



ENVIRONMENTAL AND RADIO FREQUENCY 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.

The predicted emissions of WKEF 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 34 (590-596 MHz), the MPE is 395.33 microwatts per centimeter squared ($\mu\text{W}/\text{cm}^2$) in an “uncontrolled” environment and 1,976.7 $\mu\text{W}/\text{cm}^2$ in a “controlled” environment. The proposed WKEF facility will operate with a maximum ERP of 747 kW from an elliptically polarized directional transmitting antenna with a centerline height of 343 meters above ground level (AGL). Considering a conservative predicted 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 38.633 $\mu\text{W}/\text{cm}^2$, which is 9.77% of the FCC guideline value for an “uncontrolled” environment, and 1.954% of the FCC’s guideline value for “controlled” environments. There are two other full-power DTV facilities, two LPTV DTV facilities and one FM station that are located at the WKEF site. The total estimated percentage of the ANSI value at the proposed site, including the cumulative radiation from all authorizations located within the relevant proximity, is 26.29% of the limit applicable to “uncontrolled” environments, and 5.258% of the limit for “controlled” environments. (See Appendix A)

**SUMMARY OF RADIOFREQUENCY
RADIATION STUDY**

WKEF, Dayton, OH

Channel 34, 747 kW, 351 m HAAT
July, 2017

<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 (μW/cm²)</u>	<u>FCC UNCONTROLLED LIMIT (μW/cm²)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
WKEF	DT	34	593	H & V	343	747.000	0.300	38.633	395.33	9.77%
WLWD-LD	DT	20	509	H	250	5.000	0.300	0.244	339.33	0.07%
WBDT	DT	26	545	H	341	770.000	0.300	20.147	363.33	5.55%
WRGT-TV	DT	36	605	H & V	343	563.000	0.300	29.117	403.33	7.22%
WRCX-LP	DT	40	629	H	280	0.320	0.300	0.012	419.33	0.00%
WKCD	FM	212	90.3	H & V	283	8.700	1.000	7.362	200.00	3.68%
TOTAL PERCENTAGE OF FCC GUIDELINE VALUE =										26.29%

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