



ENVIRONMENTAL AND RADIO FREQUENCY SAFETY

The licensee of WLFL is committed to the protection of station personnel and/or tower contractors working in the vicinity of the WLFL 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 WLFL must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For WLFL, which will operate on television Channel 18 (494-500 MHz), the MPE is 331.33 microwatts per centimeter squared ($\mu\text{W}/\text{cm}^2$) in an “uncontrolled” environment and 1,656.7 $\mu\text{W}/\text{cm}^2$ in a “controlled” environment. The proposed WLFL facility will operate with a maximum ERP of 775 kW from an elliptically polarized omni-directional transmitting antenna with a centerline height of 575.5 meters above ground level (AGL). Considering a conservative predicted vertical plane relative field factor of 0.300 the WLFL facility is predicted to produce a power density at two meters above ground level of 14.270 $\mu\text{W}/\text{cm}^2$, which is 4.31% of the FCC guideline value for an “uncontrolled” environment, and 0.862% of the FCC’s guideline value for “controlled” environments. There are five other full-power DTV facilities, one full-power FM radio station, one FM translator station and three FM auxiliary facilities that are located at the WLFL 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 29.21% of the limit applicable to “uncontrolled” environments, and 5.842% of the limit for “controlled” environments. (See Appendix A)

APPENDIX A

SUMMARY OF RADIOFREQUENCY RADIATION STUDY WLFL, Raleigh, NC Channel 18, 775 kW, 605.3 HAAT March, 2019

CALL	SERVICE	CHANNEL	FREQUENCY	POLAR- IZATION	ANTENNA HEIGHT	ERP (kW)	VERT. RELATIVE FIELD FACTOR	WORST-CASE PREDICTED POWER DENSITY ($\mu\text{W}/\text{cm}^2$)	FCC UNCONTROLLED LIMIT ($\mu\text{W}/\text{cm}^2$)	PERCENT OF UNCONTROLLED LIMIT
WRDC	DT	14	473	H & V	592.4	1000.000	0.300	17.253	315.33	5.47%
WLFL	DT	18	497	H & V	573.5	775.000	0.300	14.270	331.33	4.31%
WNCN	DT	8	183	H & V	576.8	29.000	0.300	0.528	200.00	0.26%
WUNC	DT	19	503	H & V	123	15.000	0.300	6.161	335.33	1.84%
WRAL-TV	DT	17	491	H & V	594.4	1000.000	0.300	17.136	327.33	5.24%
WRAZ	DT	15	479	H & V	575.6	1000.000	0.300	18.278	319.33	5.72%
WNCB (AUX)	FM	230	93.9	H & V	457	5.450	1.000	1.759	200.00	0.88%
W257CS (CP)	FM	257	99.3	H & V	310	0.250	1.000	0.176	200.00	0.09%
WRDU (AUX)	FM	264	100.7	H & V	457	4.300	1.000	1.388	200.00	0.69%
WDCG (AUX)	FM	286	105.1	H & V	457	1.700	1.000	0.549	200.00	0.27%
WTKK	FM	291	106.1	H & V	457	27.500	1.000	8.876	200.00	4.44%
TOTAL PERCENTAGE OF FCC GUIDELINE VALUE =										29.21%

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