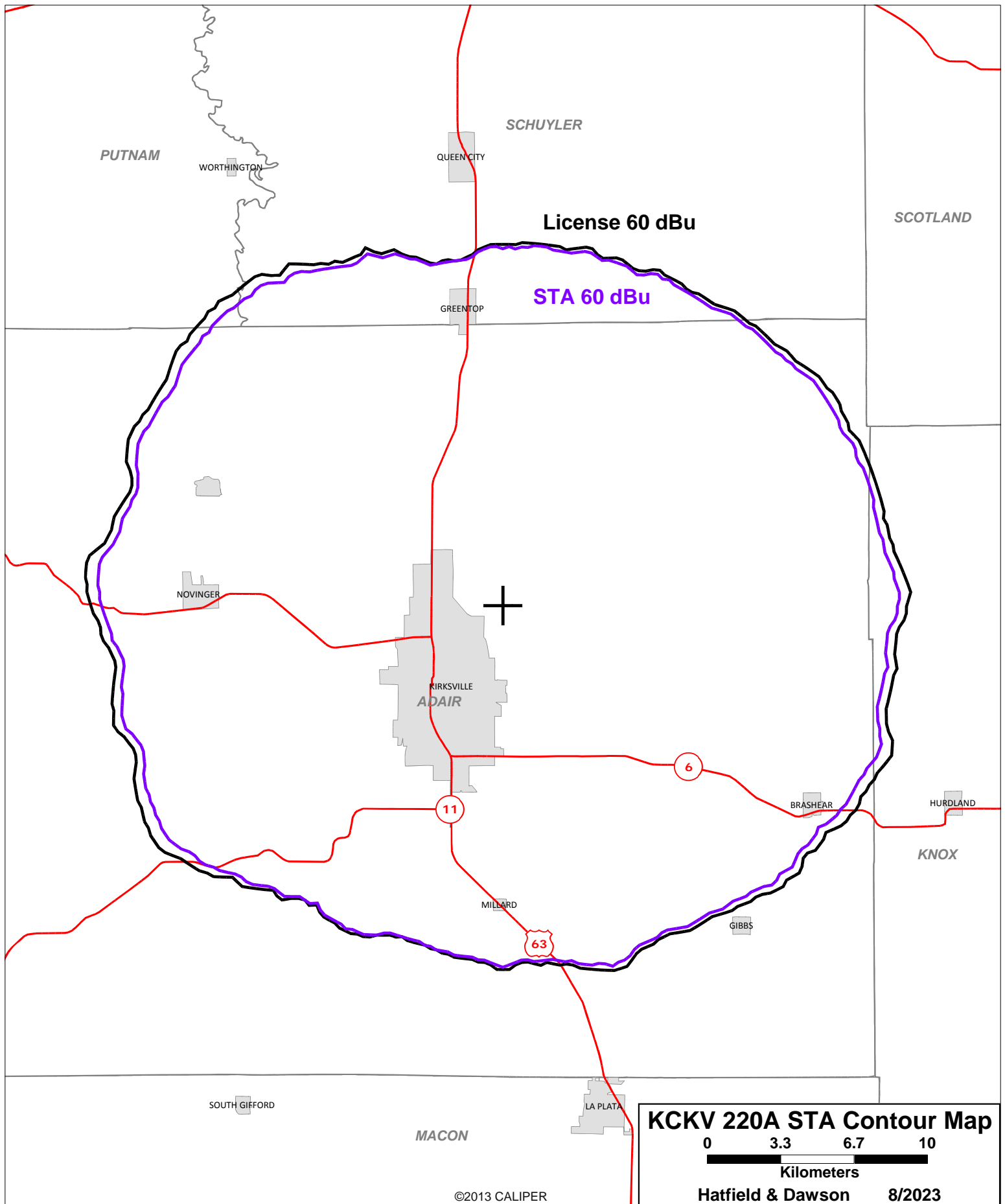


**August 2023
KCKV(FM) Channel 220A
Kirksville, MO
Engineering STA Request**

Due a failure of the licensed Shively 6812-3 antenna, the licensee of KCKV requests an engineering STA for operation of the station with the technical facilities specified in this application. A new antenna will need to be acquired and installed on the tower, and a full six-month engineering STA is requested.

The STA operation will be on adjacent ASR 1239220, using a single Scala FMVMP-1 vertical dipole antenna. As is depicted on the attached contour map the resulting 60 dBu contour will not exceed the licensed 60 dBu contour.

Hatfield & Dawson Consulting Engineers



**August 2023
KCKV(FM) Channel 220A
Kirksville, MO
RF Exposure Study**

Facilities Proposed

The proposed STA operation will be on Channel 220A (91.9 MHz) with an effective radiated power of 660 watts. Operation is proposed with a 1-element vertically-polarized dipole antenna, side-mounted on an existing tower with FCC Antenna Structure Registration Number 1239220.

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.

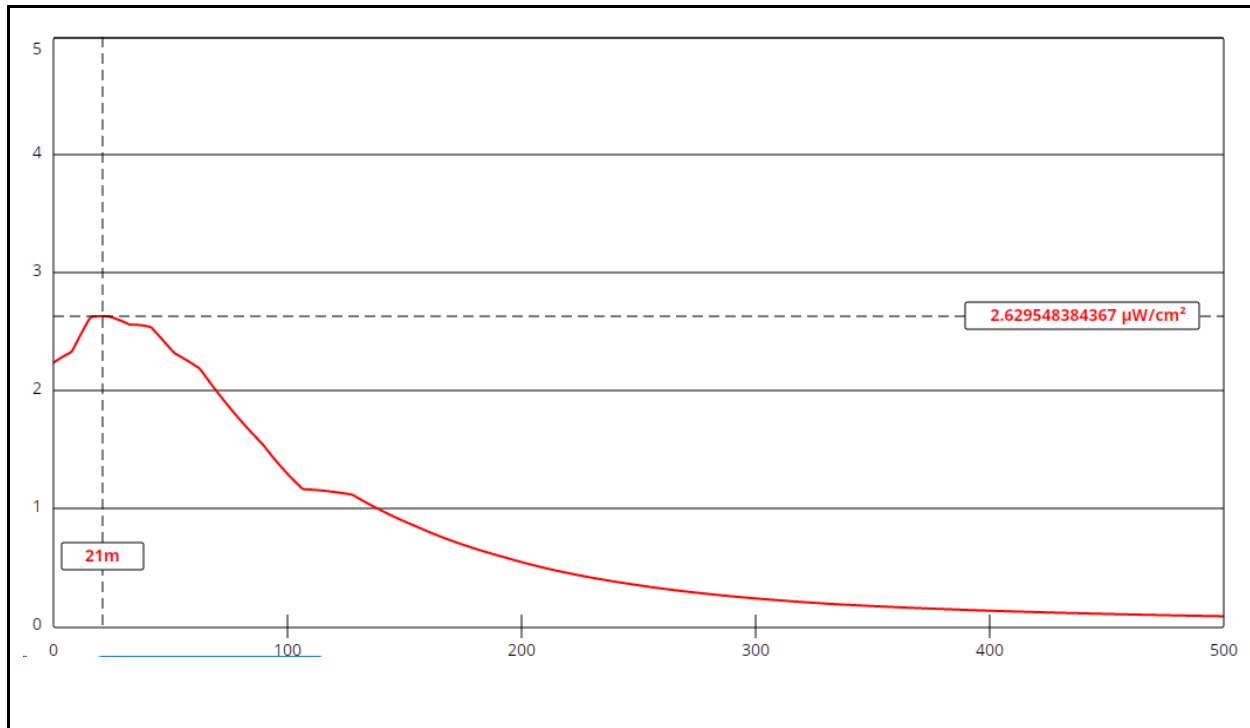
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed STA antenna system assume a Type 1 element pattern, which is the element pattern for the Scala dipole antenna proposed for use. The highest calculated ground level power density occurs at a distance of 21 meters from the base of the antenna support structure. At this point the power density is calculated to be 2.6 $\mu W/cm^2$, which is 2.7% of 200 $\mu W/cm^2$ (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 of the KCKV STA facility 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

KCKV 220A Engineering STA

Antenna Type: Scala FMVMP-1 (Type 1)

No. of Elements: 1

Element Spacing: 1 wavelength

Distance: 500 meters

Horizontal ERP: zero W

Vertical ERP: 660 W

Antenna Height: 91.4 meters AGL

Maximum Calculated Power Density is 2.6 $\mu\text{W}/\text{cm}^2$ at 21 meters from the antenna structure.