

K262AZ
Bozeman, MT
Proposed Minor Modification
of Licensed Translator Facility

Application Overview:

The Applicant proposes to modify BLFT-20070615ADL using the following parameters:

Tech Box:

Channel:	262
Antenna Coordinates:	N45-41-54, W111-01-41 (NAD 27)
ASRN:	N/A
Tower Site Base AMSL:	1441 m
Overall Tower Height AGL:	52 m
COR AGL:	49.7 m
ERP:	Vertically Polarized 0.205 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 NOT completely encompassed by the protected contour of the primary station being rebroadcast. Therefore, the MERP Rules have been employed to determine the Maximum ERP for the station. Exhibit 1 also includes a table of the Heights Above Average Terrain taken every 12 radials from the antenna site. As can be seen in that table, the highest HAAT is achieved on the 330 degree radial with a height of 113.5 meters. At that HAAT, the MERP for a non-directional antenna would be 205 Watts.

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:

- KXLB(FM) (BLH20000906AHE) on its Second adjacent channel
- KBOZ-FM (BLH20081230AHB) 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 KXLB(FM) at the proposed site is calculated to be 100.1 dBu. As such, the interfering contour of the proposed facility is its F(50,10) 140.1 dBu contour which extends a maximum distance of 10 meters from the proposed antenna. Since the antenna is located at 49.7 meters above ground level, without considering the elevation pattern of the proposed antenna, the interfering contour that would affect KXLB(FM) does not reach the ground at any location.

The signal strength of KBOZ-FM at the proposed site is calculated to be 82.8 dBu. As such, the interfering contour of the proposed facility is its F(50,10) 122.8 dBu contour which extends a maximum distance of 73 meters from the proposed tower. Since the antenna is located at 49.7 meters above ground level, without considering the elevation pattern of the proposed antenna, the interfering contour that would affect KBOZ-FM would easily reach the ground. Therefore, the surrounding structures must be examined to determine if the interfering contour would penetrate an occupied structure.

Exhibit 2A includes a satellite view of the proposed translator site. The protected contours of KBOZ-FM and KXLB(FM) are included along with the proposed F(50,10) 122.8 dBu interfering contour that would impact KBOZ-FM. As can be seen on the map, without regard to the antenna's elevation pattern, the interfering contour would overlap an occupied structure to the west of the site and an unoccupied structure to the south of the site.

However, when taking the elevation pattern of the proposed antenna into account, as can be seen in Exhibit 2B, the interfering contour does not reach the ground or penetrate the roof line

of each of the identified structures. Therefore, due to the absence of “potential listeners” within the interference contour, no interference is expected to occur.

No Other Co-Located Directional Emitters:

No directional emitters are authorized to use the proposed 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 1.4% of the Uncontrolled Standard with a Power Density of 2.86 microwatts per square centimeter 11 meters from the base of the tower.

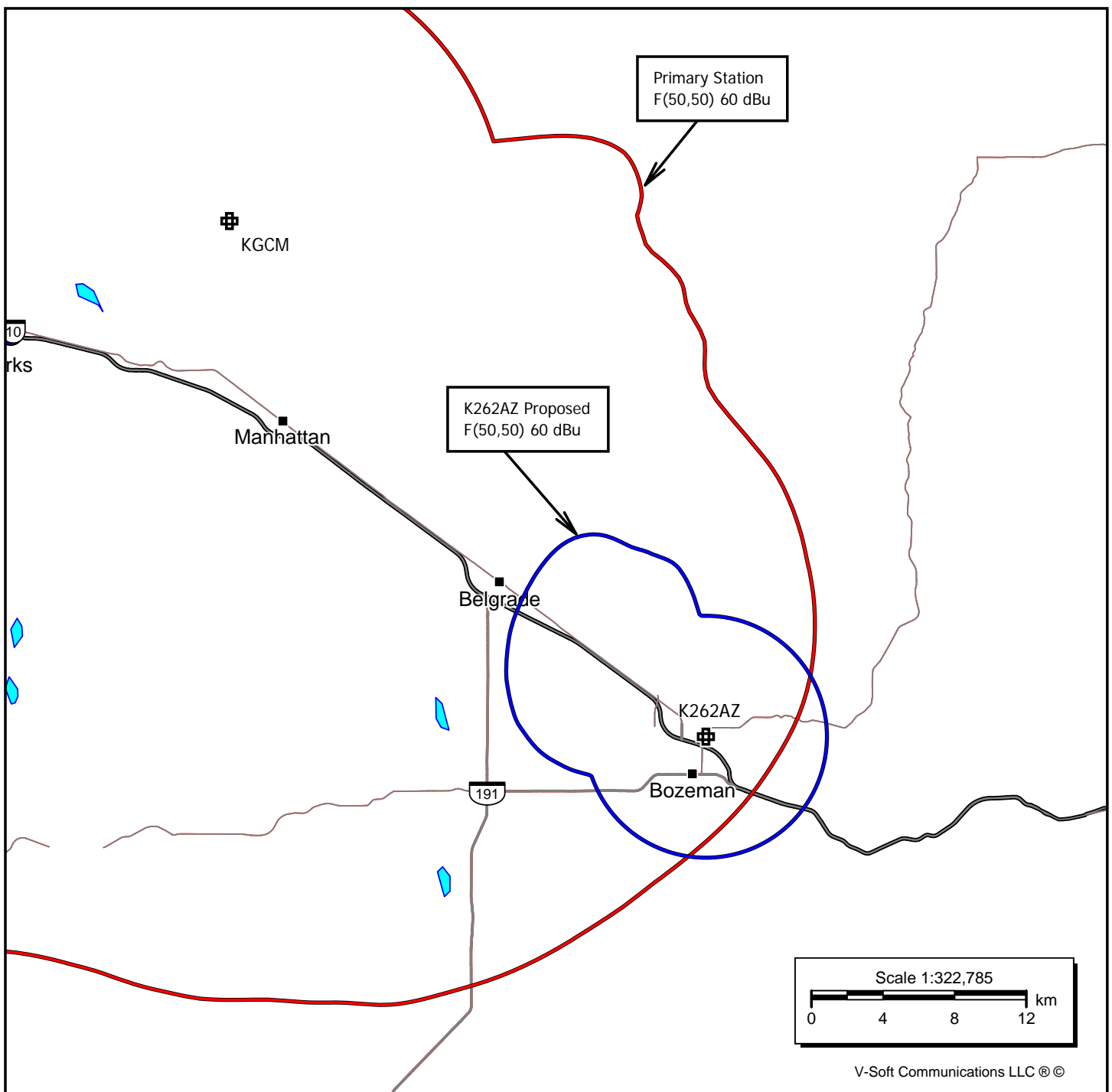
Even though the site will fully comply with the Uncontrolled Site Standards, access to the transmitting site will be restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, 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**

**K262AZ**

Proposed
Channel: 262D
Frequency: 100.3 MHz
Latitude: 45-41-54 N
Longitude: 111-01-41 W
COR AGL Height: 49.7 m
COR AMSL Height: 1490.7 m
Base Elevation: 1441.0 m
COR HAAT: -122.56 m
ERP: 0.205 kW
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KGCM

BLED20160809AAG
Channel: 215C3
Frequency: 90.9 MHz
Latitude: 45-57-25 N
Longitude: 111-22-13.60 W
COR AGL Height: 28.0 m
COR AMSL Height: 1626.0 m
Base Elevation: 1598.0 m
COR HAAT: 190.0 m
ERP: 5.50 kW
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Distance to Contour Report

Type of contour: FCC
Location Variability: 50.0 %
Time Variability: 50.0 %
of Radials Calculated: 360
FCC Matching HAAT Calculation Used
Field Strength: 60.00 dBuV/m

Primary Terrain: V-Soft 30 Second US Database
Secondary Terrain: V-Soft 3 Second US Terrain

----- Transmitter Information:

Call Letters: K262AZ
Latitude: 45-41-54 N
Longitude: 111-01-41 W
ERP: 0.205 kW
Channel: 262
Frequency: 100.3 MHz
AMSL Height: 1490.7 m
Elevation: 1441.0 m
HAAT: -122.56 m
Horiz. Antenna Pattern: Omni
Vert. Elevation Pattern: No

Azimuth (deg)	Distance (km)	HAAT (m)
-----	-----	-----
0.0	6.75	3.4
30.0	6.75	-587.8
60.0	6.75	-294.4
90.0	6.75	-225.9
120.0	6.75	-158.1
150.0	6.75	-258.4
180.0	6.75	-184.7
210.0	6.75	-69.2
240.0	6.75	11.4
270.0	9.97	64.1
300.0	12.49	103.9
330.0	13.03	113.5

Average HAAT for radials shown: -123.5 m

Exhibit 2

Section 74.1204 Interference Tabulations

K262AZ Bozeman, MT
 Section 74.204 Contour Overlap
 CH# 262D - 100.3 MHz, Pwr= 0.205 kW, HAAT= -122.6 M, COR= 1490.7 M
 Average Protected F(50-50)= 6.75 km
 Omni-directional

REFERENCE
 45 41 54.0 N.
 111 01 41.0 W.

DISPLAY DATES
 DATA 08-23-18
 SEARCH 08-27-18

CH CITY	CALL	TYPE STATE	ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
264C1 Livingston	KXLB	LIC_C_	MT	102.5 282.6	12.83 BLH20000906AHE	45 40 24.0 110 52 02.0	100.000 248	13.0 2097	89.4 Townsquare Media Bozeman L	-6.9*<	-78.7*<
260C3 Bozeman	KBOZ-FM	LIC_CX	MT	206.9 26.9	10.25 BLH20081230AHB	45 36 58.0 111 05 16.0	19.000 -56	3.9 1627	38.0 Reier Broadcasting Company	-0.4<	-29.9*<
262D Bozeman	K262AZ	LIC_V_	MT	223.4 43.4	0.72 BLFT20070615ADL	45 41 37.0 111 02 04.0	0.050 -124	15.0 1488	4.7 Hi-Line Radio Fellowship,	-21.0*<	-26.6*<
265D Livingston	K265AS	LIC_DHN	MT	94.2 274.5	36.02 BLFT19820524JH	45 40 26.0 110 34 01.0	0.021 -82	0.0 1532	1.6 Reier Broadcasting Company	29.3	33.4
262C1 Great Falls	KLSK	LIC_CX	MT	357.1 177.0	174.47 BLH20030225ABF	47 15 57.0 111 08 39.0	100.000 151	130.7 1491	31.0 Flinn Broadcasting Corpora	37.0	120.8
262C Greybull	KZMQ-FM	LIC_CY	WY	111.0 293.2	263.00 BLH20160728AAH	44 48 39.0 107 55 20.0	56.000 745	203.3 2960	96.3 Legend Communications Of W	52.9	144.1
262L1 Cell Site	KEAJ-LP	LIC_	MT	316.5 135.8	108.72 BLL20050804ADG	46 24 09.0 112 00 11.0	0.100 -26	1614	77.0 Jefferson County Disaster	58.1	

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.
 < = Contour Overlap




Exhibit 2A

**Satellite Picture of
F(50,10) Interfering Contour**

K262AZ Interfering Contour

Second Adjacent F(50,10) 122.8 dBu

Legend

-  K262AZ (262) F(50,10) 122.8 dBu Interfering Contour
-  KBOZ-FM (260) F(50,50) 82.8 dBu Protected Contour
-  KXLB (264) F(50,50) 100 dBu Protected Contour

F(50,10) 122.8 dBu

KXLB F(50,50)
100.1 dBu

West Occupied
Structure (Bus
Barn)

KBOZ-FM F(50,50)
82.8 dBu Contour

South
Unoccupied
Structure (Rental
Storage Units)

Google Earth

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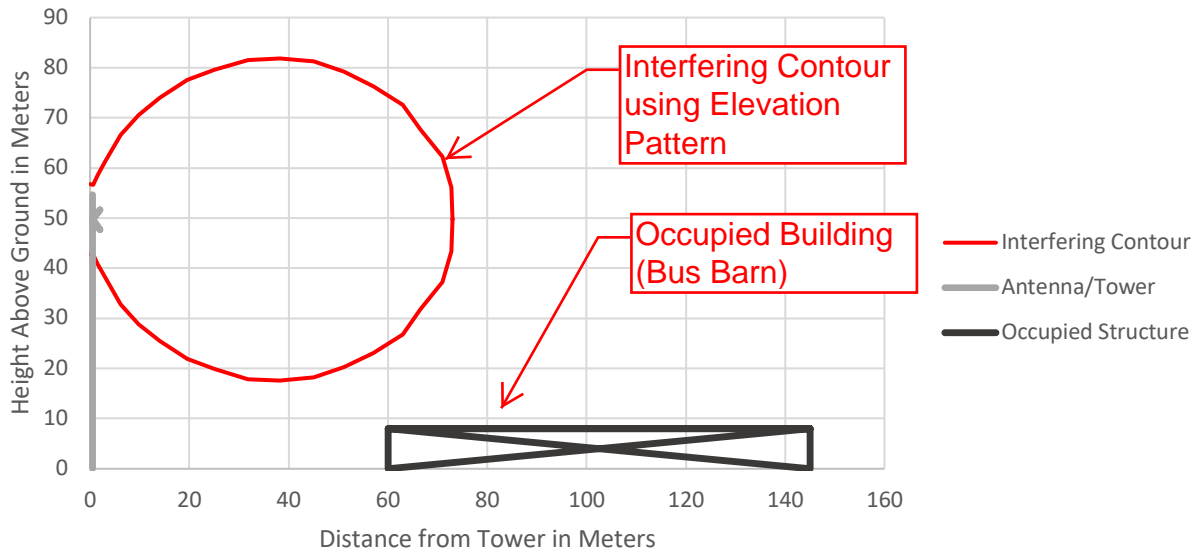


100 m

Exhibit 2B

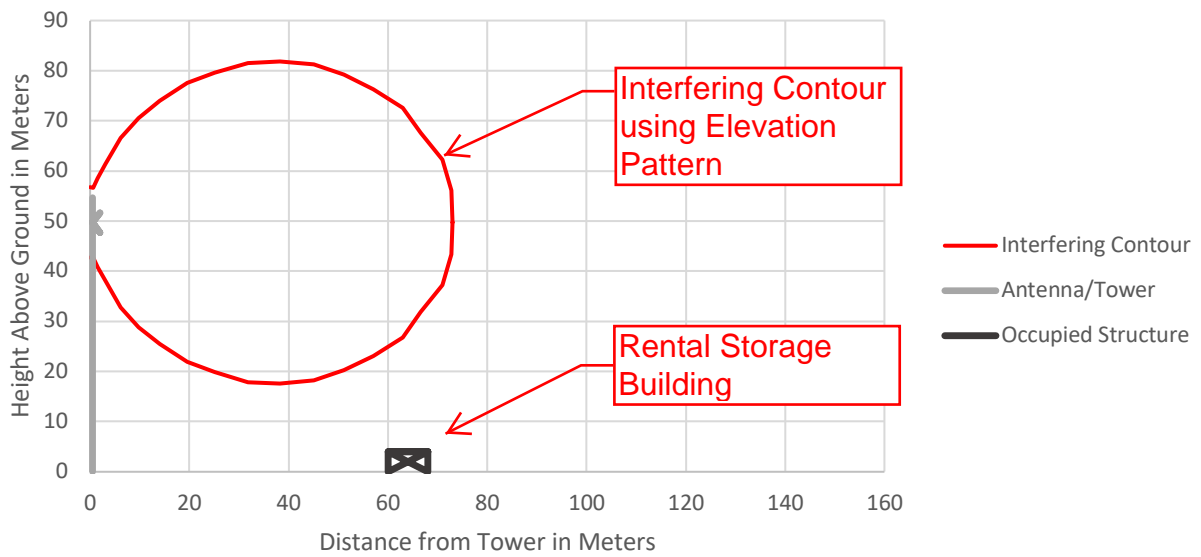
Interfering Contour Considering Elevation Pattern of Antenna

122.8 dBu Interfering Contour and West Building



Depression Angle	Published Field	ERP (kW) on Angle	Distance on Angle (in km)	Distance on Angle (in meters)	Interfering Contour Above Ground (in meters)
0	1	0.205	0.073	73	50
5	0.999	0.205	0.073	73	43
10	0.982	0.198	0.072	71	37
15	0.954	0.187	0.069	67	32
20	0.918	0.173	0.067	63	27
25	0.872	0.156	0.063	57	23
30	0.818	0.137	0.059	51	20
35	0.758	0.118	0.055	45	18
40	0.691	0.098	0.05	38	18
45	0.616	0.078	0.045	32	18
50	0.538	0.059	0.039	25	20
55	0.465	0.044	0.034	20	22
60	0.391	0.031	0.028	14	25
65	0.313	0.020	0.023	10	29
70	0.239	0.012	0.018	6	33
75	0.176	0.006	0.012	3	38
80	0.129	0.003	0.009	2	41
85	0.103	0.002	0.007	1	43
90	0.104	0.002	0.007	0	43

122.8 dBu Interfering Contour and South Storage Building



Depression Angle	Published Field	ERP (kW) on Angle	Distance on Angle (in km)	Distance on Angle (in meters)	Interfering Contour Above Ground (in meters)
0	1	0.205	0.073	73	50
5	0.999	0.205	0.073	73	43
10	0.982	0.198	0.072	71	37
15	0.954	0.187	0.069	67	32
20	0.918	0.173	0.067	63	27
25	0.872	0.156	0.063	57	23
30	0.818	0.137	0.059	51	20
35	0.758	0.118	0.055	45	18
40	0.691	0.098	0.05	38	18
45	0.616	0.078	0.045	32	18
50	0.538	0.059	0.039	25	20
55	0.465	0.044	0.034	20	22
60	0.391	0.031	0.028	14	25
65	0.313	0.020	0.023	10	29
70	0.239	0.012	0.018	6	33
75	0.176	0.006	0.012	3	38
80	0.129	0.003	0.009	2	41
85	0.103	0.002	0.007	1	43
90	0.104	0.002	0.007	0	43