



## **ENVIRONMENTAL AND RADIO FREQUENCY SAFETY**

The licensee of WMSN-TV is committed to the protection of station personnel and/or tower contractors working in the vicinity of the WMSN-TV 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 WMSN-TV must be considered, in addition to predicted emissions from any other proposed or existing stations at the site. For WMSN-TV, 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 WMSN-TV facility will operate with a maximum ERP of 164 kW from an elliptically polarized non-directional transmitting antenna with a centerline height of 407 meters above ground level (AGL). Considering a conservative predicted vertical plane relative field factor of 0.300 the WMSN-TV facility is predicted to produce a power density at two meters above ground level of 6.01  $\mu\text{W}/\text{cm}^2$ , which is 1.81% of the FCC guideline value for an “uncontrolled” environment, and 0.363% of the FCC’s guideline value for “controlled” environments. There are two other full-power DTV facilities, two FM translators and two FM stations that are located at the WMSN-TV 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 18.41% of the limit applicable to “uncontrolled” environments, and 3.682% of the limit for “controlled” environments. (See Appendix A)

**SUMMARY OF RADIOFREQUENCY  
RADIATION STUDY**

WMSN-TV, Madison, Wisconsin  
CHANNEL 18, 164 kW ERP, 450 m HAAT  
MAY, 2017

<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>UNCONTROLLED LIMIT (mW/cm<sup>2</sup>)</u>	<u>PERCENT OF UNCONTROLLED LIMIT</u>
WERN	FM	204	88.7	H & V	341	20.500	1.000	1.000	0.01178	0.200	5.89%
W215AQ	FM	215	90.9	H & V	123	0.026	1.000	1.000	0.00011	0.200	0.06%
W265CV	FM	265	100.9	H & V	198	0.250	1.000	1.000	0.00043	0.200	0.21%
WIBA-FM	FM	268	101.5	H & V	264	12.000	1.000	1.000	0.01150	0.200	5.75%
WMSN-TV	DT	18	497	H & V	405	164.000	0.300	0.300	0.00601	0.331	1.81%
WHA-TV	DT	20	509	H	409	140.000	0.300	0.300	0.00252	0.339	0.74%
WKOW	DT	26	545	H	410	800.000	0.300	0.300	0.01431	0.363	3.94%
<b>TOTAL PERCENTAGE OF ANSI VALUE=</b>											<b>18.41%</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.