November 2016
KXMQ(FM)   Channel 249C2
McNary, Arizona
RF Exposure Study

Facilities Constructed

The construction permit for KXMQ (see BMPH-20141121AJU) bears a condition #3 requiring a revised RF field showing to demonstrate continued compliance with the FCC guidelines if any other type or size of antenna is used other than a 4-bay, 0.81 wavelength spaced antenna.

KXMQ has been constructed with a 3-bay, 0.85 wavelength spaced Bext TFLHO-3 antenna, with horizontal polarization only. Therefore this exhibit has been prepared in order to provide the revised calculations.

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.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

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 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the KXMQ antenna system assume a Type 1 element pattern, which is the appropriate element pattern for the Bext TFLHO-3 antenna which has been installed. The highest calculated ground level power density occurs at a distance of 5 meters from the base of the antenna support structure. At this point the power density is calculated to be

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11.5 µW/cm², which is 5.75% of 200 µW/cm² (the FCC MPE for uncontrolled environments at the station's frequency).

Calculations of the power density produced by KXMQ and the other stations at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pop FCC Limit	% of Limit
KXMQ 249C2	4.1 kW H BEX TFLHO-3 3-bay 0.85 wave	FMModel Type 1	38 m	11.5 µW/cm²	200 µW/cm²	5.75%
KRFM 243C0	100 kW H 100 kW V PSI FHR-10C 10-bay full wave	FMModel Type 2	77 m	111.2 µW/cm²	200 µW/cm²	55.60%
KPKX-LP 259L1	0.002 kW H 0.002 kW V TEL TFC1K-1	FMModel Type 1	5 m	8.9 µW/cm²	200 µW/cm²	4.45%
KXBK 278C3	1.4 kW H 1.4 kW V SHI 6832-3 3-bay 0.67 wave	FMModel Type 2	11 m	36.8 µW/cm²	200 µW/cm²	18.40%
K300CL	0.152 kW H 0.152 kW V PSI FML-2-DA 2-bay full wave	FMModel Type 2	46 m	1.0 µW/cm²	200 µW/cm²	0.50%
K03FB	0.027 kW peak Custom	100% assumed	7 m	18.0 µW/cm²	200 µW/cm²	9.00%
K07OJ-D	0.033 kW avg Non-D	100% assumed	34 m	1.1 µW/cm²	200 µW/cm²	0.55%

These calculations show that the maximum calculated power density produced at two meters above ground level by the constructed operation of KXMQ and the present operation of the other stations at this site (were their maxima to coincide, which they do not) is 94.25% of the FCC standard for uncontrolled environments.

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.

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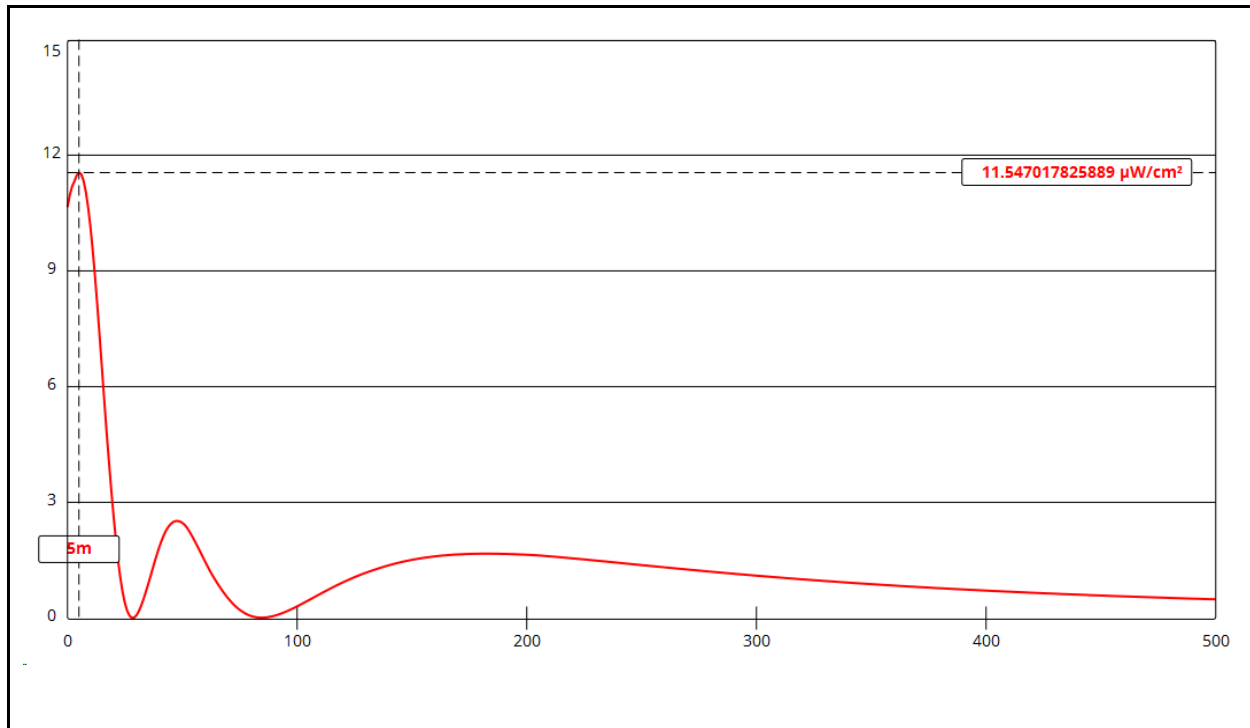
Ground-Level RF Exposure   **OET FMModel**

KXMQ 249C2 McNary
Antenna Type: Bext TFLHO-3 (Type 1)
No. of Elements: 3
Element Spacing: 0.85 wavelength

Distance: 500 meters
Horizontal ERP: 4.1 kW
Vertical ERP: zero kW

Antenna Height: 38 meters AGL

Maximum Calculated Power Density is 11.5 µW/cm^2 at 5 meters from the antenna structure.

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