March 2021
KRNO(FM)   Channel 295C
Incline Village, NV
Auxiliary Antenna Modification

Background

The instant application is being filed as a modification of licensed facility for the KRNO(FM) auxiliary antenna system, to reflect a replacement of the antenna with a different model, and a corresponding adjustment in TPO.

Additionally, this license application requests that the auxiliary facility's community of license be updated from Reno, Nevada to Incline Village, Nevada, in order to conform with the main facility's license which was modified to Incline Village about 20 years ago.

Facilities Constructed

The proposed KRNO auxiliary operation is on Channel 295C (106.9 MHz) with an effective radiated power of 15 kilowatts. The replacement antenna is an ERI model SHP-4, which is side-mounted on an existing tower located at McClellan Peak.

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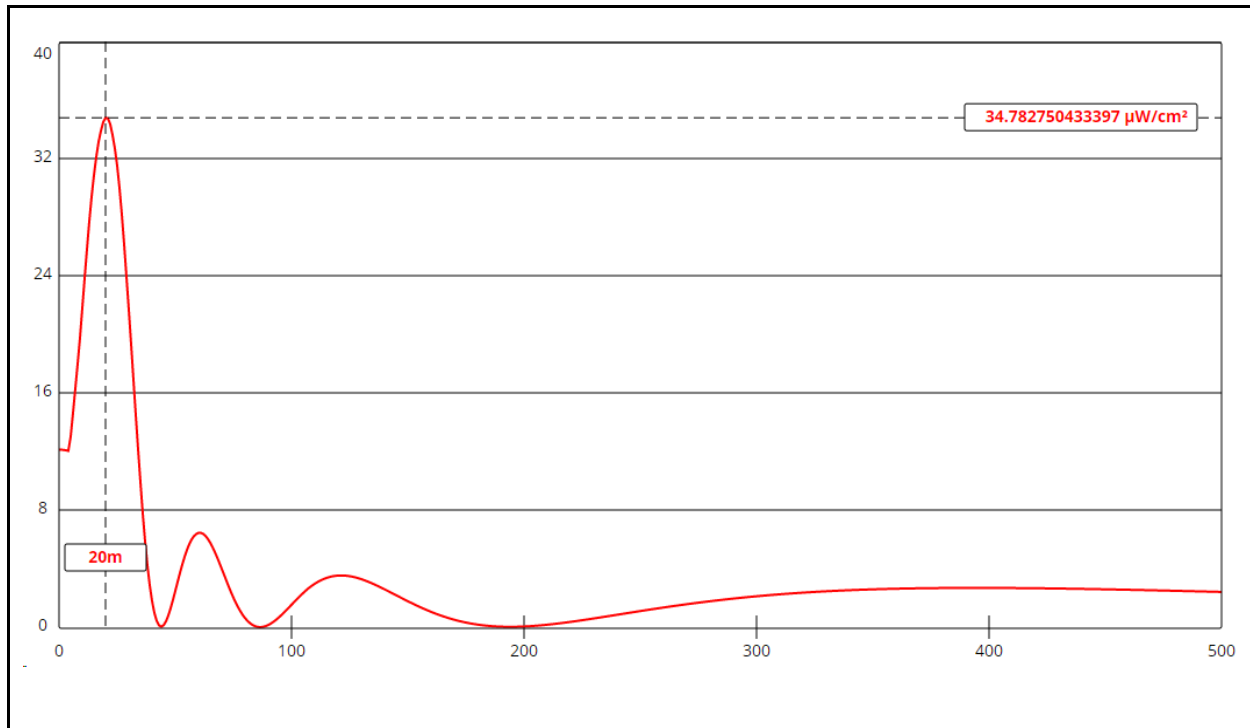
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

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Calculations of the power density produced by the KRNO auxiliary antenna system assume a Type 3 element pattern, which is the element pattern for the ERI SHP-4 antenna which has been installed. The highest calculated ground level power density occurs at a distance of 20 meters from the base of the antenna support structure. At this point the power density is calculated to be 34.8 μW/cm², which is 3.5% of 1000 μW/cm^2 (the FCC standard for controlled environments such as this one).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of the KRNO auxiliary 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(b)(3) of the Commission's Rules excludes 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.

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Ground-Level RF Exposure   **OET FMModel**

KRNO 295C Auxiliary
Antenna Type: ERI SHP-4 "rototiller" (Type 3)
No. of Elements: 4
Element Spacing: 1.0 wavelength

Distance: 500 meters
Horizontal ERP: 15 kW
Vertical ERP: 15 kW

Antenna Height: 52 meters AGL

Maximum Calculated Power Density is 34.8 µW/cm^2 at 20 meters from the antenna structure.

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