

ENGINEERING REPORT
Minor Modification Construction
Permit Application

for

K282AA
Facility ID: 67682

as a non-Fill-In Translator for
KMBI(FM) – Spokane, WA

December 2022

MUNN-REESE

Broadcast Engineering Consultants
Coldwater, MI 49036

Discussion

This firm has been retained to prepare the required engineering report in support of a Minor Modification Construction Permit Application for an FM Translator K282AA. Currently this translator is licensed to operate with an AMSL of 661 meters and an ERP of 0.274 kW (H&V) operating on CH282D. This proposal requests a an AMSL of 661 meters and an ERP of 0.011 kW (H&V) operating on CH225D. The non-Fill-In Translator will rebroadcast Primary Station KMBI(FM) – Spokane, WA, Facility ID No. 66099.

The Translator as proposed will be mounted on a tower that does not bear an Antenna Structure Registration Number.

A map of the present and proposed service area has been included in **Exhibit 1.0**.

It has been determined the Translator may be used in the area without interference to any existing FM broadcast station or facility. The present allocation is included in **Exhibit 2.0**. The proposed move in frequency is needed because a full-service FM station, KZJJ(FM), has come on the air and is receiving 50.2 km of prohibited interference to 1st adjacent station KZJJ(FM). In this case a move beyond three channels is permissible due to the translator being displaced. The proposed channel, CH225, will allow 11 watts ERP as shown in **Exhibit 2.1**. It is believed sufficient clearance exists precluding the need for additional contour protection showings.

The applicant would like to note the existence of a §74.1204(d) Second/Third Adjacent Channel Given Interference Waiver Request toward KZHR(FM) and KRKL(FM) as shown in **Exhibit 3.0**. Protection has been based on the worst case calculated 106.3 dBμ F(50:10) Interference Contour, corresponding to the worst case 60.3 dBμ F(50:50). The K282AA 100 dBu F(50:10) interference contour extends 0.22 km around the base of the tower. A satellite image of the site with a 0.22 km radius circle is shown in **Exhibit 3.1** demonstrating that this area is free of houses or main roads. A distance to contour report for the 100 dBu F(50:10) contour is shown in **Exhibit 3.2**.

This translator is not within the affected distance of any TV Channel 6 stations.

The applicant would like to note use of the NED 03 second terrain database for terrain-based showings contained here-in.

Exhibit 1.0 - K282AA Present and Proposed

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K282AA

BLFT19801027ID
Latitude: 46-06-15.02 N
Longitude: 119-07-45.96 W
ERP: 0.274 kW
Channel: 282
Frequency: 104.3 MHz
AMSL Height: 661.0 m
Elevation: 637.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

K282AA.P

Proposed Operation
Latitude: 46-06-15.02 N
Longitude: 119-07-45.96 W
ERP: 0.011 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 661.0 m
Elevation: 637.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

FCC F(50-50) 60.00 dBu (FCC HAAT)

- K282AA (282)
- K282AA.P (225)

FCC F(50-50) 60.00 dBu (FCC HAAT)

K282AA.P
K282AA

Scale 1:375,000

0 5 10 15 km

V-Soft Communications LLC ® ©

REFERENCE
46 06 14.50 N.
119 07 50.00 W.

CH# 282D - 104.3 MHz, Pwr= 0.274 kw, HAAT= 0.0 M, COR= 661 M
Average Protected F(50-50)= 7.26 km
Omni-directional

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DISPLAY DATES
DATA      12-12-22
SEARCH    12-12-22

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Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= West Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding.
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.
« = Station meets FCC minimum distance spacing for its class.

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DISPLAY DATES
DATA      12-12-22
SEARCH    12-12-22

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Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
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"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.

Exhibit 3.0 - K282AA vs KZHR and KRKL in support of a 74.1204(d) waiver

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K282AA

BLFT19801027ID
Latitude: 46-06-15.02 N
Longitude: 119-07-45.96 W
ERP: 0.274 kW
Channel: 282
Frequency: 104.3 MHz
AMSL Height: 661.0 m
Elevation: 637.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

K282AA.P

Proposed Operation
Latitude: 46-06-15.02 N
Longitude: 119-07-45.96 W
ERP: 0.011 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 661.0 m
Elevation: 637.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KZHR

BLH19920731KC
Latitude: 45-59-18.91 N
Longitude: 118-10-27.97 W
ERP: 54.00 kW
Channel: 223
Frequency: 92.5 MHz
AMSL Height: 1137.0 m
Elevation: 1116.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

KRKL

BMLED20020130ABT
Latitude: 45-59-19.01 N
Longitude: 118-10-27.97 W
ERP: 42.00 kW
Channel: 227
Frequency: 93.3 MHz
AMSL Height: 1163.0 m
Elevation: 1116.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

- K282AA (282)
- K282AA.P (225)
- KZHR (223)
- KRKL (227)

FCC F(50-50) 67.00 dBu (FCC HAAT)

FCC F(50-50) 60.00 dBu (FCC HAAT)

FCC F(50-50) 66.20 dBu (FCC HAAT)

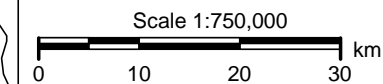


Exhibit 3.1 - Satellite image of site with 0.22 km radius circle around site. Site is remote access and contains no houses or main roads within this circle.



Exhibit 3.2 - Distance to Contour Report for K282AA 100 dBu F(50:10) Contour

Distance to Contour Report

Type of contour: FCC
Location Variability: 50.0 %
Time Variability: 10.0 %
of Radials Calculated: 360
FCC Matching HAAT Calculation Used
Field Strength: 100.00 dBuV/m

Primary Terrain: V-Soft 3 Second US Terrain

----- Transmitter Information:

Call Letters: K282AA.P
File Number: BLFT19801027ID
Latitude: 46-06-15.02 N
Longitude: 119-07-45.96 W
ERP: 0.01 kW
Channel: 225
Frequency: 92.9 MHz
AMSL Height: 661.0 m
Elevation: 637.0 m
Horiz. Antenna Pattern: Omni
Vert. Elevation Pattern: No

Azimuth (deg)	Distance (km)	HAAT (m)
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0.0	0.22	494.2
10.0	0.22	509.2
20.0	0.22	511.0
30.0	0.22	515.8
40.0	0.22	522.8
50.0	0.22	510.7
60.0	0.22	504.5
70.0	0.22	498.6
80.0	0.22	465.9
90.0	0.22	429.1
100.0	0.22	376.5
110.0	0.22	336.5
120.0	0.22	275.1
130.0	0.22	265.4
140.0	0.22	256.5
150.0	0.22	255.2
160.0	0.22	272.4
170.0	0.22	269.5
180.0	0.22	272.0
190.0	0.22	279.6
200.0	0.22	292.0
210.0	0.22	287.9
220.0	0.22	288.4
230.0	0.22	264.4

240.0	0.22	223.4
250.0	0.22	181.3
260.0	0.22	139.6
270.0	0.22	136.7
280.0	0.22	184.6
290.0	0.22	238.0
300.0	0.22	329.8
310.0	0.22	366.3
320.0	0.22	397.8
330.0	0.22	425.4
340.0	0.22	446.7
350.0	0.22	470.1

Average HAAT for radials shown: 347.0 m