

INTERFERENCE ANALYSIS

Concerning
Northern Arizona University
Long Form 349, Auction 83
Cottonwood, Arizona
File No. BNPFT20030310AKI

August 2003

Page #5 of this exhibit is a computer generated channel study, showing the contour relationship between the proposed translator and adjacent stations. Page #6 is an explanation of the methods used in preparing the study. The proposal causes 3rd adjacent contour overlap with KFPB, Chino Valley and 2nd adjacent overlap with KQST, Sedona.

Section 73.1204(a) of the Commission's Rules 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 or more."² The FCC F(50-50) curves were used to determine the signal strength, in dBu, of KFPB at the proposed translator's transmitter site. The signal strength of KFPB was calculated to be 61.95 dBu, based on an HAAT toward the reference of 200 meters, power of 8.1 kW and distance of 37.61 km. Incorporating the 40 dB U/D ratio, the resulting translator interference contour is 101.95 dBu ($61.95 + 40 = 101.95$ dBu). The 101.95 dBu interference contour extends 180 meters along the maximum radial of this directional antenna.

Using the same method, it was determined that the signal strength of KQST is 69.3 dBu at the proposed transmitter site (based on an HAAT of 489, 100 kW and 63.83 km distance). The resulting interference contour (109.3 dBu) extends only 80 meters. KQST has filed an application to increase antenna height and reduce power. The proposed facility has a signal strength of 64.6 dBu, based on 501.8 m HAAT, 33.171 kW ERP and

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.

63.83 km distance. The resulting interference contour (104.6 dBu) extends 130 meters.

Page #3 is a statement from Northern Arizona University staff, certifying that there is nothing within 200 meters of the tower base. Page #4 is a USGS quadrangle map (topozone.com) of the site. The only building in the area is the transmitter building. There are no roads other than the access road.

Due to the absence of "potential listeners" within the interference contour, no interference will occur. If it is necessary to request a waiver of Section 74.1204(a) of the Commission's Rules, it is here so, respectfully, requested.

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KNAU
Arizona Public Radio

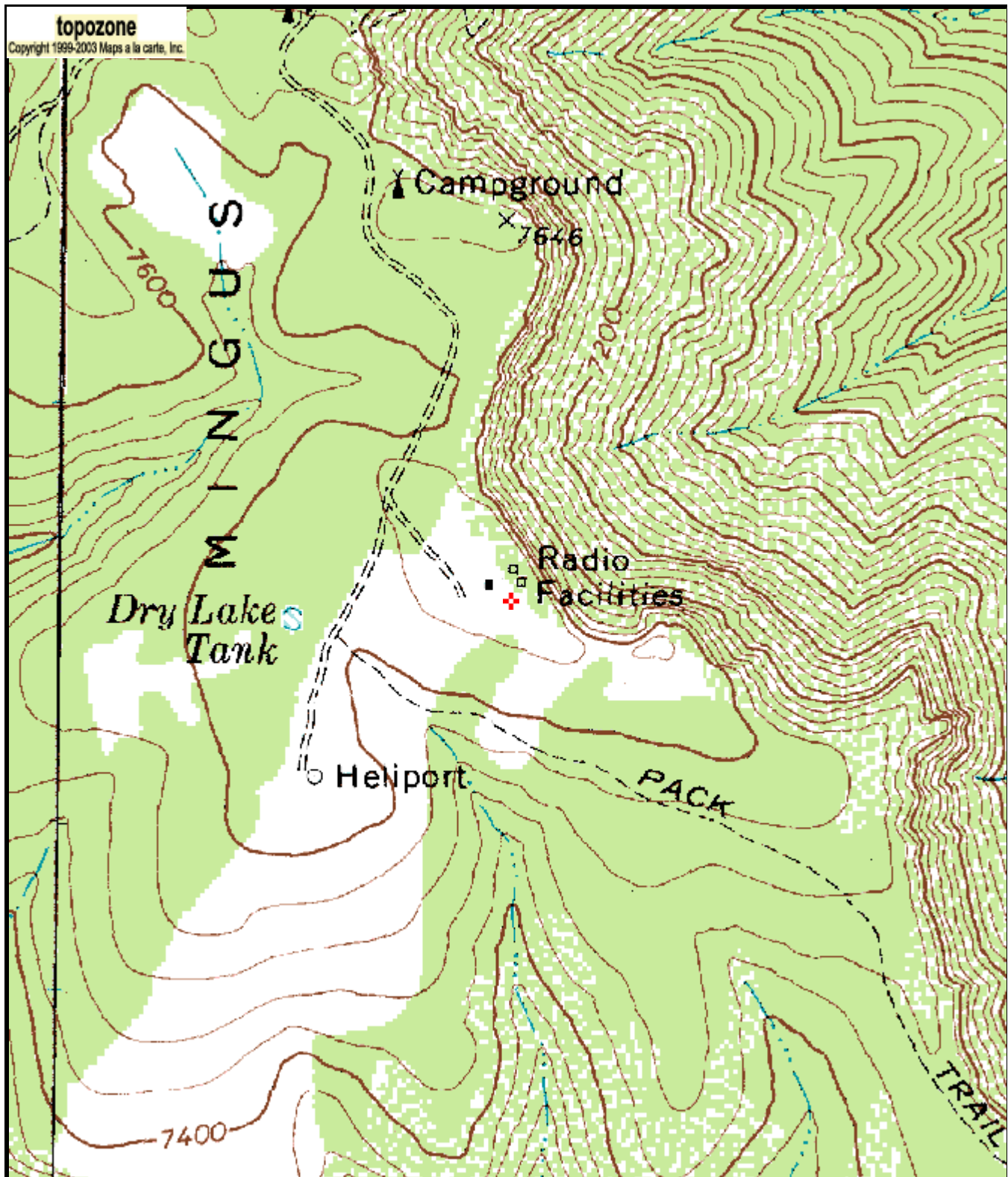
Memo

To: Kate Michler, V-Soft Communications
From: Dave Riek
CC:
Date: 8/26/2003
Re: KNAU Translator Application for Cottonwood, AZ

Following my site inspection on August 19, 2003, this affidavit confirms that there are no buildings, roads or potential listeners within 200 meters of the base of the tower proposed for our Cottonwood translators (34-41-12 N /112-7-0 W). The only road to the transmitter site is gated about .8 miles from the tower base. Attached are digital images from the site.

David Riek, KNAU Network Operations Manger

Ex #12, Pg #4



0 0.1 0.2 0.3 0.4 0.5 km
0 0.1 0.2 0.3 0.4 0.5 mi

Map center is 34° 41' 12"N, 112° 07' 00"W (NAD27)

Cottonwood quadrangle

Projection is UTM Zone 12 NAD83 Datum

MN
GN
MN=12.874
GN=0.636

Northern Arizona University
Cottonwood 277

REFERENCE CH# 277D - 103.3 MHz, Pwr= 0.01 kW, HAAT=1213.3 M, COR= 2367 M DISPLAY DATES
34 41 12 N Average Protected F(50-50)= 18.24 km DATA 08-23-03
112 07 00 W Ave. F(50-10) 40 dBu= 68.5 54 dBu= 31.7 80 dBu= 2.2 100 dBu= .2 SEARCH 08-25-03

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*
277D Cottonwood	AP277	APP DC AZ	0.0 180.0	0.00 BNPFT20030310AKI	34 41 12 112 07 00	0.000 647	2367 36.7	0.0 Arizona Board Of Regents F	-7.46*<	-36.67*<
275C Sedona	KQST	LIC CY AZ	60.4 240.4	63.83 BLH19961028KC	34 58 05 111 30 29	100.000 488	2615 0.2	86.0 Rocket Radio Corporation	33.13	-22.37*<
275C Sedona	KQST.A	APP DCY AZ	60.4 240.4	63.83 BPH20030630AAG	34 58 05 111 30 29	33.171 502	2629 0.2	75.3 Rocket Radio Corporation	36.64	-11.74*<
280C3 Chino Valley	KFPB	LIC CN AZ	274.8 94.8	37.61 BLH19981015KA	34 42 52 112 31 33	8.100 200	1696 0.0	41.3 Prescott Radio Partners	32.93	-3.73*<
280C3 Chino Valley	RDEL	DEL AZ	274.8 94.8	37.61	34 42 52 112 31 33	25.000 -1496	0 0.0	22.7	34.66	14.93
277A Seligman	RDEL	DEL AZ	320.4 140.4	92.21	35 19 26 112 45 55	6.000 -1712	0 5.3	15.8	23.23	71.17
277A Seligman	KZKE	LIC CX AZ	320.4 140.4	92.21 BMLH20020917ABI	35 19 26 112 45 55	3.700 160	1872 5.3	31.2 Route 66 Broadcasting, L.L	3.22<	55.68
277A Seligman	RDEL	DEL AZ	320.4 140.4	92.21	35 19 26 112 45 55	6.000 -1712	0 5.3	15.8	23.23	71.17
277D Payson	AP277	APP C AZ	122.2 302.2	87.15 BNPFT20030310ANF	34 16 00 111 18 54	0.041 83	1602 39.5	7.5 Arizona Board Of Regents F	55.18	40.23
276D Rancho Vista	AP276	APP DH AZ	244.4 64.4	37.28 BNPFT20030312AAE	34 32 30 112 29 00	0.000 8	1646 1.3	0.0 St. Paul Bible College	36.61	35.95
276D Prescott	AP276	APP H AZ	250.2 70.2	38.00 BNPFT20030317JOK	34 34 13 112 30 23	0.050 121	1717 1.3	9.5 Lake Havasu Charter School	23.98	27.12
276D Prescott	AP276	APP C AZ	243.9 63.9	38.00 BNPFT20030317BTT	34 32 09 112 29 19	0.010 112	1756 1.3	6.2 Kcbr, Inc.	28.66	30.48
278C Glendale	KLNZ	LIC CY AZ	199.5 19.5	128.68 BMLH19980406KB	33 35 33 112 34 49	62.000 725	1269 1.3	91.5 Entravision Holdings, LLC	-6.78<	35.85
277D Star Valley	AP277	APP C AZ	117.4 297.4	95.74 BNPFT20030313AHT	34 17 17 111 11 32	0.010 359	1937 44.9	11.0 Robert Hibbert	49.90	39.80
274D Prescott	AP274	APP DC AZ	240.3 60.3	43.99 BNPFT20030310AMS	34 29 24 112 31 59	0.010 428	2175 0.0	11.9 Arizona Board Of Regents F	43.10	32.08
279C3 Flagstaff	ALLO	VAC AZ	32.8 212.8	79.68	35 17 19 111 38 26	25.000 -2249	0 0.2	22.7	61.94	56.82

***Affixed to 'IN' or 'Out' values = site inside protected contour.
ERP and HAAT are on direct line to and from reference station.
"«" = Station meets FCC minimum distance spacing for its class. "<" = 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".