



**STATEMENT OF JOHN E. HIDLE, P.E.  
IN SUPPORT OF AN APPLICATION FOR  
POST-TRANSITION CONSTRUCTION PERMIT  
WKEF-DT - DAYTON, OHIO  
DTV - CH. 51 - 570 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 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-TV, channel 22, and WKEF-DT, channel 51, both licensed to Dayton, Ohio, to prepare this statement, FCC Form 301, Sections III and III-D, and the associated exhibits in support of an application for a post-transition construction permit. It is proposed herein only to increase WKEF-DT's Effective Radiated Power (ERP) from 138 kW to 570 kW. No other changes are proposed.

**OMNI-DIRECTIONAL ANTENNA**

The applicant proposes to utilize WKEF-DT's existing DTV antenna, a Dielectric model TFU-30GTH-R-O4 horizontally polarized omni-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. See Exhibits 2 to 4 for elevation pattern and tabulation.

## **PREDICTED COVERAGE CONTOURS**

The predicted coverage contours were calculated in accordance with the method described in Section 73.684 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 National Geophysical Data Center Thirty Second Point Database (TPG-0050) as prescribed in the FCC Rules. The antenna site elevation and coordinates were determined from FCC antenna registration data. Exhibit 1 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**

### **DTV Allocation Considerations**

A study was performed, using the Commission's application processing software tv\_process to determine if the instant application for construction permit for WKEF-DT is predicted to cause any level of new impermissible interference to any post-transition domestic DTV stations, expansion construction permits, pending applications or DTV allotments. Results of the study indicate that the instant application to increase ERP is predicted to cause no impermissible level of new interference to the populations to be served by any post-transition domestic DTV station, expansion construction permit, pending DTV application or DTV allotment.

### **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 only one predicted contour overlap, with co-channel Class A LPTV station WIWU-CA, Marion, Indiana, BLTTA-20080422AAS. However, the Longley-Rice section of the study results determined that the "Proposal causes no interference". The instant application is, therefore, considered to be in compliance with Section 73.616(f). No Class A station is impermissibly affected by the proposal.

### **BLANKETING AND INTERMODULATION INTERFERENCE**

A number of broadcast and non-broadcast facilities are co-located with, as well as located within 10 km of the proposed WKEF-DT antenna site. The applicant recognizes its responsibility to remedy complaints of interference created by 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. Bulletin No. 65 contains the technical information necessary to evaluate compliance with the FCC's policies and guidelines.

The FCC's Maximum Permitted Exposure (MPE) level for "uncontrolled" environments is 0.2 milliwatts per centimeter squared ( $\text{mW}/\text{cm}^2$ ) when applied to broadcast facilities operating between 30 MHz and 300 MHz, and for broadcast facilities operating between 300 MHz and 1500 MHz, primarily UHF TV stations, is derived from the formula,  $(\text{frequency}/1500)$ . The MPE level for "controlled" environments is 1.0 milliwatts per centimeter squared ( $\text{mW}/\text{cm}^2$ ) for operations between 30 MHz and 300 MHz, and for broadcast stations operating between 300 MHz and 1500 MHz is derived from the formula,  $(\text{frequency}/300)$ . The predicted emissions of WKEF-DT operating on channel 51 must be considered, along with the predicted emissions from other proposed and existing stations at the proposed site. For WKEF-DT, which will operate on television Channel 51 (592-598 MHz), the MPE is 0.463 milliwatts per centimeter squared ( $\text{mW}/\text{cm}^2$ ) in an "uncontrolled" environment and 2.32  $\text{mW}/\text{cm}^2$  in a "controlled" environment. The proposed WKEF-DT facility will operate with a maximum ERP of 570 kW from a horizontally polarized omni-

directional transmitting antenna with a centerline height of 343 meters above ground level (AGL). Considering a very conservative vertical plane relative field factor of 0.3, the WKEF-DT facility is predicted to produce a power density at two meters above ground level of 0.01474 mW/cm<sup>2</sup>, which is 3.18% of the FCC guideline value for an "uncontrolled" environment, and 0.64% of the FCC's guideline value for "controlled" environments (see Appendix A). WKEF-DT is one of three post-transition DTV stations, along with one analog LPTV 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 post-transition stations within relevant proximity is only 6.76% of the limit for "uncontrolled" environments, and only 1.35% of the limit for "controlled" environments.

### **OCCUPATIONAL SAFETY**

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

### **SUMMARY**

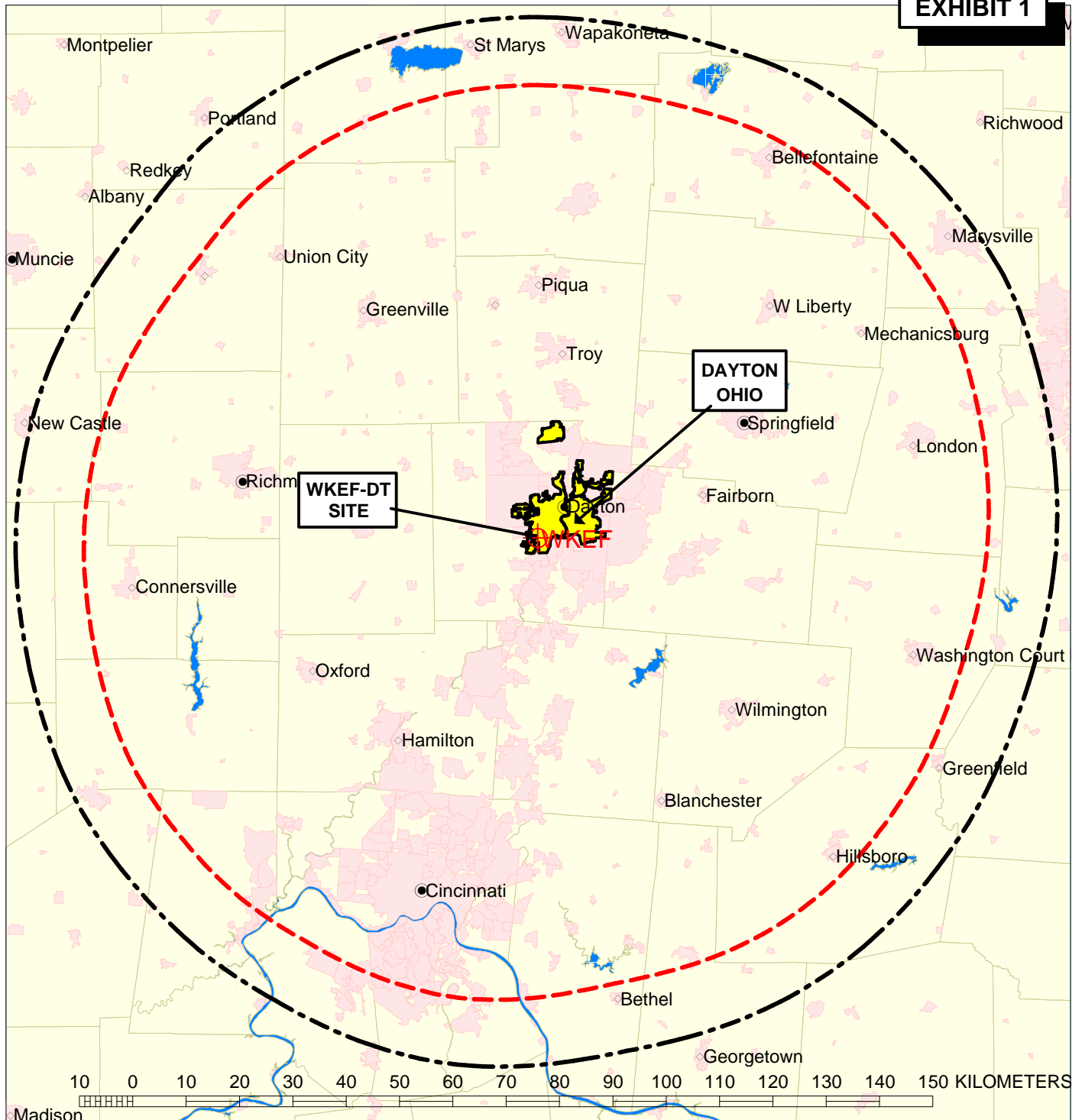
It is submitted that the instant application for construction permit to increase WKEF-DT's ERP from 138 kW to 570 kW, as described herein, complies with the Rules, Regulations and relevant Policies of the Federal Communications Commission. This statement, FCC Form 301, Sections III and III-D, and the attached exhibits were prepared

STATEMENT OF JOHN E. HIDLE, P.E.  
WKEF-DT - DAYTON, OHIO  
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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 20, 2009





## PREDICTED COVERAGE CONTOURS

WKEF-DT, DAYTON, OHIO

Ch 51 - 570 kW - 351 meters HAAT

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Predicted Noise Limited Contour

F(50,90) - 41 dBu

29,500 sq km - 3,522,163 persons

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Predicted Principal Community Contour

F(50,90) - 48 dBu

22,345 sq km - 3,164,935 persons

MARCH 2009

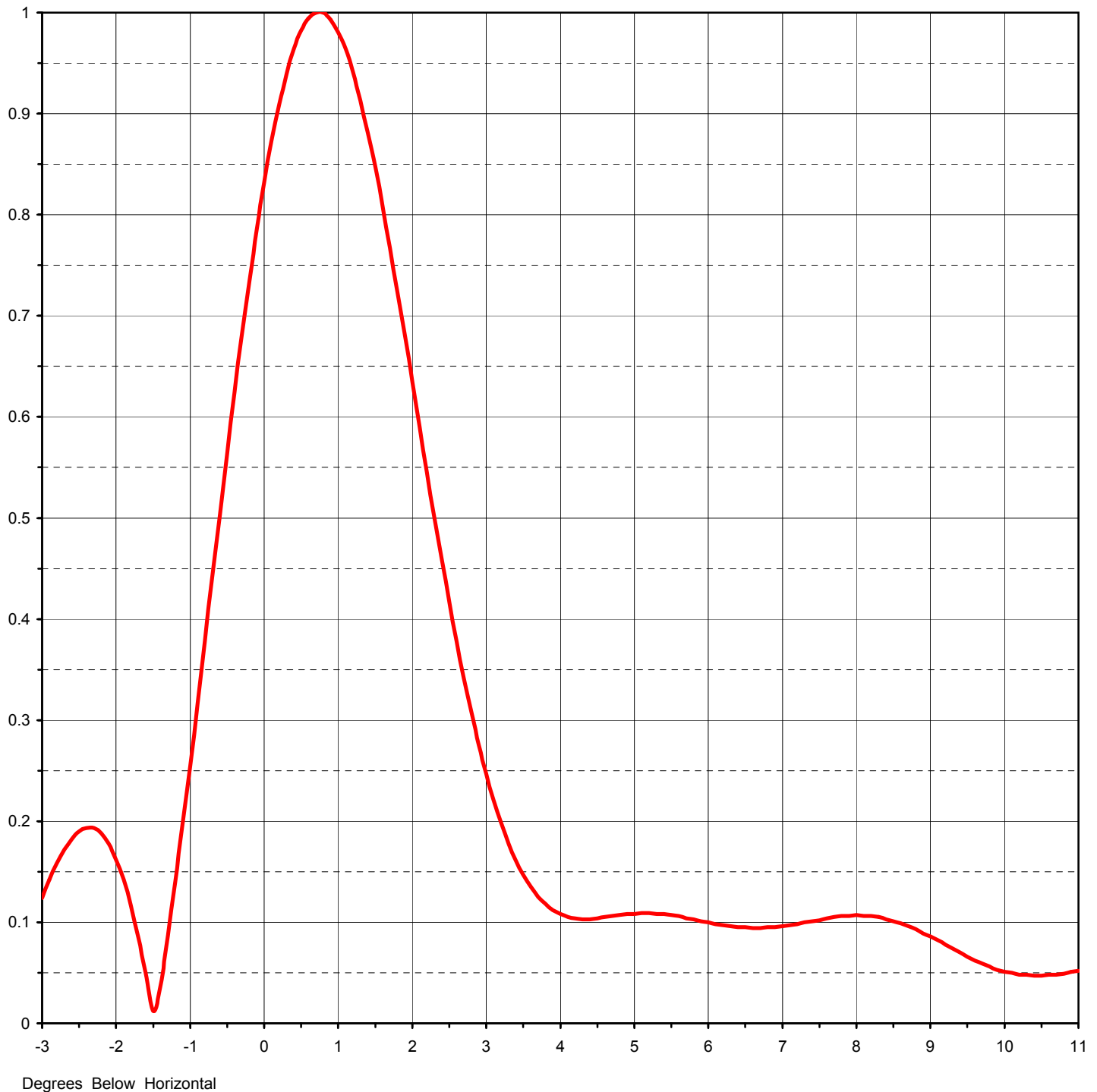
**CARL T. JONES**  
CORPORATION



Proposal Number	<b>DCA-9290</b>	Exhibit 2
Date	<b>13-Mar-01</b>	
Call Letters	<b>WKEF-DT</b>	Channel <b>51</b>
Location	<b>Dayton, OH</b>	
Customer		
Antenna Type	<b>TFU-30GTH-R O4</b>	

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>27.00 ( 14.31 dB )</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>18.70 ( 12.72 dB )</b>	Frequency	<b>695.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>30G270075</b>



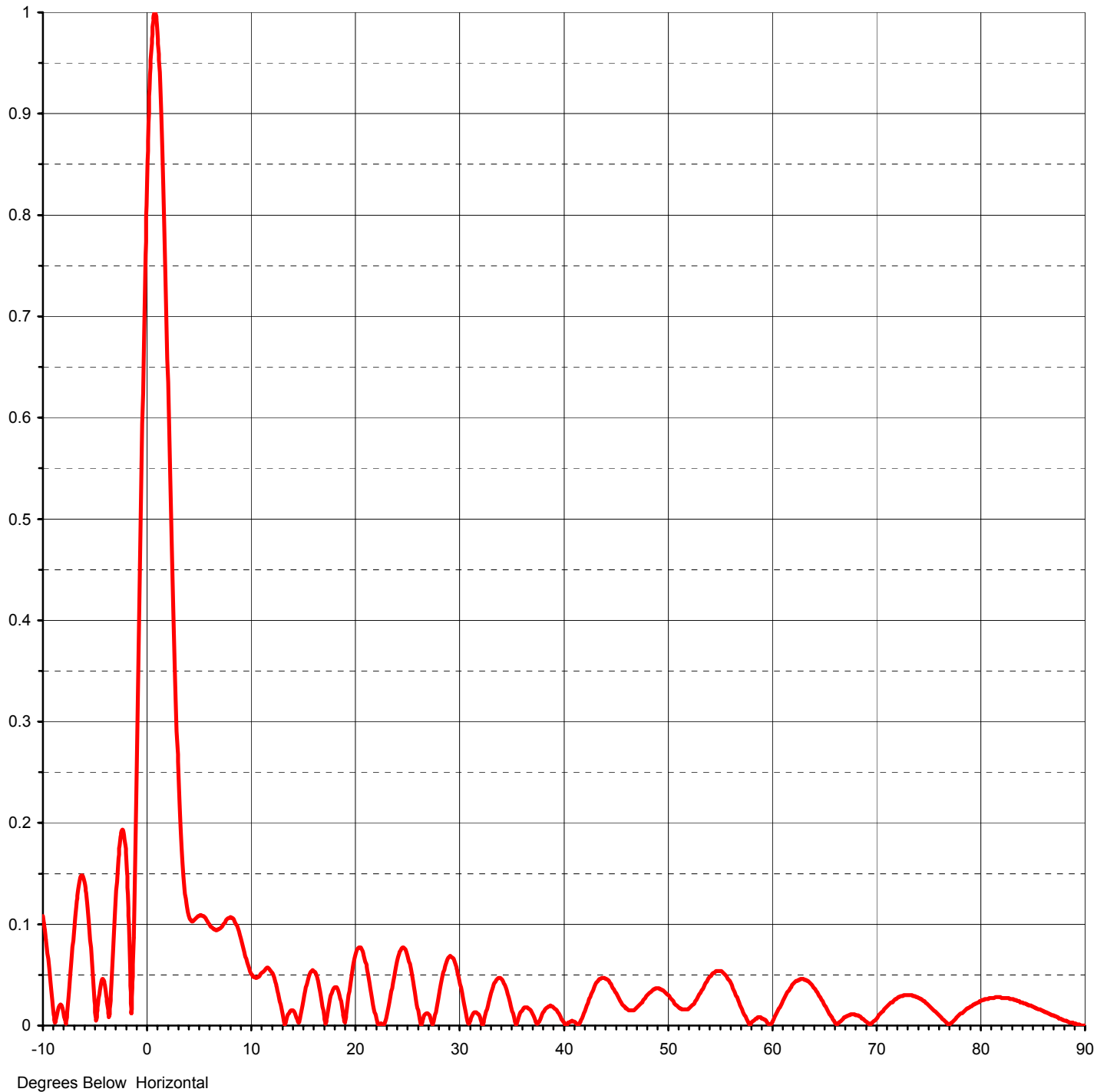




Proposal Number	<b>DCA-9290</b>	<b>Exhibit 3</b>
Date	<b>13-Mar-01</b>	
Call Letters	<b>WKEF-DT</b>	Channel <b>51</b>
Location	<b>Dayton, OH</b>	
Customer		
Antenna Type	<b>TFU-30GTH-R O4</b>	

## ELEVATION PATTERN

RMS Gain at Main Lobe	<b>27.00 ( 14.31 dB )</b>	Beam Tilt	<b>0.75 deg</b>
RMS Gain at Horizontal	<b>18.70 ( 12.72 dB )</b>	Frequency	<b>695.00 MHz</b>
Calculated / Measured	<b>Calculated</b>	Drawing #	<b>30G270075-90</b>





Proposal Number **DCA-9290**

**Exhibit 4**

Date **13-Mar-01**

Call Letters **WKEF-DT**

Channel **51**

Location **Dayton, OH**

Customer

Antenna Type **TFU-30GTH-R 04**

## TABULATION OF ELEVATION PATTERN

Elevation Pattern Drawing #: **30G270075-90**

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.108	2.4	0.458	10.6	0.047	30.5	0.022	51.0	0.019	71.5	0.023
-9.5	0.066	2.6	0.378	10.8	0.048	31.0	0.002	51.5	0.016	72.0	0.027
-9.0	0.015	2.8	0.307	11.0	0.051	31.5	0.013	52.0	0.016	72.5	0.029
-8.5	0.018	3.0	0.247	11.5	0.056	32.0	0.009	52.5	0.021	73.0	0.030
-8.0	0.012	3.2	0.198	12.0	0.054	32.5	0.008	53.0	0.029	73.5	0.029
-7.5	0.033	3.4	0.161	12.5	0.040	33.0	0.028	53.5	0.038	74.0	0.027
-7.0	0.096	3.6	0.135	13.0	0.016	33.5	0.043	54.0	0.047	74.5	0.024
-6.5	0.141	3.8	0.118	13.5	0.007	34.0	0.047	54.5	0.052	75.0	0.020
-6.0	0.141	4.0	0.108	14.0	0.015	34.5	0.038	55.0	0.054	75.5	0.015
-5.5	0.091	4.2	0.104	14.5	0.006	35.0	0.020	55.5	0.051	76.0	0.010
-5.0	0.017	4.4	0.103	15.0	0.019	35.5	0.001	56.0	0.044	76.5	0.005
-4.5	0.038	4.6	0.105	15.5	0.044	36.0	0.014	56.5	0.033	77.0	0.001
-4.0	0.037	4.8	0.107	16.0	0.055	36.5	0.018	57.0	0.020	77.5	0.006
-3.5	0.029	5.0	0.108	16.5	0.044	37.0	0.013	57.5	0.009	78.0	0.011
-3.0	0.124	5.2	0.109	17.0	0.015	37.5	0.002	58.0	0.001	78.5	0.015
-2.8	0.158	5.4	0.108	17.5	0.017	38.0	0.011	58.5	0.007	79.0	0.019
-2.6	0.182	5.6	0.106	18.0	0.037	38.5	0.018	59.0	0.008	79.5	0.022
-2.4	0.193	5.8	0.103	18.5	0.033	39.0	0.019	59.5	0.005	80.0	0.024
-2.2	0.188	6.0	0.100	19.0	0.005	39.5	0.013	60.0	0.002	80.5	0.026
-2.0	0.162	6.2	0.097	19.5	0.034	40.0	0.005	60.5	0.012	81.0	0.027
-1.8	0.116	6.4	0.095	20.0	0.066	40.5	0.003	61.0	0.022	81.5	0.028
-1.6	0.050	6.6	0.094	20.5	0.077	41.0	0.004	61.5	0.032	82.0	0.027
-1.4	0.038	6.8	0.095	21.0	0.065	41.5	0.001	62.0	0.040	82.5	0.027
-1.2	0.140	7.0	0.096	21.5	0.038	42.0	0.012	62.5	0.044	83.0	0.026
-1.0	0.255	7.2	0.098	22.0	0.011	42.5	0.025	63.0	0.046	83.5	0.024
-0.8	0.378	7.4	0.101	22.5	0.002	43.0	0.038	63.5	0.044	84.0	0.023
-0.6	0.503	7.6	0.104	23.0	0.006	43.5	0.046	64.0	0.039	84.5	0.021
-0.4	0.624	7.8	0.106	23.5	0.031	44.0	0.047	64.5	0.029	85.0	0.019
-0.2	0.735	8.0	0.107	24.0	0.059	44.5	0.042	65.0	0.020	85.5	0.016
0.0	0.832	8.2	0.106	24.5	0.076	45.0	0.034	65.5	0.011	86.0	0.014
0.2	0.909	8.4	0.103	25.0	0.072	45.5	0.024	66.0	0.003	86.5	0.012
0.4	0.964	8.6	0.099	25.5	0.051	46.0	0.017	66.5	0.004	87.0	0.010
0.6	0.994	8.8	0.093	26.0	0.020	46.5	0.015	67.0	0.008	87.5	0.007
0.8	1.000	9.0	0.086	26.5	0.004	47.0	0.017	67.5	0.011	88.0	0.005
1.0	0.981	9.2	0.078	27.0	0.012	47.5	0.022	68.0	0.010	88.5	0.003
1.2	0.941	9.4	0.070	27.5	0.001	48.0	0.029	68.5	0.008	89.0	0.002
1.4	0.882	9.6	0.062	28.0	0.024	48.5	0.034	69.0	0.004	89.5	0.001
1.6	0.808	9.8	0.059	28.5	0.051	49.0	0.037	69.5	0.002	90.0	0.000
1.8	0.724	10.0	0.053	29.0	0.067	49.5	0.035	70.0	0.007		
2.0	0.635	10.2	0.050	29.5	0.066	50.0	0.031	70.5	0.013		
2.2	0.545	10.4	0.048	30.0	0.048	50.5	0.025	71.0	0.019		

**SUMMARY OF RADIOFREQUENCY  
RADIATION STUDY**  
WKEF-DT, DAYTON, OHIO  
CHANNEL 51, 570 kW ERP, 351 m HAAT  
MARCH, 2009

<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	DT	51	695	H	341	570.000	0.300	0.01474	0.463	3.18%
WRGT-DT	DT	30	569	H	341	425.000	0.300	0.01099	0.379	2.90%
WRCX-LP	TV	40	629	H	278	34.000	0.300	0.00066	0.419	0.16%
WBDT-DT	DT	26	545	H	281	50.000	0.300	0.00190	0.363	0.52%
<b>TOTAL PERCENTAGE OF ANSI VALUE=</b>										<b>6.76%</b>

*\*\* 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.*