KMHK(FM)
Worden, MT

Proposed Minor Modification
Of Permitted Facility

Application Overview:

KMHK(FM) (FCC Facility ID# 1315) proposes to modify its currently Permitted Facilities using the following parameters:

Tech Box:

Channel:	238
Class:	C1
Antenna Coordinates:	N45-46-00, W108-27-27 (NAD 27)
ASRN:	1001064
Tower Height AGL:	116.7 m
COR AMSL:	1203 m
COR AGL:	107 m
COR HAAT:	155 m
ERP:	100 kW
Directional Antenna:	No

Antenna Site City-Grade Coverage:

Exhibit 4 demonstrates that the proposed facility's antenna site provides city grade coverage of KMHK(FM)'s community of license – Worden, MT. As can be seen in the Exhibit, 100% of Worden's community boundaries are encompassed by the F(50,50) 70 dBu contour of the proposed facility. Exhibit 4A is a Profile Study of the intervening terrain between the

antenna site and the community of license. As can be seen in the Profile Study, a slight terrain obstruction is located between the community and the antenna. However, this obstruction would be considered minor for the following reasons: First, the antenna center of radiation is much higher than the obstruction. Second, line-of-sight is re-established on the far side of the community as the terrain climbs out of the Yellowstone River Valley. Third, both Longley-Rice and FM Point-to-Point alternate propagation studies confirm that much more than the requisite 70 dBu signal strength reaches and extends beyond the community. The contour map in Exhibit 4 depicts the FM Point-to-Point 73 dBu contour far outperforming the F(50,50) 70 dBu and it also depicts the Longley-Rice First Occurrence 77 dBu contour fully enveloping the community. Also, the Profile Study in Exhibit 4A demonstrates that the signal will not drop below 80 dBu at any location across the community. When taken together, compliance with the city-grade coverage of the community of license is easily demonstrated.

Downward Radiation Study (FM Model):

The proposed FM Facility has been evaluated in terms of potential radiofrequency electromagnetic field exposure at ground level in accordance with OET Bulletin No. 65, Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (OET Bulletin 65, Second Edition 97-01, August, 1997). The Commission's FM Model Power Density Prediction program was employed to determine the Field.

It should be noted that sister station KBBB(FM) 279C1 is co-located on the same tower below the instantly proposed KMHK(FM) antenna at the 76 meter level AGL (see BLH-19871221KD). Using the ERI Rototiller antenna with 6 sections and 1 wavelength spacing and the AGL height and ERP for the instantly proposed KMHK(FM) facility, the highest predicted

power density 2 meters above ground is less than 20.6% of the Uncontrolled Standard with a Power Density of 41.35 microwatts per square centimeter 34 meters from the base of the tower. Using the ERI Rototiller antenna with 8 sections and 1 wavelength spacing and the AGL height and ERP for the licensed KBBB(FM) facility, the highest predicted power density 2 meters above ground is less than 35.59% of the Uncontrolled Standard with a Power Density of 71.17 microwatts per square centimeter 20 meters from the base of the tower.

By simply summing the Power Density for both stations in a worst-case scenario (112.52 microwatts per square centimeter), the two stations will be 56.26% of the Uncontrolled Standard. Of course, this is an overly conservative measure as the peak readings for the two antenna systems occur at different distances from the base of the tower.

Even though the site will fully comply with the Uncontrolled Site Standards, access to the transmitting site will be restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, shall be taken to ensure that the human exposure to radiofrequency radiation will not exceed the FCC guidelines.

Existing Tower:

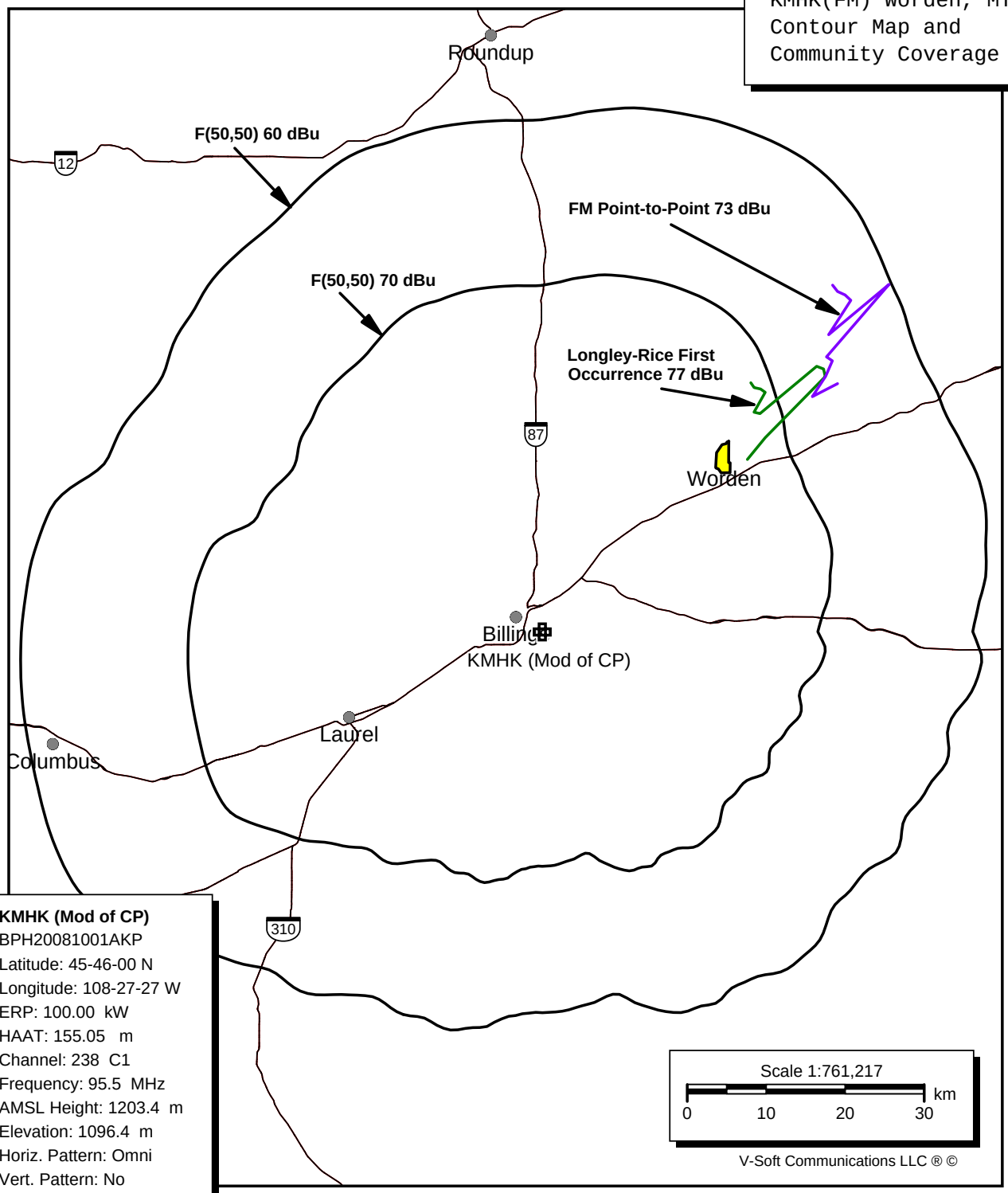
The proposed facility is exempt from environmental processing because the facility is not located at a location specified in Section 1.1307(a)(1)-(8) of the Commission's Rules and since the tower in question already exists.

Exhibit 4

Proposed Antenna Site
Contour Map:

F(50,50) Protected Contour
F(50,50) City-Grade Contour

KMHK(FM) Worden, MT
Contour Map and
Community Coverage

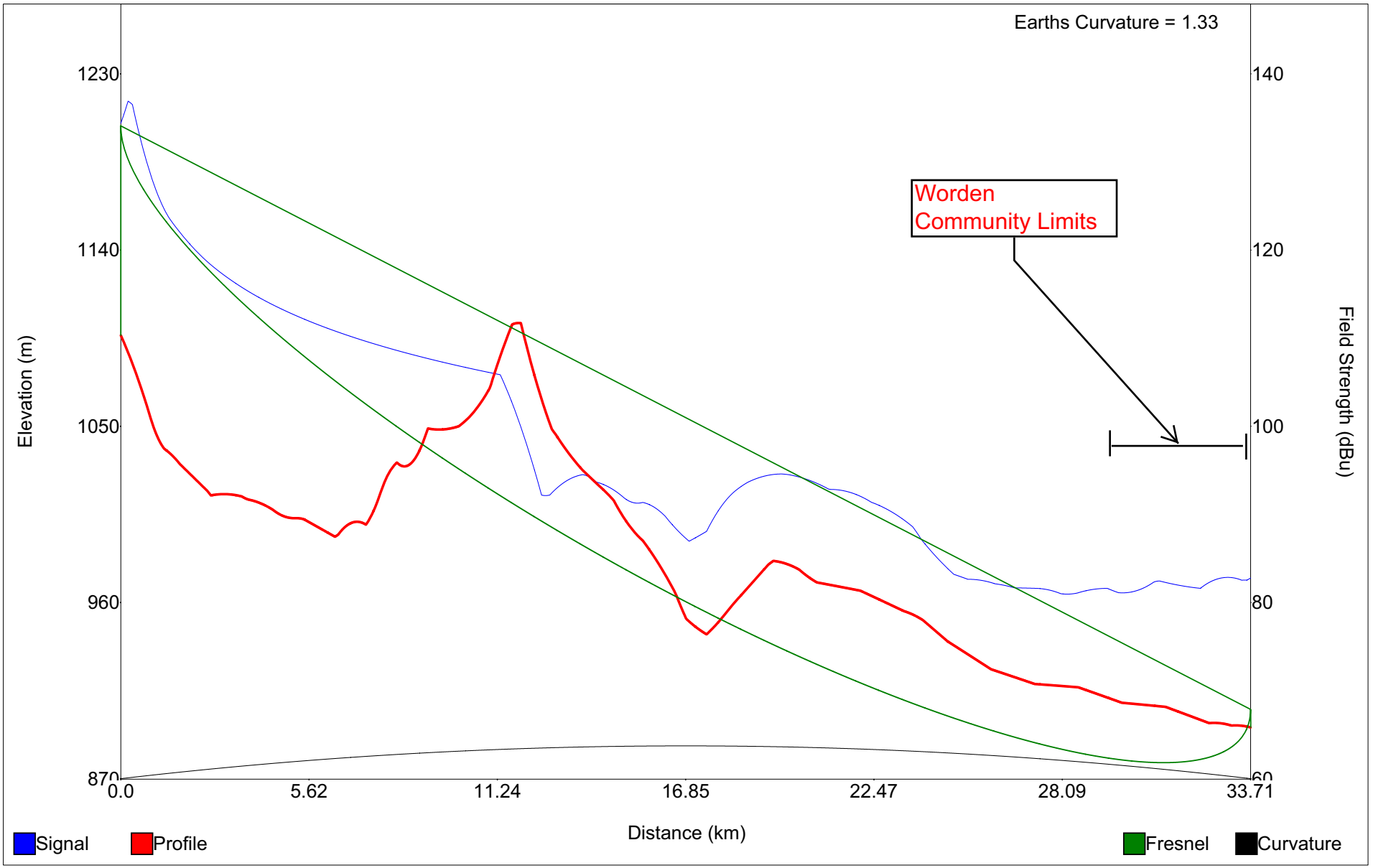


KMHK (Mod of CP)
BPH20081001AKP
Latitude: 45-46-00 N
Longitude: 108-27-27 W
ERP: 100.00 kW
HAAT: 155.05 m
Channel: 238 C1
Frequency: 95.5 MHz
AMSL Height: 1203.4 m
Elevation: 1096.4 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0150
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 9.1 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast

Exhibit 4A

Profile Study:
Antenna Site to Worden, MT

KMHK(FM) Line of Sight to Far Side of Warden, MT



Starting Latitude: 45-46-00 N
Starting Longitude: 108-27-27 W

End Latitude: 45-58-58.55 N
End Longitude: 108-09-11.46 W

Distance: 33.71 km
Bearing: 44.40 deg

Transmitter Height (AG) = 107.0 m
Receiver Height (AG) = 9.1 m

Transmitter Elevation = 1096.4 m
Receiver Elevation = 896.2 m

Frequency = 95.5 MHz
Fresnel Zone: 0.6

V-Soft Communications LLC

Exhibit 5

Proposed Antenna Site
Channel Spacings Study

KMHK(FM) 238C1 Worden, MT
Section 73.207 Antenna Site Channel Spacings Study

REFERENCE
45 46 00.0 N.
108 27 27.0 W.

CLASS = C1
Current Spacings
Channel 238 - 95.5 MHz

DISPLAY DATES
DATA 07-25-09
SEARCH 07-30-09

Call	Channel		Location		Azi	Dist	FCC	Margin
KMHK.C	CP	238C1	Worden	MT	100.2	0.17	244.5	-244.33
KMHK	LIC	238C0	Worden	MT	96.4	24.97	258.5	-233.53
KMBR	LIC	238C	Butte	MT	276.4	310.42	269.5	40.92