

FIGURE 43**COMPLIANCE WITH RADIOFREQUENCY RADIATION GUIDELINES**

The instant application proposes the installation of an antenna on an existing tower. This installation will not require the height of the tower to be extended and is not expected to require any other significant alteration of the existing structure. Therefore, a grant of the instant application is not expected to have any significant impact on the local environment.

The potential for human exposure to non-ionizing radiofrequency radiation at the proposed transmitter site has been evaluated. In addition to the requested digital operation of KSBN on Channel 39 and the relocated NTSC operation of KSBN-TV on Channel 57, as proposed in a separate application, the transmitter site is also shared with KMCK-FM, which is licensed to serve Siloam Springs, AR, File No. BLH-19900104KB. KSBN-DT also holds an unbuilt “checklist” construction permit, File No. BPCDT-19991005ABG, for this transmitter site. However, for purposes of this study, the requested facility for KSBN-DT has been used since it offers the greater risk of human exposure to radiofrequency radiation due to its higher operating power. There are no other known broadcast facilities within 315 meters of the shared transmitter site.

The requested KSBN-DT facility will operate on Channel 39 with a maximum ERP of 316 kW using an Andrew Model ALP24M3-HSOC-39 antenna mounted approximately 96 meters above ground level (AGL). The relocated KSBN NTSC facility will operate on UHF television Channel 57 with a maximum effective radiated power (ERP) of 182 kW. The existing antenna, which will be moved to the new position on the tower, is an Andrew Model ALP24L3-HSO-57. At the new location, it will be side-mounted approximately 80 meters AGL.

KMCK-FM operates on Channel 289C1, 105.7 MHz, using an ERP of 100 kW. The station uses a circularly polarized antenna mounted approximately 126 meters AGL. The antenna employs ten EPA Type 3 elements that are spaced one wavelength apart.

This site has been evaluated for compliance with the FCC guidelines concerning human exposure to radiofrequency radiation. The standards employed are detailed in OET Bulletin No. 65 (Edition 97-01) and the accompanying Supplement A (Edition (97-01), as well as §1.1310 of Chapter 47 of the Code of Federal Regulations.

The RF Hazard™ software package from V-Soft Communications was used to determine the individual contribution of each station. FM radiofrequency radiation levels were predicted using both the array pattern, the calculations of which are based on the number of bays in the antenna and wavelength spacing between the bays, and the element pattern. The element pattern is determined by using measured element data prepared by the EPA and published in “An Engineering Assessment of the Potential Impact of Federal Radiation Protection Guidance on the AM, FM and TV Services,” by Paul C. Gailey and Richard Tell - April 1985, U.S. Environmental Protection Agency, Las Vegas, NV. For the television facilities a “worst case” scenario was

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developed by assuming a minimum relative field of 0.300 and a location immediately beneath the antenna where the distance between the radiator and the observer is minimized.

The results of the evaluations for all stations are shown in graphical form at the end of this exhibit. These displays were developed by making screen captures of the program. For the FM display, the “Dist. In Meters to Tower Base” slider has been adjusted to show the maximum predicted power density in the lower left-hand corner of the display. This value has been expressed in units of $\mu\text{W}/\text{cm}^2$, as well as a percentage of the limit for uncontrolled environments. The maximum value for the vertical axis of the graph has been selected to show the best possible definition of the data. The television displays also show the predicted exposure using these same units. All of the displays also show the maximum permitted power density for uncontrolled environments at the relevant frequency of operation. Since the limits for uncontrolled environments are five times more restrictive at these frequencies than for controlled environments, it is sufficient to simply show that the proposed operation will meet the uncontrolled limits.

To evaluate the total exposure to non-ionizing radio-frequency radiation it is necessary to sum the individual contributions as a decimal fraction of the maximum permissible limit. If the resulting sum is less than or equal to unity, the exposure is concluded to be within the guidelines of OET Bulletin No. 65 (Edition 97-01). To simplify the calculations and produce a “worst case” study, the maximum exposure level produced by each station has been selected without regard to the location of that exposure.

<u>Contributing Station</u>	<u>Maximum Contribution</u>	<u>Limit</u>	<u>Decimal Fraction of Limit</u>
KSBN-DT (DTV)	66.671 $\mu\text{W}/\text{cm}^2$	415.34 $\mu\text{W}/\text{cm}^2$	0.1605
KSBN-TV (NTSC)	55.769 $\mu\text{W}/\text{cm}^2$	487.34 $\mu\text{W}/\text{cm}^2$	0.1144
KMCK-FM	22.356 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	<u>0.1118</u>
Total Decimal Fraction			0.3867

Since the Total Decimal Fraction is less than unity for uncontrolled environment guidelines, the proposed installation will comply with the current FCC guidelines.

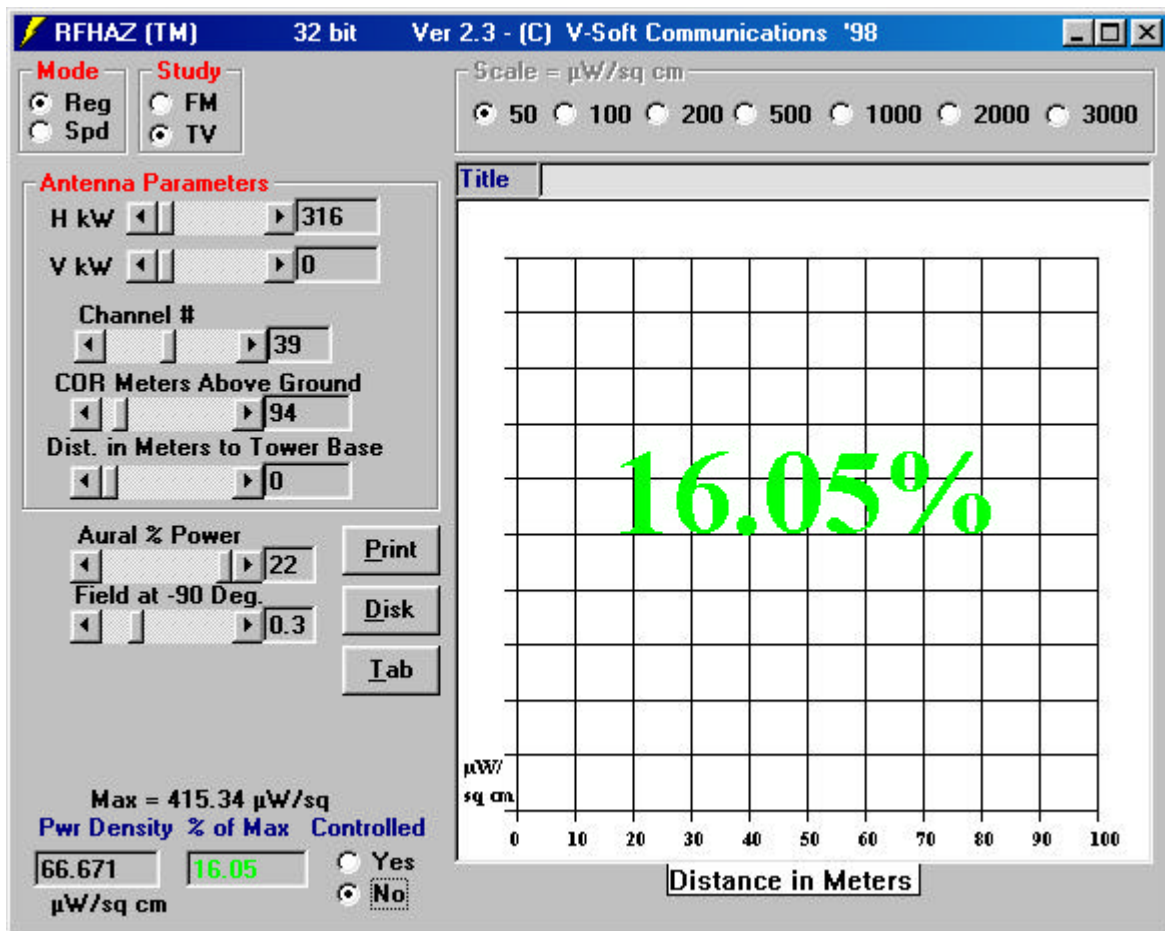
In addition to the protection afforded by the proposed antenna heights above ground, the facility is properly marked with signs, and entry to the facility is restricted by means of fencing with locked doors and/or gates. Any other means that may be required to protect employees and the general public will be employed.

In the event work is required in proximity to the antenna(s) such that the person or persons working in the area will be potentially exposed to fields in excess of the current guidelines, the applicant certifies that it will coordinate with other site users to reduce power, or cease operation during the critical period.

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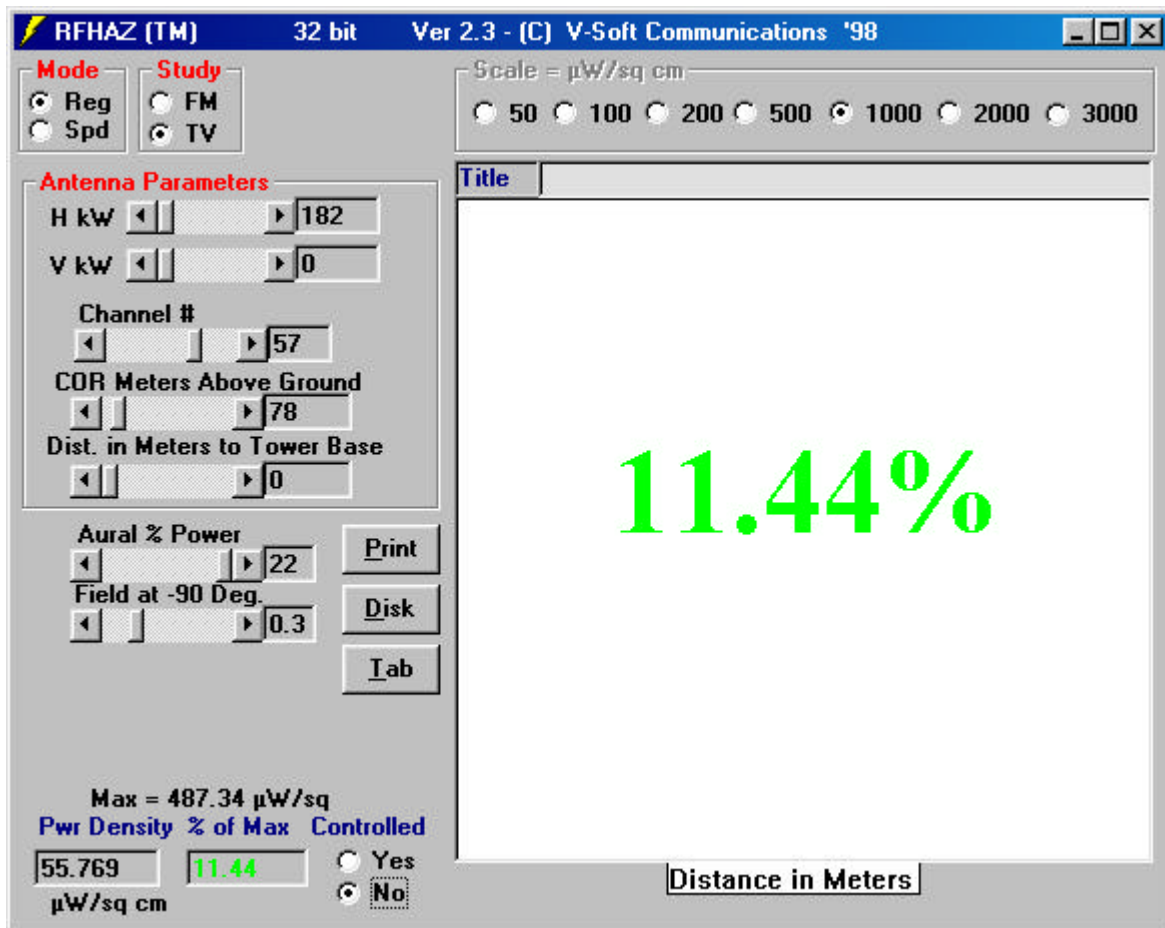
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PLOT OF TOTAL POWER DENSITY
PROPOSED KSBN-DT – Springdale, AR
Using an Andrew ALP24M3-HSOC-39 Antenna



The "COR Meters Above Ground" setting shown on the above display represents the height of the antenna center of radiation above an observer on the ground who is assumed to be 2 meters in height.

PLOT OF TOTAL POWER DENSITY
PROPOSED KSBN-TV – Springdale, AR
Using an Andrew ALP24L3-HSO-57 Antenna

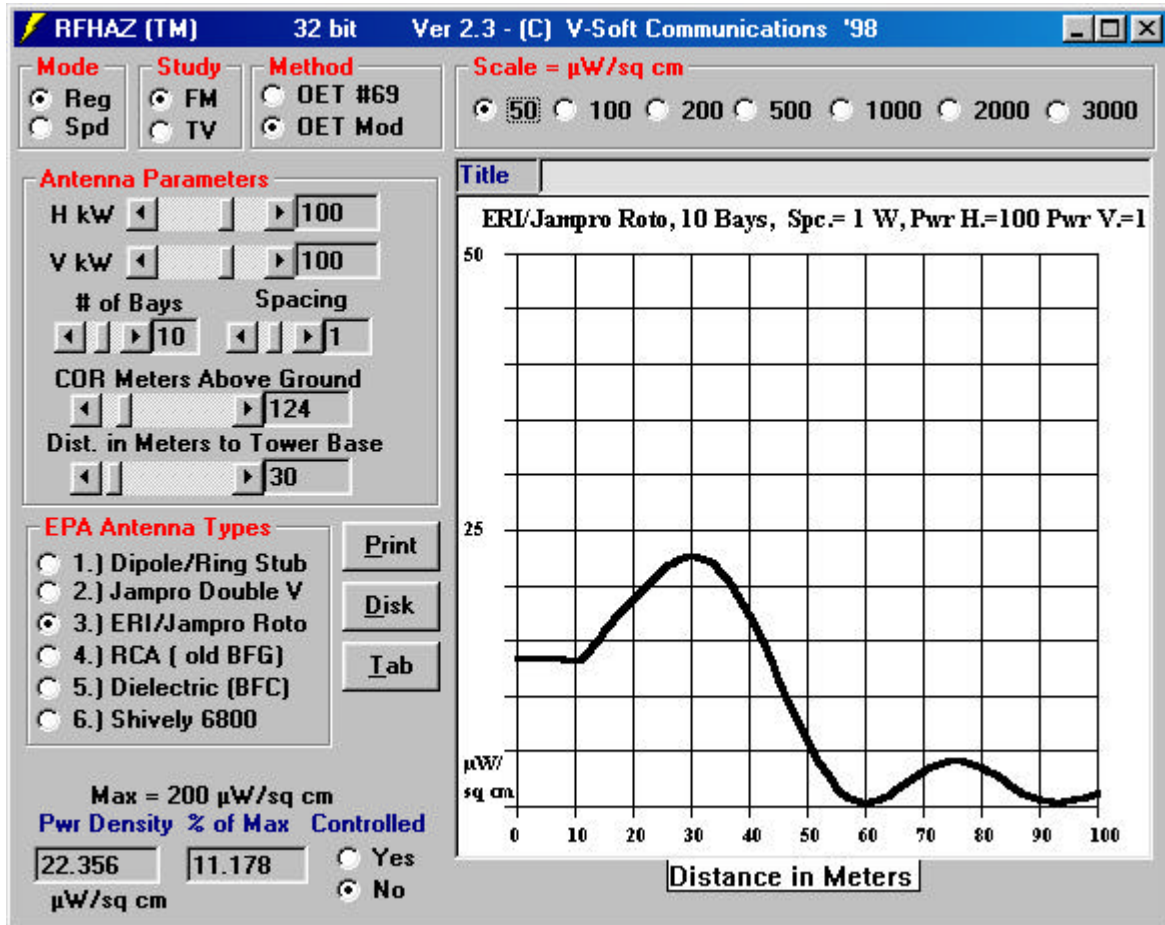


The "COR Meters Above Ground" setting shown on the above display represents the height of the antenna center of radiation above an observer on the ground who is assumed to be 2 meters in height.

PLOT OF TOTAL POWER DENSITY

KMCK-FM – Siloam Springs, AR

Using a 10 Bay EPA Type 3 Antenna



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