

**September 2014
KNRS-FM Auxiliary Channel 290C
Centerville, Utah
Allocation Study**

Background

The purpose of the instant application is to implement a channel change in the licensed auxiliary (backup) facility for FM station KNRS-FM at Centerville, Utah. In order to accommodate changes at other communities, the Commission's Report and Order in MB Docket No. 05-243 ordered KNRS-FM to change from Channel 289C to Channel 290C at Centerville. This application specifies Channel 290C operation at the station's licensed auxiliary transmitter site.

Separate applications are being filed to modify the KNRS-FM main and booster facilities to the station's new frequency.

Contour Map

The attached contour map exhibit demonstrates that the 60 dBu contour of the proposed auxiliary facility is entirely contained within the 60 dBu contour of the main KNRS-FM facility.

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Facilities Proposed

The proposed auxiliary facility operation will be on Channel 290C (105.9 MHz) with an effective radiated power of 15 kilowatts. Operation is proposed with the existing Jampro JMPC-5R-0.8, 5-element, 0.8 wavelength-spaced omni-directional antenna that is currently used by the KNRS-FM auxiliary. The antenna is installed on a tower at the Farnsworth Peak Telecommunications Site 17 miles southwest of Salt Lake City.

It should be noted that the KNRS-FM auxiliary is not diplexed with any other station. (While the KZHT auxiliary specifies the same coordinates and antenna height as specified herein, that facility operates through a different antenna, mounted on a different pole of the three-pole structure.)

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.

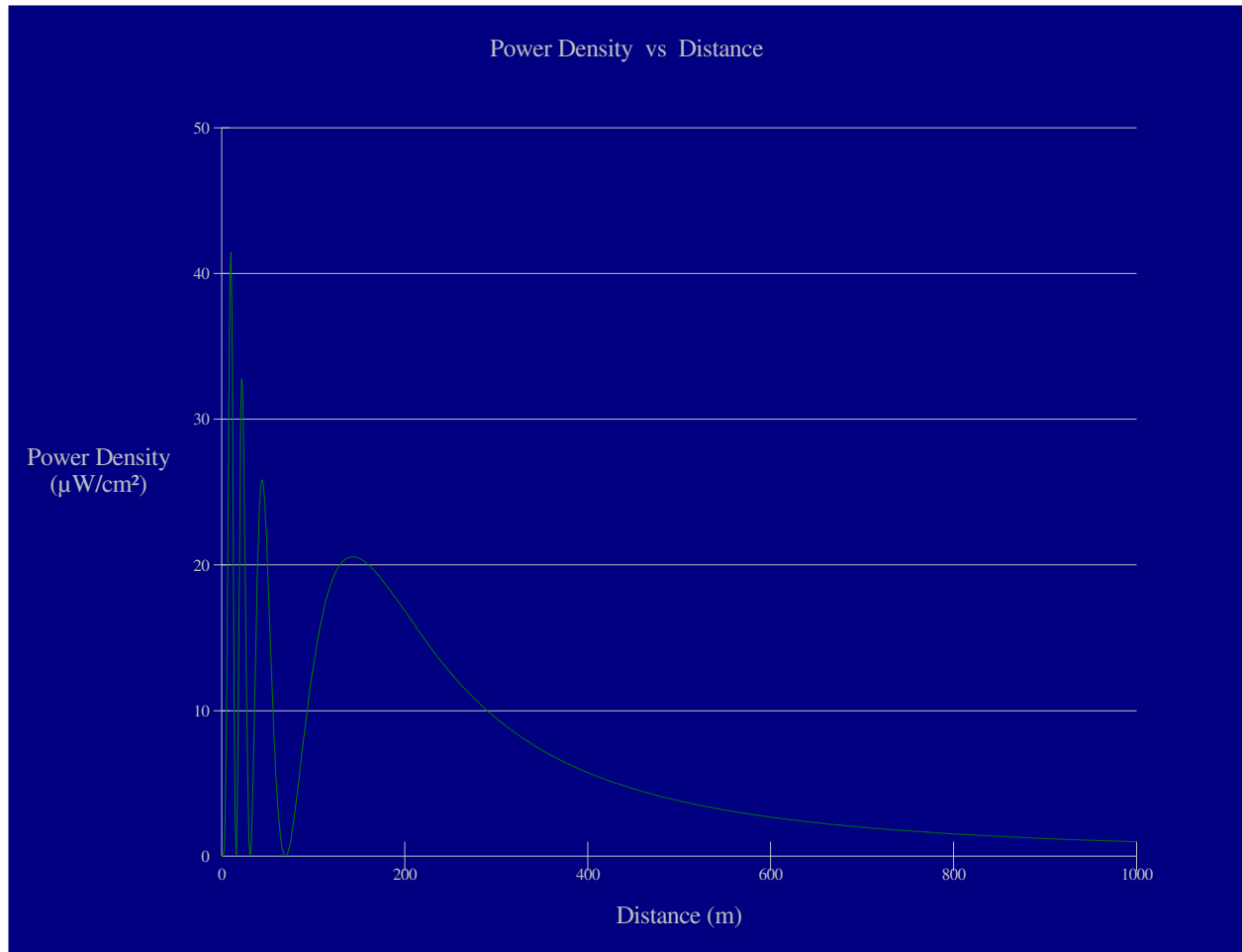
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 2 element pattern, which is the appropriate element pattern for the Jampro JMPC-5R-0.8 "double V"

antenna to be used. The highest calculated ground level power density from the KNRS-FM auxiliary alone occurs at a distance of 10 meters from the base of the antenna support structure. At this point the power density is calculated to be $41.5 \mu\text{W}/\text{cm}^2$, which is 4.2% of $1000 \mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments).

It should be noted that the modification proposed herein involves only a change in the station's output channel, with no change in the transmitter site location, antenna height, antenna model, or ERP. Therefore there is not expected to be any resultant change in the ground-level power densities at the transmitter site.

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

KNRS-FM 290C Centerville Auxiliary

Antenna Type: Jampro JMPC-5R-0.8

No. of Elements: 5

Element Spacing: 0.8 wavelength

Distance: 1000 meters

Horizontal ERP: 15 kW

Vertical ERP: 15 kW

Antenna Height: 20 meters AGL

Maximum Calculated Power Density is $41.5 \mu\text{W}/\text{cm}^2$ at 10 meters from the antenna structure.

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