

**ENGINEERING STATEMENT RE;  
RADIO FREQUENCY EXPOSURE CALCULATION  
AND EXPOSURE COMPLIANCE STATEMENT  
K285FG, BLFT-20070606AON  
CH. 285 FMTX, 250 WATTS, 22m AGL  
ROCK SPRINGS, WYOMING**

## **INTRODUCTION**

This engineering statement is prepared on behalf of Wagonwheel Communications Corporation, licensee of FM translator station K285FG, Rock Springs, WY. It supplies information regarding RF exposure at the transmitter site. This statement with attachments is submitted in support of a request for construction permit for a minor power and antenna height increase for the above FM Translator. The information contained in this statement has been determined in accordance with the FCC Rules and procedures.

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

The RF exposure calculation for the immediate transmitter site area was based on the proposed operating facilities of the translator and of the present facilities for other broadcast stations near the site. Three full power FM stations are co-owned by Wagonwheel and one is co-located and two are on a nearby tower located approximately 100 meters away. No other significant (full power) R.F. exposure sources are located within 200 meters. There are several low power FM and TV translator facilities at this and adjoining towers.

The new FM translator facility will be constructed with a two-bay Nicom USA type BKG77 antenna, mounted at 22 meters AGL. Also on this tower is KZWB FM with a 4-bay antenna with 10.5 kW ERP at 20 meters AGL and KFRZ(FM) with 100 kW ERP and a 8-bay Shivley antenna at 40 meters AGL. Approximately 100 meters away is another 100kW station, KYCS(FM) with the same 40 meter height as KFRZ(FM) and a 10-bay ERI antenna.

The various exposure sources were evaluated using typical antenna vertical pattern data supplied by the manufacturer and 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 formulas and procedures in the program FM Model, supplied by the FCC, have been used for all calculations.

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

The three full power FM stations at the site contribute the only significant RF exposure at any location nearby. An analysis of the proposed translator and current stations was conducted and the results demonstrate that the main concentration of existing ground level exposure occurs near the base of each of the two towers, within a 10 meter radius of each FM tower, and that they each do not contribute RF Exposure at each other site.

The non co-located 100 kW KYCS source at 40 meters AGL, using an ERI 10-bay antenna, creates a maximum power density of approximately  $240 \text{ uW/cm}^2$  at a radial distance of 10 meters out from the base of the tower. It does not significantly contribute to the co-located K285FG, KFRZ and KZWB RF exposure.

The 100 kW KFRZ source at 40 meters AGL using the Shivley 8 bay antenna, creates a maximum power density of approximately  $190 \text{ uW/cm}^2$  at approximately 12 meters from the base of the tower. The 10.5 kW ERP KZWB source at 20 meters, using a Shivley 4-bay antenna, creates a maximum power density of approximately  $160 \text{ uW/cm}^2$  at a radial distance of 8 meters out from the base of the antenna. The predicted present total power density near the tower supporting KFRZ and KZWB does not exceed  $350 \text{ uW/cm}^2$  in the area within approximately 10 meters of the base of the tower.

The increased ERP and height of the K285FG, 250 Watt ERP at 22 meters AGL, with the above described antenna will contribute an additional  $7.8 \text{ uW/cm}^2$  RF Exposure at ground level, 3.9% of the FCC adopted uncontrolled (public) exposure, at a radial distance of approximately 11 meters out from the tower base.

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

The above calculation indicates that the maximum permissible guideline for controlled ground level exposure is not reached at any ground level location, but that the un-controlled (public) limit is exceeded close to the existing towers. To eliminate public exposure, access to the entire antenna site is controlled as described below. Attached are several photographs showing the general location of the transmitter site, the rugged road and overland access to the site and the gate barring access to the road. Please refer to those photographs and the following descriptions.

The Wagon Wheel site is located on a mountain ridge southeast of Green River, Wyoming. Access to the ridge is by way of single lane dirt road approximately 4.5 miles from the nearest highway. The site is approximately 8 miles from the nearest habitation. The last several miles of the dirt access road is closed to all travel for approximately six months of the year due to snow pack and when open, after the snow pack melts, it is then

passable only by all wheel drive vehicles. The transmitter site is remote from public access.

The transmitter site access road is blocked by a locked gate across the road approximately 1 mile from the transmitter towers. The gate is posted with signs restricting access and warning about R.F. Exposure. Public access beyond the locked gate 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. Access on foot from the gate is not allowed and cross country foot access is also precluded by the distance and the rugged terrain as shown in the photographs. Public access to the transmitter site is restricted.

The transmitter site is not predicted to exceed the Controlled Environment exposure levels as described above. The site is not accessible to the general public and therefore there can be no Un-Controlled access exposure at the site.

## **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 public access to the supporting towers and the area of potential exposure in excess of the FCC un-controlled and controlled exposure guidelines. The barriers will be locked and are sufficient to control ready access, such as the barrier gate across the access road.

FM translator K285FG 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  
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by 

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January, 2008