

**K234BY**  
**Billings, MT**  
Proposed Minor Modification  
of Translator Construction Permit

**Application Overview:**

In BPFT-20150928AAH, using a Mattoon Waiver, the Commissioned authorized K234BY to relocate to a new tower to translate the signal of KGHL(AM) Billings, MT. Unfortunately, the tower proposed in that application failed its structural analysis test when the authorized antenna was added. As such, the applicant has entered into an agreement to relocate the instantly proposed facility to a different tower located approximately ½ mile southeast of its permitted location. As such, the Applicant proposes to modify BPFT-20150928AAH using the following parameters:

**Tech Box:**

Channel:	234
Antenna Coordinates:	N45-45-32, W108-27-07 (NAD 27)
ASRN:	N/A
Tower Site Base AMSL:	1129 m
Overall Tower Height AGL:	59 m
COR AGL:	50 m
ERP:	0.25 kW
Directional Antenna:	No

**Primary Station and Translator Protected Contour Relationship:**

Exhibit 1 demonstrates that the proposed fill-in translator facility's protected contour is completely encompassed by the 2 mV/m protected contour and the 25 mile antenna site radius of the primary AM station proposed for rebroadcast – KGHL(AM) Billings, MT. The map also demonstrates that the proposed facility continues to be mutually exclusive with its presently licensed site as required by Mattoon.

**Interference Study (Adjacent Stations):**

Exhibit 2 is a contour overlap study demonstrating that the proposed antenna site provides requisite contour protection towards all applications, authorizations, and permits pursuant to Section 74.1204 with the exception of the following:

- KRKX(FM) (BLH-19940930KB) on its Third adjacent channel
- K236AB (BLFT-19960716TG) on its second adjacent channel

Section 74.1204(a) states that “an application for an FM translator station will not be accepted for filing if the proposed operation would involve overlap of predicted field strength contours with any other station, including commercial and noncommercial educational FM stations, FM translators and Class D (secondary) noncommercial educational FM stations.” However, Section 74.1204(d) states, “the provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no

actual interference will occur due to intervening terrain, lack of population or other such factors as may be applicable.” Using the undesired-to-desired ratio method regarding interference to a second or third adjacent frequency, interference is predicted to occur where the translator’s undesired signal exceeds the protection station’s desired signal by more than 40 dB. The free space formula was used to determine the signal strength of the proposed facility, in dBu, at the antenna site of the adjacent station(s).

The signal strength of KRKX(FM) at the proposed site is calculated to be 142.8 dBu. As such, the interfering contour of the proposed facility is its F(50,10) 182.8 dBu contour which does not reach the ground at the proposed antenna site.

The signal strength of K236AB just beyond the proposed site is calculated to be 63.4 dBu. As such, the interfering contour of the proposed facility is its F(50,10) 103.4 dBu contour which extends a maximum distance of 750 meters from the proposed tower.

Exhibit 2A includes various satellite views of the proposed translator site. It is located at the Sacrifice Cliff FM and Television Antenna Farm above Billings, MT. There are no non-broadcast structures within the 103.4 dBu interfering contour predicted to be created by the translator. Therefore, due to the absence of “potential listeners” within the interference contour, no interference is expected to occur.

**Proposed Translator Located Below All Other Facilities on Tower:**

Since the proposed Translator antenna is located below the other previously authorized facilities on the tower, it will have no effect on the antenna pattern of the previously authorized facilities on the tower.

**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. Using the Phelps-Dodge "Ring Stub" Worst Case antenna with 1 sections and 1 wavelength spacing, and the AGL height and ERP proposed in this application, the highest predicted power density 2 meters above ground is less than 2.2% of the Uncontrolled Standard with a Power Density of 4.4 microwatts per square centimeter 13.2 meters 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 1**

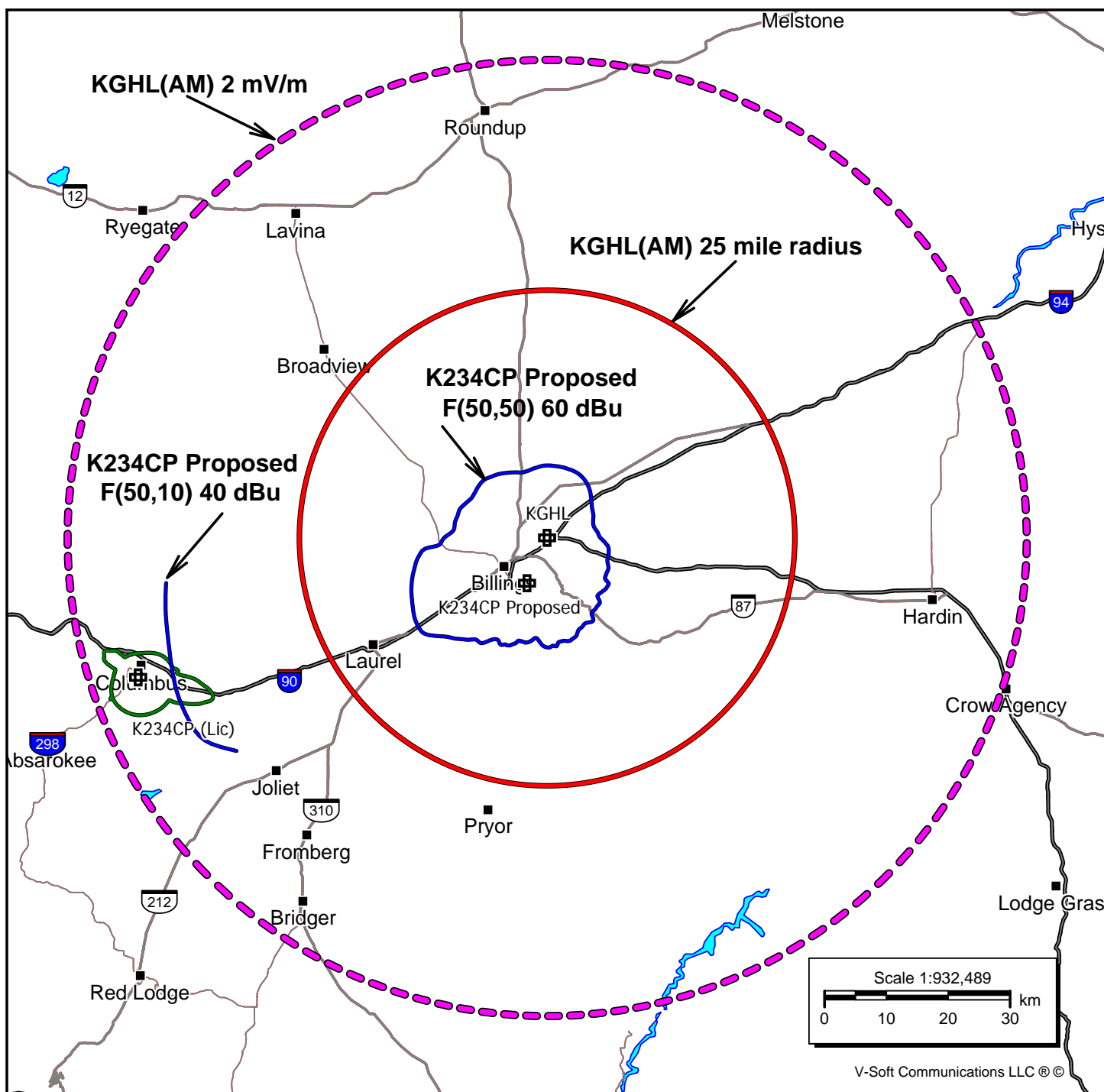
**Primary Station Protected Contour**

**vs.**

**Proposed Translator Protected Contour**

**vs.**

**Translator's Licensed Protected Contour**



#### K234CP Proposed

Proposed  
 Channel: 234D  
 Frequency: 94.7 MHz  
 Latitude: 45-45-32 N  
 Longitude: 108-27-07 W  
 COR AGL Height: 50.0 m  
 COR AMSL Height: 1179.0 m  
 Base Elevation: 1129.0 m  
 COR HAAT: 126.85 m  
 ERP: 0.25 kW  
 Horiz. Pattern: Omni  
 Vert. Pattern: No  
 Prop Model: None

#### K234CP (Lic)

BLFT20150917ACH  
 Channel: 234D  
 Frequency: 94.7 MHz  
 Latitude: 45-37-08 N  
 Longitude: 109-15-25 W  
 COR AGL Height: 7.0 m  
 COR AMSL Height: 1226.0 m  
 Base Elevation: 1219.0 m  
 COR HAAT: 0.0 m  
 ERP: 0.145 kW  
 Horiz. Pattern: Directional  
 Vert. Pattern: No  
 Prop Model: None

#### KGHL

Type: AM  
 Channel: 790  
 Latitude: 45-49-29 N  
 Longitude: 108-24-38 W

## **Exhibit 2**

### **Section 74.1204 Interference Tabulations**



K234CP Billings, MT Section 74.1204 Contour Overlap Tabulations CH# 234D - 94.7 MHz, Pwr= 0.25 kW, HAAT= 126.9 M, COR= 1179 M Average Protected F(50-50)= 14.46 km Omni-directional											
REFERENCE										DISPLAY DATES	
45 45 32.0 N.										DATA 02-02-16	
108 27 07.0 W.										SEARCH 02-13-16	
CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*	
234D K234CP Billings		CP DC_ MT	334.6 154.6	0.85 BPFT20150928AAH	45 45 57.0 108 27 24.0	0.250	26.5 1140	7.9 Hi-line Radio Fellowship,	-43.4*	-63.1*	
231C1 KRKX Billings		LIC_CN MT	344.4 164.4	0.16 BLH19940930KB	45 45 37.0 108 27 09.0	100.000 180	6.4 1231	54.1 Connoisseur Media Licenses	-24.5*	-55.1*	
236D K236AB Billings		LIC_CN MT	303.7 123.7	4.79 BLFT19960716TG	45 46 58.0 108 30 12.0	0.204 -2	1.0 1036	6.7 Townsquare Media Billings	-11.1*	-6.6*	
234D K234CP Columbus		LIC DV_ MT	256.3 75.7	64.61 BLFT20150917ACH	45 37 08.0 109 15 25.0	0.145	20.4 1226	6.1 Hi-line Radio Fellowship,	25.2	-0.6	
235C KZWY Sheridan		LIC_C_ WY	139.9 320.8	164.26 BLH19990914AAM	44 37 20.0 107 06 57.0	75.000 368	121.4 2380	82.1 Lovcom, Inc.	31.2	65.3	
233C2 R14314 Cody		RSV-R ____ WY	192.4 12.2	135.21	44 34 13.0 108 49 09.0	50.000 150	89.3 1685	60.6	35.8	60.4	
233D K233BD Hardin		LIC_V_ MT	90.9 271.6	71.36 BLFT20070607AAA	45 44 41.0 107 32 06.0	0.205 57	16.9 1001	11.6 Stewart Communications, In	41.3	40.1	

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM  
 Contour distances are on direct line to and from reference station. Reference zone= , Co to 3rd adjacent.  
 All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.  
 Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
 "\*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

## **Exhibit 2B**



### **Satellite Pictures of F(50,10) Interfering Contour**




# K234CP vs K236AB

Second Adjacent Interference Area

## Legend

-  K234CP F(50,10) 103.4 dBu Interfering Contour
-  K236AB F(50,50) 63.4 dBu Protected Contour

 K234CP (234)

Google earth

800 m







# K234CP vs K236AB

Second Adjacent Interference Area

## Legend

-  K234CP F(50,10) 103.4 dBu Interfering Contour
-  K236AB F(50,50) 63.4 dBu Protected Contour

1027300

1225265

1239653

1020873

1214911

Google earth

Image Landsat





100 m



# K234CP vs K236AB

Second Adjacent Interference Area

## Legend

-  K234CP F(50,10) 103.4 dBu Interfering Contour
-  K236AB F(50,50) 63.4 dBu Protected Contour

Google earth

Image Landsat

200 m







# K234CP vs K236AB

Second Adjacent Interference Area

## Legend

-  K234CP F(50,10) 103.4 dBu Interfering Contour
-  K236AB F(50,50) 63.4 dBu Protected Contour

