

**ENGINEERING STATEMENT RE;  
RADIO FREQUENCY EXPOSURE CALCULATION  
AND EXPOSURE COMPLIANCE STATEMENT  
KHOL(FM), BPED-19981231MK  
CH. 206C3, 2.2KW, 57m AGL  
JACKSON, WYOMING**

## **INTRODUCTION**

This engineering statement is prepared on behalf of Jackson Hole Community Radio, Incorporated, permittee of FM radio station KHOL at Jackson, WY. It supplies information regarding potential RF exposure at the authorized transmitter site. This statement with attachment is submitted in support of a request for license to cover the underlying construction permit. The information contained in this statement has been determined in accordance with the FCC Rules and procedures.

## **BASIS OF R.F. EXPOSURE CALCULATION**

The authorized and constructed KHOL transmitter site is located at the crest of Snow King Mountain, south of the town of Jackson and in a National Forest area with difficult access. The RF exposure calculation for the immediate transmitter site area was based on the proposed operating facilities of KHOL, while considering the present facilities for other broadcast stations near the site. Other full power FM and TV stations are located nearby on adjacent towers but no other broadcast antenna is mounted on the KHOL supporting tower.

The KHOL FM transmitter facility will be constructed with a two-bay Nicom USA type BKG77 antenna, mounted at 57 meters Above Ground Level (AGL). This antenna is identical in construction to the Jampro "Double V" (EPA) type antenna. Approximately 50 to 150 meters away are the antennas of several other stations. Also sharing the Snow King communications site are; TV stations KJWY and KBEO, and FM stations KUWJ, KJAX, KZJH and KMNT.

The KHOL(FM) RF Exposure source was evaluated using antenna vertical pattern represented by the Jampro "Double V" (EPA) pattern data contained in the FCC FM Model program V 2.10(b) computer program. It was assumed that the antenna emissions are undistorted by tower mounting and that the RF signals are projected equally around the tower. The RF Sources at this location are all on towers at the top of a mountain peak. After a short distance out from the towers the terrain falls away quickly. The formulas and procedures in the program FM Model, supplied by the FCC, have been used for all calculations. A copy of that program graphical output is attached.

## **CALCULATED R.F. EXPOSURE CONTRIBUTIONS**

The full power FM and TV stations at the site contribute the only significant RF exposure at any location nearby. An analysis of KHOL(FM) was conducted and the results demonstrate that the main concentration of its ground level exposure occurs near the base of its tower, at approximately 30 meters out. The other sources, being similar facilities, but with larger antennas, higher ERP and at similar heights, will also contribute their main exposure contribution near the base of their supporting towers, typically 15 meters out from the base.

The ERP and height of the KHOL(FM) facility, 2.2kW at 57m AGL, with the above described antenna will contribute approximately 9.2 uW/cm<sup>2</sup> RF Exposure at ground level. This is 4.6% of the FCC adopted uncontrolled (public) exposure, and 0.9% of the FCC adopted controlled (worker) exposure level, at a radial distance of approximately 30 meters out from the tower base.

## **R.F. EXPOSURE CONTROL REQUIREMENTS**

The above calculation indicates that the maximum permissible guideline for neither the controlled or uncontrolled ground level exposure is reached at any ground level location. To minimize uncontrolled public exposure, access to the entire antenna site is controlled as described below.

The KHOL(FM) site is located on a mountain ridge south of Jackson, Wyoming. Vehicle access to the ridge is by way of a dirt road several miles from the nearest highway. The access road is closed to all public vehicle travel at all times and only authorized persons can take maintenance vehicles past the locked gates or across the private access at the base of the mountain. For approximately six months of the year, due to heavy snow pack, the road is closed to all but over snow vehicles or persons on foot. When the road opens in the summer, after the snow pack melts, it is then passable only by all wheel drive vehicles. The transmitter site can be reached on foot from the ski lift approximately one mile away. The site is remote from public access.

The road gate, access road and immediate site area is posted with signs restricting access and warning about R.F. Exposure. Public vehicle access on the road is not allowed. There is no other road access to the site. Cross country vehicle access is impossible due to the extreme rugged nature of the mountain terrain and not allowed in the area. Access on foot is possible, though difficult, through the National Forest area in which the antenna site is located. Cross country foot access is also restricted by the distance and the rugged terrain surrounding the site. The transmitter site is not predicted to exceed the Controlled or Uncontrolled Environment exposure levels as described above.

## R.F. EXPOSURE COMPLIANCE

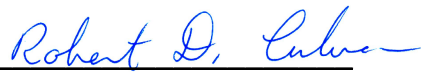
Compliance with the FCC adopted RF exposure limits will be assured under the following conditions. The operators of the multiple user transmission site have installed suitable barriers and warning signs to alert workers and to exclude access to the supporting towers and the area of potential exposure in excess of the FCC un-controlled and controlled exposure guidelines. The barriers and signs are sufficient to control ready access, such as the barrier gate across the access road.

FM station KHOL(FM) will generate a ground level RF Exposure of less than 5% of the FCC adopted uncontrolled (public) exposure level and far less than 5% of the controlled exposure level. It is therefore excluded from further RF control measures.

The site operators have adopted suitable working arrangements and other controls, such as lock-out / tag-out controls, so that employees can not access areas on the towers where exposure in excess of the controlled area exposure limits may be exceeded.

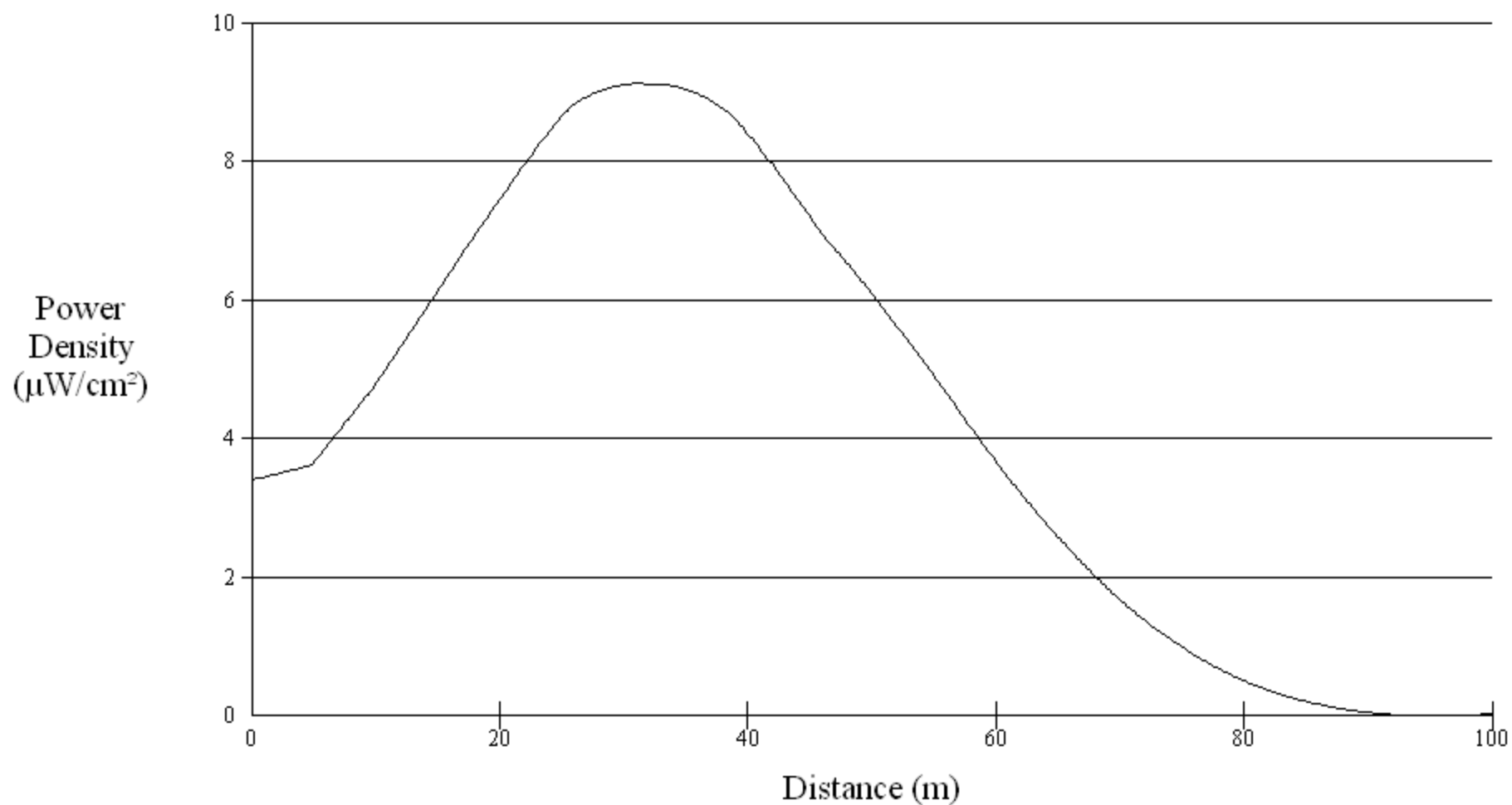
By these controls, exposure in excess of the FCC adopted RF limits is not possible.

Respectfully Submitted  
Lohnes & Culver;

by   
Robert D. Culver, P.E.  
Md. Reg. No. 19672

March, 2008

Power Density vs Distance



Office of Engineering and Technology

Distance (m):	<input type="text" value="100"/>	Antenna Type:	<input (epa)"="" double="" type="text" v"="" value="Jampro "/>
Horizontal ERP (W):	<input type="text" value="2200"/>	Number of Elements:	<input type="text" value="2"/>
Vertical ERP (W):	<input type="text" value="2200"/>	Element Spacing:	<input type="text" value="1"/>
Antenna Height (m):	<input type="text" value="57"/>		