

October 2014
KFUT(FM) Channel 282A Auxiliary Antenna
KQCM(FM) Channel 286A Auxiliary Antenna
RF Exposure Study

Facilities Proposed

The KFUT and KQCM auxiliary antennas will be side-mounted on an existing tower in the Indio Hills. The antenna support structure does 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.

The proposed KFUT auxiliary operation will be on Channel 282A (104.3 MHz) with a maximum lobe effective radiated power of 350 watts. Operation is proposed with a 1-element vertically-polarized directional antenna.

The proposed KQCM auxiliary operation will be on Channel 286A (105.1 MHz) with a maximum lobe effective radiated power of 350 watts. Operation is proposed with a 1-element vertically-polarized directional antenna.

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 1000 meters. Values past this point are increasingly negligible.

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Calculations of the power density produced by the proposed KFUT auxiliary antenna system assume a Type 1 element pattern, which is the element pattern for the dipole antenna proposed for use. The highest calculated ground level power density occurs at a distance of 6 meters from the base of the antenna support structure. At this point the power density is calculated to be 19.3 $\mu\text{W}/\text{cm}^2$.

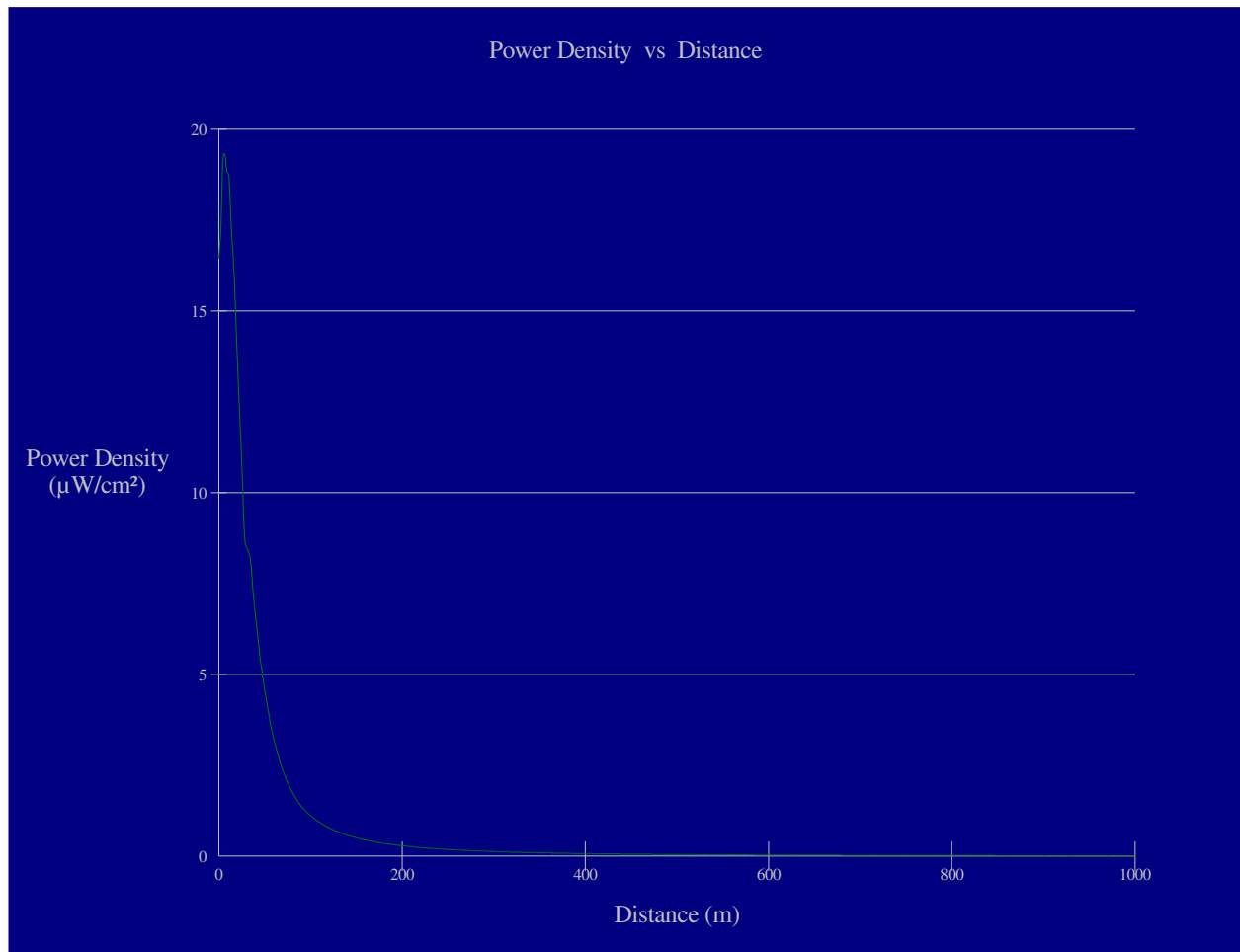
Calculations of the power density produced by the proposed KQCM auxiliary antenna system assume a Type 1 element pattern, which is the element pattern for the dipole antenna proposed for use. The highest calculated ground level power density occurs at a distance of 6 meters from the base of the antenna support structure. At this point the power density is calculated to be 15.3 $\mu\text{W}/\text{cm}^2$.

Calculations of the power density produced by the KFUT and KQCM auxiliaries, 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 Pub FCC Limit | % of Limit |
|----------------------|----------------------------------|-------------------|---------------|---------------------------------|-------------------------------|------------|
| KFUT Auxiliary | 0.350 kW avg 1-bay dipole | FMMModel | 26 m | 19.3 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 9.7% |
| KQCM Auxiliary | 0.350 kW avg 1-bay dipole | FMMModel | 29 m | 15.3 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 7.7% |
| KKUU Auxiliary | 1.15 kW avg ERI 1105-5A | FMMModel | 39 m | 32.5 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 16.3% |
| KCLB-FM Auxiliary | 3.6 kW avg ERI 1105-5A | FMMModel | 39 m | 101.8 $\mu\text{W}/\text{cm}^2$ | 200 $\mu\text{W}/\text{cm}^2$ | 50.9% |

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of the KFUT and KQCM auxiliaries and the other stations at this site (were their maxima to coincide, which they do not) is 85% of 200 $\mu\text{W}/\text{cm}^2$ (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.



Ground-Level RF Exposure

OET FMModel

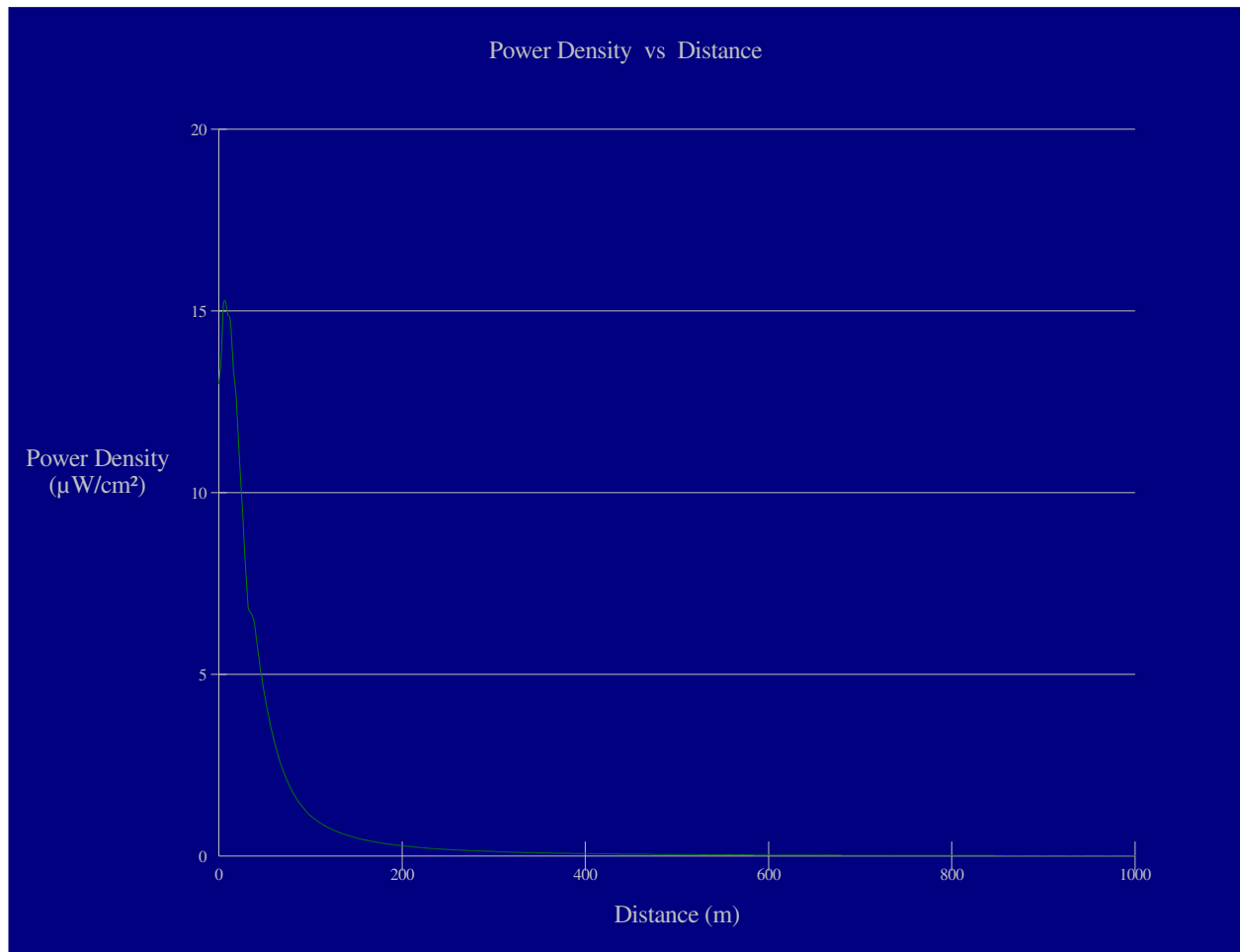
KFUT 282A Auxiliary Antenna

Antenna Type: Dipole
No. of Elements: 1
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: zero W
Vertical ERP: 350 W

Antenna Height: 26 meters AGL

Maximum Calculated Power Density is $19.3 \mu\text{W}/\text{cm}^2$ at 6 meters from the antenna structure.



Ground-Level RF Exposure

OET FMModel

KQCM 286A Auxiliary Antenna

Antenna Type: Dipole
No. of Elements: 1
Element Spacing: 1.0 wavelength

Distance: 1000 meters
Horizontal ERP: zero W
Vertical ERP: 350 W

Antenna Height: 29 meters AGL

Maximum Calculated Power Density is $15.3 \mu\text{W}/\text{cm}^2$ at 6 meters from the antenna structure.

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