

**September 2014**  
**KXNV(FM) Channel 206C2**  
**Sun Valley, Nevada**  
**RF Exposure Study**

**Facilities Proposed**

The proposed operation will be on Channel 206C2 (89.1 MHz) with an effective radiated power of 0.790 kilowatts. Operation is proposed with a 2-element circularly-polarized omni-directional antenna which will be side-mounted on a tower located atop Virginia Peak in Nevada.

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.

**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 KXNV antenna system assume a Type 6 element pattern, which is the element pattern for the Shively antenna proposed for use. The highest calculated ground level power density occurs at a distance of 4 meters from the base of

the antenna support structure. At this point the power density is calculated to be  $74.7 \mu\text{W}/\text{cm}^2$ , which is 7.5% of  $1000 \mu\text{W}/\text{cm}^2$  (the FCC standard for controlled environments) and 37.4% of  $200 \mu\text{W}/\text{cm}^2$  (the FCC standard for uncontrolled environments).

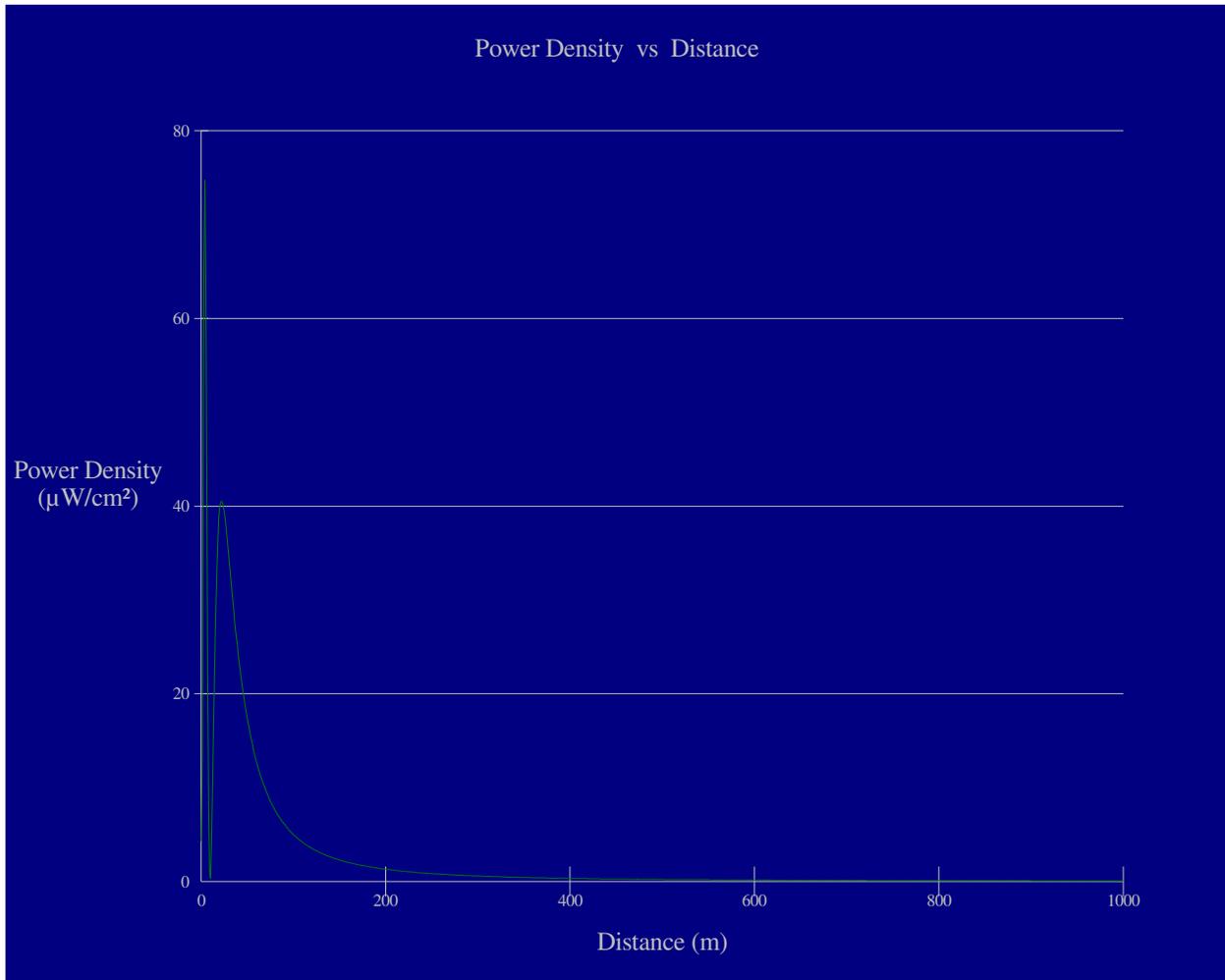
FM station KYSA is located on an adjacent tower. The distance between the two towers has been measured to be 76 meters, using aerial photography. Calculations of the power density produced by the KYSA antenna system assume a Type 3 element pattern, which is the element pattern for the ERI SHPX-2AE antenna used by that station. 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  $346.5 \mu\text{W}/\text{cm}^2$ , which is 34.7% of  $1000 \mu\text{W}/\text{cm}^2$  (the FCC standard for controlled environments) and 173% of  $200 \mu\text{W}/\text{cm}^2$  (the FCC standard for uncontrolled environments).

However, in the vicinity of the KXNV tower (i.e. 76 meters from the KYSA tower) the calculated ground-level power density contribution from KYSA falls to only about  $30 \mu\text{W}/\text{cm}^2$ . Therefore, when summed, the individual contributions of KXNV and KYSA will only be about 53% of the FCC standard for uncontrolled environments in the vicinity of the proposed KXNV tower. (See aerial photograph on following page.)



Likewise, in the vicinity of the KYSA tower, the calculated ground-level power density contribution from KXNV falls to only about  $9 \mu\text{W}/\text{cm}^2$ , which is less than 5% of the FCC standard for controlled and uncontrolled environments. The KYSA licensee stated in their license application BLED-20090831AAZ that, while “[t]here are two areas at the [KYSA] site which exceed the uncontrolled (public) exposure limits of OET-65. A gate and appropriate RF signage is in place to prevent casual access to the area.”

Therefore it is believed that the instant proposal complies with the Commission's requirements for Maximum Permissible Exposure as set forth in OET Bulletin No. 65. 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

#### KXNV 206C2 Sun Valley

Antenna Type: Shively 6812B-2

No. of Elements: 2

Element Spacing: 0.85 wavelength

Distance: 1000 meters

Horizontal ERP: 0.790 kW

Vertical ERP: 0.790 kW

Antenna Height: 9 meters AGL

Maximum Calculated Power Density is  $74.7 \mu\text{W}/\text{cm}^2$  at 4 meters from the antenna structure.