

## INTERFERENCE ANALYSIS

Concerning  
Pensacola Christian College  
Minor Amendment  
K207DL  
Twin Falls, Idaho  
File No. BMPFT20030505ABA  
June 2003

Page #2 of this exhibit is a computer generated channel study, showing the contour relationship between the proposed translator and adjacent stations. Page #3 is an explanation of the methods used in preparing the study. There is significant contour overlap to second adjacent KEFX and KEFX(CP) and third adjacent KAWZ and KAWZ(CP).

Section 73.1204(a) states that “an application for an FM translator station will not be accepted for filing if the proposed operation would involve overlap of predicted field strength contours with any other station, including commercial and noncommercial educational FM stations, FM translators and Class D (secondary) noncommercial educational FM stations.” However, Section 74.1204(d) states that “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 other such factors as may be applicable.* (Emphasis added.)

Using the undesired-to-desired ratio method regarding interference to a second/third adjacent frequency<sup>1</sup>, “interference is predicted to occur where the translator’s undesired signal exceeds the protection station’s desired signal by more than 40 dB.”<sup>2</sup> The free space formula was used to determine the signal strength, in dBu, of KEFX<sup>3</sup> at the proposed translator’s transmitter site. That signal strength was calculated to be 88.3 dBu, based on an HAAT toward the reference of 354 meters, power of 100 kW and distance of 21.47 km. Incorporating the 40 dB U/D ratio, the resulting translator interference contour, therefore, is 128.3 dBu. Page #4 is a distance to 128.3 dBu F(50-10) contour for the proposed translator. Page #5 is a topographic map<sup>4</sup> depicting the proposed translator site. According to information provided by Pensacola Christian College and this topographic map, this is an isolated location, with no buildings (other than the transmitter building), residences or roads within the interference area. Due to the absence of “potential listeners” within the interference contour, a waiver of Section 74.1205 is relevant.

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<sup>1</sup> *Second Report and Order*, FCC 00-368 at 9 and 39.

<sup>2</sup> *Memorandum Opinion and Order*, FCC 02-244 at 5 and 6, (In response to application of Living Way Ministries, Inc., File No. BPFT-19981001ITA.

<sup>3</sup> KEFX, KEFX (CP), KAWZ and KAWZ (CP) all transmit the same power, from the same antenna height above ground and location, therefore only KEFX was studied for the purposes of this analysis.

<sup>4</sup> [www.topozone.com](http://www.topozone.com)

K207DL @ .205 kW  
Scala FMV @ 90°

REFERENCE CH# 207D - 89.3 MHz, Pwr= 0.205 kW, HAAT=112.1 M, COR= 1180 M DISPLAY DATES  
42 33 06 N Average Protected F(50-50)= 12.95 km DATA 06-12-03  
114 30 59 W Ave. F(50-10) 40 dBu= 44.3 54 dBu= 19.4 80 dBu= 4.1 100 dBu= 1.0 SEARCH 06-20-03

| CH<br>CITY          | CALL   | TYPE<br>STATE | AZI.<br><--    | DIST<br>FILE #             | LAT.<br>LNG.          | Pwr(kW)<br>HAAT(M) | COR(M)<br>INT(km) | PRO(km)<br>LICENSEE                | *IN*<br>(Overlap in km) | *OUT*    |
|---------------------|--------|---------------|----------------|----------------------------|-----------------------|--------------------|-------------------|------------------------------------|-------------------------|----------|
| 205C<br>Twin Falls  | KEFX   | LIC DV<br>ID  | 22.8<br>202.8  | 21.47<br>BLED20010227AAI   | 42 43 47<br>114 24 52 | 100.000<br>354     | 1475<br>0.9       | 76.4<br>Calvary Chapel             | 0.16<                   | -55.82*< |
| 210C<br>Twin Falls  | KAWZ   | LIC DE<br>ID  | 22.8<br>202.8  | 21.47<br>BLED20010305AAO   | 42 43 47<br>114 24 52 | 100.000<br>354     | 1475<br>0.9       | 76.4<br>Calvary Chapel             | 0.16<                   | -55.82*< |
| 205C0<br>Twin Falls | KEFX.C | CP VX<br>ID   | 22.8<br>202.8  | 21.47<br>BPED20030103AAQ   | 42 43 47<br>114 24 52 | 100.000<br>354     | 1475<br>0.9       | 76.4<br>Calvary Chapel             | 0.16<                   | -55.82*< |
| 210C0<br>Twin Falls | KAWZ.C | CP VX<br>ID   | 22.8<br>202.8  | 21.47<br>BPED20030103AAR   | 42 43 47<br>114 24 52 | 100.000<br>354     | 1475<br>0.9       | 76.4<br>Calvary Chapel             | 0.16<                   | -55.82*< |
| 207D<br>Twin Falls  | K207DL | CP DV<br>ID   | 167.2<br>347.2 | 13.77<br>BNPFT19991203AAE  | 42 25 51<br>114 28 45 | 0.012<br>232       | 1436<br>20.8      | 9.3<br>Pensacola Christian Colleg  | -23.47<                 | -16.37<  |
| 207D<br>Twin Falls  | K207DL | APP DV<br>ID  | 167.2<br>347.2 | 13.77<br>BMPFT20030505ABA  | 42 25 51<br>114 28 45 | 0.098<br>-24       | 1180<br>20.8      | 5.6<br>Pensacola Christian Colleg  | -10.95<                 | -12.65<  |
| 207D<br>Bellevue    | K207BD | LIC DCN<br>ID | 11.5<br>191.5  | 103.44<br>BLFT19910524TA   | 43 27 49<br>114 15 36 | 0.001<br>52        | 1585<br>33.6      | 2.4<br>Idaho State Board Of Educa  | 86.02                   | 67.42    |
| 260C<br>Burley      | KZDX   | LIC CN<br>ID  | 107.5<br>287.5 | 78.76<br>BLH19841214LN     | 42 20 07<br>113 36 17 | 25.000<br>873      | 2536<br>6.7       | 86.6<br>Kart & Eagle Rock B/c Inc  | 29.0R                   | 49.8M    |
| 208C0<br>Rigby      | KKLU.C | CP VN<br>ID   | 54.4<br>234.4  | 184.30<br>BPED19981022MA   | 43 30 03<br>112 39 43 | 78.000<br>455      | 2030<br>13.9      | 81.3<br>Educational Media Foundati | 54.04                   | 89.14    |
| 208C0<br>Rigby      | KKLU.A | APP VX<br>ID  | 54.4<br>234.4  | 184.30<br>BMPED20030211AAK | 43 30 03<br>112 39 43 | 83.300<br>438      | 2013<br>13.9      | 80.7<br>Educational Media Foundati | 54.81                   | 89.73    |
| 208C1<br>Caldwell   | KTSY   | LIC CN<br>ID  | 316.7<br>136.7 | 185.52<br>BLED19920831KA   | 43 45 18<br>116 05 52 | 8.300<br>798       | 2174<br>13.5      | 72.6<br>Gem State Adventist Academ | 69.62                   | 99.41    |
| 206C1<br>Boise      | 931207 | APP DCX<br>ID | 286.6<br>106.6 | 186.00<br>BPED19931207MD   | 43 00 25<br>116 42 13 | 2.744<br>879       | 2463<br>7.5       | 63.1<br>Calvary Chapel Of Twin Fal | 87.36                   | 115.43   |
| 06-2C<br>Pocatello  | KPVI   | LI HN<br>ID   | 76.2<br>256.2  | 182.44<br>BLCT2335         | 42 55 15<br>112 20 44 | 100.000<br>618     | 2078<br>209.5     | 129.3<br>Oregon Trail Broadcasting | To Grd B=               | 53.16    |

\*\*\*Affixed to 'IN' or 'Out' values = site inside protected contour.  
ERP and HAAT are on direct line to and from reference station. "<" = Contour Overlap

## HOW TO READ THE FM COMPUTER PRINT-OUT

The computer printout should be self-explanatory for the most part. The parameters of the station being checked, (reference station) are printed in the heading. The 60 dBu protected contour is predicted from the Commission's F(50-50) table, while the 40, 54, 80 and 100 dBu contours are interference contours derived from the Commission's F(50-10) table. Contour distances are in kilometers and are predicted using spline interpolation from data points identical to those published in Report No. RS 76-01 by Gary C. Kalagian. Critical contour distances are determined using the Commission's TVFMINT FORTRAN subroutine. When interference contour distances are less than 16 kilometers the F(50-50) tables are used. If signal contour distances are less than 1.6 km the free-space equation is used.

The column listed "**\* IN \***" is the sum of the reference station's 60 dBu protected contour and the data file station's interference contour subtracted from the distance between the stations. (All distances are derived by the method detailed in Sec. 73.208 of the Rules and Regulations as amended in Docket 80-90.) Therefore, the column is a measure of incoming interference. Negative distances in this column indicate the presence of interference. Listed antenna heights are the average heights of eight standard radials as found in the Commission's records unless otherwise noted, in which case the specific antenna heights and the DA power, if applicable, along the straight line azimuths between the reference station and the database station are used and visa versa. The column labeled "**\* OUT \***" shows the distance in kilometers of overlap or clearance between the reference station's interference contour and the database station's protected contour. Negative distance figures in this column indicate outgoing overlap interference.

Under the "AZIMUTH" column, the first row of numbers indicate the bearings from True North of the data base stations in relationship with the reference station, while the numbers in the second row indicate the reverse bearings from the database station to the reference station.

The columns labeled "INT" and "PRO" hold the distance in kilometers of the appropriate interference contour and the protected contour of a data base station.

For I.F. relationships the "IN" and "OUT" columns change their significance. The letter "R" stands for the minimum **required** distance in kilometers, while the letter "M" in the next column follows the **available clear space** separation in kilometers. Minimum separation distances when displayed are taken from Sec 73.207 of the rules as amended. Canadian and Mexican separation distances, U/D ratios and protected contour values are from the US/Mexican Working Agreement and the US/Canada Working Agreement".

The first three letters of the "TYPE" column identify the current FCC status of the stations. The fourth letter will be a "D" if the facility is directional. "Z" indicates a 73.215 directional. An "N" indicates it is a 73.215 station that operates omni. The fifth letter will be an E, H or V depending on the type of antenna polarization. The sixth letter will be a "Y" if the antenna uses beam tilt or an "X" if the commission is not sure, otherwise it will be an "N".

Doug Vernier Telecommunications Consultants  
K207DL, Pensacola Christian College, , BMPFT20030505ABA  
ERP = .205 kW  
Channel = 207

| Azimuth<br>Deg. T. | Ave. Elev.<br>3 to 16 km<br>Meters AMSL | Effective<br>Antenna Height<br>Meters AAT | ERP<br>(dBk) | F(50-10)<br>Distance to<br>128.3 dBu Contour<br>km |
|--------------------|---|---|--------------|--|
| 0                  | 1089.8                                  | 90.2                                      | -8.908       | 0.03   |
| 10                 | 1103.0                                  | 77.0                                      | -8.345       | 0.03   |
| 20                 | 1101.8                                  | 78.2                                      | -7.875       | 0.03   |
| 30                 | 1100.1                                  | 79.9                                      | -7.522       | 0.04   |
| 40                 | 1104.0                                  | 76.0                                      | -7.273       | 0.04   |
| 50                 | 1112.6                                  | 67.4                                      | -7.102       | 0.04   |
| 60                 | 1119.5                                  | 60.5                                      | -6.996       | 0.04   |
| 70                 | 1128.8                                  | 51.2                                      | -6.926       | 0.04   |
| 80                 | 1139.2                                  | 40.8                                      | -6.891       | 0.04   |
| 90                 | 1159.5                                  | 20.5                                      | -6.882       | 0.04   |
| 100                | 1168.7                                  | 11.3                                      | -6.891       | 0.04   |
| 110                | 1176.6                                  | 3.4                                       | -6.926       | 0.04   |
| 120                | 1186.3                                  | -6.3                                      | -6.996       | 0.04   |
| 130                | 1196.9                                  | -16.9                                     | -7.102       | 0.04   |
| 140                | 1225.4                                  | -45.4                                     | -7.273       | 0.04   |
| 150                | 1247.4                                  | -67.3                                     | -7.522       | 0.04   |
| 160                | 1268.4                                  | -88.4                                     | -7.875       | 0.03   |
| 170                | 1283.7                                  | -103.7                                    | -8.345       | 0.03   |
| 180                | 1280.6                                  | -100.6                                    | -8.908       | 0.03   |
| 190                | 1275.9                                  | -95.9                                     | -9.557       | 0.03   |
| 200                | 1274.6                                  | -94.6                                     | -10.245      | 0.03   |
| 210                | 1277.4                                  | -97.4                                     | -10.896      | 0.02   |
| 220                | 1281.9                                  | -101.9                                    | -11.436      | 0.02   |
| 230                | 1268.1                                  | -88.1                                     | -11.826      | 0.02   |
| 240                | 1249.6                                  | -69.6                                     | -12.091      | 0.02   |
| 250                | 1225.6                                  | -45.6                                     | -12.235      | 0.02   |
| 260                | 1204.3                                  | -24.3                                     | -12.315      | 0.02   |
| 270                | 1185.0                                  | -5.0                                      | -12.332      | 0.02   |
| 280                | 1160.5                                  | 19.5                                      | -12.315      | 0.02   |
| 290                | 1137.3                                  | 42.7                                      | -12.235      | 0.02   |
| 300                | 1115.8                                  | 64.2                                      | -12.091      | 0.02   |
| 310                | 1093.1                                  | 86.9                                      | -11.826      | 0.02   |
| 320                | 1063.1                                  | 116.9                                     | -11.436      | 0.02   |
| 330                | 1067.9                                  | 112.1                                     | -10.896      | 0.02   |
| 340                | 1071.8                                  | 108.2                                     | -10.245      | 0.03   |
| 350                | 1067.9                                  | 112.1                                     | -9.557       | 0.03   |

Ave. = 1172.6 M 7.4 M

Antenna Radiation Center AMSL = 1180 M  
NGDC 30 Arc Sec.

Geographic Coordinates:

N. Lat. 42 33 06  
W. Lng. 114 30 59

# TopoZone.com

Target is 42° 33' 06"N, 114° 30' 59"W - FILER quad [\[Quad Info\]](#)