August 2023
FM Translator K244EI
Corona de Tucson, AZ Channel 277D
Allocation Study

Background and Non-Adjacent Channel Change

This application is being filed as a minor modification of the licensed facility of FM translator K244EI, proposing operation on non-adjacent Channel 277D. K244EI presently operates on Channel 244D, and is cochannel to XHNGS-FM 244B Nogales, which is sited just 74 kilometers away. As is demonstrated by the attached map exhibit, the XHNGS-FM 244B 40 dBu F(50,10) contour completely overlaps and encompasses the K244EI 60 dBu contour. This interference caused to and received from XHNGS-FM will be completely eliminated by modifying K244EI to non-adjacent Channel 277D.[1]

Allocation Study

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study map demonstrates compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The attached spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

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[1] The XHNGS-FM contour was calculated based on the assignment parameters which are listed in the FCC database for this station:

Coordinates: 31-19-10.4 x 110-57-38.3 (NAD83)
Antenna Ht: 37 meters HAAT
ERP: 38.4 kilowatts

It was verified on aerial photography that a tower (two towers, in fact) are located within rock-throwing distance from those coordinates. The site elevation is 1280 meters, nearly identical to the 8-radial average terrain height of 1279 meters. Therefore, the XHNGS-FM antenna was presumed to operate at 36 meter AGL or 1316 meters AMSL.

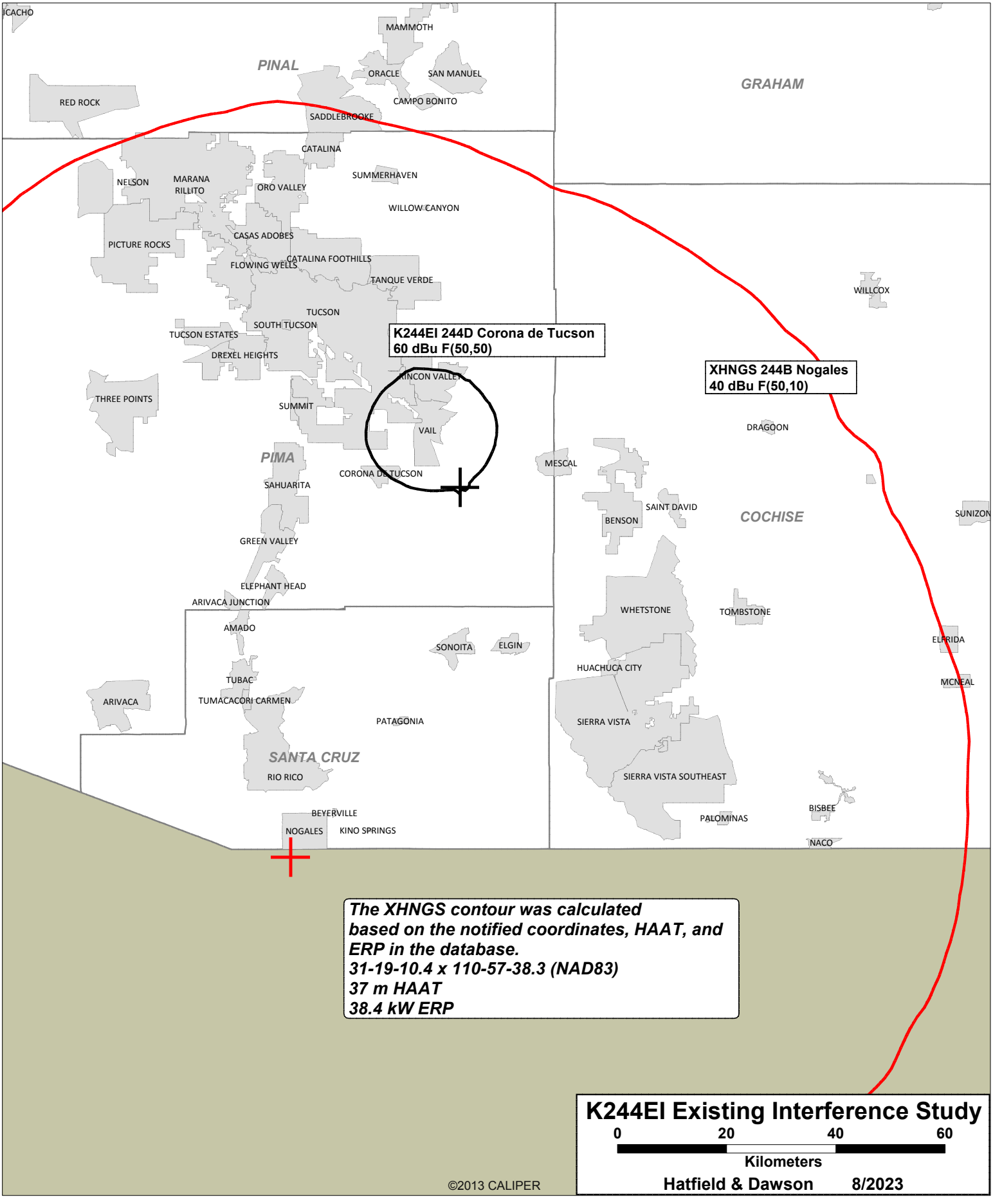
Contours have been calculated using terrain from the 3 second terrain database.

Compliance with US-Mexico FM Agreement: The proposed facility is located less than 125 kilometers from the common border, and has been carefully designed to comply with the requirements of the US-Mexico FM Agreement.

a) The power has been limited to no more than 50 watts ERP in the direction of Mexico.
b) The 60 dBu protected contour has been limited to no more than 8.7 kilometers in the direction of Mexico.
c) The 34 dBu interfering contour has been limited to no more than 32 kilometers in the direction of Mexico.

"In the direction of Mexico", for this purpose, has been defined as any direction in which the common border is located 125 kilometers or less from the proposed transmitter site. This corresponds to the span of bearings running clockwise from 121 to 253 degrees True, as depicted on the attached map exhibit.

Additionally, this map exhibit demonstrates contour protection of nearby Mexican allotments Nogales 274B (third-adjacent), Nogales 278B (first-adjacent), and Cananea 276B (first-adjacent).


MAMMOTH
PINAL
ORACLE
SAN MANUEL
GRAHAM
RED ROCK
CAMPO BONITO
SADDLEBROOKE
CATALINA
NELSON
MARANA
RILLITO
ORO VALLEY
SUMMERHAVEN
WILLOW CANYON
PICTURE ROCKS
CASAS ADOBES
CATALINA FOOTHILLS
FLOWING WELLS
TANQUE VERDE
WILLCOX
TUCSON
SOUTH TUCSON
TUCSON ESTATES
DREXEL HEIGHTS
K244EI 244D Corona de Tucson
60 dBu F(50,50)
XHNGS 244B Nogales
40 dBu F(50,10)
RINCON VALLEY
THREE POINTS
SUMMIT
VAIL
DRAGOON
PIMA
MESCAL
CORONA DE TUCSON
SAHUARITA
SAINT DAVID
BENSON
COCHISE
SUNIZON
GREEN VALLEY
ELEPHANT HEAD
ARIVACA JUNCTION
WHETSTONE
TOMBSTONE
AMADO
SONOITA
ELGIN
ELFRIDA
HUACHUCA CITY
TUBAC
MCNEAL
ARIVACA
TUMACACORI CARMEN
SIERRA VISTA
PATAGONIA
SANTA CRUZ
SIERRA VISTA SOUTHEAST
RIO RICO
BISBEE
BEYERVILLE
PALOMINAS
NOGALES
KINO SPRINGS
NACO
The XHNGS contour was calculated based on the notified coordinates, HAAT, and ERP in the database.
31-19-10.4 x 110-57-38.3 (NAD83)
37 m HAAT
38.4 kW ERP
K244EI Existing Interference Study
0
20
40
60
Kilometers
Hatfield & Dawson 8/2023
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FMSTUDY.EXE Copyright 2021, Hatfield & Dawson, LLC Version 5.10

SEARCH PARAMETERS FM Database Date: 20230811

Channel: 277A 103.3 MHz

Latitude: 31 55 39.3 (NAD83)

Longitude: 110 37 59.2

Safety Zone: 50 km

Job Title: K244EI 277

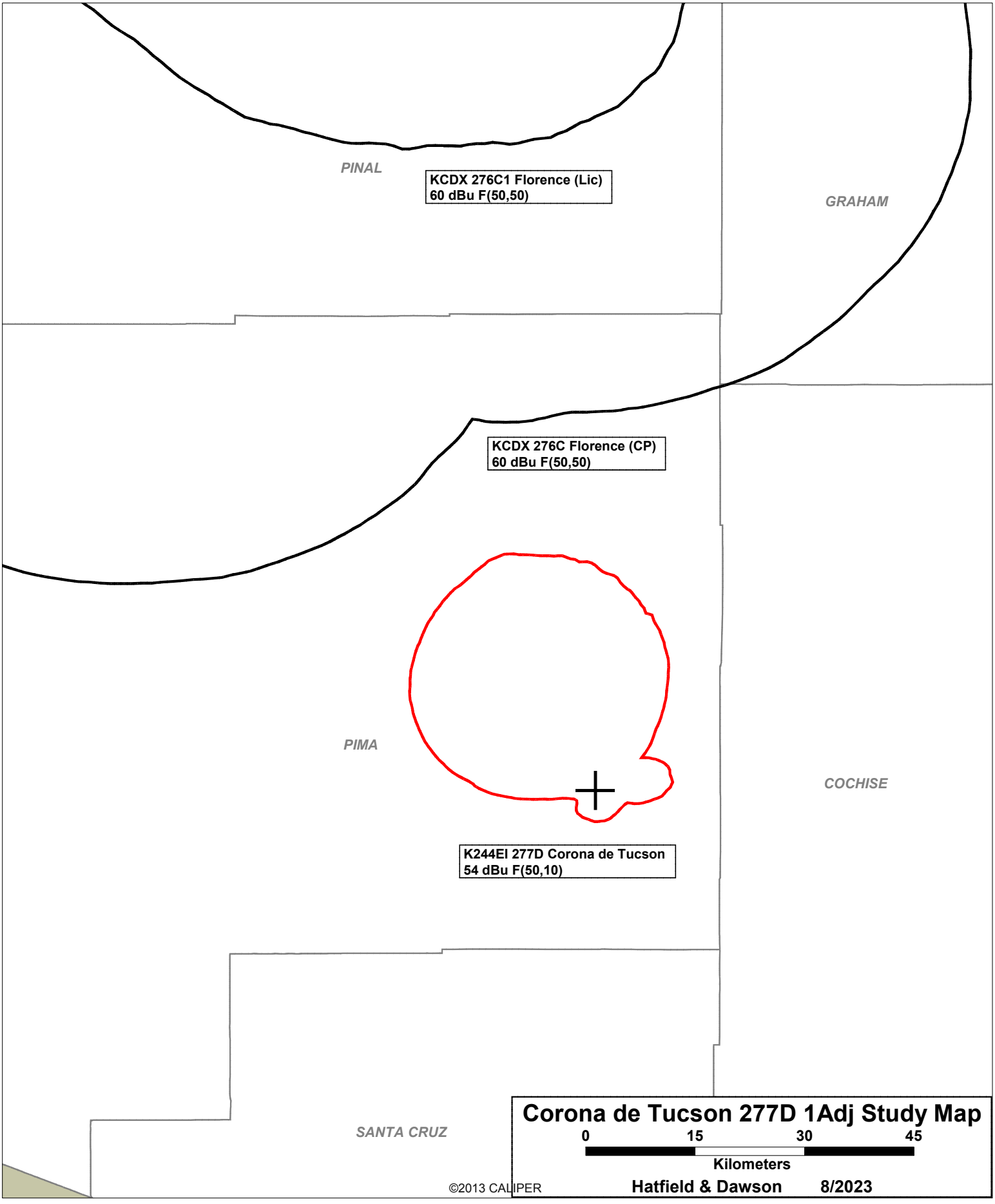
Call Status	City St FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
K223CI	TUCSON	223D	0.150	DA 32 14 57.3	308.2	57.96	0
LIC	AZ BLFT-20170731ACG	92.5	0.0	111 7 1.4		0.00	TRANS
XHQTFM	NOGALES	274B	9.650	31 19 10.4	204.7	74.23	69
LIC	SO	102.7	-29.0	110 57 38.3		5.23	CLOSE
XHQTFM	NOGALES	274B	0.000	31 19 10.4	204.7	74.23	69
ALC	SO	102.7	0.0	110 57 38.3		5.23	CLOSE
K274AQ	TUCSON	274D	0.050	32 15 30.2	319.2	48.59	0
LIC	AZ BLFT-19981006TA	102.7	0.0	110 58 14.3		0.00	TRANS
K275CN	ORO VALLEY	275D	0.020	DA 32 26 29.2	346.2	58.70	0
LIC	AZ BLFT-20170410AAK	102.9	0.0	110 46 57.3		0.00	TRANS
K276GI	HUACHUCA CITY	276D	0.000	DA 31 38 15.3	138.9	42.74	0
LIC	AZ BLFT-20170407AAX	103.1	0.0	110 20 9.2		0.00	TRANS
	CANANEA	276B	0.000	30 58 57.4	163.2	109.43	125
ALC	SO	103.1	0.0	110 18 3.3		-15.57	SHORT
KCDX	FLORENCE	276C1	2.700	33 17 55.2	352.8	153.30	133
LIC	AZ BLH-19990702KE	103.1	932.0	110 50 30.3	SS	20.30	CLEAR
KCDX	FLORENCE	276C	42.000	DA 32 46 44.2	341.9	99.40	165
CP	AZ 0000216994	103.1	614.0	110 57 48.3		-65.60	SHORT
	ASCENCION	277C	0.000	31 5 34.4	109.7	266.92	226
ALC	CH	103.3	0.0	107 59 51.1		40.92	CLEAR
	NACOZARI DE GARCIA	278C	0.000	30 23 18.5	152.6	192.05	165
CP	SO	103.5	0.0	109 42 32.2		27.05	CLEAR

SEARCH PARAMETERS FM Database Date: 20230811

Channel: 277A 103.3 MHz
Latitude: 31 55 39.3 (NAD83)
Longitude: 110 37 59.2
Safety Zone: 50 km
Job Title: K244EI 277

Call Status	City St FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
	NACOZARI DE GARCIA	278C	0.000	30 23 18.5	152.6	192.05	165
CP	SO	103.5	0.0	109 42 32.2		27.05	CLEAR
XHRZFM	NOGALES	278B	0.000	31 19 28.4	204.0	73.20	125
ALC	SO	103.5	0.0	110 56 49.3		-51.80	SHORT
XHRZFM	NOGALES	278B	3.020	31 19 28.4	204.0	73.20	125
LIC	SO	103.5	-83.0	110 56 49.3		-51.80	SHORT
KRDX	CORONA DE TUCSON	279A	0.910	DA 31 55 39.3	0.0	0.00	31
LIC	AZ BLH-20130624AAE	103.7	145.0	110 37 59.2		-31.00	SHORT
	CANANEA	280B	0.000	30 58 57.4	163.2	109.43	69
ALC	SO	103.9	0.0	110 18 3.3		40.43	CLEAR

==== END OF FM SPACING STUDY FOR CHANNEL 277 ====



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