

January 2024
KMTN(FM) Channel 245C1
Jackson, Wyoming
Auxiliary Antenna

Facilities Proposed

The instant application proposes a new auxiliary (backup) antenna for KMTN. The auxiliary 60 dBu contour is completely contained within the main 60 dBu contour. The proposed auxiliary operation will have an effective radiated power of 100 watts. Operation is proposed with a 3-element vertically-polarized omni-directional 0.75-wavelength-spaced antenna. This antenna system will be shared by KJAX, KZJH, and KMTN, via a combiner.

The proposed antenna support structure will not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.4 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

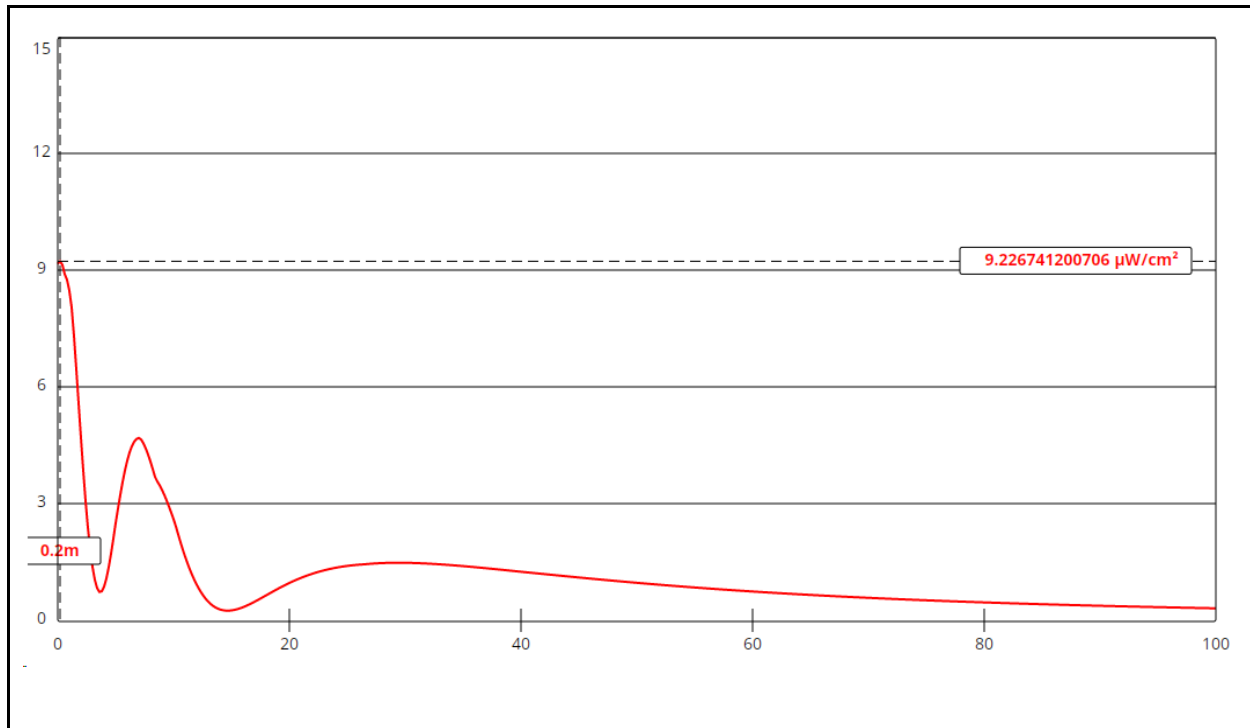
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 100 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 1 element pattern, which is the element pattern for the Scala FMVMP-3 antenna proposed for use. The highest calculated ground level power density occurs at a distance of 0.2 meters from the base

of the antenna support structure. At this point the power density is calculated to be $9.2 \mu\text{W}/\text{cm}^2$, which is 4.6% of $200 \mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307 of the Commission's Rules exempts applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicant's proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.



Ground-Level RF Exposure

OET FMModel

KMTN 245C1 Auxiliary Antenna

Antenna Type: Scala FMVMP-3 (Type 1)
No. of Elements: 3
Element Spacing: 0.75 wavelength

Distance: 100 meters
Horizontal ERP: zero W
Vertical ERP: 100 W

Antenna Height: 9.1 meters AGL

Maximum Calculated Power Density is 9.2 $\mu\text{W}/\text{cm}^2$ at 0.2 meters from the antenna structure.