



Engineering Statement

**Construction Permit Application for Minor Modification
K31FD-D
Boise, ID
FCC Facility ID # 11644
RF Channel 31**

November 25, 2020

This Engineering Statement has been prepared on behalf of HC2 Station Group, Inc. (HC2), licensee of Class A Digital Low Power Station K31FD-D at Boise, ID. The statement was prepared in support of a Construction Permit Application for changes to the facility as described below.

The station currently operates on channel 31 and is proposing to change its antenna make and model as well as antenna pattern at its transmitter existing site. Also, the applicant is correcting the antenna height based upon actual ground elevation. Therefore, HC2 is filing a construction permit application seeking authorization to construct facilities utilizing the new parameters as listed below.

The parameters of the proposed facility are as follows:

Proposed Parameters:

Transmitter Location:	43-45-18.0 N 116-05-55.0 W (NAD 83)
Channel:	31
ERP:	15.0 KW
Emission Mask:	Full Service
Antenna Pattern:	Omnidirectional
Antenna Manufacturer:	Dielectric
Antenna Model:	TUA-O4
Antenna RCAGL:	8.6 Meters
Overall Structure AGL:	79.2 Meters
RCAMSL	2154.4 Meters



Interference Study:

An interference study was undertaken utilizing the FCC's TVStudy program to analyze the co-channel and adjacent channel interference scenarios for the proposed facility parameters.

It is requested that processing of the application utilize the following parameters for processing and TVStudy analysis:

Study Cell Size: 1.0 KM
Profile Point Spacing: 0.10 KM

The results of the study indicated that no impermissible interference to other stations would result from the proposed operations.

Based upon the forgoing interference study, it is believed that the proposed facility can operate without any impermissible interference to other stations.

To the extent that the proposed facility would receive interference from other stations, the licensee will agree to accept the incoming interference that results from its proposal.

RF Exposure Study:

Furthermore, a study was conducted to determine compliance with the RF Radiation Maximum Permissible Exposure (MPE) limits of the proposed operation. The study was conducted using the methodology outlined in the FCC's OET Bulletin 65 regarding RF Radiation Compliance.

The study utilized the proposed antenna height of 8.6 meters above ground level and a reference height of 2 meters above the ground for the reference location. This yields a distance from the antenna of 6.6 meters.

The proposed antenna elevation pattern indicates that the downward radiation from the antenna from 45° to 90° below horizontal has a maximum relative field value of 0.10. This value was used in conjunction with the distance from the antenna and the prescribed formula from OET Bulletin 65 to determine a maximum predicted power density of 1150.14 μ W/cm² at 2 meters above the ground level near the base of the antenna support mast. Since the antenna is located within a fenced and locked compound it qualifies as a controlled environment and is only accessed by persons having an occupational necessity for access to the area. Hence, the Maximum Permissible Exposure Level (MPE) for the Controlled/Occupational environment for Channel 31 is approximately 1,916.67 μ W/cm².



Thus, the proposal is approximately 60% of the Controlled Environment/Occupational MPE level. Hence, the proposal is within the allowable MPE limits.

Because the antenna is located in a locked and fenced compound with other communications electronics, it is believed that no access by the general public or access by persons not having occupational RF safety training will be possible. Further, the licensee will post signage as appropriate on the fenced compound regarding the RF compliance procedures.

Finally, the licensee will engage the services of an RF Engineer to complete a comprehensive evaluation and measurements of site and those areas near the base of the antenna to ensure compliance with the MPE limits.

Based upon the forgoing it is believed that the proposed facility is in compliance with the required RF exposure limits.

The licensee and all station personnel and contractors are required to follow appropriate safety procedures before the commencement of any work on the rooftop or in close proximity to the antenna. These procedures including reducing power or turning off the transmitter before any work is undertaken at the site. The licensee in coordination with any other users of the site must reduce power or cease operations as necessary to ensure workers having access to the site, tower, and antenna locations are not exposed to RF Radiation levels in excess of those prescribed by FCC Guidelines.

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