

## **ENGINEERING EXHIBIT**

### **Incentive Auction Channel Reassignment**

#### **Application for Minor Modification of Digital Television Station Construction Permit**

prepared for

##### **Gray Television Licensee, LLC**

WKYT-TV Lexington, KY

Facility ID 24914

Ch. 21 900 kW 296 m

*Gray Television Licensee, LLC* (“Gray”) is the licensee of digital television station WKYT-TV, Channel 36, Facility ID 24914, Lexington KY. Reassignment of WKYT-TV from Channel 36 to Channel 21 was specified in the *Incentive Auction Closing and Channel Reassignment Public Notice* (“CCRPN”, DA 17-317, released April 13, 2017). A Construction Permit (“CP” file# 0000034282) authorizes WKYT-TV to operate on Channel 21 at 1000 kW effective radiated power (“ERP”) with a directional antenna at 296 meters height above average terrain (“HAAT”). *Gray* proposes herein a minor modification of the reassignment CP to reduce the ERP and to adjust the directional antenna pattern. No other changes are sought.

As with the current authorization, the proposed Channel 21 operation will employ a new antenna system to be side-mounted on a mast atop the WKYT-TV tower in lieu of the existing Channel 36 antenna. The tower structure corresponds to FCC Antenna Structure Registration number 1030383. No change to the overall structure height will result.

The proposed antenna is an elliptically polarized directional Dielectric model TFU-25JSC/VP-R C150 (30 percent vertical polarization). *Gray* proposes to operate WKYT-TV with an ERP of 900 kW at 296 meters HAAT. The maximum horizontally polarized ERP is 900 kW and the maximum vertically polarized ERP is 270 kW. The vertically polarized component will not exceed the horizontally polarized component at any azimuth. The directional antenna’s azimuthal patterns are depicted in Figures 1 and 1A for horizontal and vertical polarization, respectively. The antenna’s elevation pattern is depicted in Figure 2.

Figure 3 supplies a map that demonstrates compliance with §73.625(a)(1) regarding coverage of the entire principal community. The proposed facility's predicted population exceeds 95 percent of the *CCRPN* baseline facility's population.

Interference study per FCC OET Bulletin 69<sup>1</sup> shows that the proposal complies with the 0.5 percent limit of new interference caused to pertinent nearby post-auction full service and Class A television stations and reassignments as required by §73.616. The interference study output report is provided as Table 1.

### **Human Exposure to Radiofrequency Electromagnetic Field (Environmental)**

The proposed operation was evaluated for human exposure to RF energy using the procedures outlined in the FCC's OET Bulletin Number 65. Based on OET-65 equation (10), and considering 10 percent antenna relative field in downward elevations (pattern data shows less than 10 percent relative field at angles 10 to 90 degrees below the antenna), the calculated signal density near the tower at two meters above ground level attributable to the proposed facility is  $4.7 \mu\text{W}/\text{cm}^2$ , which is 1.4 percent of the general population/uncontrolled maximum permitted exposure limit. This is below the five percent threshold limit described in §1.1307(b) regarding sites with multiple emitters, categorically excluding the applicant from responsibility for taking any corrective action in the areas where the proposal's contribution is less than five percent.

The general public will not be exposed to RF levels attributable to the proposal in excess of the FCC's guidelines. RF exposure warning signs will continue to be posted. With respect to worker safety, the applicant will coordinate exposure procedures with all pertinent stations and will reduce power or cease operation as necessary to protect persons having access to the site, tower, or antenna from RF electromagnetic field exposure in excess of FCC guidelines. This

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<sup>1</sup>FCC Office of Engineering and Technology Bulletin number 69, *Longley-Rice Methodology for Evaluating TV Coverage and Interference*, February 6, 2004. This analysis employed the FCC's current "TVStudy" software with the default application processing template settings, 2 km cell size, and 1 km terrain increment. Comparisons of various results of this computer program (run on a Mac processor) to the FCC's implementation of TVStudy show excellent correlation.

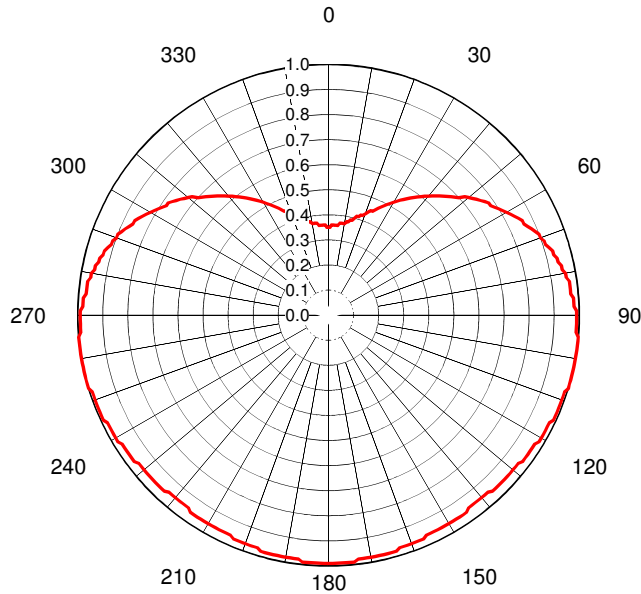
exhibit is limited to the evaluation of exposure to RF electromagnetic field. No increase in structure height is proposed.

*List of Attachments*

Figure 1, 1A	Antenna Azimuthal Pattern
Figure 2	Antenna Elevation Pattern
Figure 3	Proposed Coverage Contours
Table 1	TVStudy Analysis of Proposal
Form 2100	Saved Version of Engineering Sections from FCC Form at Time of Upload

**Chesapeake RF Consultants, LLC**

Joseph M. Davis, P.E.	December 18, 2018	
207 Old Dominion Road	Yorktown, VA 23692	703-650-9600



## AZIMUTH PATTERN Horizontal Polarization

In Free Space

Proposal No. **C-70420-4**  
Date **12-Mar-17**  
Call Letters **WKYT**  
Channel **21**  
Frequency **515 MHz**  
Antenna Type **TFU-25JSC/VP-R C150**  
Gain **1.38 (1.4dB)**  
**Calculated**

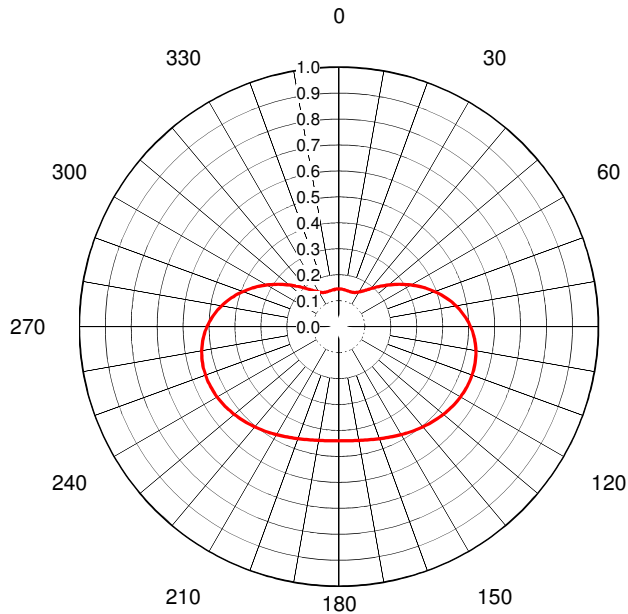
Drawing # **0**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.350	36	0.580	72	0.910	108	0.990	144	0.950	180	0.990	216	0.950	252	0.990	288	0.910
1	0.350	37	0.590	73	0.920	109	0.990	145	0.960	181	0.990	217	0.950	253	1.000	289	0.910
2	0.360	38	0.600	74	0.930	110	0.990	146	0.960	182	0.990	218	0.950	254	1.000	290	0.900
3	0.360	39	0.610	75	0.930	111	0.990	147	0.960	183	0.990	219	0.950	255	1.000	291	0.900
4	0.360	40	0.620	76	0.940	112	0.990	148	0.960	184	0.990	220	0.950	256	1.000	292	0.890
5	0.360	41	0.630	77	0.940	113	0.990	149	0.960	185	0.990	221	0.950	257	1.000	293	0.880
6	0.360	42	0.640	78	0.950	114	0.990	150	0.960	186	0.990	222	0.950	258	1.000	294	0.870
7	0.370	43	0.650	79	0.950	115	0.990	151	0.960	187	0.980	223	0.960	259	1.000	295	0.860
8	0.370	44	0.660	80	0.960	116	0.980	152	0.960	188	0.980	224	0.960	260	1.000	296	0.860
9	0.370	45	0.670	81	0.960	117	0.980	153	0.960	189	0.980	225	0.960	261	1.000	297	0.850
10	0.370	46	0.680	82	0.970	118	0.980	154	0.960	190	0.980	226	0.960	262	1.000	298	0.840
11	0.380	47	0.690	83	0.970	119	0.980	155	0.960	191	0.980	227	0.960	263	1.000	299	0.830
12	0.380	48	0.700	84	0.970	120	0.980	156	0.960	192	0.980	228	0.960	264	1.000	300	0.820
13	0.390	49	0.720	85	0.970	121	0.980	157	0.970	193	0.980	229	0.960	265	1.000	301	0.810
14	0.390	50	0.730	86	0.980	122	0.970	158	0.970	194	0.980	230	0.960	266	0.990	302	0.800
15	0.400	51	0.740	87	0.980	123	0.970	159	0.970	195	0.980	231	0.960	267	0.990	303	0.790
16	0.410	52	0.750	88	0.980	124	0.970	160	0.970	196	0.980	232	0.960	268	0.990	304	0.780
17	0.410	53	0.760	89	0.990	125	0.970	161	0.970	197	0.970	233	0.970	269	0.990	305	0.780
18	0.420	54	0.770	90	0.990	126	0.970	162	0.970	198	0.970	234	0.970	270	0.990	306	0.770
19	0.420	55	0.780	91	0.990	127	0.970	163	0.970	199	0.970	235	0.970	271	0.990	307	0.760
20	0.430	56	0.780	92	0.990	128	0.960	164	0.980	200	0.970	236	0.970	272	0.980	308	0.750
21	0.440	57	0.790	93	0.990	129	0.960	165	0.980	201	0.970	237	0.970	273	0.980	309	0.740
22	0.450	58	0.800	94	0.990	130	0.960	166	0.980	202	0.970	238	0.970	274	0.980	310	0.730
23	0.450	59	0.810	95	1.000	131	0.960	167	0.980	203	0.970	239	0.980	275	0.970	311	0.720
24	0.460	60	0.820	96	1.000	132	0.960	168	0.980	204	0.960	240	0.980	276	0.970	312	0.700
25	0.470	61	0.830	97	1.000	133	0.960	169	0.980	205	0.960	241	0.980	277	0.970	313	0.690
26	0.480	62	0.840	98	1.000	134	0.960	170	0.980	206	0.960	242	0.980	278	0.970	314	0.680
27	0.490	63	0.850	99	1.000	135	0.960	171	0.980	207	0.960	243	0.980	279	0.960	315	0.670
28	0.500	64	0.860	100	1.000	136	0.960	172	0.980	208	0.960	244	0.980	280	0.960	316	0.660
29	0.510	65	0.860	101	1.000	137	0.960	173	0.980	209	0.960	245	0.990	281	0.950	317	0.650
30	0.520	66	0.870	102	1.000	138	0.950	174	0.990	210	0.960	246	0.990	282	0.950	318	0.640
31	0.530	67	0.880	103	1.000	139	0.950	175	0.990	211	0.960	247	0.990	283	0.940	319	0.630
32	0.540	68	0.890	104	1.000	140	0.950	176	0.990	212	0.960	248	0.990	284	0.940	320	0.620
33	0.550	69	0.900	105	1.000	141	0.950	177	0.990	213	0.960	249	0.990	285	0.930	321	0.610
34	0.560	70	0.900	106	1.000	142	0.950	178	0.990	214	0.960	250	0.990	286	0.930	322	0.600
35	0.570	71	0.910	107	1.000	143	0.950	179	0.990	215	0.960	251	0.990	287	0.920	323	0.590

**Figure 1**  
**Antenna Azimuthal Pattern**  
**Horizontal Polarization**  
**WKYT-TV Lexington, KY**  
**Facility ID 24914**  
**Ch. 21 900 kW 296 m**

prepared for  
**Gray Television Licensee, LLC**

December, 2018



## AZIMUTH PATTERN Vertical Polarization

In Free Space

Proposal No. **C-70420-4**  
Date **12-Mar-17**  
Call Letters **WKYT**  
Channel **21**  
Frequency **515 MHz**  
Antenna Type **TFU-25JSC/VP-R C150**  
Gain **1.76 (2.47dB)**  
**Calculated**

Drawing # **C200-V-D21**

Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value	Deg	Value
0	0.145	36	0.173	72	0.408	108	0.546	144	0.495	180	0.440	216	0.495	252	0.546	288	0.408
1	0.145	37	0.177	73	0.415	109	0.546	145	0.492	181	0.440	217	0.497	253	0.545	289	0.401
2	0.145	38	0.181	74	0.422	110	0.546	146	0.490	182	0.440	218	0.499	254	0.544	290	0.394
3	0.145	39	0.186	75	0.428	111	0.547	147	0.487	183	0.440	219	0.502	255	0.544	291	0.387
4	0.145	40	0.191	76	0.435	112	0.546	148	0.485	184	0.441	220	0.504	256	0.543	292	0.380
5	0.145	41	0.196	77	0.441	113	0.546	149	0.483	185	0.441	221	0.506	257	0.541	293	0.373
6	0.145	42	0.201	78	0.447	114	0.546	150	0.480	186	0.442	222	0.509	258	0.540	294	0.365
7	0.144	43	0.206	79	0.453	115	0.546	151	0.478	187	0.442	223	0.511	259	0.538	295	0.358
8	0.144	44	0.212	80	0.459	116	0.545	152	0.476	188	0.443	224	0.513	260	0.536	296	0.351
9	0.144	45	0.218	81	0.465	117	0.544	153	0.474	189	0.444	225	0.515	261	0.534	297	0.343
10	0.143	46	0.224	82	0.470	118	0.543	154	0.471	190	0.445	226	0.518	262	0.532	298	0.336
11	0.143	47	0.230	83	0.476	119	0.542	155	0.469	191	0.446	227	0.520	263	0.530	299	0.328
12	0.143	48	0.237	84	0.481	120	0.541	156	0.467	192	0.447	228	0.522	264	0.527	300	0.321
13	0.142	49	0.243	85	0.486	121	0.540	157	0.465	193	0.448	229	0.524	265	0.525	301	0.314
14	0.142	50	0.250	86	0.491	122	0.539	158	0.463	194	0.450	230	0.526	266	0.522	302	0.306
15	0.142	51	0.256	87	0.495	123	0.538	159	0.461	195	0.451	231	0.528	267	0.518	303	0.299
16	0.142	52	0.263	88	0.500	124	0.536	160	0.459	196	0.453	232	0.530	268	0.515	304	0.292
17	0.142	53	0.270	89	0.504	125	0.535	161	0.458	197	0.454	233	0.531	269	0.511	305	0.284
18	0.142	54	0.277	90	0.508	126	0.533	162	0.456	198	0.456	234	0.533	270	0.508	306	0.277
19	0.142	55	0.284	91	0.511	127	0.531	163	0.454	199	0.458	235	0.535	271	0.504	307	0.270
20	0.142	56	0.292	92	0.515	128	0.530	164	0.453	200	0.459	236	0.536	272	0.500	308	0.263
21	0.142	57	0.299	93	0.518	129	0.528	165	0.451	201	0.461	237	0.538	273	0.495	309	0.256
22	0.143	58	0.306	94	0.522	130	0.526	166	0.450	202	0.463	238	0.539	274	0.491	310	0.250
23	0.143	59	0.314	95	0.525	131	0.524	167	0.448	203	0.465	239	0.540	275	0.486	311	0.243
24	0.144	60	0.321	96	0.527	132	0.522	168	0.447	204	0.467	240	0.541	276	0.481	312	0.237
25	0.145	61	0.328	97	0.530	133	0.520	169	0.446	205	0.469	241	0.542	277	0.476	313	0.230
26	0.147	62	0.336	98	0.532	134	0.518	170	0.445	206	0.471	242	0.543	278	0.470	314	0.224
27	0.148	63	0.343	99	0.534	135	0.515	171	0.444	207	0.474	243	0.544	279	0.465	315	0.218
28	0.150	64	0.351	100	0.536	136	0.513	172	0.443	208	0.476	244	0.545	280	0.459	316	0.212
29	0.152	65	0.358	101	0.538	137	0.511	173	0.442	209	0.478	245	0.546	281	0.453	317	0.206
30	0.154	66	0.365	102	0.540	138	0.509	174	0.442	210	0.480	246	0.546	282	0.447	318	0.201
31	0.157	67	0.373	103	0.541	139	0.506	175	0.441	211	0.483	247	0.546	283	0.441	319	0.196
32	0.159	68	0.380	104	0.543	140	0.504	176	0.441	212	0.485	248	0.546	284	0.435	320	0.191
33	0.162	69	0.387	105	0.544	141	0.502	177	0.440	213	0.487	249	0.547	285	0.428	321	0.186
34	0.166	70	0.394	106	0.544	142	0.499	178	0.440	214	0.490	250	0.546	286	0.422	322	0.181
35	0.169	71	0.401	107	0.545	143	0.497	179	0.440	215	0.492	251	0.546	287	0.415	323	0.177

**Figure 1A**  
**Antenna Azimuthal Pattern**  
**Vertical Polarization**  
**WKYT-TV Lexington, KY**  
**Facility ID 24914**  
**Ch. 21 900 kW 296 m**

prepared for  
**Gray Television Licensee, LLC**

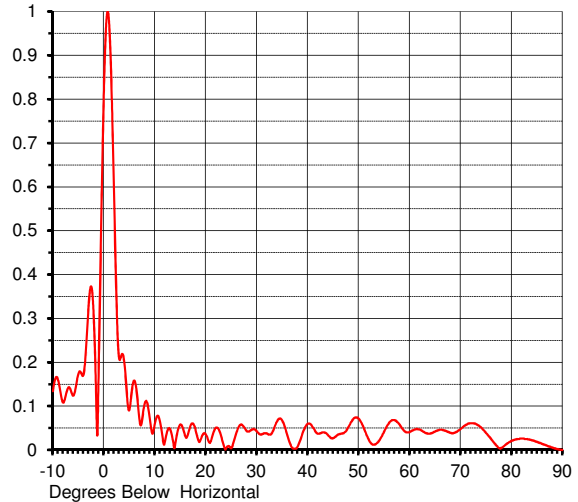
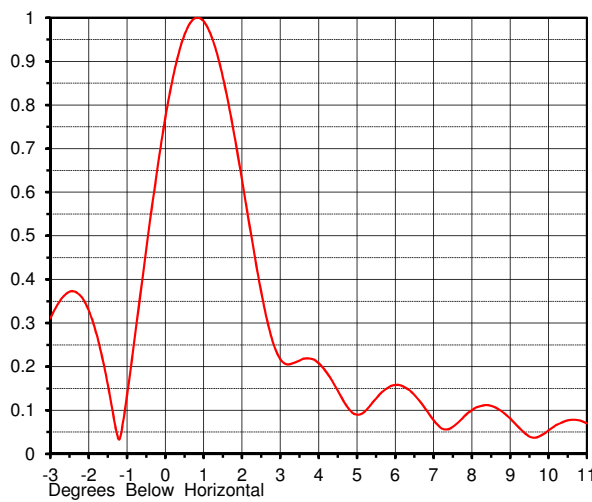
December, 2018

## ELEVATION PATTERN

Proposal No. **C-70420-4**  
 Date **12-Mar-17**  
 Call Letters **WKYT**  
 Channel **21**  
 Frequency **515 MHz**  
 Antenna Type **TFU-25JSC/VP-R C150**

RMS Directivity at Main Lobe **24.5 ( 13.89 dB )**  
 RMS Directivity at Horizontal **16.5 ( 12.17 dB )**  
**Calculated**

Beam Tilt **0.75 deg**  
 Drawing Number **25Z245075**

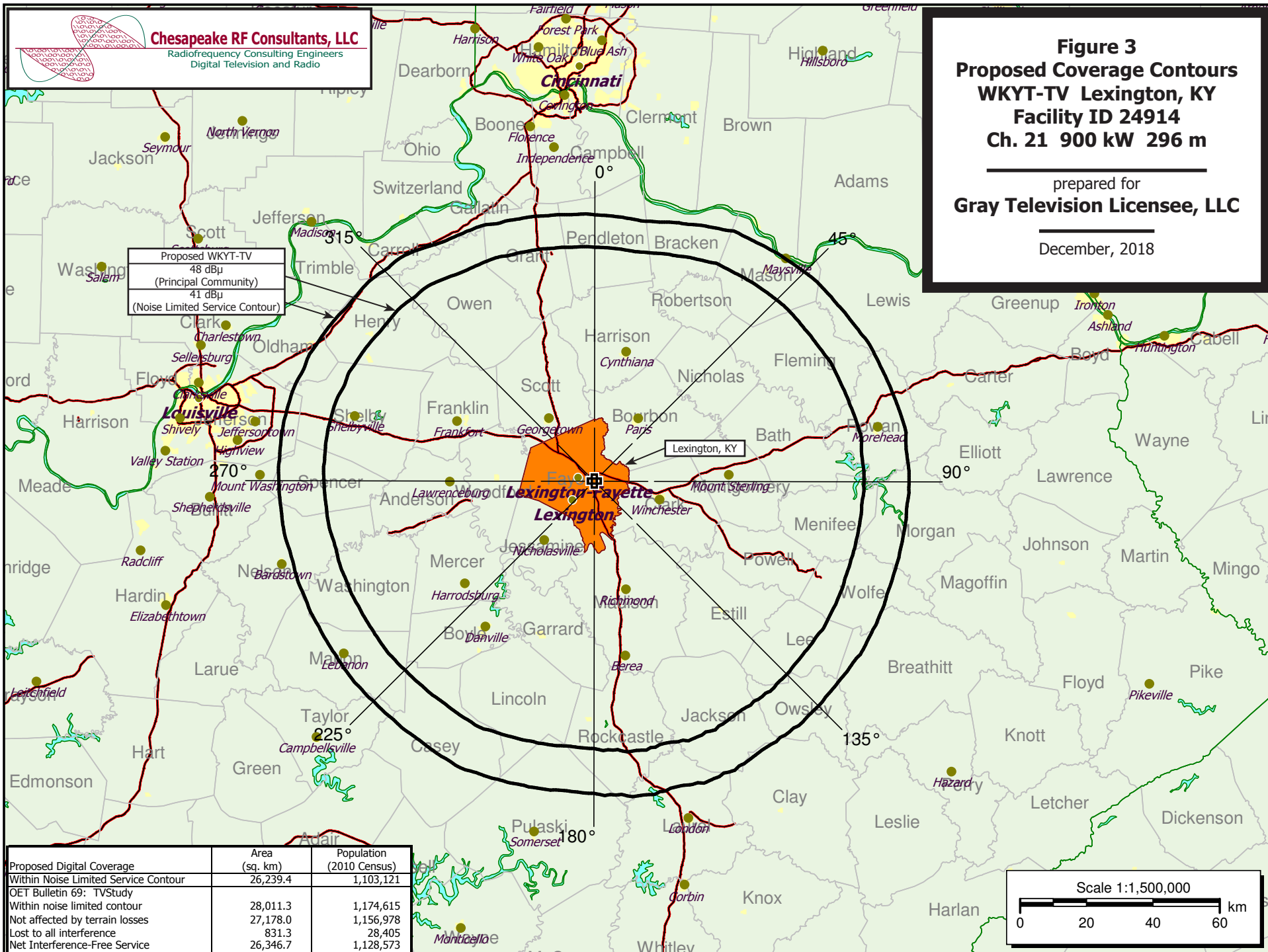


Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.134	10.0	0.060	30.0	0.042	50.0	0.071	70.0	0.048
-9.0	0.160	11.0	0.065	31.0	0.036	51.0	0.049	71.0	0.057
-8.0	0.108	12.0	0.020	32.0	0.037	52.0	0.022	72.0	0.061
-7.0	0.142	13.0	0.047	33.0	0.039	53.0	0.012	73.0	0.059
-6.0	0.124	14.0	0.013	34.0	0.066	54.0	0.021	74.0	0.051
-5.0	0.174	15.0	0.058	35.0	0.066	55.0	0.043	75.0	0.038
-4.0	0.172	16.0	0.030	36.0	0.033	56.0	0.063	76.0	0.024
-3.0	0.329	17.0	0.056	37.0	0.004	57.0	0.068	77.0	0.010
-2.0	0.305	18.0	0.045	38.0	0.008	58.0	0.058	78.0	0.005
-1.0	0.199	19.0	0.024	39.0	0.039	59.0	0.042	79.0	0.014
0.0	0.820	20.0	0.035	40.0	0.060	60.0	0.041	80.0	0.021
1.0	0.978	21.0	0.021	41.0	0.051	61.0	0.047	81.0	0.025
2.0	0.575	22.0	0.051	42.0	0.037	62.0	0.046	82.0	0.026
3.0	0.208	23.0	0.031	43.0	0.040	63.0	0.039	83.0	0.025
4.0	0.199	24.0	0.004	44.0	0.033	64.0	0.037	84.0	0.022
5.0	0.091	25.0	0.004	45.0	0.027	65.0	0.042	85.0	0.018
6.0	0.158	26.0	0.040	46.0	0.035	66.0	0.046	86.0	0.014
7.0	0.067	27.0	0.058	47.0	0.038	67.0	0.044	87.0	0.009
8.0	0.106	28.0	0.043	48.0	0.053	68.0	0.039	88.0	0.005
9.0	0.072	29.0	0.046	49.0	0.072	69.0	0.040	89.0	0.002
								90.0	0.000

**Figure 2**  
**Antenna Elevation Pattern**  
**WKYT-TV Lexington, KY**  
**Facility ID 24914**  
**Ch. 21 900 kW 296 m**

prepared for  
**Gray Television Licensee, LLC**

December, 2018





# **Table 1 WKYT-TV TVStudy Analysis of Proposal** (page 1 of 5)



tvstudy v2.2.5 (4uoc83)  
Database: localhost, Study: WKYT-TV 900kW Prop skip WUPX-TV, Model: Longley-Rice  
Start: 2018.12.18 10:52:12

Study created: 2018.12.18 10:52:12

Study build station data: LMS TV 2018-12-17

Proposal: WKYT-TV D21 DT APP LEXINGTON, KY  
File number: WKYT-TV 900kW Prop  
Facility ID: 24914  
Station data: User record  
Record ID: 2443  
Country: U.S.  
Zone: II

Search options:  
Baseline record excluded if station has CP

Individual records excluded:  
0000061737 WUPX-TV D21 DT APP \*P MOREHEAD, KY BLANK0000061737

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
Yes	WLWT	D20	DT	CP	CINCINNATI, OH	BLANK0000034539	121.0 km
No	WVPB-TV	D20	DT	BL	HUNTINGTON, WV	DTVBL71657	198.7
No	WPBA	D21	DT	LIC	ATLANTA, GA	BLEDT20041013ABK	475.8
Yes	WFYI	D21	DT	LIC	INDIANAPOLIS, IN	BLEDT20100803ADB	258.5
Yes	WRLW-CD	D21-	DC	CP	SALEM, IN	BLANK0000034328	159.6
No	WUNG-TV	D21	DT	CP	CONCORD, NC	BLANK0000034415	450.5
Yes	WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	245.3
No	WPNT	D21	DT	CP	PITTSBURGH, PA	BLANK0000034376	466.5
Yes	WUXP-TV	D21	DT	LIC	NASHVILLE, TN	BLCDT20060414AAU	289.5
No	WWCW	D21	DT	CP	LYNCHBURG, VA	BLANK0000027725	427.1
No	WTVW	D22	DT	CP	EVANSVILLE, IN	BLANK0000034881	259.1
No	WXIN	D22	DT	CP	INDIANAPOLIS, IN	BLANK0000034056	257.7
Yes	WCVN-TV	D22	DT	CP	COVINGTON, KY	BLANK0000034633	110.5
No	WCTE	D22	DT	LIC	COOKEVILLE, TN	BLEDT20110413ACS	223.5
Yes	WSAZ-TV	D22	DT	CP	HUNTINGTON, WV	BLANK0000034103	197.6

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D21  
Latitude: 38 2 23.00 N (NAD83)  
Longitude: 84 24 10.00 W  
Height AMSL: 590.7 m  
HAAT: 296.2 m  
Peak ERP: 900 kW  
Antenna: DIE-TFU-25JSC/VP-R C150 (ID 1001284) 0.0 deg  
Elev Pattn: Generic  
Elec Tilt: 0.75

39.5 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	110 kW	310.0 m	82.3 km
45.0	410	301.1	92.0
90.0	882	289.4	97.6
135.0	821	301.3	98.4
180.0	882	283.9	96.9
225.0	821	288.0	96.8
270.0	882	291.8	97.9
315.0	410	303.8	92.3

Distance to Canadian border: 430.1 km

Distance to Mexican border: 1782.8 km

Conditions at FCC monitoring station: Powder Springs GA



**Table 1 WKYT-TV TVStudy Analysis of Proposal**  
(page 2 of 5)



Bearing: 183.7 degrees Distance: 465.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 283.9 degrees Distance: 1807.2 km

No land mobile station failures found

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%

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Interference to BLANK0000034539 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WLWT	D20	DT	CP	CINCINNATI, OH	BLANK0000034539	
Undesireds:	WKYT-TV	D21	DT	BL	LEXINGTON, KY	DTVBL24914	121.0 km
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	121.0
	WIPB	D19	DT	CP	MUNCIE, IN	BLANK0000027189	131.0
	WDKY-TV	D19	DT	CP	DANVILLE, KY	BLANK0000059663	139.3
	WAND	D20	DT	CP	DECATUR, IL	BLANK0000034594	380.8
	WFFT-TV	D20	DT	CP	FORT WAYNE, IN	BLANK0000054642	227.9
	WTVS	D20	DT	CP	DETROIT, MI	BLANK0000027886	386.5
	WVPB-TV	D20	DT	BL	HUNTINGTON, WV	DTVBL71657	212.8
	WRLW-CD	D21-	DC	CP	SALEM, IN	BLANK0000034328	147.6
	WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	158.9
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	32164.1	3,396,701	31779.7	3,384,704	30690.3	3,342,484	30634.5 3,341,421 0.18 0.03
Undesired			Total IX		Unique IX, before		Unique IX, after
WKYT-TV D21 DT BL			646.6	25,496	378.2	10,281	
WKYT-TV D21 DT APP			706.3	26,609			434.0 11,344
WIPB D19 DT CP			60.1	492	12.0	112	12.0 112
WDKY-TV D19 DT CP			284.1	15,887	15.8	672	11.8 622
WAND D20 DT CP			12.0	229	0.0	0	0.0 0
WFFT-TV D20 DT CP			291.9	12,673	219.8	9,458	219.8 9,458
WTVS D20 DT CP			12.1	2,606	0.0	0	0.0 0
WVPB-TV D20 DT BL			16.0	192	16.0	192	16.0 192
WRLW-CD D21- DC CP			4.0	50	0.0	0	0.0 0
WBNS-TV D21 DT LIC			107.1	3,075	107.1	3,075	107.1 3,075

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Interference to BLEDT20100803ADB LIC scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WFYI	D21	DT	LIC	INDIANAPOLIS, IN	BLEDT20100803ADB	
Undesireds:	WKYT-TV	D21	DT	BL	LEXINGTON, KY	DTVBL24914	258.5 km
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	258.5
	WJYS	D21	DT	CP	HAMMOND, IN	BLANK0000034920	250.9
	WRLW-CD	D21-	DC	CP	SALEM, IN	BLANK0000034328	144.8
	WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	270.5
	WXIN	D22	DT	CP	INDIANAPOLIS, IN	BLANK0000034056	1.1
	Service area	Terrain-limited		IX-free, before		IX-free, after	Percent New IX
	20649.8	2,389,627	20598.0	2,388,970	20338.7	2,378,939	20338.7 2,378,939 0.00 0.00
Undesired			Total IX		Unique IX, before		Unique IX, after
WKYT-TV D21 DT BL			23.9	787	11.9	395	
WKYT-TV D21 DT APP			23.9	787			11.9 395
WJYS D21 DT CP			16.0	187	8.1	96	8.1 96
WRLW-CD D21- DC CP			99.6	5,127	83.7	4,638	83.7 4,638
WBNS-TV D21 DT LIC			16.0	87	8.1	43	8.1 43
WXIN D22 DT CP			127.7	4,370	123.7	4,332	123.7 4,332

**Table 1 WKYT-TV TVStudy Analysis of Proposal**  
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Interference to BLANK0000034328 CP scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WRLW-CD	D21-	DC	CP	SALEM, IN	BLANK0000034328	
Undesireds:	WKYT-TV	D21	DT	BL	LEXINGTON, KY	DTVBL24914	159.6 km
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	159.6
	WFYI	D21	DT	LIC	INDIANAPOLIS, IN	BLEDT20100803ADB	144.8
	WUXP-TV	D21	DT	LIC	NASHVILLE, TN	BLCDT20060414AAU	267.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
5064.3 187,756		4799.5 151,596		4398.5 133,091		4366.4 132,536	0.73 0.42
Undesired		Total IX		Unique IX, before		Unique IX, after	
WKYT-TV D21 DT BL		317.2 15,176		229.0 9,265			
WKYT-TV D21 DT APP		353.3 15,833				261.1 9,820	
WFYI D21 DT LIC		164.0 9,086		75.8 3,159		71.8 3,057	
WUXP-TV D21 DT LIC		31.9 3,227		4.0 109		4.0 109	

Interference to BLCDT20021025ABK LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	
Undesireds:	WKYT-TV	D21	DT	BL	LEXINGTON, KY	DTVBL24914	245.3 km
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	245.3
	WLWT	D20	DT	CP	CINCINNATI, OH	BLANK0000034539	158.9
	WOHZ-CD	D20	DC	CP	MANSFIELD, OH	BLANK0000026543	94.7
	WFYI	D21	DT	LIC	INDIANAPOLIS, IN	BLEDT20100803ADB	270.5
	WZPX-TV	D21	DT	CP	BATTLE CREEK, MI	BLANK0000034925	345.7
	WWJ-TV	D21	DT	CP	DETROIT, MI	BLANK0000025826	275.6
	WSEE-TV	D21	DT	CP	ERIE, PA	BLANK0000063404	338.6
	WPNT	D21	DT	CP	PITTSBURGH, PA	BLANK0000034376	263.1
	WVPX-TV	D22	DT	CP	AKRON, OH	BLANK0000055357	170.9
	WBGU-TV	D22	DT	LIC	BOWLING GREEN, OH	BLANK0000063785	149.3
	WSAZ-TV	D22	DT	CP	HUNTINGTON, WV	BLANK0000034103	176.7
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
29747.3 2,847,721		28835.8 2,784,795		27306.4 2,711,404		27286.4 2,710,469	0.07 0.03
Undesired		Total IX		Unique IX, before		Unique IX, after	
WKYT-TV D21 DT BL		379.5 17,621		203.3 6,730			
WKYT-TV D21 DT APP		419.4 20,686				223.2 7,665	
WLWT D20 DT CP		43.7 5,386		35.7 5,052		31.8 4,563	
WOHZ-CD D20 DC CP		99.8 11,124		43.9 4,032		43.9 4,032	
WFYI D21 DT LIC		446.1 28,279		225.3 15,373		213.3 13,779	
WZPX-TV D21 DT CP		8.0 499		0.0 0		0.0 0	
WWJ-TV D21 DT CP		384.3 18,864		99.9 3,079		99.9 3,079	
WSEE-TV D21 DT CP		12.0 1,042		0.0 0		0.0 0	
WPNT D21 DT CP		608.7 21,801		473.1 13,710		469.1 13,663	
WVPX-TV D22 DT CP		4.0 34		0.0 0		0.0 0	
WBGU-TV D22 DT LIC		40.0 484		8.0 62		8.0 62	
WSAZ-TV D22 DT CP		27.9 299		15.9 158		15.9 158	

Interference to BLCDT20060414AAU LIC scenario 1

	Call	Chan	Svc	Status	City, State	File Number	Distance
Desired:	WUXP-TV	D21	DT	LIC	NASHVILLE, TN	BLCDT20060414AAU	
Undesireds:	WKYT-TV	D21	DT	BL	LEXINGTON, KY	DTVBL24914	289.5 km
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	289.5
	WTTO	D21	DT	CP	HOMEWOOD, AL	BLANK0000029999	308.9
	WJKT	D21	DT	CP	JACKSON, TN	BLANK0000027712	213.8
	WCTE	D22	DT	LIC	COOKEVILLE, TN	BLEDT20110413ACS	130.5
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
33232.6 2,316,872		32320.9 2,305,293		31028.1 2,264,124		30996.2 2,262,144	0.10 0.09
Undesired		Total IX		Unique IX, before		Unique IX, after	
WKYT-TV D21 DT BL		312.1 7,231		200.1 4,090			

**Table 1 WKYT-TV TVStudy Analysis of Proposal**  
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WKYT-TV D21 DT APP	376.1	9,993			232.0	6,070
WTO D21 DT CP	270.5	7,847	185.9	5,018	185.9	5,018
WJKT D21 DT CP	329.3	4,539	212.6	2,166	212.6	2,166
WCTE D22 DT LIC	601.6	28,574	505.5	24,261	473.4	23,479

Interference to BLANK0000034633 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WCVN-TV	D22	DT	CP	COVINGTON, KY	BLANK0000034633	
Undesireds:	WKYT-TV	D21	DT	BL	LEXINGTON, KY	DTVBL24914	110.5 km
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	110.5
	WTVW	D22	DT	CP	EVANSVILLE, IN	BLANK0000034881	272.3
	WXIN	D22	DT	CP	INDIANAPOLIS, IN	BLANK0000034056	174.0
	WBGU-TV	D22	DT	LIC	BOWLING GREEN, OH	BLANK0000063785	239.6
	WOCB-CD	D22	DC	CP	MARION, OH	BLANK0000034205	189.2
	WCTE	D22	DT	LIC	COOKEVILLE, TN	BLANK0000034103	206.5
	WSAZ-TV	D22	DT	CP	HUNTINGTON, WV		
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
12115.2		2,129,899		11983.1		2,120,432	0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
WKYT-TV D21 DT BL	24.1	277	0.0
WKYT-TV D21 DT APP	28.2	339	0.0
WTVW D22 DT CP	56.2	398	12.1
WXIN D22 DT CP	671.2	30,562	335.5
WBGU-TV D22 DT LIC	48.1	3,926	0.0
WOCB-CD D22 DC CP	4.0	112	4.0
WCTE D22 DT LIC	4.0	65	0.0
WSAZ-TV D22 DT CP	519.5	24,933	183.9

Interference to BLANK0000034103 CP scenario 1

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WSAZ-TV	D22	DT	CP	HUNTINGTON, WV	BLANK0000034103	
Undesireds:	WKYT-TV	D21	DT	BL	LEXINGTON, KY	DTVBL24914	197.6 km
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	197.6
	WXIN	D22	DT	CP	INDIANAPOLIS, IN	BLANK0000034056	375.7
	WCVN-TV	D22	DT	CP	COVINGTON, KY	BLANK0000034633	206.5
	WVPX-TV	D22	DT	CP	AKRON, OH	BLANK0000055357	287.9
	WBGU-TV	D22	DT	LIC	BOWLING GREEN, OH	BLANK0000063785	325.5
	WOCB-CD	D22	DC	CP	MARION, OH	BLANK0000034205	212.7
	WCTE	D22	DT	LIC	COOKEVILLE, TN	BLANK0000034103	379.0
	WKPI-TV	D23	DT	CP	PIKEVILLE, KY	BLANK0000034629	138.8
	WWHO	D23	DT	CP	CHILLICOTHE, OH	BLANK0000034759	173.0
Service area		Terrain-limited		IX-free, before		IX-free, after	Percent New IX
36751.9		1,277,392		34714.6		1,203,497	0.00

Undesired	Total IX	Unique IX, before	Unique IX, after
WKYT-TV D21 DT BL	3.9	60	0.0
WKYT-TV D21 DT APP	3.9	60	0.0
WXIN D22 DT CP	8.0	149	0.0
WCVN-TV D22 DT CP	64.0	873	36.1
WVPX-TV D22 DT CP	39.9	1,338	35.9
WBGU-TV D22 DT LIC	15.9	389	8.0
WOCB-CD D22 DC CP	19.9	431	4.0
WCTE D22 DT LIC	4.0	15	0.0
WKPI-TV D23 DT CP	35.7	842	35.7
WWHO D23 DT CP	8.0	379	4.0

Interference to proposal scenario 1  
2.46% interference received

Desired:	Call	Chan	Svc	Status	City, State	File Number	Distance
	WKYT-TV	D21	DT	APP	LEXINGTON, KY	WKYT-TV 900kW Prop	
Undesireds:	WLWT	D20	DT	CP	CINCINNATI, OH	BLANK0000034539	121.0 km

**Table 1 WKYT-TV TVStudy Analysis of Proposal**  
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WFYI	D21	DT	LIC	INDIANAPOLIS, IN	BLEDT20100803ADB	258.5
WRLW-CD	D21-	DC	CP	SALEM, IN	BLANK0000034328	159.6
WBNS-TV	D21	DT	LIC	COLUMBUS, OH	BLCDT20021025ABK	245.3
WUXP-TV	D21	DT	LIC	NASHVILLE, TN	BLCDT20060414AAU	289.5

Service area	Terrain-limited	IX-free	Percent IX
28011.3 1,174,615	27178.0 1,156,978	26346.7 1,128,573	3.06 2.46

Undesired	Total IX	Unique IX	Prcnt Unique IX
WLWT D20 DT CP 112.3	3,151 56.2	2,178 0.21	0.19
WFYI D21 DT LIC 76.3	3,262 32.2	370 0.12	0.03
WRLW-CD D21- DC CP 72.1	6,802 32.1	5,281 0.12	0.46
WBNS-TV D21 DT LIC 380.2	6,464 316.1	4,783 1.16	0.41
WUXP-TV D21 DT LIC 322.5	13,606 286.7	11,751 1.05	1.02

**Channel and  
Facility  
Information**

Section	Question	Response
<b>Proposed Community of License</b>	Facility ID	24914
	State	Kentucky
	City	LEXINGTON
	DTV Channel	21
<b>Facility Type</b>	Facility Type	Commercial
	Station Type	Main
<b>Zone</b>	Zone	2

**Antenna Location  
Data**

Section	Question	Response
<b>Antenna Structure Registration</b>	Do you have an FCC Antenna Structure Registration (ASR) Number?	Yes
	ASR Number	1030383
<b>Coordinates (NAD83)</b>	Latitude	38° 02' 23.0" N+
	Longitude	084° 24' 10.0" W-
	Structure Type	TOWER-A free standing or guyed struct
	Overall Structure Height	304.8 meters
	Support Structure Height	298.7 meters
	Ground Elevation (AMSL)	301.4 meters
<b>Antenna Data</b>	Height of Radiation Center Above Ground Level	289.3 meters
	Height of Radiation Center Above Average Terrain	296.2 meters
	Height of Radiation Center Above Mean Sea Level	590.7 meters
	Effective Radiated Power	900 kW

## Antenna Technical Data

Section	Question	Response
Antenna Type	Antenna Type	Directional Custom
	Do you have an Antenna ID?	Yes
	Antenna ID	1001284
Antenna Manufacturer and Model	Manufacturer:	DIE
	Model	TFU-25JSC/VP-R C150
	Rotation	0 degrees
	Electrical Beam Tilt	0.75
	Mechanical Beam Tilt	Not Applicable
	toward azimuth	
	Polarization	Elliptical
DTV and DTS: Elevation Pattern	Does the proposed antenna propose elevation radiation patterns that vary with azimuth for reasons other than the use of mechanical beam tilt?	No
	Uploaded file for elevation antenna (or radiation) pattern data	

### Directional Antenna Relative Field Values (Pre-rotated Pattern)

Degree	V <sub>A</sub> (Authorized Value)	Degree	V <sub>A</sub> (Authorized Value)	Degree	V <sub>A</sub> (Authorized Value)	Degree	V <sub>A</sub> (Authorized Value)
0	0.350	90	0.990	180	0.990	270	0.990
10	0.370	100	1.000	190	0.980	280	0.960
20	0.430	110	0.990	200	0.970	290	0.900
30	0.520	120	0.980	210	0.960	300	0.820
40	0.620	130	0.960	220	0.950	310	0.730
50	0.730	140	0.950	230	0.960	320	0.620
60	0.820	150	0.960	240	0.980	330	0.520
70	0.900	160	0.970	250	0.990	340	0.430
80	0.960	170	0.980	260	1.000	350	0.370

### Additional Azimuths

Degree	V <sub>A</sub>
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**Construction  
Permit  
Certifications**

Section	Question	Response
<b>Post-Incentive Auction Expedited Processing</b>	It will operate on the DTV channel for this station as established in the post-incentive auction channel reassignment public notice.	Yes
	It will operate post-incentive auction facilities that do not expand the noise-limited service contour in any direction beyond that established by the post-incentive auction channel reassignment public notice.	No
	It will operate post-incentive auction facilities that match or reduce by no more than five percent with respect to predicted population from those defined in the post-incentive auction channel reassignment public notice.	Yes
	The antenna structure to be used by this facility has been registered by the Commission and will not require re-registration to support the proposed antenna, OR the FAA has previously determined that the proposed structure will not adversely affect safety in air navigation and this structure qualifies for later registration under the Commission's phased registration plan, OR the proposed installation on this structure does not require notification to the FAA pursuant to 47 C.F.R. Section 17.7.	Yes
<b>Environmental Effect</b>	Would a Commission grant of Authorization for this location be an action which may have a significant environmental effect? (See Section 1.1306 of 47 C.F.R.)	No
<b>Broadcast Facility</b>	The proposed facility complies with the applicable engineering standards and assignment requirements of 47 C. F.R. Sections 73.616, 73.622(i), 73.623(e), 73.625, 73.1030, and 73.1125.	Yes