



ENVIRONMENTAL AND RADIO FREQUENCY SAFETY

The licensee of WABM is committed to the protection of station personnel and/or tower contractors working in the vicinity of the WABM 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 WABM must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For WABM, which will operate on television Channel 20 (506-512 MHz), the MPE is 339.33 microwatts per centimeter squared ($\mu\text{W}/\text{cm}^2$) in an “uncontrolled” environment and 1,696.7 $\mu\text{W}/\text{cm}^2$ in a “controlled” environment. The proposed WABM facility will operate with a maximum ERP of 621 kW from an elliptically polarized directional transmitting antenna with a centerline height of 306.5 meters above ground level (AGL). Considering a conservative predicted vertical plane relative field factor of 0.300 the WABM facility is predicted to produce a power density at two meters above ground level of 28.765 $\mu\text{W}/\text{cm}^2$, which is 8.477% of the FCC guideline value for an “uncontrolled” environment, and 1.695% of the FCC’s guideline value for “controlled” environments. There are three other full-power DTV facilities, four full-power FM stations, five LPTV DTV facilities and eleven LPFM translators that are located at the WABM 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 44.58% of the limit applicable to “uncontrolled” environments, and 8.916% of the limit for “controlled” environments. (See Appendix A)

SUMMARY OF RADIOFREQUENCY RADIATION STUDY

WABM, Birmingham, AL

Channel 20, 621 kW, 406 m HAAT

June, 2017

CALL	SERVICE	CHANNEL	FREQUENCY	POLARIZATION	ANTENNA HEIGHT	ERP (kW)	VERT. RELATIVE FIELD FACTOR	WORST-CASE PREDICTED POWER DENSITY (μW/cm ²)	FCC UNCONTROLLED LIMIT (μW/cm ²)	PERCENT OF UNCONTROLLED LIMIT
WABM**	DT	20	509	H	306.5	621.000	0.300	20.139	339.33	5.93%
WABM**	DT	20	509	V	306.5	266.000	0.300	8.626	339.33	2.54%
WTO***	DT	21	515	H	327.7	654.000	0.300	18.538	343.33	5.40%
WTO***	DT	21	515	V	327.7	218.000	0.300	6.179	343.33	1.80%
WIAT	DT	30	569	H	326.4	1000.000	0.300	28.573	379.33	7.53%
WVUA	DT	6	85	H & V	307	26.000	0.300	1.681	200.00	0.84%
WUOA-LD (CP)	DT	17	491	H	115.8	15.000	0.300	3.483	327.33	1.06%
W21DM-D (APP)	DT	21	515	H	115.8	10.000	0.300	2.322	343.33	0.68%
WBXA-CD	DT	24	533	H	100	10.000	0.300	3.131	355.33	0.88%
WBUN-CD	DT	27	551	H	176	15.000	0.300	1.490	367.33	0.41%
W47EI-D	DT	16	485	H	93	7.830	0.300	2.843	323.33	0.88%
WZZK-FM	FM	284	104.7	H & V	308	97.800	<note 1>	0.644	200.00	0.32%
WBPT	FM	295	106.9	H & V	308	97.000	<note 2>	15.420	200.00	7.71%
WUHT	FM	299	107.7	H & V	308.3	42.000	<note 2>	6.685	200.00	3.34%
WERC	FM	288	105.5	H & V	94	29.500	<note 3>	7.260	200.00	3.63%
WBFR (CP)	FM	208	89.5	H & V	87	0.210	1.000	1.942	200.00	0.97%
W210CA	FM	210	89.9	H & V	258	0.180	1.000	0.184	200.00	0.09%
W241AI	FM	241	96.1	H & V	250	0.099	1.000	0.108	200.00	0.05%
W252BE (APP)	FM	252	98.3	H & V	136	0.100	1.000	0.372	200.00	0.19%
W256CD (CP)	FM	256	99.1	H & V	258	0.130	1.000	0.133	200.00	0.07%
W261BX	FM	261	100.1	H & V	258	0.035	1.000	0.036	200.00	0.02%
W271BNAI	FM	271	102.1	H	258	0.085	1.000	0.043	200.00	0.02%
W276BQ (CP)	FM	276	103.1	H & V	344	0.250	1.000	0.143	200.00	0.07%
W281AB	FM	281	104.1	H	250	0.250	1.000	0.136	200.00	0.07%
W286BK	FM	286	105.1	H	190	0.099	1.000	0.094	200.00	0.05%
W297BF	FM	297	107.3	H	258	0.099	1.000	0.050	200.00	0.03%

TOTAL PERCENTAGE OF FCC GUIDELINE VALUE =

44.58%

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

**WABM is proposing elliptical polarization, the table above includes both the proposed horizontal and vertical power levels

***WTO is proposing elliptical polarization, the table above includes both the proposed horizontal and vertical power levels

note 1: FM Model Antenna: EPA Type 1; 8-bay, 0.5 wavelength spaced antenna

note 2: FM Model Antenna: EPA Type 1; 8-bay, 0.94 wavelength spaced antenna

note 3: Per the WERC-FM Application for Construction Permit, FCC File No. BPH-20030113ACN, the maximum ground level power density is 7.26 uW/cm².