

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 frequency¹, “interference is predicted to occur where the translator’s undesired signal exceeds the protection station’s desired signal by more than 40 dB.”² The free space formula was used to determine the signal strength, in dBu, of KEFX³ 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 map⁴ 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.

¹ *Second Report and Order*, FCC 00-368 at 9 and 39.

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

³ 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.

⁴ 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 CITY	CALL	TYPE STATE	AZI. <--	DIST FILE #	LAT. LNG.	Pwr(kW) HAAT(M)	COR(M) INT(km)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
205C Twin Falls	KEFX	LIC DV ID	22.8 202.8	21.47 BLED20010227AAI	42 43 47 114 24 52	100.000 354	1475 0.9	76.4 Calvary Chapel	0.16<	-55.82*<
210C Twin Falls	KAWZ	LIC DE ID	22.8 202.8	21.47 BLED20010305AAO	42 43 47 114 24 52	100.000 354	1475 0.9	76.4 Calvary Chapel	0.16<	-55.82*<
205C0 Twin Falls	KEFX.C	CP VX ID	22.8 202.8	21.47 BPED20030103AAQ	42 43 47 114 24 52	100.000 354	1475 0.9	76.4 Calvary Chapel	0.16<	-55.82*<
210C0 Twin Falls	KAWZ.C	CP VX ID	22.8 202.8	21.47 BPED20030103AAR	42 43 47 114 24 52	100.000 354	1475 0.9	76.4 Calvary Chapel	0.16<	-55.82*<
207D Twin Falls	K207DL	CP DV ID	167.2 347.2	13.77 BNPFT19991203AAE	42 25 51 114 28 45	0.012 232	1436 20.8	9.3 Pensacola Christian Colleg	-23.47<	-16.37<
207D Twin Falls	K207DL	APP DV ID	167.2 347.2	13.77 BMPFT20030505ABA	42 25 51 114 28 45	0.098 -24	1180 20.8	5.6 Pensacola Christian Colleg	-10.95<	-12.65<
207D Bellevue	K207BD	LIC DCN ID	11.5 191.5	103.44 BLFT19910524TA	43 27 49 114 15 36	0.001 52	1585 33.6	2.4 Idaho State Board Of Educa	86.02	67.42
260C Burley	KZDX	LIC CN ID	107.5 287.5	78.76 BLH19841214LN	42 20 07 113 36 17	25.000 873	2536 6.7	86.6 Kart & Eagle Rock B/c Inc	29.0R	49.8M
208C0 Rigby	KKLU.C	CP VN ID	54.4 234.4	184.30 BPED19981022MA	43 30 03 112 39 43	78.000 455	2030 13.9	81.3 Educational Media Foundati	54.04	89.14
208C0 Rigby	KKLU.A	APP VX ID	54.4 234.4	184.30 BMPED20030211AAK	43 30 03 112 39 43	83.300 438	2013 13.9	80.7 Educational Media Foundati	54.81	89.73
208C1 Caldwell	KTSY	LIC CN ID	316.7 136.7	185.52 BLED19920831KA	43 45 18 116 05 52	8.300 798	2174 13.5	72.6 Gem State Adventist Academ	69.62	99.41
206C1 Boise	931207	APP DCX ID	286.6 106.6	186.00 BPED19931207MD	43 00 25 116 42 13	2.744 879	2463 7.5	63.1 Calvary Chapel Of Twin Fal	87.36	115.43
06-2C Pocatello	KPVI	LI HN ID	76.2 256.2	182.44 BLCT2335	42 55 15 112 20 44	100.000 618	2078 209.5	129.3 To Grd B= Oregon Trail Broadcasting		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 Deg. T.	Ave. Elev. 3 to 16 km Meters AMSL	Effective Antenna Height Meters AAT	ERP (dBk)	F(50-10) Distance to 128.3 dBu Contour 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



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

