

July 2005
KLZY(FM) Channel 223C1 Park City, Montana
NIER Analysis

Facilities Proposed

The proposed operation will be on Channel 223C1 (92.5 MHz) with an effective radiated power of 100 kilowatts. Operation is proposed with an 8-element circularly-polarized omni-directional antenna. The antenna will be side-mounted on an existing uniform cross-section guyed tower located at the Sacrifice Cliffs transmitter site. The FCC Antenna Structure Registration Number for the tower is 1239653.

NIER Calculations

In addition to KLZY, study of the area within 1000 meters of the proposed site reveals the following sources of non-ionizing radiation:

KLMT(FM)	207A	Billings
KBLW(FM)	211A	Billings
KLRV(FM)	215C3	Billings
KYYA-FM	227C1	Billings
KRKX(FM)	231C1	Billings
KRZN(FM)	242C1	Billings
KKBR(FM)	246C2	Billings
KGHL-FM	253C1	Billings
KRSQ(FM)	270C1	Laurel
KCTR-FM	275C1	Billings
KBBB(FM)	279C1	Billings
KNDZ(FM)	286A	Billings
KZRV(FM)	298C1	Billings
KTVQ(TV)	Ch 2	Billings
KULR-TV	Ch 8	Billings
KTVQ-DT	Ch 10	Billings
KULR-DT	Ch 11	Billings
K14IS	Ch 14	Billings
K20HB	Ch 20	Billings
K25BP	Ch 25	Billings
K36EZ	Ch 36	Billings

There are numerous FM translators at this site, but all operate with an ERP of less than 100 Watts and are therefore excluded from further study per Section 1.1307(b)(1) of the Commission's Rules.

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.

$$S(\text{mW} / \text{cm}^2) = \frac{33.40981 \times \text{AdjERP}(\text{Watts})}{D^2}$$

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 KLZY antenna system assume a Type 3 element pattern, which is the element pattern for the ERI antenna proposed for use. The highest calculated ground level power density occurs at a distance of 36 meters from the base of the antenna support structure. At this point the power density is calculated to be 22.7 $\mu\text{W}/\text{cm}^2$, which is 2.3% of 1000 $\mu\text{W}/\text{cm}^2$ (the FCC standard for controlled environments) and 11.4% of 200 $\mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

According to information provided by the KLZY engineer, the KLZY tower site is fenced (with a locked gate) out to a distance of approximately 400 feet from the tower base. The calculated ground level power density from KLZY alone drops below 5% of the FCC standard for uncontrolled environments, and remains below that level, at 56 meters (or 184 feet) from the tower base. Therefore, the proposed operation of KLZY is in compliance with regard to publically-accessible areas.

The various FM and TV stations at this site operate from a number of different towers, (many of which are in excess of 500 meters from the proposed KLZY tower site), and simple summation of the maximum calculated ground level power density from each facility would yield a result which may exceed the FCC standard for controlled environments within the fenceline. Therefore, the KLZY licensee is willing to accept a condition on the construction permit requiring on-site RFR measurements.

Public access to the tower site is restricted by a locked gate and the antenna tower is posted with warning signs. Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken.

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 radiation in excess of FCC guidelines.

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Power Density vs Distance

