

Technical Report Supporting a Form 318 Minor Change in Licensed Facility Construction Permit Application

Pursuant to 47 C.F.R. Section 73:

*KEUR-LP(FM) - Eureka, MT
(FACILITY ID: 134900)*

*Minor Site Change
&
47 C.F.R. Section 73.870(a)(1)
Technical Showing of Reduced
Interference for a
Non-Adjacent Channel Change*

*Requesting a
Frequency Change to
CH202L1 (88.3 MHz) - Eureka, MT*

October, 2018

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EXPLANATION OF PROPOSAL: This Form 318 Filing and accompanying technical report supports a Minor Change in Licensed Facility Construction Permit Application for LPFM Station KEUR-LP(FM) - Eureka, MT (Facility ID: 134900). This Filing requests a new site location and new non-adjacent channel pursuant to 47 C.F.R. Section 73.870(a)(1) based on a technical showing of reduced Interference. Operation on CH202L1 (88.3 MHz) with 0.100 kW ERP (circular polarization) at 831 meters AMSL is requested. The LPFM Station will remain licensed to the community of Eureka, MT.

Concerning the request for a 47 C.F.R. Section 73.870(a)(1) non-adjacent channel relocation from CH299L1 to CH202L1, a technical showing of reduced interference has been provided in ***Exhibit(s) 6(a-b)***. As noted in the ***Exhibit 6(a)*** Present Allocation Study, the 2005 licensing of this LPFM station was subsequently short-spaced by a full service Canadian proposed facility for NEW298C1 - Cranbrook, BC. This existing -16 km Canadian short-spacing will be eliminated by a grant of this 47 C.F.R. Section 73.870(a)(1) non-adjacent channel relocation as noted in the ***Exhibit 6(b)*** Proposed Allocation Study.

FACILITY COMPLIANCE SHOWINGS: A map of the proposed 60 dB μ service contour has been included in ***Exhibit 1***. The proposed 60 dB μ contour serves a portion of the present 60 dB μ contour as noted in the exhibit.

A Longley-Rice coverage map of the proposed operation has been plotted in ***Exhibit 2***. The applicant acknowledges this map has been provided for illustrative purposes only.

The LPFM facility will be located on a pole extending 3.1 meters (10 ft) above the roof of an existing 3.1 meter (10 ft) garage structure which does not require Antenna Structure Registration. In support of the requested site location, a copy of topographic aerial photomapping for the site coordinates has been included in ***Exhibit 3***. A depiction of the tower and antenna configuration has been included in ***Exhibit 4***. Notification to the FAA is not required as this proposal will not exceed 6.1 meters (20 ft) above roof grade.

The applicant would like to note use of the NED 03 second terrain database for all allocation, contour and HAAT showings contained herein. A copy of the proposed HAAT calculations has been included in ***Exhibit 5***. The calculated HAAT value results in an operational power of 0.100 kW.

ALLOCATION COMPLIANCE SHOWINGS: The proposed Translator remains in compliance with 47 C.F.R. Section 73.807 toward all allocation protection concerns. General allocation details are found in *Exhibit 6b*. The proposed facility will remain fully spaced to all allocation concerns, therefore it is believed sufficient clearance exists precluding the need for additional allocation protection showings.

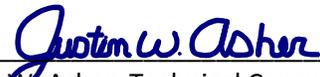
Regarding protection of international concerns, the facility is and will remain within 320 km from the common border between the United States and Canada. However, full 47 C.F.R. Section 73.807(g)(1) protection will be all afforded all Canadian concerns as noted in *Exhibit 6b*.

INTERFERENCE TO TRANSLATOR OR BOOSTER INPUT SIGNAL SHOWINGS: The applicant certifies there is only one (1) FM Translator or FM Booster facility operating within a worst case 10 km radius from this proposed CH202L1 LPFM location; K296FS - Eureka, MT (Facility ID: 149923). However, K296FS license BLFT-20091106AEC specifies a CH218C1 off-air rebroadcast of KPLG(FM) - Plains, MT (Facility ID: 85426). Therefore, full compliance with 47 C.F.R. Section 73.827(a-c) has been demonstrated as no ± 3 channel relationship exists between the proposed CH202L1 LPFM broadcast channel and the CH218C1 off-air reception for the Translator/Primary operation.

ENVIRONMENTAL COMPLIANCE SHOWINGS: The proposed facility complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments as set forth under §1.1310 and/or §1.1307(b)(3) of the Commission's rules and the guidelines for RF radiation protection guidelines as set forth in OET Bulletin No. 65 (Edition 97-01), and the accompanying Supplement A, (Edition 97-01). Compliance has been demonstrated in the attached *RF Appendix 1* of this filing. The facility is, or will be, properly marked with signs. Entry is, or will be, restricted by means of fencing with locked doors or gates. In addition, coordination with other users of the site will be secured to reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Regarding compliance with the NEPA, Nationwide Programmatic Agreement and NHPA Section 106 for tower co-location, compliance with the Agreement is not required for collocation on buildings and non-tower structures as permitted under Part V(A)(1-4). Specifically, compliance is not necessary where only an antenna and feedline are being added to an existing structure, as here. However, should the Commission determine compliance is necessary, upon notification to the applicant, the applicant will file FCC Form 621.

CERTIFICATION OF TECHNICAL CONSULTANT: *I declare, under penalty of perjury, that the contents of this report are true and accurate to the best of my knowledge and belief. I further certify I have over nineteen years of experience as a broadcast technical consultant before the Federal Communications Commission (“the FCC”); and am familiar with the Code of Federal Regulations Title 47 (“the Rules”) as pertaining to this report and its contents herein. The underlying data utilized in this report was taken directly from FCC databases or indirectly through third party software vendors securing data directly from FCC databases. This firm cannot be held liable for errors or omissions resulting from the underlying data. The information contained herein is believed accurate to the date reported below.*



Justin W. Asher, Technical Consultant
October 05, 2018

NED 03 SEC Terrain Database
US Census 2010 PL Database

Exhibit 1

Service Contour Study: Present vs Proposed Operations

Proposed 60 dBμ F(50:50) Contour

Present 60 dBμ F(50:50) Contour

Eureka **KEUR-LP.P**

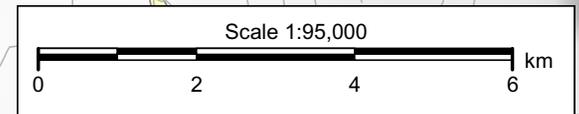
KEUR-LP.L

KEUR-LP.P
Eureka, MT
Proposed Operation
Facility ID: 134900
Latitude: 48-52-49 N
Longitude: 115-02-40 W
ERP: 0.10 kW
Channel: 202L1 (88.3 MHz)
AMSL Height: 831.0 m
Pattern: Omni

60 dBμ F(50:50) Contour
Total Population: 2,720
Total Area: 103.3 sq. km

KEUR-LP.L
Eureka, MT
BLL20050314AHS
Facility ID: 134900
Latitude: 48-51-09 N
Longitude: 114-59-34 W
ERP: 0.10 kW
Channel: 299L1 (107.7 MHz)
AMSL Height: 883.0 m
Horiz. Pattern: Omni

60 dBμ F(50:50) Contour
Total Population: 2,724
Total Area: 117.4 sq. km



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Exhibit 2
Service Contour Study:
Proposed Longley-Rice Method

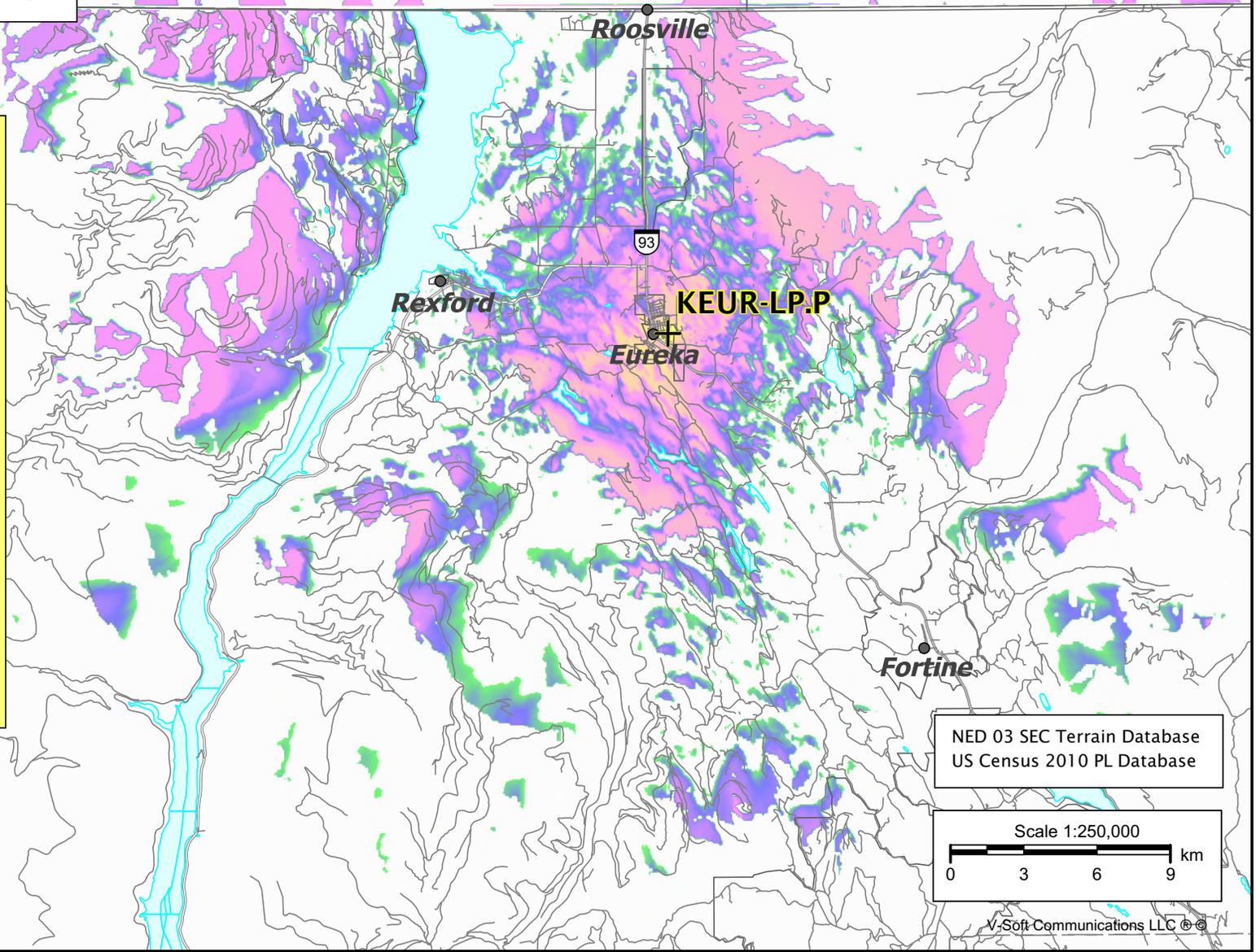
- > 100.0 dBuV/m
- 70.0 - 100.0
- 60.0 - 70.0
- 54.0 - 60.0

*non-FCC-sanctioned coverage map
 for illustrative purposes only*

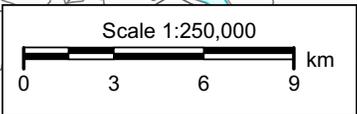
KEUR-LP.P
 Eureka, MT
 Proposed Operation
 Facility ID: 134900
 Latitude: 48-52-49 N
 Longitude: 115-02-40 W
 ERP: 0.10 kW
 Channel: 202L1 (88.3 MHz)
 AMSL Height: 831.0 m
 Horiz. Pattern: Omni
 Prop Model: Longley-Rice
 Climate: Cont temperate
 Conductivity: 0.0050
 Dielec Const: 15.0
 Refractivity: 311.0
 Receiver Ht AG: 2.0 m
 Receiver Gain: 0 dB
 Time Variability: 50.0%
 Sit. Variability: 50.0%
 ITM Mode: Broadcast

70 dBμ Longley-Rice Contour
 Total Population: 2,098

60 dBμ Longley-Rice Contour
 Total Population: 2,710



NED 03 SEC Terrain Database
 US Census 2010 PL Database



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The National Map Advanced Viewer

Exhibit 3 USGS Topographic Aerial Photomap of Proposed Site

#1: 2705.28 ft / 824.57 m

Site Coordinates		(NGS NADCON)	
	Latitude	Longitude	
NAD 27 datum:	48 52 48.72700	115 02 40.00055	
NAD 83 datum:	48 52 48.60000	115 02 43.60000	

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9/19/2018, 2:03:05 PM

- Normal Intermediate Contours
- Normal Index Contours

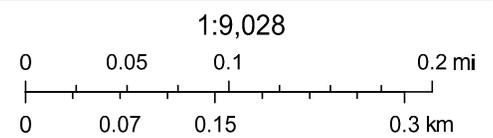
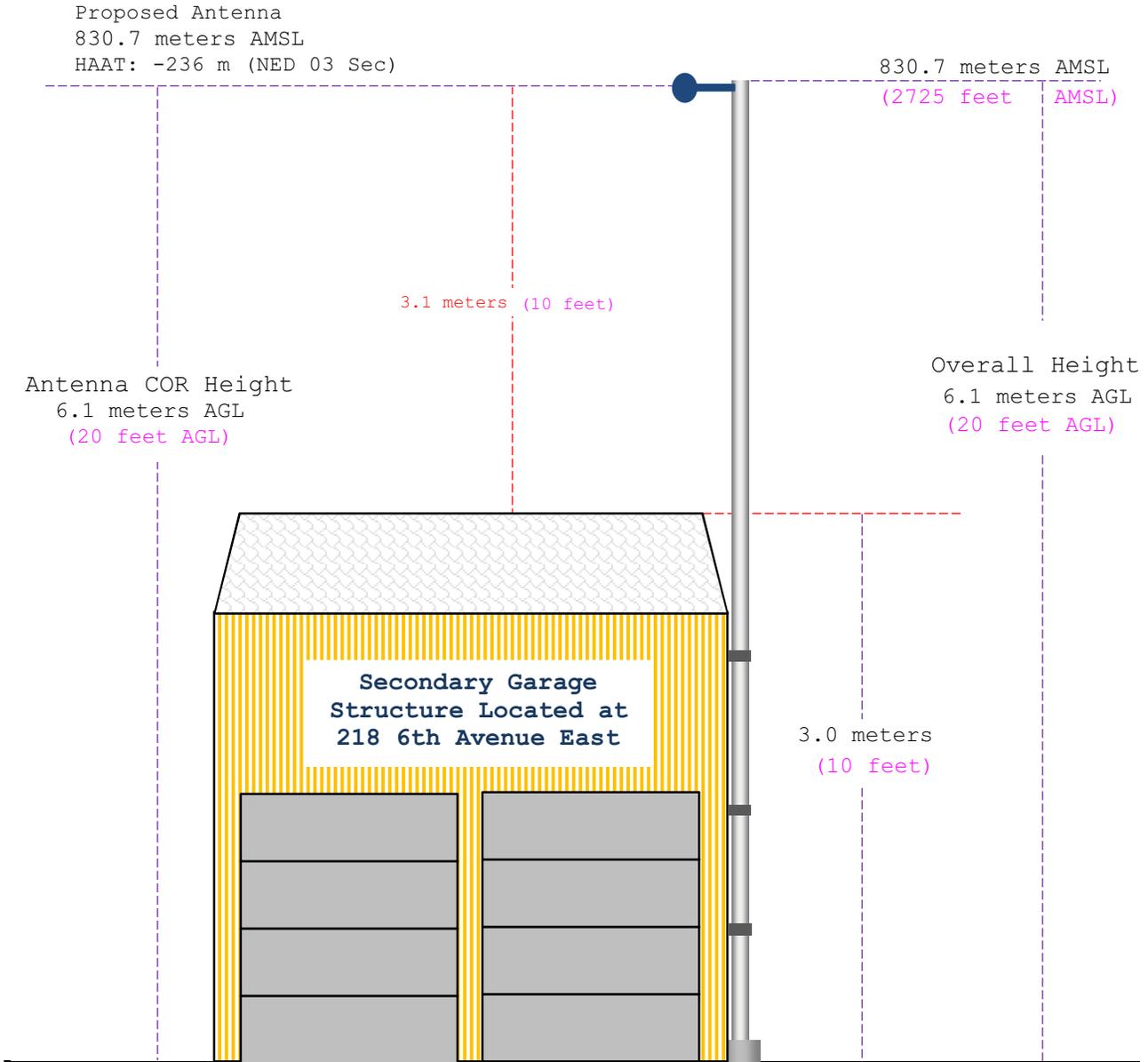


Exhibit 4

Vertical Plan of Antenna System



Ground Elevation: 824.6 meters AMSL (2705 feet AMSL)		
Address: 218 6th Avenue East		
City: Eureka	Latitude (D M S) Longitude (D M S)	
County: Lincoln	NAD 27 datum values: 48 52 48.72700 115 02 40.00055	
State: Montana	NAD 83 datum values: 48 52 48.60000 115 02 43.60000	
Antenna Structure Registration Not Required	Drawing Is Not To Scale	Asher Broadcast Consulting, LLC justinasher@consultant.com 1(202)875-2986

Exhibit 5

HAAT and Miscellaneous Coordinate Information

HAAT Calculation (1927):

N. Lat. = 485249 W. Lng. = 1150240
 HAAT and Distance to Contour,
 FCC, FM 2-10 Mi, 51 pts Method - NED 03 SEC

Azi.	AV EL	HAAT	ERP kW	dBk	Field	60-F5
000	695.1	135.9	0.1000	-10.00	1.000	11.93
045	1680.8	-849.8	0.1000	-10.00	1.000	5.64
090	1268.1	-437.1	0.1000	-10.00	1.000	5.64
135	870.6	-39.6	0.1000	-10.00	1.000	5.64
180	1175.2	-344.2	0.1000	-10.00	1.000	5.64
225	1192.3	-361.3	0.1000	-10.00	1.000	5.64
270	871.8	-40.8	0.1000	-10.00	1.000	5.64
315	783.0	48.0	0.1000	-10.00	1.000	7.09

Ave El= 1067.11 M HAAT= -236.11 M AMSL= 831 M

NAD 1983 to NAD 1927 Conversion:

	<u>Latitude</u>	<u>Longitude</u>
NAD 27 datum values:	48 52 48.72700	115 02 40.00055
NAD 83 datum values:	48 52 48.60000	115 02 43.60000

Various Coordinate Conversion Calculations (NAD 1983):

Position Type	Lat Lon
Degrees Lat Long	48.8801667°, -115.0454444°
Degrees Minutes	48°52.81000', -115°02.72667'
Degrees Minutes Seconds	48°52'48.6000", -115°02'43.6000"
UTM	11U 643300mE 5415976mN
UTM centimeter	11U 643300.05mE 5415976.27mN
MGRS	11UPQ4330015976
Grid North	1.5°
GARS	130MP26
Maidenhead	DN28LV41NF17
GEOREF	EKED57275281

Exhibit 6a

Tabulation of Present Allocation Spacings Study

Yellow Highlighted Text denotes the existence of a -16 km short-spacing with a NEW298C1 - Cranbrook, BC facility which will be eliminated by this C.F.R. 47 Section 73.870(a)(1) permissible non-adjacent channel relocation from CH299L1 to CH207L1 to resolve future interference issues.

Eureka Adventist Radio, Inc.

REFERENCE	CLASS = L1	DISPLAY DATES
48 51 09.0 N.		DATA 09-19-18
114 59 34.0 W.	Current Spacings to 2nd Adj.	SEARCH 09-19-18
----- Channel 299 - 107.7 MHz -----		

Call	Channel	Location	Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power	HAAT		
KEUR-LP	LIC 299L1	Eureka	MT 0.0	0.00	23.5	-23.5
48 51 09.0	114 59 34.0		0.100 kW	0 M		
	Eureka Adventist Radio, In		BLL20050314AHS			
NEW	PRO-D 298C1	Cranbrook	BC 325.7	81.84	98.0	-16.2
49 27 30.0	115 37 49.0	DHN	2.500 kW	1048 M		
			20131127CA1			
12/11/2013: Proposed in 11/27/2013 letter as a specially negotiated short-spaced allotment limited to 5.5 kW ERP and 706 m HAAT or equivalent towards channel 298C1 in Superior, MT (Az. = 167.8 degrees). 12/12/2013: Accepted on channel 298-C1 by IB in 12/12/2013 letter as a specially negotiated short-spaced allotment limited to 5.5 kW ERP and 706 m HAAT or equivalent towards channel 298C1 in Superior, MT (Az. = 167.8 deg).						
R16216	VAC 300A	Fernie	BC 355.8	70.88	50.0	20.9
49 29 18.0	115 03 51.0		0.000 kW	100 M		
1/23/2014: Proposed in 1/7/2014 letter. 2/3/2014: Accepted on channel 300-A by IB in 2/3/2014 letter. Note: not short-spaced.						
AL1285	DEL 298A	Cranbrook	BC 325.8	81.80	50.0	31.8
49 27 30.0	115 37 45.0		0.000 kW	100 M		
12/12/2013: Change to channel 298-C1(L) accepted by IB in 12/12/2013 letter.						
K300DK	LIC-D 300D	Whitefish	MT 129.4	59.46	27.5	32.0
48 30 42.0	114 22 14.0	DC	0.250 kW	0 M		
	Bee Broadcasting, Inc.		BLFT20180703AAJ			
CILAFM	OPE 299C	Lethbridge	AB 55.6	177.32	124.0	53.3
49 43 59.0	112 57 36.0	CN	100.000 kW	104 M		
NEW	PRO-D 296A	Sparwood	BC 4.9	95.82	40.0	55.8
49 42 40.0	114 52 46.0	DHN	0.500 kW	-242 M		
			20140107CA4			
1/23/2014: Proposed in 1/7/2014 letter as a specially negotiated short-spaced allotment limited to 5 kW ERP and 30 m HAAT or equivalent towards channel 296C in Charlo, MT (Az. = 168.6 degrees) and to 800 W ERP and 30 m HAAT or equivalent towards channel 296B in Trego, MT (Az. = 182.7 degrees). 2/3/2014: Accepted on channel 296-A by IB in 2/3/2014 letter as a specially negotiated short-spaced allotment limited to 5 kW ERP and 30 m HAAT or equivalent towards channel 296C in Charlo, MT (Az. = 168.6 deg).						

Reference station has protected zone issue: Canada
All separation margins include rounding

Exhibit 6b

Tabulation of Proposed Allocation Spacings Study

Eureka Adventist Radio, Inc.

REFERENCE	CLASS = L1	DISPLAY DATES
48 52 49.0 N.		DATA 10-05-18
115 02 40.0 W.	Current Spacings to 2nd Adj.	SEARCH 10-05-18
----- Channel 202 - 88.3 MHz -----		

Call	Channel	Location	Azi	Dist	FCC	Margin
Lat.	Lng.	Ant	Power	HAAT		
AL4463	--- 203B	Sparwood	BC 6.2	95.43	76.0	19.4
49 44 00.0	114 54 00.0		0.000 kW	150 M		
Specially negotiated, short-spaced allotment limited to 27.1kW ERP and 150 m HAAT or the equivalent along 165.2 degrees towards 204C1 in Kalispell, M T						
KLKM	LIC 204C1	Kalispell	MT 152.3	108.71	72.5	36.2
48 00 48.0	114 21 55.0	CX	3.300 kW	785 M		
Educational Media Foundati BLED20101109ACL						
AL4464	--- 256B	Fernie	BC 356.4	62.36	12.0	50.4
49 26 24.0	115 05 57.0		0.000 kW	150 M		
C202LP	SOP 202D	Red Rock Canyon	AB 72.8	84.06	26.0	58.1
49 05 54.0	113 56 40.0	HN	0.039 kW	-222 M		
Accepted by Commission 951004						
KRFY	LIC 203A	Ponderay	ID 240.4	127.70	55.5	72.2
48 18 16.0	116 32 32.0	CX	1.200 kW	-116 M		
Panhandle Community Radio, BLED20110208AAJ						
K201EY	LIC 201D	Kalispell	MT 146.6	93.64	20.5	73.1
48 10 34.0	114 20 57.0	V	0.034 kW	100 M		
Calvary Chapel Of Twin Fal BLFT20121012AAI						
AL9946	VAC 255B	Sparwood	BC 6.2	95.43	12.0	83.4
49 44 00.0	114 54 00.0		0.000 kW	150 M		
AL0582	VAC 202A	Crawford Bay	BC 303.8	156.58	66.0	90.6
49 38 54.0	116 50 53.0		0.000 kW	100 M		
R17853	VAC 202A	Lethbridge	AB 59.1	177.98	66.0	112.0
49 40 57.0	112 55 38.0		0.000 kW	100 M		
KYRS	LIC-D 201C0	Medical Lake	WA 251.4	230.80	110.5	120.3
48 10 50.0	117 59 11.0	DCX	6.800 kW	876 M		
Thin Air Community Radio BLED20111101ALA						
KWIS	LIC-D 202C3	Plummer	ID 216.3	212.87	77.5	135.4
47 19 37.0	116 42 55.0	DVX	2.400 kW	288 M		
Coeur D'alene Tribe BLED20111208CDG						
R67682	DEL 202A1	Lethbridge	AB 59.9	181.76	45.0	136.8
49 40 42.0	112 51 50.0		0.000 kW	100 M		

Reference station has protected zone issue: Canada
All separation margins include rounding