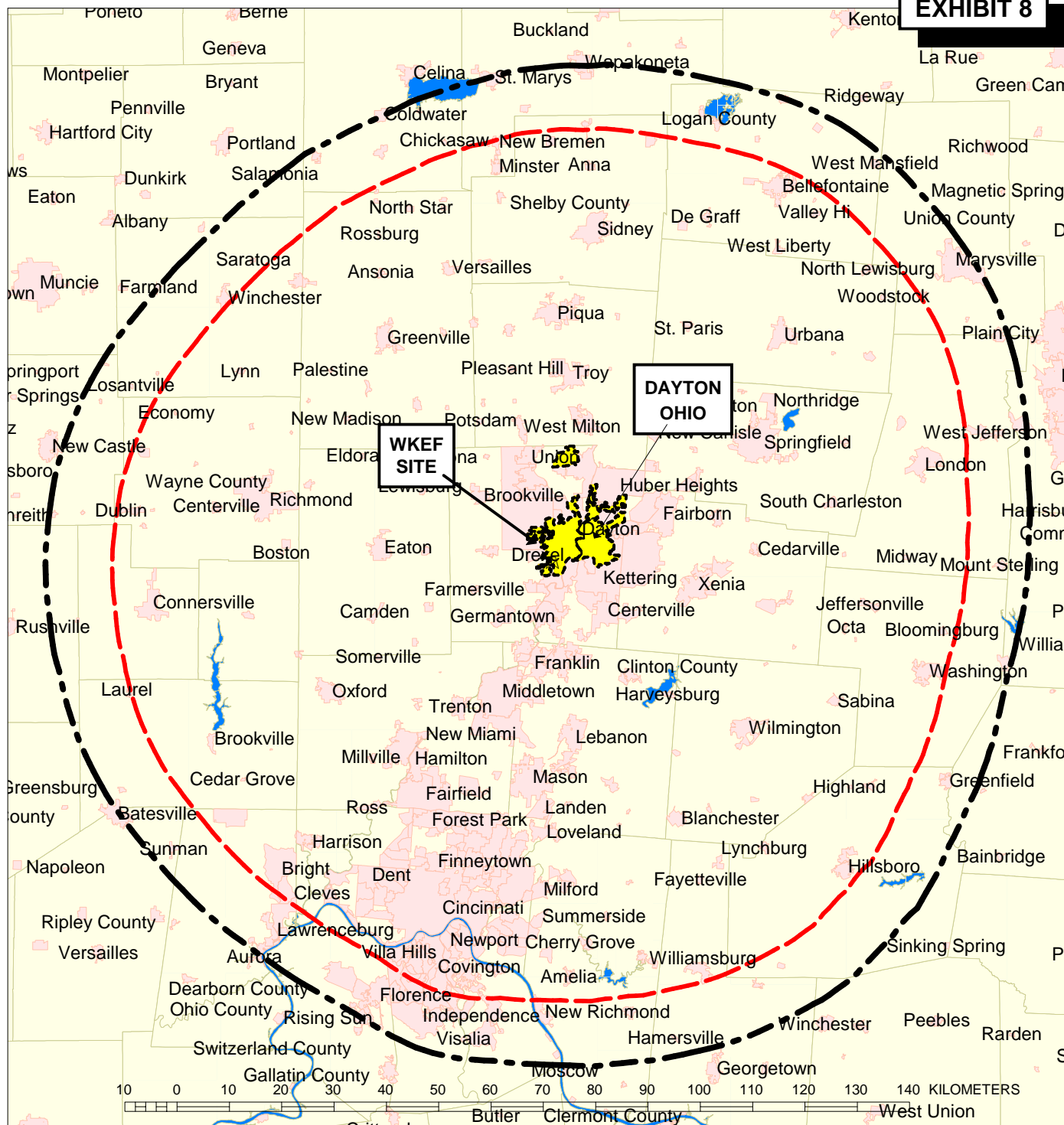
Proposal Number **C-06150** **Exhibit 7**  
 Date **20-May-14**  
 Call Letters **WKEF** Channel **18**  
 Location **Dayton, Ohio**  
 Customer **Sinclair**  
 Antenna Type **TFU-20GTH/VP-R 6T140**

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **20G180075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.118	2.4	0.696	10.6	0.112	30.5	0.022	51.0	0.018	71.5	0.022
-9.5	0.107	2.6	0.636	10.8	0.116	31.0	0.034	51.5	0.013	72.0	0.015
-9.0	0.073	2.8	0.575	11.0	0.120	31.5	0.040	52.0	0.007	72.5	0.008
-8.5	0.024	3.0	0.515	11.5	0.130	32.0	0.040	52.5	0.004	73.0	0.003
-8.0	0.030	3.2	0.458	12.0	0.136	32.5	0.034	53.0	0.014	73.5	0.008
-7.5	0.074	3.4	0.404	12.5	0.135	33.0	0.024	53.5	0.024	74.0	0.014
-7.0	0.096	3.6	0.355	13.0	0.125	33.5	0.011	54.0	0.034	74.5	0.020
-6.5	0.088	3.8	0.310	13.5	0.107	34.0	0.001	54.5	0.043	75.0	0.026
-6.0	0.047	4.0	0.271	14.0	0.084	34.5	0.011	55.0	0.048	75.5	0.031
-5.5	0.021	4.2	0.238	14.5	0.060	35.0	0.016	55.5	0.051	76.0	0.036
-5.0	0.098	4.4	0.210	15.0	0.041	35.5	0.016	56.0	0.050	76.5	0.040
-4.5	0.168	4.6	0.188	15.5	0.031	36.0	0.012	56.5	0.047	77.0	0.043
-4.0	0.208	4.8	0.171	16.0	0.030	36.5	0.004	57.0	0.040	77.5	0.045
-3.5	0.199	5.0	0.159	16.5	0.038	37.0	0.007	57.5	0.032	78.0	0.047
-3.0	0.131	5.2	0.150	17.0	0.052	37.5	0.017	58.0	0.021	78.5	0.048
-2.8	0.087	5.4	0.146	17.5	0.067	38.0	0.025	58.5	0.010	79.0	0.048
-2.6	0.038	5.6	0.144	18.0	0.078	38.5	0.029	59.0	0.002	79.5	0.048
-2.4	0.039	5.8	0.143	18.5	0.082	39.0	0.029	59.5	0.011	80.0	0.047
-2.2	0.104	6.0	0.145	19.0	0.077	39.5	0.024	60.0	0.019	80.5	0.046
-2.0	0.179	6.2	0.147	19.5	0.061	40.0	0.017	60.5	0.026	81.0	0.044
-1.8	0.260	6.4	0.150	20.0	0.039	40.5	0.007	61.0	0.030	81.5	0.042
-1.6	0.344	6.6	0.152	20.5	0.014	41.0	0.004	61.5	0.032	82.0	0.040
-1.4	0.430	6.8	0.154	21.0	0.011	41.5	0.013	62.0	0.032	82.5	0.037
-1.2	0.515	7.0	0.155	21.5	0.029	42.0	0.019	62.5	0.029	83.0	0.034
-1.0	0.598	7.2	0.154	22.0	0.040	42.5	0.021	63.0	0.023	83.5	0.031
-0.8	0.677	7.4	0.153	22.5	0.042	43.0	0.020	63.5	0.017	84.0	0.028
-0.6	0.750	7.6	0.151	23.0	0.036	43.5	0.015	64.0	0.009	84.5	0.025
-0.4	0.816	7.8	0.147	23.5	0.026	44.0	0.007	64.5	0.002	85.0	0.022
-0.2	0.873	8.0	0.143	24.0	0.015	44.5	0.003	65.0	0.011	85.5	0.019
0.0	0.920	8.2	0.138	24.5	0.007	45.0	0.012	65.5	0.019	86.0	0.016
0.2	0.957	8.4	0.132	25.0	0.005	45.5	0.020	66.0	0.027	86.5	0.014
0.4	0.983	8.6	0.127	25.5	0.004	46.0	0.025	66.5	0.034	87.0	0.011
0.6	0.997	8.8	0.121	26.0	0.007	46.5	0.027	67.0	0.039	87.5	0.008
0.8	1.000	9.0	0.117	26.5	0.015	47.0	0.026	67.5	0.043	88.0	0.006
1.0	0.992	9.2	0.113	27.0	0.025	47.5	0.021	68.0	0.046	88.5	0.004
1.2	0.973	9.4	0.109	27.5	0.032	48.0	0.014	68.5	0.046	89.0	0.002
1.4	0.944	9.6	0.107	28.0	0.035	48.5	0.006	69.0	0.045	89.5	0.001
1.6	0.906	9.8	0.107	28.5	0.032	49.0	0.004	69.5	0.043	90.0	0.000
1.8	0.862	10.0	0.106	29.0	0.022	49.5	0.011	70.0	0.039		
2.0	0.811	10.2	0.107	29.5	0.009	50.0	0.016	70.5	0.034		
2.2	0.755	10.4	0.109	30.0	0.007	50.5	0.018	71.0	0.029		

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## PREDICTED COVERAGE CONTOURS

**WKEF - DAYTON, OHIO**

**DTV - CH 18 - 525 kW - 351 m HAAT**

**Predicted Noise Limited 41 dBu**

**F(50,90) Coverage Contour**

**Area = 29,735 sq km**

**Population = 3,632,075**

**Predicted Principal Community 48 dBu**

**F(50,90) Coverage Contour**

**Area = 20,990 sq km**

**Population = 3,142,060**

**AUGUST 2014**



**SUMMARY OF RADIOFREQUENCY  
RADIATION STUDY**  
WKEF, DAYTON, OHIO  
CHANNEL 18, 525 kW ERP, 351 m HAAT  
JANUARY, 2015

<u>CALL</u>	<u>SERVICE</u>	<u>CHANNEL</u>	<u>FREQUENCY</u>	<u>POLARIZATION</u>	<u>ANTENNA HEIGHT ** mAGL</u>	<u>ERP (kW)</u>	<u>VERT. RELATIVE FIELD FACTOR</u>	<u>PREDICTED POWER DENSITY (mW/cm<sup>2</sup>)</u>	<u>FCC UNCONTROLLED LIMIT (mW/cm<sup>2</sup>)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
WKEF	DT	18	497	H & V	341	525.000	0.300	0.02714	0.331	8.19%
WLWD-LP	DT	20	509	H	248	5.000	0.300	0.00024	0.339	0.07%
WBDT	DT	26	545	H	339	770.000	0.300	0.02014	0.363	5.54%
WRGT-TV	DT	30	569	H	341	498.000	0.300	0.01287	0.379	3.39%
WRCX-LP	TV	40	629	H	278	34.000	0.300	0.00066	0.419	0.16%
WKCD	FM	212	90.3	H & V	281	8.700	1.000	0.00736	0.200	3.68%

**TOTAL PERCENTAGE OF ANSI VALUE= 21.04%**

*\*\* The antenna heights indicated above are 2 meters less than the actual antenna heights*

*so that the predicted power densities consider the 2 meter human height allowance.*

*This evaluation includes facilities collocated at the site, and facilities located within 315 meters.*





Percent allowed new interference: 0.500  
Percent allowed new interference to non Class A LPTV: 2.000  
Census data selected 2000  
Data Base Selected  
./data/tvdb.sff

TV INTERFERENCE and SPACING ANALYSIS PROGRAM

Date: 06-23-2014 Time: 11:36:45

Record Selected for Analysis

WKEF BLC DT -20100216ADG DAYTON OH US  
Channel 18 ERP 525 kW HAAT 351. m RCAMSL 616.1 m  
Latitude 039-43-28 Longitude 0084-15-18  
Status LIC Zone 1 Border C Site number: 01  
Dir Antenna Make CDB Model 00000000999999 Beam tilt N Ref Azimuth 0.0  
Last update 00000000 Cutoff date 20110407 Docket  
Comments  
Applicant WKEF LICENSEE L.P.

Cell Size for Service Analysis 2.0 km/side

Distance Increments for Longley-Rice Analysis 0.10 km

Facility (site # 01) meets maximum height/power limits

Site number	1			
Azimuth	ERP	HAAT	41.0 dBu F(50,90)	
(Deg)	(kW)	(m)	(km)	
0.0	349.574	348.6	92.8	
45.0	491.938	370.7	97.3	
90.0	244.907	339.2	89.0	
135.0	453.097	342.8	94.4	
180.0	400.118	353.5	94.3	
225.0	268.393	371.8	92.6	
270.0	521.855	346.4	95.9	
315.0	300.056	332.4	89.9	

Evaluation toward Class A Stations from site # 01

No Spacing violations or contour overlap  
to Class A stations from site # 01

Class A Evaluation Complete

SPACING VIOLATION FOUND BETWEEN STATION

WKEF 18 DAYTON OH BLC DT 20100216ADG Site # 01

and station

SHORT TO: WDEM-CD 17 COLUMBUS OH BLD TA 20090223ACT  
039-58-16 0083-01-40  
Req. separation => 24.0 <= 110.0 Actual separation 108.5 Short 1.5( 84.5) km

SHORT TO: WISE-TV 18 FORT WAYNE IN BLC DT 20091103ACK  
041-06- 7 0085-11- 4  
Req. separation 196.3 Actual separation 172.1 Short 24.2 km



APPENDIX B  
WKEF - DAYTON, OHIO  
Channel 18, 525 kW, Page 2

SHORT TO: WCLL-CD 19 COLUMBUS OH BLDTA 20110616AAM  
039-58-16 0083-01-40  
Req. separation => 24.0 <= 110.0 Actual separation 108.5 Short 1.5( 84.5) km

LANDMOBILE SPACING VIOLATIONS FOUND

NONE from Site # 01

Checks to Site Number 01

Proposed facility OK to FCC Monitoring Stations  
Proposed facility OK toward West Virginia quiet zone  
Proposed facility OK toward Table Mountain  
Proposed facility is within the Canadian coordination distance  
Distance to border = 254.3km  
Proposed facility is beyond the Mexican coordination distance  
Proposed station is OK toward AM broadcast stations

\*\*\*\*\*  
Start of Interference Analysis

Channel	Call	Proposed Station City/State	ARN	
18	WKEF	DAYTON OH	BLCDT	20100216ADG

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
17	WKPC-TV	LOUISVILLE KY	203.2	LIC	BMLEDT 20120625ABZ
17	WDEM-CD	COLUMBUS OH	108.3	LIC	BLDTA 20090223ACT
17	WQCW	PORTSMOUTH OH	222.4	LIC	BLCDT 20100422ABY
18	WISE-TV	FORT WAYNE IN	172.2	LIC	BLCDT 20091103ACK
18	WJTS-CD	JASPER IN	270.9	LIC	BLDTL 20090212ABK
18	WKYU-TV	BOWLING GREEN KY	351.5	LIC	BLEDT 20040803AAG
18	WDWO-CD	DETROIT MI	316.7	LIC	BLDTA 20130108ABZ
18	WJPW-CD	WEIRTON WV	319.9	LIC	BLDTA 20130417ABH
19	WDNI-CD	INDIANAPOLIS IN	155.9	LIC	BLDTA 20090615ADH
19	WCLL-CD	COLUMBUS OH	108.3	LIC	BLDTA 20110616AAM

%%%

Analysis of Interference to Affected Station 1

Analysis of current record

Channel	Call	City/State	Application Ref. No.
17	WKPC-TV	LOUISVILLE KY	BMLEDT -20120625ABZ

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
16	WNKY	BOWLING GREEN KY	151.2	LIC	BLCDT -20071220AAY
16	WPTD	DAYTON OH	203.2	LIC	BLEDT -20090923ACN
17	WAND	DECATUR IL	309.4	LIC	BLCDT -20130709ABN
17	WAND-DR	DECATUR IL	312.9	APP	BPRM -20101126ABC
17	WTCT	MARION IL	293.8	LIC	BLCDT -20060629ACN
17	WYIN	GARY IN	357.4	LIC	BLEDT -20040206AAA

**APPENDIX B**  
**WKEF - DAYTON, OHIO**  
**Channel 18, 525 kW, Page 3**

17	WQCW	PORTSMOUTH OH	315.7	LIC	BLCDT	-20100422ABY
17	WKOP-TV	KNOXVILLE TN	311.5	LIC	BLEDT	-20040405ACC
18	WKYU-TV	BOWLING GREEN KY	154.3	LIC	BLEDT	-20040803AAG
18	WKEF	DAYTON OH	203.2	LIC	BLCDT	-20100216ADG

Proposal causes no interference

#####

**Analysis of Interference to Affected Station 2**

**Analysis of current record**

Channel	Call	City/State	Application Ref. No.
17	WDEM-CD	COLUMBUS OH	BLDTA -20090223ACT

**Stations Potentially Affecting This Station**

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
16	WPTD	DAYTON OH	107.9	LIC	BLEDT -20090923ACN
17	WKPC-TV	LOUISVILLE KY	300.3	LIC	BMLEDT -20120625ABZ
17	WKYC	CLEVELAND OH	193.6	LIC	BLCDT -20090619ADC
17	WQCW	PORTSMOUTH OH	177.5	LIC	BLCDT -20100422ABY
18	WKEF	DAYTON OH	108.3	LIC	BLCDT -20100216ADG

Proposal causes no interference

#####

**Analysis of Interference to Affected Station 3**

**Analysis of current record**

Channel	Call	City/State	Application Ref. No.
17	WQCW	PORTSMOUTH OH	BLCDT -20100422ABY

**Stations Potentially Affecting This Station**

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
16	WKHA	HAZARD KY	169.3	LIC	BLEDT -20020205AAW
16	WKHA	HAZARD KY	169.3	CP	BPEDT -20131211AED
16	WPTD	DAYTON OH	221.9	LIC	BLEDT -20090923ACN
17	WKPC-TV	LOUISVILLE KY	315.7	LIC	BMLEDT -20120625ABZ
17	WUNE-TV	LINVILLE NC	273.4	LIC	BLEDT -20091118ADR
17	WKYC	CLEVELAND OH	323.2	LIC	BLCDT -20090619ADC
17	WKOP-TV	KNOXVILLE TN	319.0	LIC	BLEDT -20040405ACC
17	WFXR	ROANOKE VA	231.7	LIC	BLCDT -20090609ABS
17	WFXR	ROANOKE VA	231.7	CP	BPCDT -20120927ALB
18	WKEF	DAYTON OH	222.4	LIC	BLCDT -20100216ADG

Proposal causes no interference

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**Analysis of Interference to Affected Station 4**

**Analysis of current record**

Channel	Call	City/State	Application Ref. No.
18	WISE-TV	FORT WAYNE IN	BLCDT -20091103ACK

**Stations Potentially Affecting This Station**

Chan	Call	City/State	Dist(km)	Status	Application Ref. No.
17	WYIN	GARY IN	187.3	LIC	BLEDT -20040206AAA
18	WVTV	MILWAUKEE WI	315.3	LIC	BLCDT -20101012ADH
19	WGN-TV	CHICAGO IL	221.6	LIC	BMLCDT -20080201APP
19	WPXD-DR	ANN ARBOR MI	218.3	APP	BPRM -20080619ALV

**APPENDIX B**  
**WKEF - DAYTON, OHIO**  
**Channel 18, 525 kW, Page 4**

19	WXMI	GRAND RAPIDS MI	178.5	CP	BPCDT	-20080619AKI
19	WXMI	GRAND RAPIDS MI	178.5	LIC	BLCDT	-20030117ABD
18	WKEF	DAYTON OH	172.2	LIC	BLCDT	-20100216ADG

Total scenarios = 1

Result key: 1  
 Scenario 1 Affected station 4  
 Before Analysis

Results for: 18A IN FORT WAYNE BLCDT 20091103ACK LIC

HAAT 224.0 m, ATV ERP 320.0 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	1058380	20509.4
not affected by terrain losses	1058380	20509.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	173	4.0
lost to ATV IX only	173	4.0
lost to all IX	173	4.0

Potential Interfering Stations Included in above Scenario 1  
 18A WI MILWAUKEE BLCDT 20101012ADH LIC

After Analysis

Results for: 18A IN FORT WAYNE BLCDT 20091103ACK LIC

HAAT 224.0 m, ATV ERP 320.0 kW	POPULATION	AREA (sq km)
within Noise Limited Contour	1058380	20509.4
not affected by terrain losses	1058380	20509.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	5327	241.0
lost to ATV IX only	5327	241.0
lost to all IX	5327	241.0

Potential Interfering Stations Included in above Scenario 1  
 18A WI MILWAUKEE BLCDT 20101012ADH LIC  
 18A OH DAYTON BLCDT 20100216ADG LIC

Percent new IX = 0.4871%

Worst case new IX 0.4871% Scenario 1

#####

Analysis of Interference to Affected Station 5

Analysis of current record

Channel	Call	City/State	Application	Ref. No.
18	WJTS-CD	JASPER IN	BLDTL	-20090212ABK

Stations Potentially Affecting This Station

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
17	WKPC-TV	LOUISVILLE KY	90.8	LIC	BMLEDT	-20120625ABZ
18	WISE-TV	FORT WAYNE IN	335.1	LIC	BLCDT	-20091103ACK
18	WKYU-TV	BOWLING GREEN KY	151.5	LIC	BLEDT	-20040803AAG
19	WUSI-TV	OLNEY IL	120.3	LIC	BLEDT	-20060619ABG
18	WKEF	DAYTON OH	270.9	LIC	BLCDT	-20100216ADG

Proposal causes no interference

**APPENDIX B**  
**WKEF - DAYTON, OHIO**  
**Channel 18, 525 kW, Page 5**

#####

**Analysis of Interference to Affected Station 6**

**Analysis of current record**

Channel	Call	City/State	Application	Ref. No.
18	WKYU-TV	BOWLING GREEN KY	BLEDT	-20040803AAG

**Stations Potentially Affecting This Station**

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
17	WKPC-TV	LOUISVILLE KY	154.3	LIC	BMLEDT	-20120625ABZ
18	WDBB	BESSEMER AL	407.7	LIC	BLCDT	-20060421ABG
19	WBKI-TV	CAMPBELLSVILLE KY	101.7	LIC	BLCDT	-20080811ABA
18	WKEF	DAYTON OH	351.5	LIC	BLCDT	-20100216ADG

Total scenarios = 1

Result key: 2

Scenario 1 Affected station 6

**Before Analysis**

Results for: 18A KY BOWLING GREEN BLEDT 20040803AAG LIC  
 HAAT 176.0 m, ATV ERP 61.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	367658	14734.7
not affected by terrain losses	364607	14522.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	2225	92.1
lost to ATV IX only	2225	92.1
lost to all IX	2225	92.1

**Potential Interfering Stations Included in above Scenario 1**

19A KY CAMPBELLSVILLE BLCDT 20080811ABA LIC

**After Analysis**

Results for: 18A KY BOWLING GREEN BLEDT 20040803AAG LIC  
 HAAT 176.0 m, ATV ERP 61.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	367658	14734.7
not affected by terrain losses	364607	14522.5
lost to NTSC IX	0	0.0
lost to additional IX by ATV	2225	92.1
lost to ATV IX only	2225	92.1
lost to all IX	2225	92.1

**Potential Interfering Stations Included in above Scenario 1**

19A KY CAMPBELLSVILLE BLCDT 20080811ABA LIC  
 18A OH DAYTON BLCDT 20100216ADG LIC

Percent new IX = 0.0000%

Worst case new IX 0.0000% Scenario 1

#####

**Analysis of Interference to Affected Station 7**

**Analysis of current record**

**APPENDIX B**  
**WKEF - DAYTON, OHIO**  
**Channel 18, 525 kW, Page 6**

Channel	Call	City/State	Application Ref. No.
18	WDWO-CD	DETROIT MI	BLDTA -20130108ABZ

Stations Potentially Affecting This Station						
Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
18	WISE-TV	FORT WAYNE IN	218.3	LIC	BLCDT	-20091103ACK
18	WDTJ-LD	TOLEDO OH	94.3	LIC	BLDTL	-20121219ABP
18	WVTV	MILWAUKEE WI	380.7	LIC	BLCDT	-20101012ADH
19	WPXD-DR	ANN ARBOR MI	0.0	APP	BPRM	-20080619ALV
19	W47DL-D	DETROIT MI	28.2	APP	BDISDTT	-20120720ABC
18	WKEF	DAYTON OH	316.7	LIC	BLCDT	-20100216ADG

Proposal causes no interference

#####

Analysis of Interference to Affected Station 8

Analysis of current record

Channel	Call	City/State	Application Ref. No.
18	WJPW-CD	WEIRTON WV	BLDTA -20130417ABH

Stations Potentially Affecting This Station						
Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
18	WETM-TV	ELMIRA NY	366.0	LIC	BLCDT	-20090622AFJ
18	WDBJ	ROANOKE VA	354.5	LIC	BLCDT	-20090714AAW
18	WKEF	DAYTON OH	319.9	LIC	BLCDT	-20100216ADG

Proposal causes no interference

#####

Analysis of Interference to Affected Station 9

Analysis of current record

Channel	Call	City/State	Application Ref. No.
19	WDNI-CD	INDIANAPOLIS IN	BLDTA -20090615ADH

Stations Potentially Affecting This Station						
Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
19	WGN-TV	CHICAGO IL	265.6	LIC	BMLCDT	-20080201APP
19	WUSI-TV	OLNEY IL	206.3	LIC	BLEDT	-20060619ABG
19	WHOI	PEORIA IL	312.5	CP	BPCDT	-20140422ABS
19	WHOI	PEORIA IL	312.5	LIC	BLCDT	-20090622AFB
19	W19DT-D	FORT WAYNE IN	160.8	CP	BNPDTL	-20091228AAW
19	WBKI-TV	CAMPBELLSVILLE KY	258.1	LIC	BLCDT	-20080811ABA
19	WPXD-DR	ANN ARBOR MI	377.5	APP	BPRM	-20080619ALV
19	WXMI	GRAND RAPIDS MI	324.1	CP	BPCDT	-20080619AKI
19	WXMI	GRAND RAPIDS MI	324.1	LIC	BLCDT	-20030117ABD
19	WBQC-LP	CINCINNATI OH	154.9	APP	BDISDTL	-20121029AAX
19	WVAH-TV	CHARLESTON WV	391.8	LIC	BLCDT	-20050621AAV
20	WHMB-DR	INDIANAPOLIS IN	15.1	APP	BPRM	-20080619AEU
20	WHMB-TV	INDIANAPOLIS IN	15.1	LIC	BLCDT	-20120503AAT
18	WKEF	DAYTON OH	155.9	LIC	BLCDT	-20100216ADG

Proposed station is beyond the site to nearest cell evaluation distance

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**APPENDIX B**  
**WKEF - DAYTON, OHIO**  
**Channel 18, 525 kW, Page 7**

**Analysis of Interference to Affected Station 10**

**Analysis of current record**

Channel	Call	City/State	Application	Ref. No.
19	WCLL-CD	COLUMBUS OH	BLDTA	-20110616AAM

**Stations Potentially Affecting This Station**

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
19	WBKI-TV	CAMPBELLSVILLE KY	342.8	LIC	BLCDT	-20080811ABA
19	WPXD-DR	ANN ARBOR MI	280.3	APP	BPRM	-20080619ALV
19	WXMI	GRAND RAPIDS MI	367.2	CP	BPCDT	-20080619AKI
19	WXMI	GRAND RAPIDS MI	367.2	LIC	BLCDT	-20030117ABD
19	WBQC-LP	CINCINNATI OH	157.3	APP	BDISDTL	-20121029AAX
19	WVAH-TV	CHARLESTON WV	198.9	LIC	BLCDT	-20050621AAV
18	WKEF	DAYTON OH	108.3	LIC	BLCDT	-20100216ADG

Proposal causes no interference

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**Analysis of Interference to Affected Station 11**

**Analysis of current record**

Channel	Call	City/State	Application	Ref. No.
18	WKEF	DAYTON OH	BLCDT	-20100216ADG

**Stations Potentially Affecting This Station**

Chan	Call	City/State	Dist(km)	Status	Application	Ref. No.
17	WKPC-TV	LOUISVILLE KY	203.2	LIC	BMLEDT	-20120625ABZ
17	WQCW	PORTSMOUTH OH	222.4	LIC	BLCDT	-20100422ABY
18	WISE-TV	FORT WAYNE IN	172.2	LIC	BLCDT	-20091103ACK
18	WKYU-TV	BOWLING GREEN KY	351.5	LIC	BLEDT	-20040803AAG

Total scenarios = 1

Result key: 3

Scenario 1 Affected station 11

Before Analysis

Results for: 18A OH DAYTON BLCDT 20100216ADG LIC

HAAT 351.0 m, ATV ERP 525.0 kW

	POPULATION	AREA (sq km)
within Noise Limited Contour	3508514	29481.5
not affected by terrain losses	3500872	29325.4
lost to NTSC IX	0	0.0
lost to additional IX by ATV	106787	3030.6
lost to ATV IX only	106787	3030.6
lost to all IX	106787	3030.6

Potential Interfering Stations Included in above Scenario 1

18A IN FORT WAYNE	BLCDT	20091103ACK	LIC
18A KY BOWLING GREEN	BLEDT	20040803AAG	LIC

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