

***COMPREHENSIVE TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT***

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**FM STATION KOLK(FM)  
FM CHANNEL 232C3  
LAKESIDE, MONTANA**

**KOFI, INC.**

**JULY, 2014**

## **APPLICATION FOR CONSTRUCTION PERMIT**

The following engineering statement and attached exhibits have been prepared for **KOFI, Inc.** ("KOFI"), licensee of FM broadcast station KOLK(FM) at Lakeside, Montana, and are in support of their application for construction permit to modify that facility.<sup>1</sup>

This application seeks to increase the effective radiated power of KOLK(FM). No other changes to the facility are proposed under this application. At present, KOLK is licensed to operate with a maximum effective radiated power of 5.5 kW at a center of radiation of 159.6 meters above average terrain. This combination of height and power yields a 60 dBu contour distance of 34.4 kilometers, which is within the distance range for a class C3 facility.

The proposed facility would operate with a maximum effective radiated power of 7.5 kW at the same center of radiation of 159.6 meters above average terrain. This combination yields a 60 dBu contour distance of 37.0 kilometers, which continues to fall within the range for a class C3 facility. The non-directional antenna utilized by the facility includes electrical beamtilt of 2.5 degrees, and 10% null fill. This antenna would continue to be utilized. The proposed effective radiated power in the horizontal plane would therefore be 7.1 kW.

The licensed facility is in compliance with the provisions of Section 73.203 of the Commission's Rules. Since no changes are proposed to the allocation utilized by KOLK(FM), compliance with that section would continue.

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<sup>1</sup> The Facility ID for KOLK(FM) at Lakeside, Montana is 183365.

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The increase in the effective radiated power would not result in a loss of compliance with Section 73.315 of the Commission's Rules. Exhibit E-1 illustrates the predicted 70 dBu and 60 dBu service contours for the proposed facility. As this map demonstrates, the 70 dBu service contour would fully encompass Lakeside, Montana, the community of license.

The main studio for KOLK(FM) would continue to be in compliance with the provisions of Section 73.1125 of the Commission's Rules. The main studio for KOLK(FM) is located within the corporate limits of Kalispell, Montana. Exhibit E-1 demonstrates that Kalispell is wholly contained within the predicted 70 dBu service contour.

Since there are no changes proposed to the class of operation or station location, and the licensed facility is authorized pursuant to Section 73.207 of the Commission's Rules, the proposed facility would continue to meet the spacing requirements of that section. Exhibit E-2 is a current single channel spacing study for KOLK(FM). This study confirms that all relevant spacing requirements would continue to be met or exceeded.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The proposed modification to the facility would require only an adjustment to the transmitter settings. As a result, no actual construction would occur, and the proposed facility would not increase the existing environmental impact already present from the facility.

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Additionally, the proposed facility would not result in general population exposure to radiofrequency radiation in excess of the applicable safety standards. In addition to KOLK(FM), the tower also supports the antenna for FM broadcast station KZMN(FM) at Kalispell, Montana.<sup>2</sup> The two facilities do not result in a condition where areas at the site would experience a power density in excess of the applicable safety standards.

KZMN(FM) utilizes an elliptically polarized antenna. This particular antenna, manufactured by Shively Labs, is a model 6810 with six bays spaced one wavelength apart. KZMN(FM) operates with a maximum effective radiated power of 100 kW horizontally polarized, and 43 kW vertically polarized. The Commission's *FM Model* software package predicts a maximum power density of  $35.5 \mu\text{W}/\text{cm}^2$  at a distance of 28 meters from the tower base at two meters above ground level.

The antenna utilized by KOLK(FM) would continue to be the Rymsa ATI12-202 antenna, which has four sections spaced one-wavelength apart. The vertical pattern for this antenna is appended to this application. Areas at the site potentially affected by the antenna radiation would be located at depression angles of at least 20 degrees. At these angles, the relative field from the Rymsa antenna would not exceed 0.2.

Using the equations in Appendix A of *OET Bulletin 65*, the calculated power density for KOLK(FM), assumed to occur at all points within the site, would not exceed  $7.2 \mu\text{W}/\text{cm}^2$  at two meters above ground level. If the maximum power density from KZMN(FM) were assumed to also

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<sup>2</sup> The Facility ID for KZMN(FM) at Kalispell, Montana is 35369.

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occur at all locations, then the worst-case scenario for the site would be a power density of 42.7  $\mu\text{W}/\text{cm}^2$ . This value complies with the upper limit of 200  $\mu\text{W}/\text{cm}^2$  permissible under the uncontrolled environment condition.

KOFI certifies that it will coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of applicable safety standards. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

The proposed facility would comply with the provisions of Section 73.3555 of the Commission's Rules. In addition to KOLK, KOFI is the licensee of FM broadcast station KZMN(FM) at Kalispell, and AM broadcast station KOFI also at Kalispell.<sup>3</sup> Exhibit E-3 illustrates the predicted primary community coverage contour for all three facilities licensed to KOFI, and the market overlap created by the common overlap between the three facilities.

Since KOFI has an attributable interest in three overlapping facilities, two of which are in the same service, it is necessary and sufficient to demonstrate that KOFI would not control greater than fifty percent of the facilities serving the market. Exhibit E-4 analyzes the market created by the common overlap between the KOFI facilities, and demonstrates that there are at least five additional facilities serving the contour market.<sup>4</sup> The facilities depicted on this map are summarized in the following table.<sup>5</sup>

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<sup>3</sup> The Facility ID for KOFI at Kalispell, Montana is 35368.

<sup>4</sup> Contours on the Exhibit E-4 analysis map are color-coded according to the map key.

<sup>5</sup> Italicized facilities are those licensed to KOFI.

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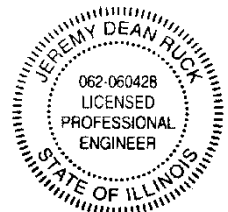
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<b>Callsign</b>	<b>Facility ID</b>	<b>Community of License</b>
<i>KOLK(FM)</i>	<i>183365</i>	<i>Lakeside, MT</i>
<i>KZMN(FM)</i>	<i>35369</i>	<i>Kalispell, MT</i>
<i>KOFI</i>	<i>35368</i>	<i>Kalispell, MT</i>
<i>KALS(FM)</i>	<i>49340</i>	<i>Kalispell, MT</i>
<i>KBBZ(FM)</i>	<i>4581</i>	<i>Kalispell, MT</i>
<i>KDBR(FM)</i>	<i>12066</i>	<i>Kalispell, MT</i>
<i>KHNM(FM)</i>	<i>22255</i>	<i>Columbia Falls, MT</i>
<i>KIBG(FM)</i>	<i>83460</i>	<i>Bigfork, MT</i>

Each of the facilities analyzed has a transmitter site located within 92 kilometers of the perimeter of the common overlap defining the market. Since a sufficient number of additional facilities have been identified, KOFI would control less than fifty percent of the facilities serving the market, and therefore remains in compliance with Section 73.3555. The KOFI facilities are not located within a rated market.

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.

Above signature is digitized copy of actual signature  
License Expires November 30, 2015

**Jeremy D. Ruck, PE**  
July 29, 2014

**JEREMY RUCK & ASSOCIATES, INC.**

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**7.29.2014**

**KOLK.X**

BLH20120918AEV  
Latitude: 48-05-39 N  
Longitude: 114-16-11 W  
ERP: 7.50 kW  
Channel: 232  
Frequency: 94.3 MHz  
AMSL Height: 1228.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

Proposed 70 dBu  
Service Contour

*Jeremy Ruck & Associates, Inc.*

Proposed 60 dBu  
Service Contour

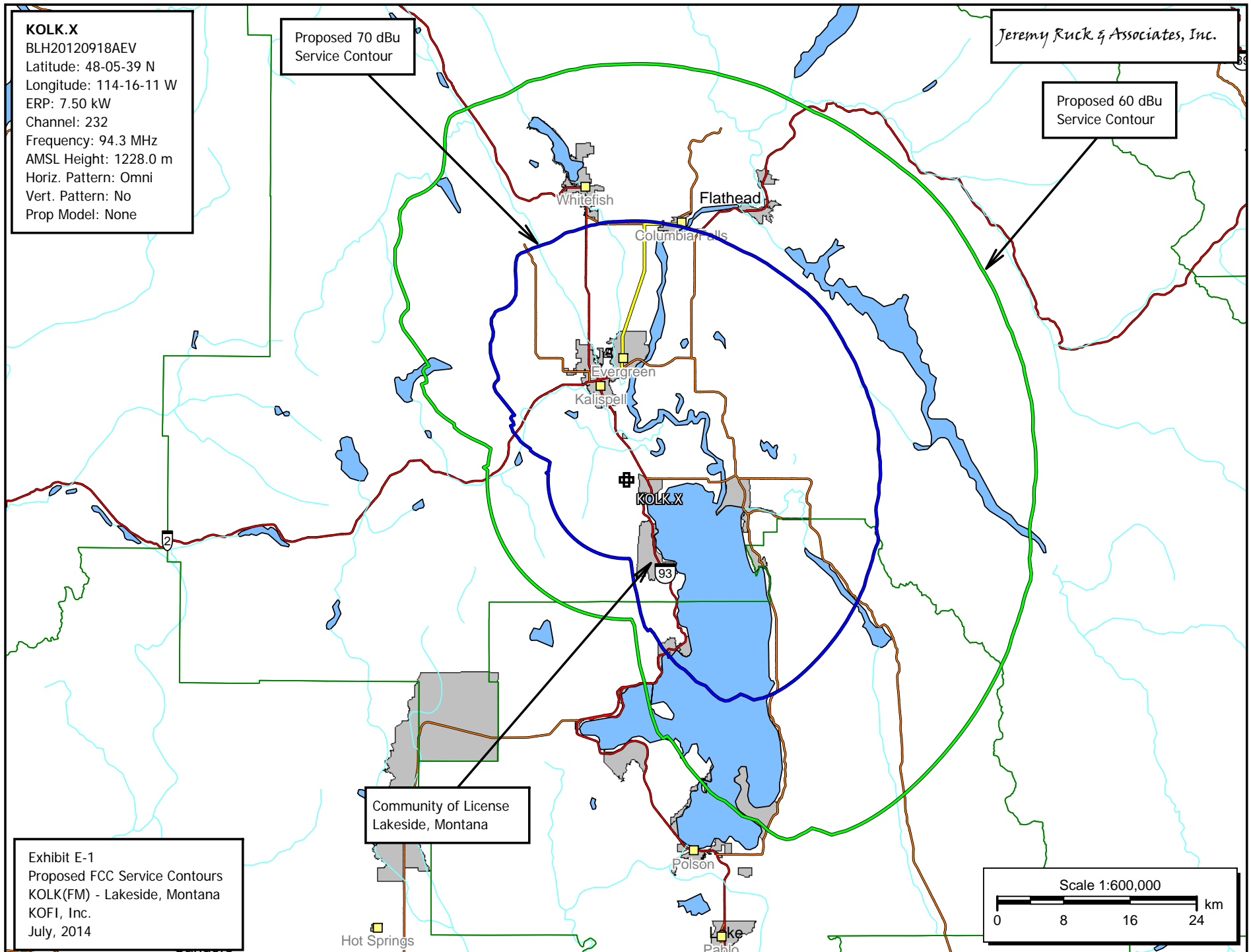


Exhibit E-1  
Proposed FCC Service Contours  
KOLK(FM) - Lakeside, Montana  
KOFI, Inc.  
July, 2014

Scale 1:600,000

0 8 16 24 km

Jeremy Ruck & Associates, Inc.  
Consulting Engineers - Canton, Illinois  
Exhibit E-2 - Single Channel Spacing Study  
KOLK(FM) - Lakeside, Montana

REFERENCE		DISPLAY DATES
48 05 39.0 N.	CLASS = C3 Int = B1	DATA 07-29-14
114 16 11.0 W.	Current Spacings to 3rd Adj.	SEARCH 07-29-14
----- Channel 232 - 94.3 MHz -----		

Call	Channel	Location	Azi	Dist	FCC	Margin
KOLK	LIC 232C3	Lakeside	MT 0.0	0.00	153.0	-153.0
K234BZ	LIC 234D	Kalispell, Etc.	MT 330.6	9.15	41.0	-31.9
K230BC	LIC-D 230D	Ronan	MT 179.8	35.64	41.0	-5.4
K230BJ	CP -D 230D	Whitefish	MT 350.9	47.02	41.0	6.0
R11821	VAC 231C	Lethbridge	AB 28.6	202.21	195.0	7.2
NEW	OPE 231C	Lethbridge	AB 27.2	205.95	195.0	11.0
KWOL-FM	RSV-A 286C	Whitefish	MT 350.9	47.05	31.0	16.1
KWOL-FM	LIC 286C	Whitefish	MT 350.9	47.05	31.0	16.1
KYSS-FM	LIC 235C	Missoula	MT 169.9	119.87	96.0	23.9
KHTQ	LIC-D 233C	Hayden	ID 257.5	207.21	176.0	31.2
R15547	VAC 231C1	Creston	BC 304.9	213.72	181.0	32.7

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Reference station has protected zone issue:  
RSV-R = reserved - needs protection, RSV-A = allocation



