



OWL ENGINEERING & EMC TEST LABS, INC.

CONSULTING COMMUNICATIONS ENGINEERS · EMC TEST LABORATORIES

**5844 Hamline Avenue North, Shoreview, MN 55126
651-784-7445 • Fax 651-784-7541**

**ENGINEERING EXHIBIT FOR AN
APPLICATION FOR A MODIFICATION TO A
CONSTRUCTION PERMIT BMPH-20080222ACC
KZJZ FACILITY ID# 164303
CHANNEL 256 C2
ANDERSON RADIO BROADCASTING, INC
ST. REGIS, MONTANA**

CHANNEL 256 0.93 KW (H&V) 867 METERS HAAT

SEPTEMBER 28, 2009



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ENGINEERING STATEMENT

This engineering exhibit, of which this Statement is a part, was prepared in accordance with the Rules and Regulations of the Federal Communications Commission and pursuant to the provisions of Section III-B of FCC Form 301 on behalf of Anderson Radio Broadcasting, Inc (hereafter ("**ARB**") in support of an application for authority to modify an existing FM broadcast facility construction permit (**BMPH-20080222ACC**) for operation on channel 256 (99.1 MHz) at St. Regis, MT. The purpose of this application is to change the Transmitter site location, power output (0.93 Kw) and HAAT (height of 867 meters). This power/height combination is an allowable Class C2 facility permitted under the current rules and regulations. This change was required since the originally proposed tower could not support the antenna due to other equipment that had been installed by the tower owner at the CP antenna height and loading. The new location is only several hundred feet away in the same tower farm location as in the original construction permit.

"**ARB**" proposes to operate from a site uniquely described by the geographic coordinates:

(NAD 27)

47° 22' 20" North Latitude
114° 51' 28" West Longitude

(NAD 83)

47° 22' 20" North Latitude
114° 51' 31.6" West Longitude

Notification to the FAA was not done since the Towair program shows that notification is not required. (Figure 3)

Engineering Figure 1 is a portion of the Quinns Hot Springs, Montana 7.5 minute USGS map that shows the exact location of the tower. A search was performed for the presence of any other AM or FM communications facilities located nearby and none were found.



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Because the area is rural and on a mountain top with no nearby residences there is not expected to be any problem with blanketing interference. Figure 2 is an aerial view of the site. The applicant is aware of the provisions of §73.318 of the FCC's Rules and the requirement for satisfying all complaints of blanketing interference that are received within a one-year period. The main studio for the station will be located in the St. Regis, MT area and will comply with the requirements of §73.1125.

ALLOCATION CONSIDERATIONS

A review of allotments and assignments on channel 256, on the three immediately upper adjacent, the three immediately lower adjacent channels and the two channels removed by 53 and 54 channels (202 & 203) shows that the site proposed has a no short-spaced conditions and satisfies the requirements of §73.207.

FM CHANNEL SPACING STUDY

REFERENCE	CLASS = C2 Int = B		DISPLAY DATES				
47 22 20 N.	Current Spacings to 3rd Adj.		DATA	09-28-09			
114 51 28 W.	Channel 256 - 99.1 MHz		SEARCH	09-28-09			
Call	Channel	Location	Azi	Dist	FCC	Margin	
KZJZ	CP -N 256C2	St. Regis	MT 291.0	0.1	189.5	-189.4	
CJDR-FM	OP -D 256B	Fernie	BC 355.6	230.6	236.5	-5.9*	
KKZX	LIC 255C	Spokane	WA 278.5	185.4	187.5	-2.1*	
KKMT	LIC 259C2	Pablo	MT 44.6	62.9	57.5	5.4	
KBBZ	LIC 253C	Kalispell	MT 15.8	131.8	104.5	27.3	
KBBZ	LIC 253C	Kalispell	MT 15.8	131.8	104.5	27.3	
KBHK	CP 203A	Thompson Falls	MT 304.7	44.2	14.5	29.8	
KXDR	LIC 254C1	Hamilton	MT 144.9	117.0	78.5	38.5	

Reference station has protected zone issue: Canada

*: Processing under §73.215 eliminate the short-spaced conditions

The transmitter site proposed is short-spaced to KKZX (Spokane, WA) and CJDR-FM (Fernie, BC). Figure 6 shows that the 54dBu interfering contour of KKZX and KZJZ that both stations clear the 60 dBuV protected contour of each other. In accordance with §73.215, contours for KKZX are based on a maximized facility. Hence, this proposal complies with the provisions of §73.215 with respect to the licensed facility of KKZX, Spokane, WA, channel 255C.



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Figure 5 shows the 54 dBuV F(50,50) and 34 dBuV F(50,10) contours of the proposal and CJDR-FM for Fernie, BC, channel 256B. As shown, there is no overlap.

This proposal does not create any objectionable interference as defined in the subsections of 5.5.2 of the US-Canadian FM Broadcasting Working Agreement. Therefore it should be acceptable to the Canadian administration.

COVERAGE CONTOURS

The three-to-sixteen-kilometer average terrain elevations were derived from the NGDC 30-second terrain database.

DISTANCES TO CONTOURS (Kilometers):
Antenna COR elevation (AMSL): 2099 meters Average HAAT: 867 meters
Frequency: 99.1000 MHz
Coordinates: N 47° 22' 20" W 114° 51' 28"
F(50,50) Curves Number of Contours: 2

AZ (degs)	HAAT (m)	ERPd (kW)	CONTOUR LEVELS (dBuV):	
			70.0	60.0
0.0	1179	0.9500	36.1	58.1
45.0	820	0.9500	30.0	51.1
90.0	820	0.9500	30.0	51.1
135.0	692	0.9500	27.5	47.3
180.0	749	0.9500	28.6	49.1
225.0	868	0.9500	30.9	52.4
270.0	758	0.9500	28.8	49.4
315.0	1047	0.9500	34.1	56.0

The effective antenna radiation center height for each of the eight standard 45-degree spaced radials was used in conjunction with the F(50,50) metric curves of Figure 1 of §73.333 of the Rules to determine the distances to the 70 dBuV and 60 dBuV coverage contours. The contours drawn from the data are depicted on the map included as Engineering Figure 4. As is readily evident, all of St. Regis, MT is included within the proposed 70 dBuV coverage contour as required by the rules.

POPULATION AND AREA DATA

Based on the 2000 U.S. Census of Population, the numbers of persons enclosed by the proposed 60 dBuV coverage contour are 10,892 persons. The population count was made through the employment of a computer program containing a database including the geographic coordinates of the centroids of population



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groupings. The area within the proposed 60 dBuV coverage contour is 8,716 square kilometers. A computerized integration program determined this area.

ANSI Power Density Calculations

The proposed antenna will be energized such that it produces an effective radiated power of 0.93 kW from a center of radiation 12 meters above ground level. The site is restricted access by the owner with a locked metal fence at the entrance to the access road. Therefore this site is considered a controlled area.

Using the OET-65 model program the maximum RF Radiation level assuming a controlled area would be $0.432\text{mw}/\text{cm}^2$, which is below the controlled area exposure level maximum of $1.0\text{mw}/\text{cm}^2$.

Based on the calculations it was determined that the RF radiation would be only 43.25% of the uncontrolled limit. Measurements will be performed after construction to demonstrate compliance with the radiation standard.

Access to RF circuitry is restricted by a metal fence that restricts access to the tower and prohibits access by the public. Signs will be posted warning of the potential danger. When persons require access to the site, tower or antenna for maintenance purposes, the transmitter power will be reduced or completely eliminated to comply with ANSI guidelines. Hence, the conditions of §1.1306(b)(3) would not be involved.

ENVIRONMENTAL IMPACT STATEMENT

The instant proposal is categorically excluded from environmental processing since none of the conditions of §1.1306(b)(2) and (3) would be involved for the following reasons:

- 1) The site proposed is not in or near any location referenced in §1.1306(b)(1) as being of environmental interest.
- 2) The provisions of §1.1306(b)(2) relating to the use of high intensity strobe lighting do not apply since this tower is not utilizing this type of lighting.
- 3) Compliance to §1.1306(b)(3) regarding human exposure to RF radiation was examined for multiple sources. A search was made about the proposed site coordinates to locate any additional sources of RF radiation and none were found.



CONCLUSIONS

Based on the engineering studies provided, the following conclusions can be obtained:

- (1) Implementation of the instant proposal will provide St. Regis, MT with a full time FM aural broadcast service.
- (2) 10,892 persons in 48,616 square kilometers would have an available signal strength of 60 dBuV or greater from the proposed construction location.
- (3) All of St. Regis, MT would be served with a signal of 70 dBuV or greater from the proposed construction site.
- (4) The proposal is in complete conformance with all technical rules of the Federal Communications Commission.

A handwritten signature in black ink that reads "Garrett G. Lysiak".

Garrett G. Lysiak, P.E.
September 28, 2009

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

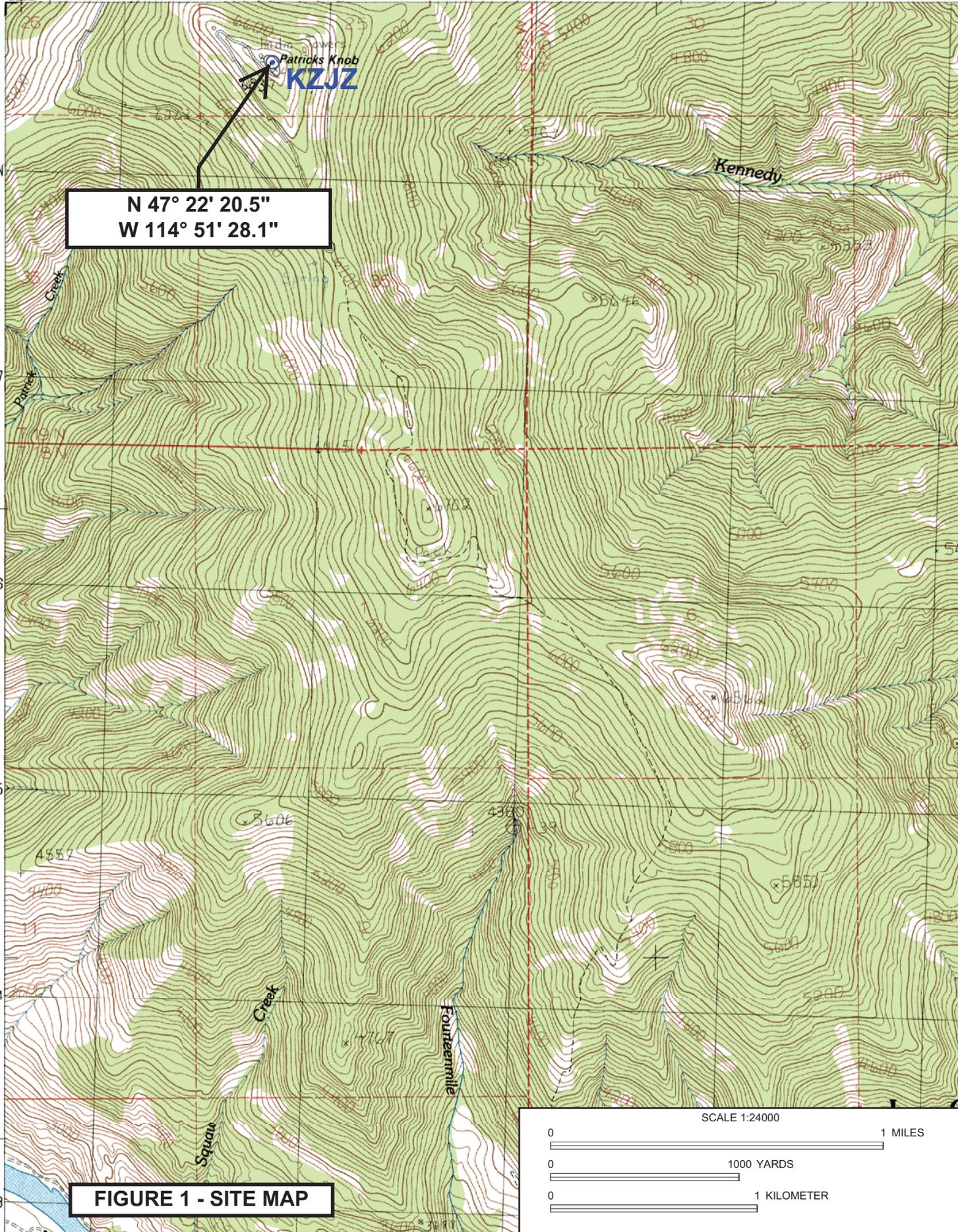
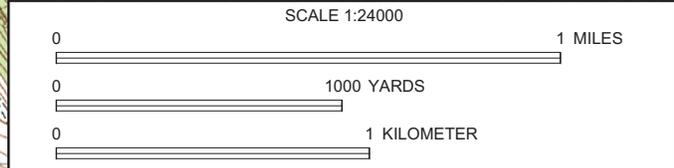
114° 52' 30" 61° 00' -E 62 63 50' 64 65

47° 22' 30" 5248000N

**N 47° 22' 20.5"
W 114° 51' 28.1"**

Patrick's Knob
KZJZ

FIGURE 1 - SITE MAP



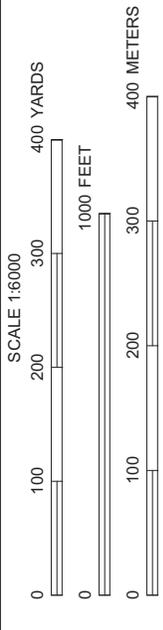


FIGURE 2 - AERIAL VIEW

TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates

Latitude	47-22-20.2 north
Longitude	114-51-31.6 west

Measurements (Meters)

Overall Structure Height (AGL)	15.2
Support Structure Height (AGL)	15.2
Site Elevation (AMSL)	2086.9

Structure Type

TOWER - Free standing or Guyed Structure used for Communications Purposes

FIGURE 3 - TOWAIR RESULTS

Prop. model: FCC-EDX
 Time: 50.0% Loc.: 50.0%
 Prediction Confidence Margin: 0.0dB
 Climate: Continental Temperate
 Land use (clutter): none
 Atmospheric Abs.: none
 K Factor: 1.333
 RX Antenna - Type: OMNI
 Height: 9.1 m AGL Gain: 0.00 dBd

Field strength at remote

= 70.0 dBμV/m
 = 60.0 dBμV/m

Display threshold level: -120.0 dBmW

Reference Grid (spacing: 30')



OWL ENGINEERING, INC

PROPOSED COVERAGE

September 28, 2009

FIGURE 4



FIGURE 5 - INTERFERENCE CONTOURS CJDR & KZJZ

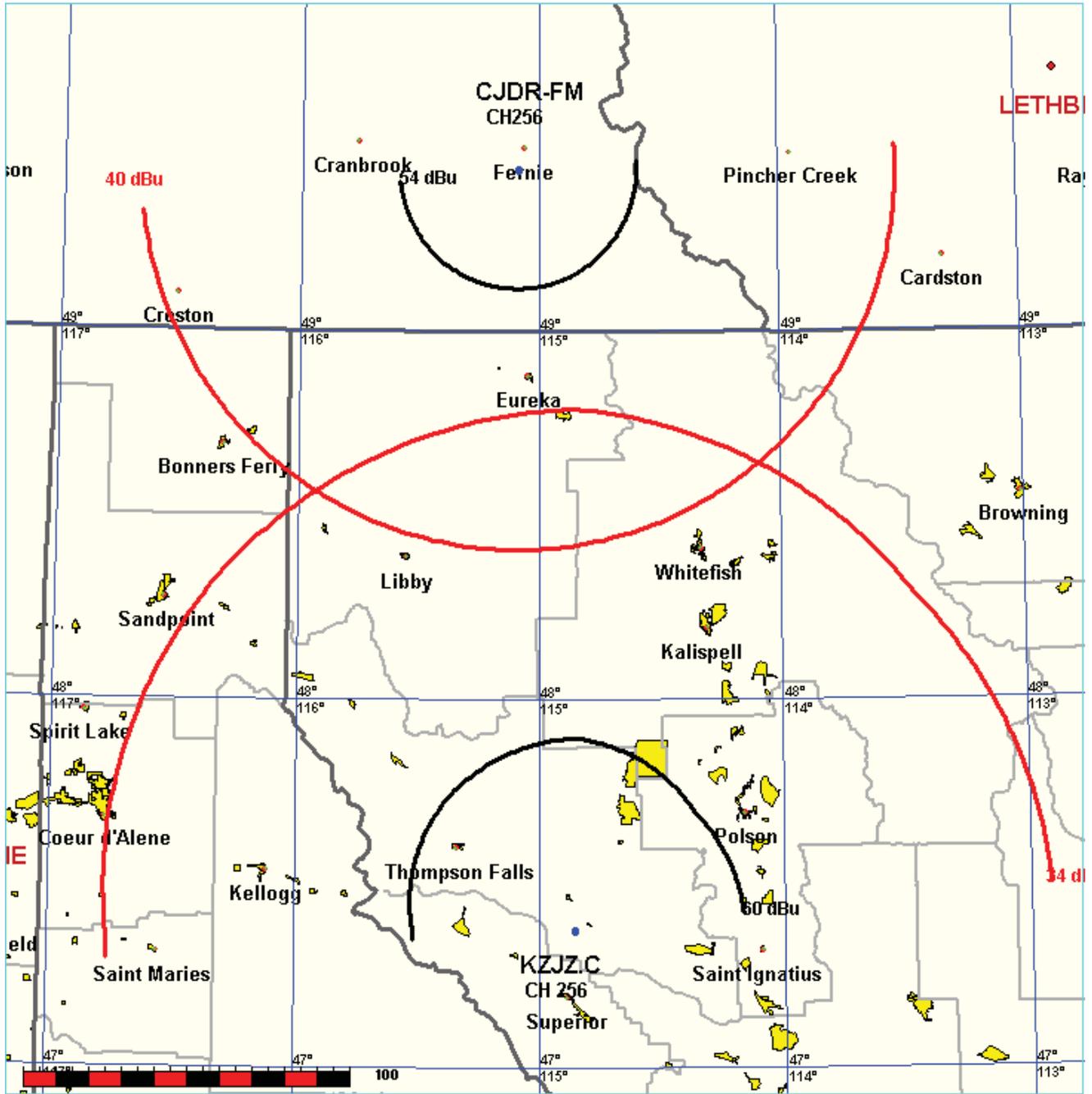


FIGURE 6 - INTERFERENCE CONTOURS KKZX & KZJZ

