

## **EXHIBIT 12**

### **OVERLAP REQUIREMENTS / ENGINEERING STATEMENT**

The applicant, Dr. Mike Isenhardt, hereby submits a minor-change application for K228CX, Wenatchee, WA. The applicant requests a move to Channel 230 - 93.9mhz. No other changes are proposed, except for correcting an apparent discrepancy in the antenna polarization. The antenna to be employed, *and currently installed*, is a vertical-only Scala HDCA-5EB oriented at 220 degrees true. The directional antenna pattern in the FCC records is consistent with this antenna, mounted for vertical polarization. However the FCC records also list the ERP at 48 watts *horizontal*-only. In other words, either the polarization contained in the FCC records is incorrect, or the listed directional antenna pattern is incorrect. The applicant believes that the listed polarization is incorrect, and therefore the *only* change being proposed herein is the output frequency.

K228BZ is a grandfathered pre-1991 translator, having been authorized in 1987. As such it is covered by the provisions of §74.1235(j), and the ERP limitations of §74.1235(b) do not apply. The maximum ERP will remain at 48 watts.

As shown by attached **Exhibit 12a**, all requirements of §74.1204 regarding interference protection to co-channel stations are met. The software employed color-codes the contours of both the proposed and affected stations. Like-colors must not overlap.

**Exhibit 12b** shows a slight overlap with the protected contour of first-adjacent station KXAA, Cle Elum, WA. This overlap is allowable under two provisions in the Rules:

1. KXAA is on Channel 229, so both the existing and the proposed facilities are 1<sup>st</sup>-adjacent to this station, with identical contour overlaps. There have been no reports of interference of any kind caused by the current translator. There is *massive* terrain blockage between the two facilities, so no interference is anticipated. This small overlap is therefore covered by the provisions of §74.1204(j), for grandfathered pre-1991 translators.

2. As shown by the zoomed-in detail contained in **Exhibit 12c**, the small area of overlap is in a remote and totally uninhabited area. Therefore it is allowable under the provisions of §74.1204(d) regarding “lack of population...” in the overlap area.

Exhibit 12d shows the lack of contour overlap to 2<sup>nd</sup> and 3<sup>rd</sup> adjacent facilities.

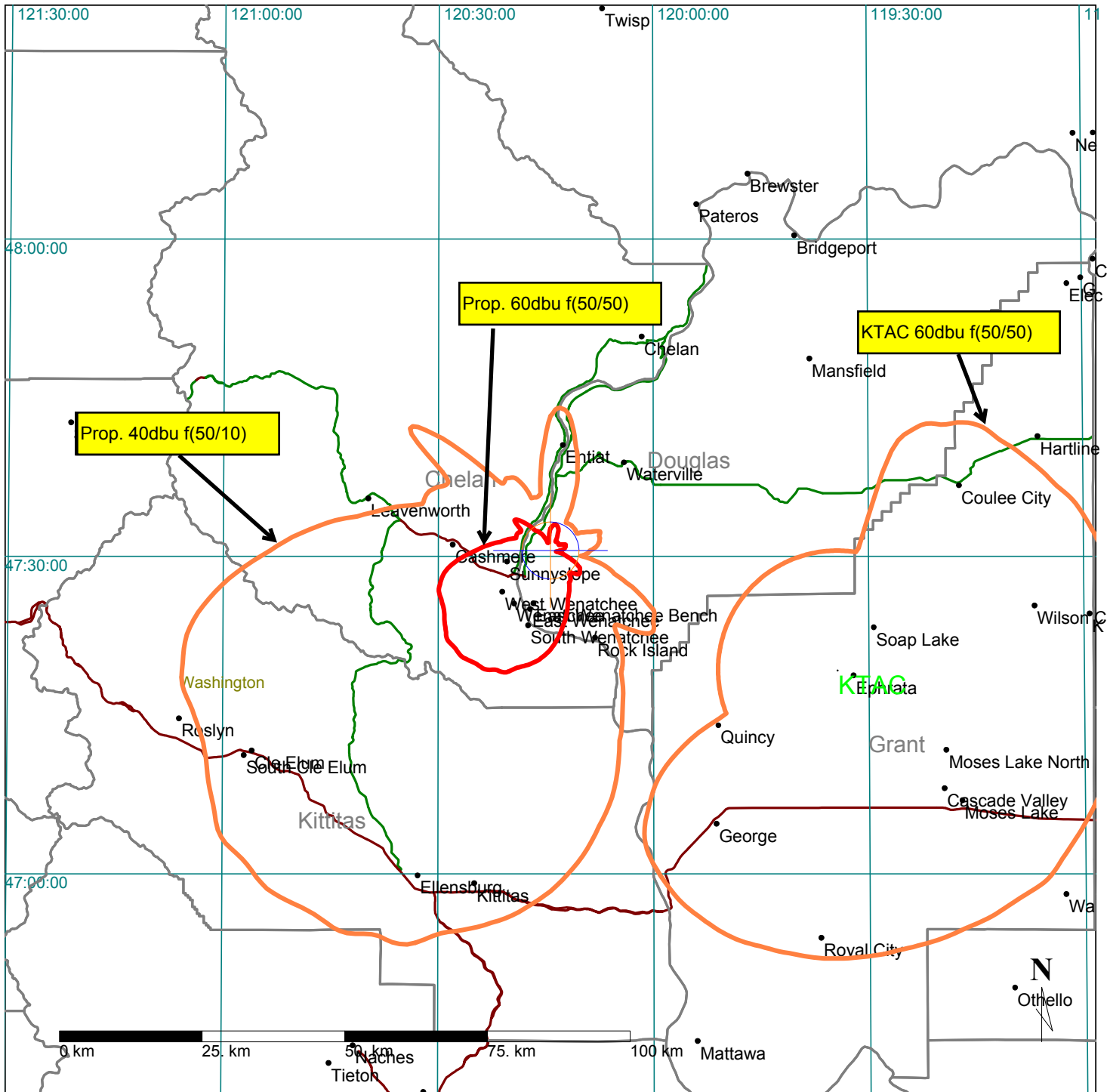
Finally, just 90 meters from this proposal is the site of a pending Channel 232(2nd-adjacent) translator, with 2 watts ERP. At the K228CX site it would have a signal strength of 100.5dbu f(50/50). With a U/D ration of 40db for 2<sup>nd</sup>-adjacent stations, the interfering contour of K228CX operating on channel 230 becomes 140.5dbu, extending 5 meters from the antenna. The K228CX antenna is (and will remain) 9m AGL, so the interfering contour will not reach the ground. No interference to this, or any other station, licensed or proposed, is expected to occur.

The 34dbu interfering contour of this proposal will not cross onto Canadian soil. No Canadian processing will be necessary.

## Exhibit 12a - Co-Channel Contour Protection

Brown Broadcast Services, Inc.  
 Job: K228CX minor change final.fmj  
 Master Database: 2006\_Oct\_06.fmd  
 Lat: N47:30:33 Lon: W120:14:22 NAD-27  
 Scale: 1:1000000  
 Channel: 230 Class: DX  
 Status: Licensed, Construction Permit, Application, Addition, Vacant/Reserved  
 Channels: Co-Channel  
 Range: 100 km, Clearance: -0.5km  
 Comments: No Comments  
 Description:

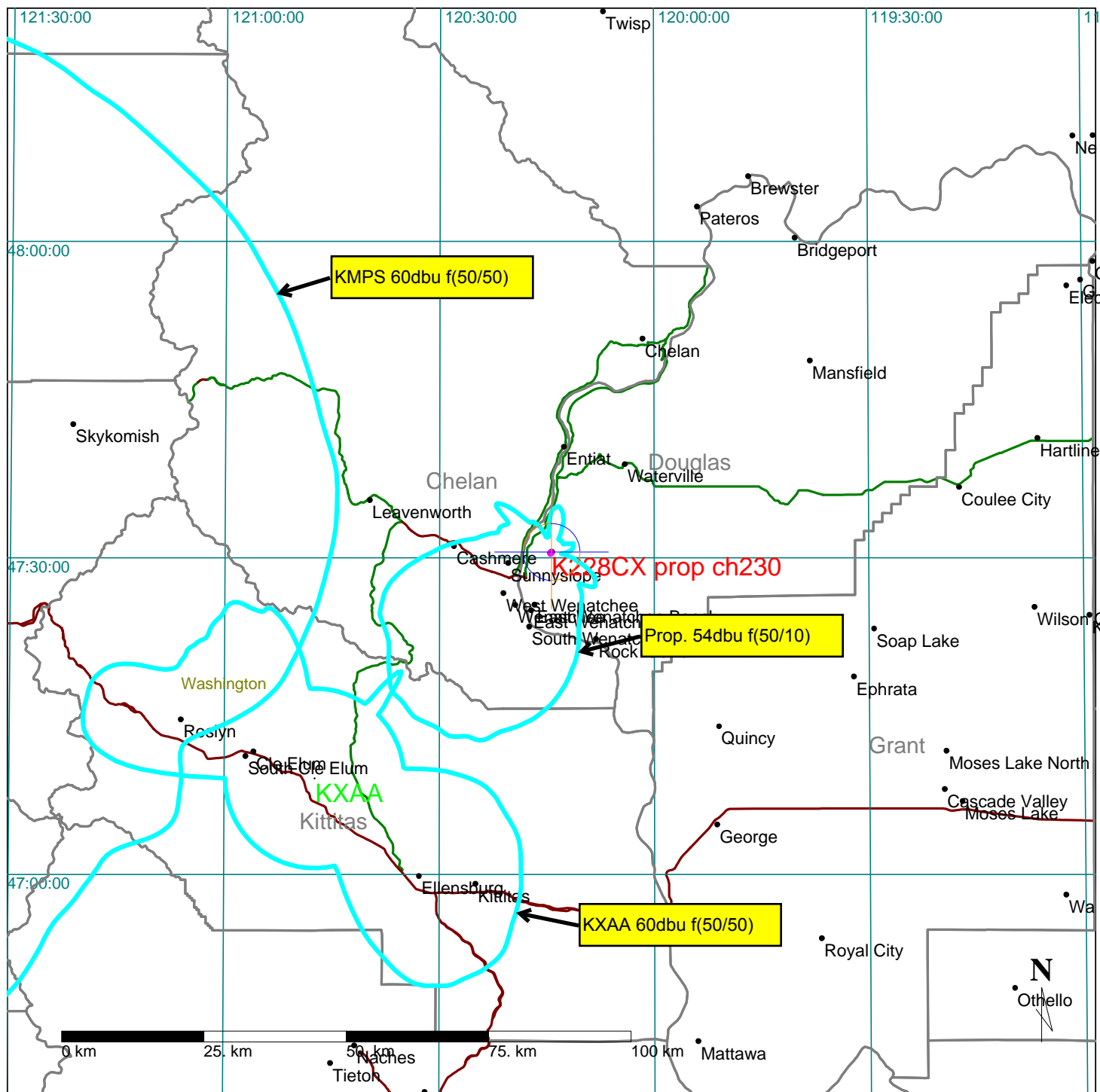
rfInvestigator Version 2.6.35  
 by rfSoftware, Inc.  
 Date: 10/14/2006 2:58:04 PM  
 Key:  
 City Grade  
 Protected  
 Co-Channel  
 1st Adj  
 2nd/3rd Adj



## Exhibit 12b - 1st-Adjacent Contour Protection

Brown Broadcast Services, Inc.  
 Job: K228CX minor change final.fmj  
 Master Database: 2006\_Oct\_06.fmd  
 Lat: N47:30:33 Lon: W120:14:22 NAD-27  
 Scale: 1:1000000  
 Channel: 230 Class: DX  
 Status: Licensed, Construction Permit, Application, Addition, Vacant/Reserved  
 Channels: 1st Adj  
 Range: 95 km, Clearance: -0.5km  
 Comments: No Comments  
 Description:

rfInvestigator Version 2.6.35  
 by rfSoftware, Inc.  
 Date: 10/14/2006 4:01:36 PM  
 Key:  
 City Grade  
 Protected  
 Co-Channel  
 1st Adj  
 2nd/3rd Adj



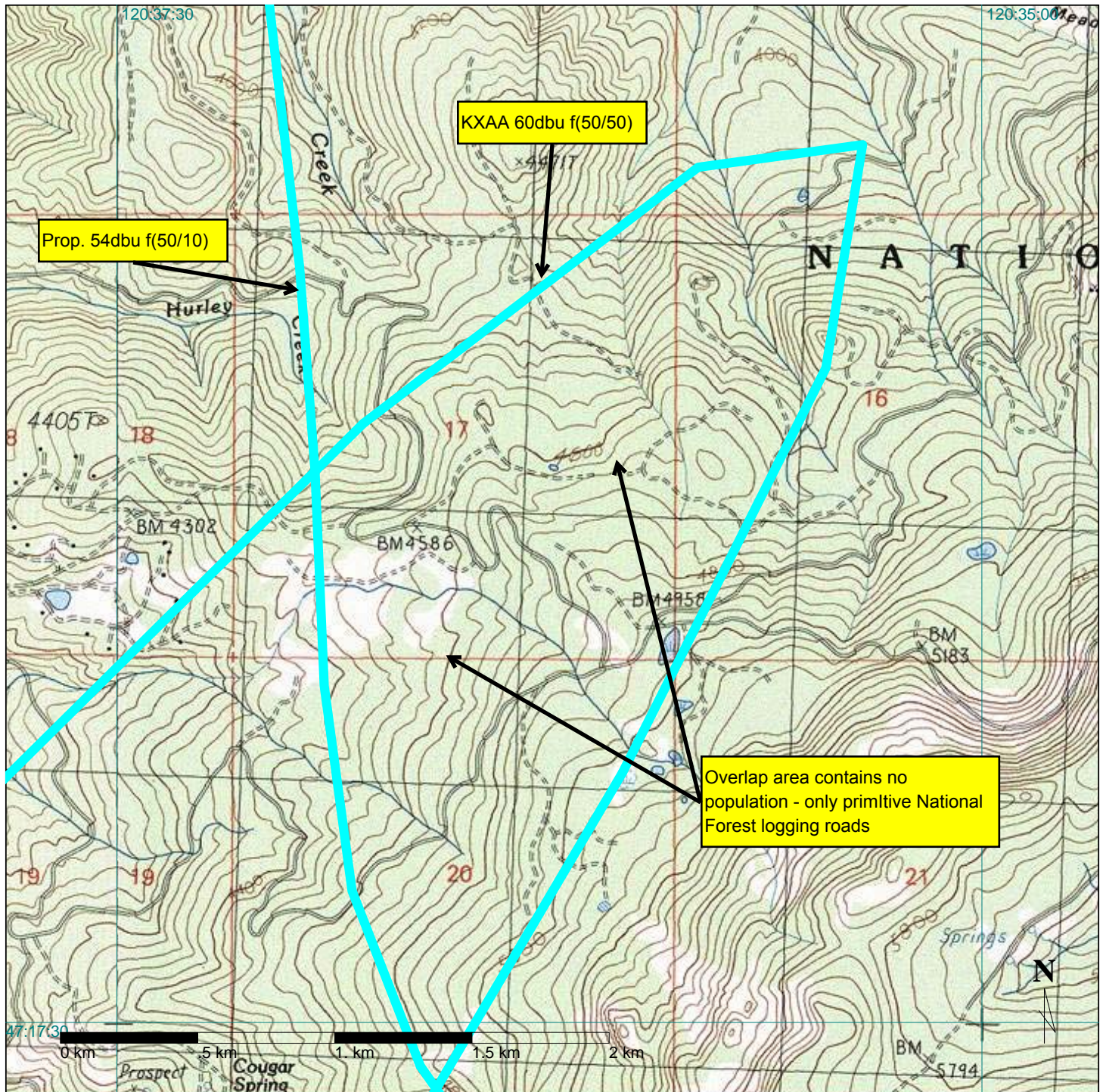


# Exhibit 12c - 1st-Adj. Overlap w/KXAA Showing No Population

Brown Broadcast Services, Inc.  
Job: K228CX minor change final.fmj  
Master Database: 2006\_Oct\_06.fmd  
Lat: N47:18:26 Lon: W120:36:15 NAD-27  
Scale: 1:20833  
Channel: 230 Class: DX  
Status: Licensed, Construction Permit, Application  
Channels: Co-Channel, 1st Adj, 2nd Adj, 3rd Adj  
Range: 100 km, Clearance: -0.5km  
Comments: No Comments  
Description:

rfInvestigator Version 2.6.35  
by rfSoftware, Inc.  
Date: 10/14/2006 4:40:13 PM  
Key:

City Grade  
Protected  
Co-Channel  
1st Adj  
2nd/3rd Adj





## Exhibit 12d - 2nd & 3rd-Adjacent Contour Protection

Brown Broadcast Services, Inc.  
 Job: K228CX minor change final.fmj  
 Master Database: 2006\_Oct\_06.fmd  
 Lat: N47:30:33 Lon: W120:14:22 NAD-27  
 Scale: 1:500000  
 Channel: 230 Class: DX  
 Status: Licensed, Construction Permit, Application, Addition, Vacant/Reserved  
 Channels: 2nd Adj, 3rd Adj  
 Range: 37 km, Clearance: -0.5km  
 Comments: No Comments  
 Description:

rfInvestigator Version 2.6.35  
 by rfSoftware, Inc.  
 Date: 10/14/2006 5:10:33 PM  
 Key:  
 City Grade  
 Protected  
 Co-Channel  
 1st Adj  
 2nd/3rd Adj

