

COMPREHENSIVE TECHNICAL EXHIBIT

APPLICATION FOR AUTHORITY TO CONSTRUCT OR MAKE
CHANGES IN AN FM TRANSLATOR STATION

K222BZ HEMINGFORD, NE
INTERNATIONAL CHURCH OF THE FORESQUARE GOSPEL

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INTRODUCTION

This technical exhibit has been prepared on behalf of The International Church of the Foresquare Gospel, licensee of translator station K222BZ Hemingford, NE (Facility ID #29891). The following information is provided to support a minor change to K222BZ.

SUMMARY OF PROPOSED STATION DATA

Output Channel: 219
Output Frequency: 91.7 MHz
Primary Station: KSLP, Fort Pierre, SD
ERP: 0.036 kilowatts
HAAT: 62.0 meters
HAGL: 39.0 meters
HAMSL: 1342.0 meters
ANTENNA: Directional, single Scala HDCA-10, aimed at 150° true.
SITE LOCATION: 42-19-27 N, 103-4-22 W (NAD 27)

MINOR CHANGE QUALIFICATION

The proposed frequency of 91.7 MHz is a third-adjacent frequency of the currently licensed frequency of 92.3 MHz. Also, there is no site change proposed, so the 1 mV/m coverage area will certainly overlap. Therefore, this application can be processed as a minor change under 47 CFR § 74.1233.

INTERFERENCE DISCUSSION

Contour Overlap

The lack of any prohibited field contour overlap of the proposed station with any co-channel, first, second, or third adjacent stations is shown in Figures 1, 2 and 3, with the exception of KTNE-FM, 91.1 MHz, Alliance, NE. The proposed translator station is short-spaced to KTNE-FM. 47 CFR 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 such other factors as may be applicable."

The proposed station would operate on channel 219D, or 91.7 MHz. KTNE-FM would place a 70.4 dBu contour at the proposed transmitter site (See Figure 4). Utilizing the Undesired-to-Desired ratio of 40 dB, the potential interfering contour is 110.4 dBu. Using the elevation plane relative field values for the proposed Scala HDCA-10 Yagi antenna, the downward 110.4 dBu interfering contour is calculated and plotted in Figure 5. The interfering contour is more than 2.2 meters above the ground at its lowest point. Therefore, no harmful interference is expected to be caused to KTNE-FM at any point along the ground. The only tall structure nearby is the unmanned grain elevator to which the transmit antenna is mounted. Therefore, it is demonstrated that any interference to KTNE-FM will not be present in any populated area.

Spacing to Intermediate Frequency Stations

The proposed station would operate with an effective radiated power of 36 watts. Because the proposed ERP is less than 100 watts, the proposed station is not subject to the spacing requirements set forth in 47 CFR § 74.1204(g).

Television Channel 6 Protection

The proposed station will operate in such a way as not to cause harmful interference to any television station operating on channel 6. As outlined in 47 CFR § 74.1205(a), a translator operating on channel 219 must protect any channel 6 station operating within 132 km. A search of the FCC database revealed that there are two channel 6 stations within that distance – K06JC-D Chadron, NE; and K06KR-D Crawford, NE. 47 CFR § 74.1205(c) states:

*“..Except as provided in paragraph (b) of this section, an application for a noncommercial educational FM translator station operating on Channels 201-220 will not be accepted if the proposed operation would involve overlap of its interference field strength contour with **any** TV Channel 6 station's Grade B contour..”*

Although the two television stations in question are digital, the assumption here is that the protected contour of the TV stations for this purpose is still the 47 dBu F(50,50) Grade B contour. From 47 CFR § 74.1205(c)(3), the interfering contour of the proposed translator is 88 dBu. Figure 7 shows the lack of any prohibited overlap between the Grade B contour of both TV stations, and the 88 dBu interfering contour of the proposed FM translator.

Contour Calculations

All contour and HAAT values were calculated using the NGDC 30-second terrain database, and the methods described in 47 CFR § 73.313.

ENVIRONMENTAL CONSIDERATIONS

The proposed station would operate with an effective radiated power of 36 watts. Because the proposed station would operate with less than 100 watts, it is in compliance with 47 CFR § 1.1307(b)(4)(i).

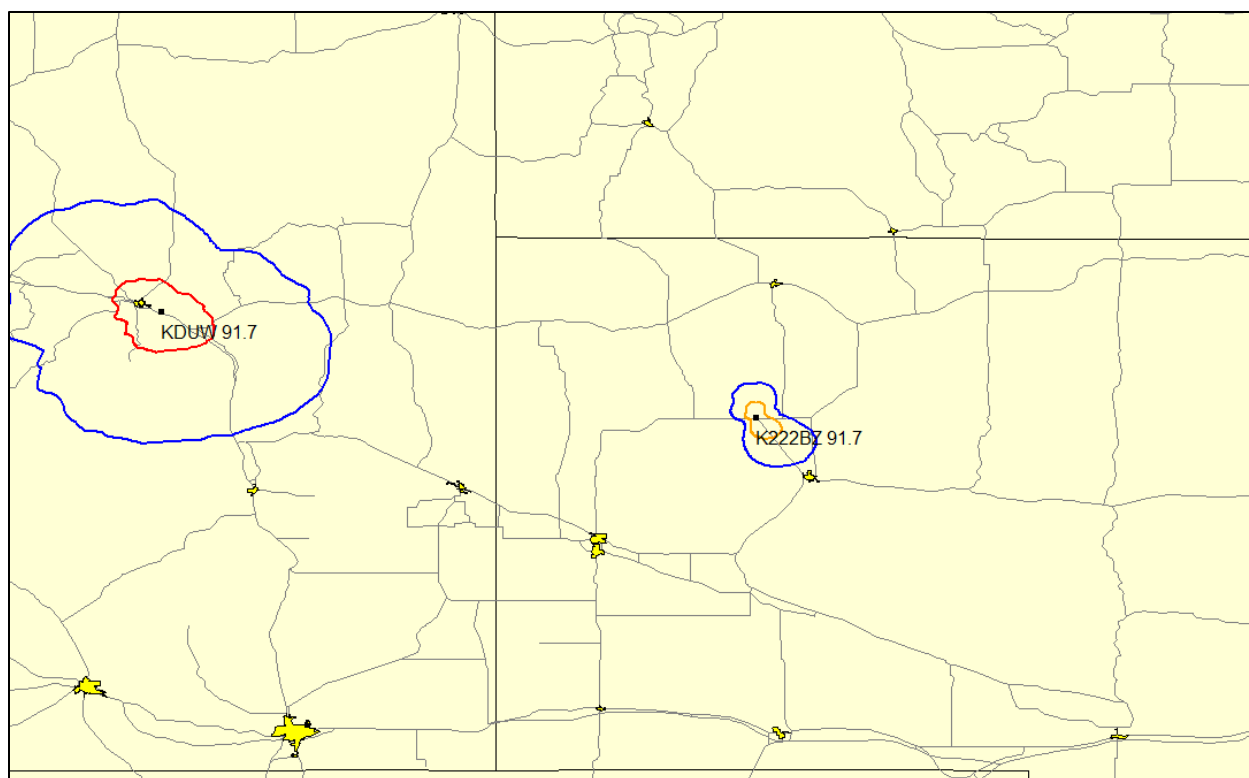


Figure 1. Pertinent contours of the proposed station any co-channel stations.

(RED = 60 dBu, BLUE=40 dBu interfering, ORANGE=54 dBu interfering, and PINK=100 dBu interfering)

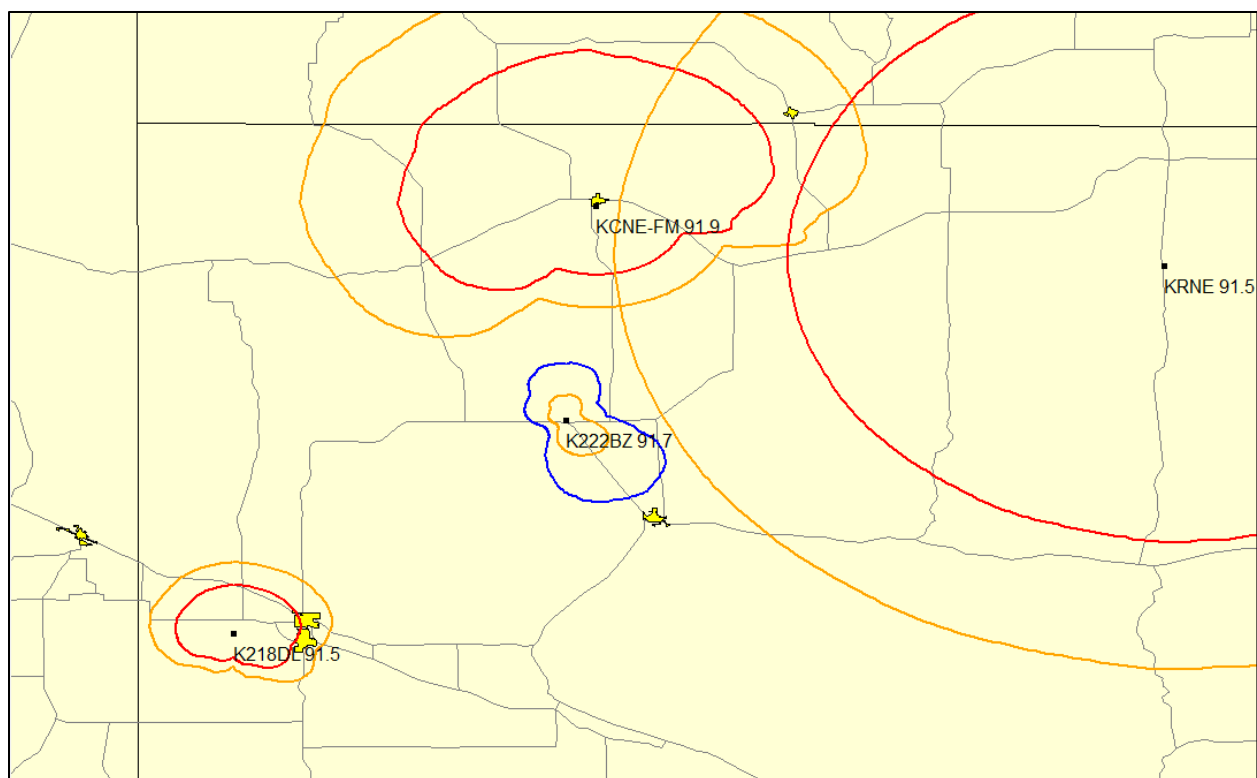


Figure 2. Pertinent contours of the proposed station any first-adjacent stations.

(RED = 60 dBu, BLUE=40 dBu interfering, ORANGE=54 dBu interfering, and PINK=100 dBu interfering)

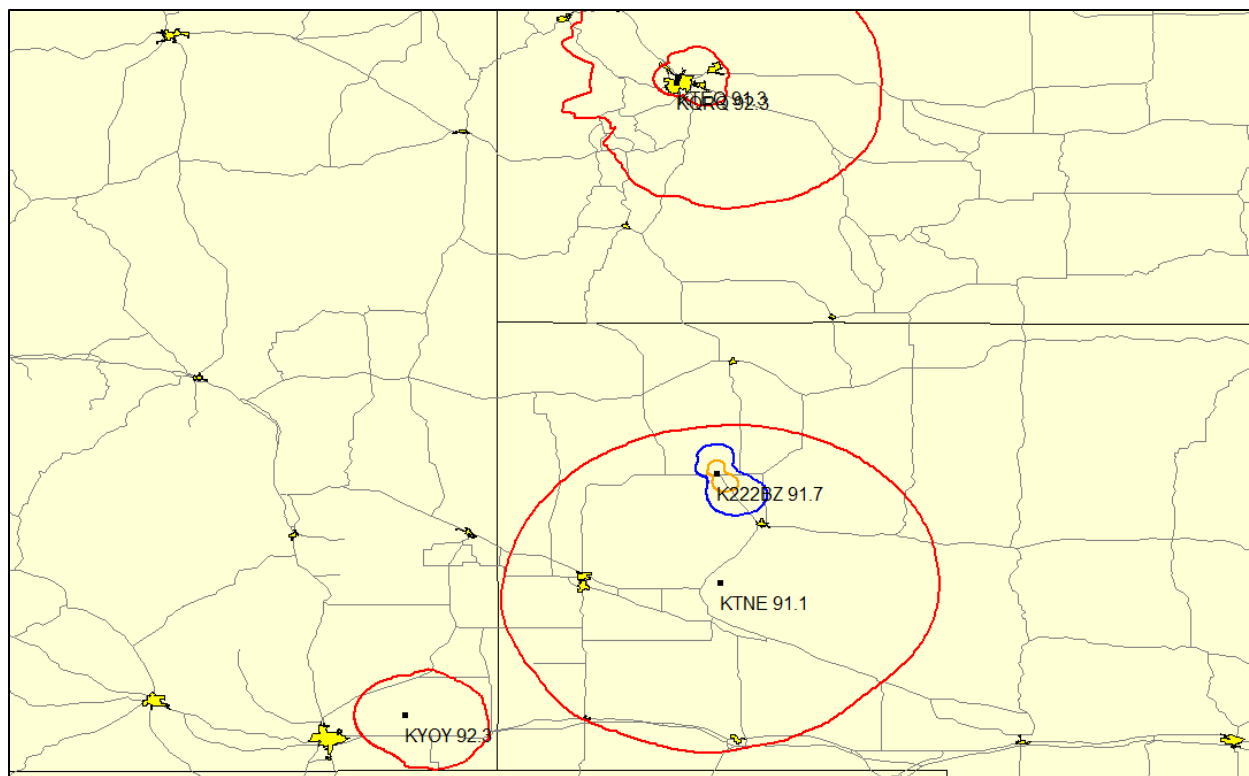


Figure 3. Pertinent contours of the proposed station any second- or third-adjacent stations.

(RED = 60 dBu, BLUE=40 dBu interfering, ORANGE=54 dBu interfering, and PINK=100 dBu interfering)

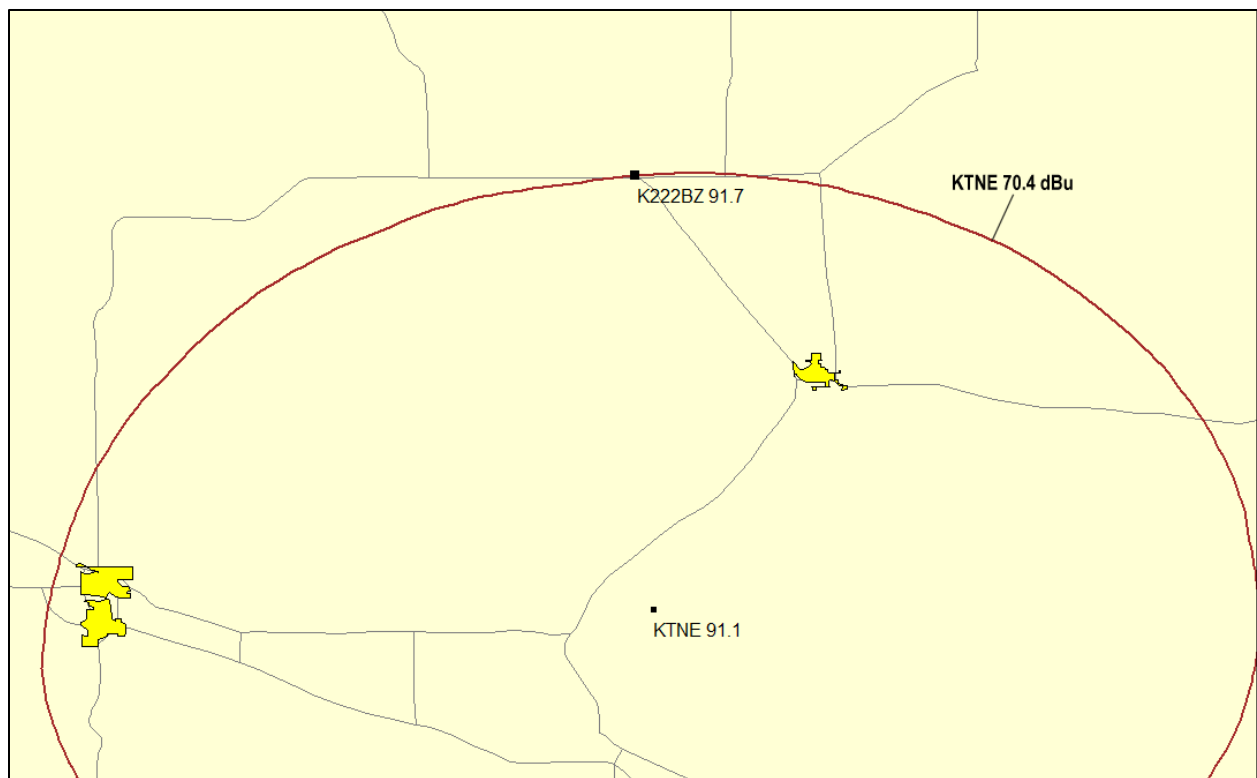


Figure 4. KTNE-FM placing a 70.4 dBu contour at the site of the proposed translator station.

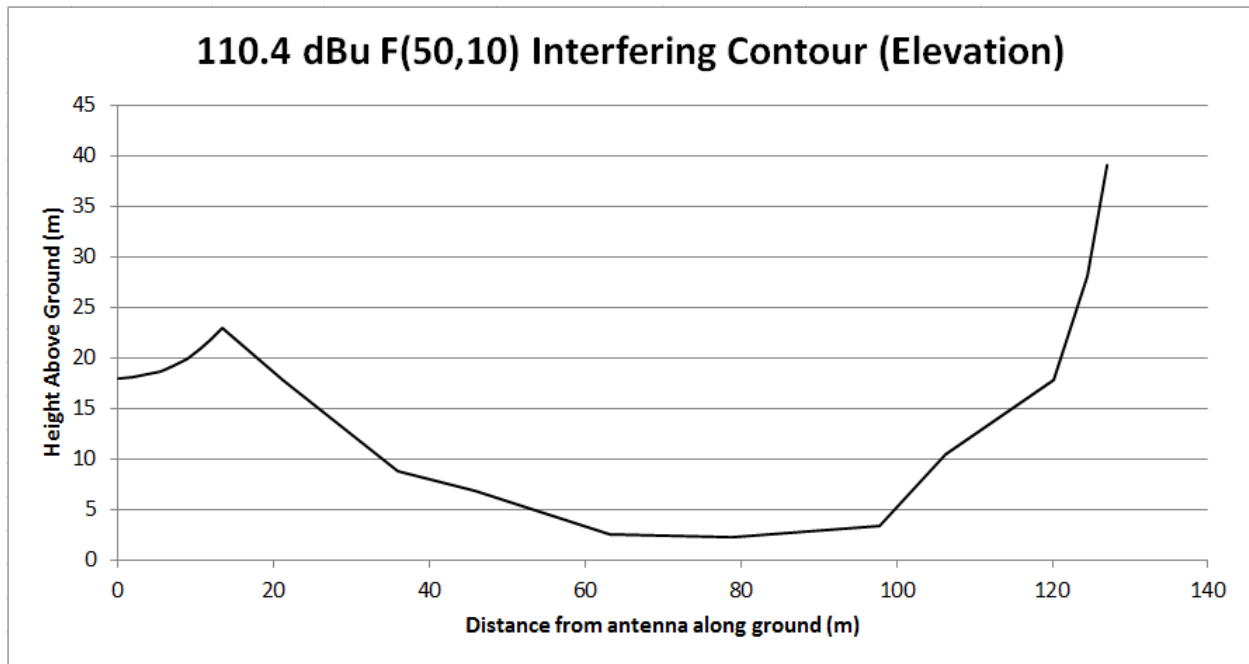


Figure 5. Plot showing the 110.4 F(50,10) interfering contour elevation of the proposed station.

Table 1. Calculated elevation plane 110.4 dBu field values.

Depression Angle (Deg.)	Relative Field	Relative ERP (kW)	Distance to Contour (m)	Height Above Ground (m)
0	1	0.036	127	39
5	0.98	0.0345744	125	28.10553216
10	0.96	0.0331776	122	17.81492232
15	0.87	0.0272484	110	10.52990504
20	0.81	0.0236196	104	3.429905094
25	0.68	0.0166464	87	2.232211229
30	0.58	0.0121104	73	2.5
35	0.45	0.00729	56	6.879719564
40	0.38	0.0051984	47	8.788982345
45	0.26	0.0024336	30	17.78679656
50	0.18	0.0011664	21	22.91306669
55	0.11	0.0004356	21	21.79780707
60	0.11	0.0004356	21	20.81346652
65	0.12	0.0005184	21	19.96753647
70	0.14	0.0007056	21	19.26645496
75	0.17	0.0010404	21	18.71555765
80	0.2	0.00144	21	18.31903719
85	0.18	0.0011664	21	18.07991134
90	0.13	0.0006084	21	18

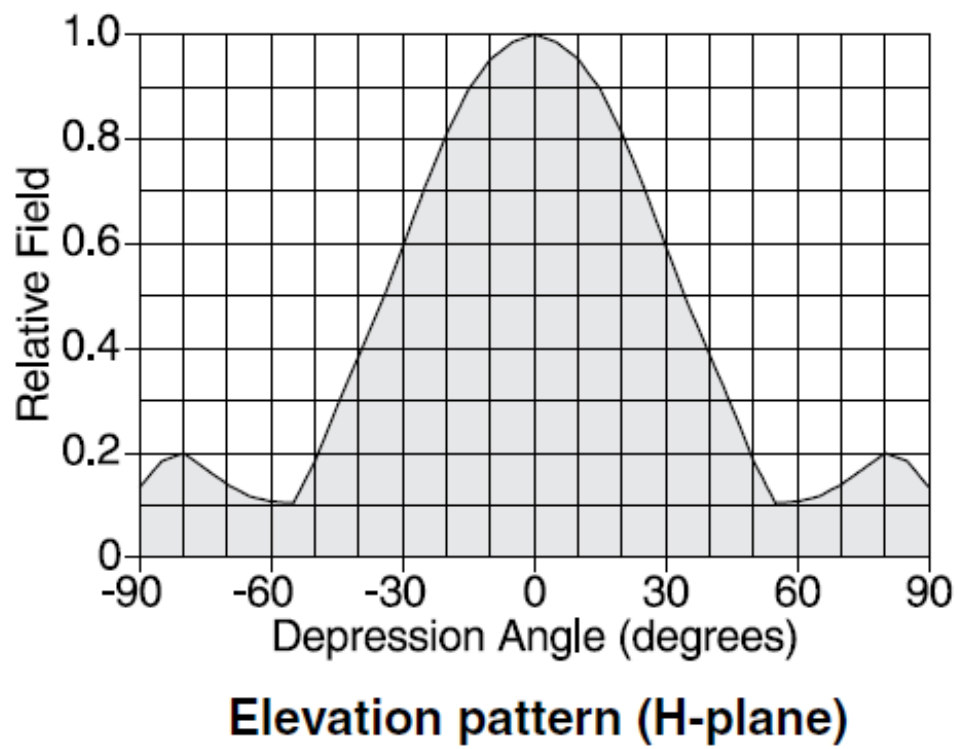


Figure 6. Elevation relative field values for the Scala HDCA-10 Yagi antenna.

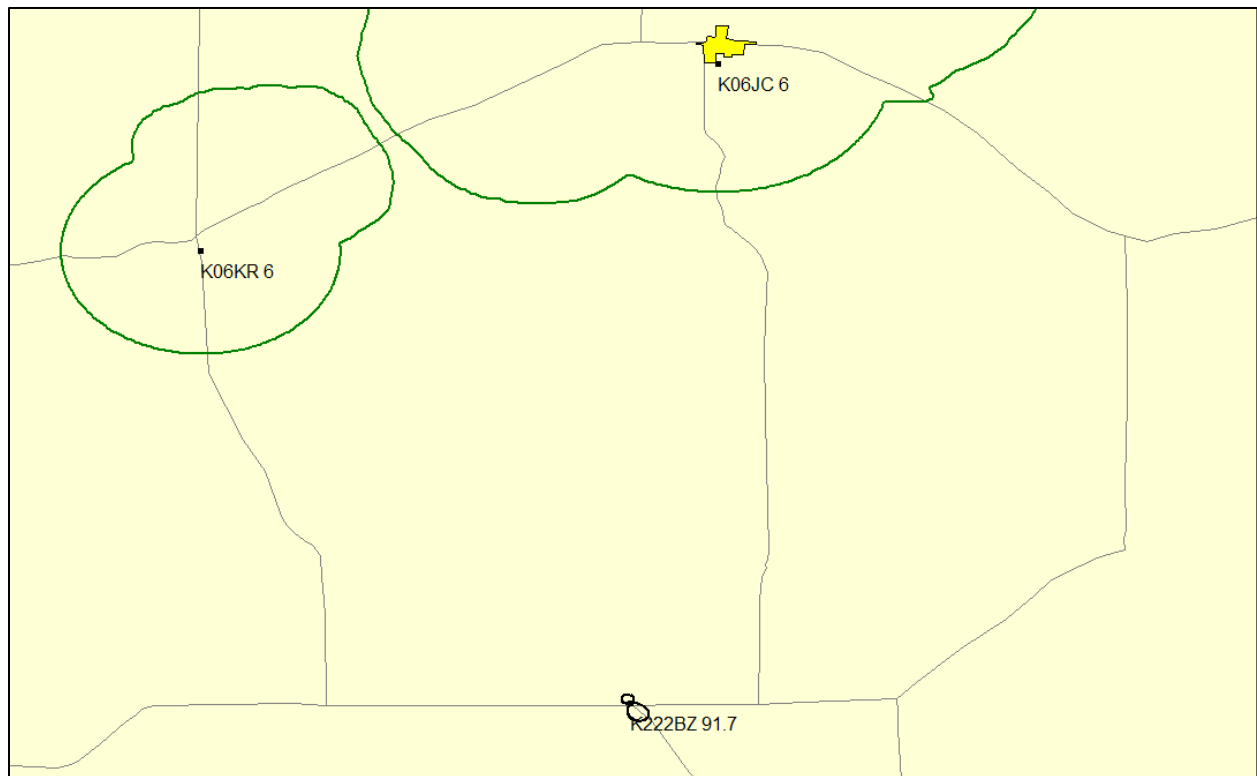


Figure 7. Pertinent contours of the proposed station with television channel 6 stations.

(GREEN = 47 dBu, BLACK = 88 dBu interfering)