

**August 2022**  
**KPSA-FM Channel 253C2**  
**Mescal, Arizona**  
**Allocation Study**

**Background**

The instant application is being filed as a part of a two-station contingent group comprised of two minor change applications. By these applications, it is proposed that the following changes be made:

- 1) KPSA-FM 253A Lordsburg, New Mexico, will be upgraded to operate on Channel 253C2 at Mescal, Arizona, with a change in transmitter site;
- 2) In order to ensure the continuance of local transmission service at Lordsburg, the construction permit for New 218A Lordsburg is the subject of an additional application. No actual change of the authorized Lordsburg 218A facility is proposed, the sole purpose of this application is to facilitate the tying of the relocation of KPSA-FM with activation of replacement service at Lordsburg.

**Mescal 253C2 Allotment Site Allocation Study**

The attached spacing study shows that the proposed Mescal 253C2 allotment site meets the domestic co-channel and adjacent channel spacing requirements for Class C2 stations as prescribed in §73.207 of the Commission's Rules.<sup>1</sup>

The proposed allotment site is located 26.5 kilometers from the far side of Mescal. The standard 70 dBu contour distance for a Class C2 station is 32.6 kilometers. Therefore, and as is demonstrated by the attached map exhibit, this allotment site will provide a 70 dBu contour to 100% of Mescal.

The proposed allotment of Channel 253C2 at Mescal is mutually-exclusive with retention of Channel 253A at Lordsburg.

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<sup>1</sup> The spacing study indicates short-spacings to Channel 253A allotments for KRDX at Vail and Corona de Tucson. These allotments are deprecated and no longer relevant, as KRDX now operates on Channel 279A at Corona de Tucson.

### **Mescal 253C2 Transmitter Site Allocation Study**

The attached spacing study shows that the proposed Mescal 253C2 transmitter site meets the domestic co-channel and adjacent channel spacing requirements for Class C2 stations as prescribed in §73.207 of the Commission's Rules, with the exception of a short-spacing to the licensed operation of KOHT on Channel 252A at Marana. Processing pursuant to §73.215 of the Commission's Rules is requested with respect to KOHT, and the attached allocation study map is included to demonstrate the lack of prohibited contour overlap with that facility. Since KOHT is authorized under §73.215 itself, the licensed power and height parameters of that station have been used to calculate its protected and interfering contours.

The proposed transmitter site for Channel 253C2 at Mescal is mutually-exclusive with retention of Channel 253A at Lordsburg.

### **International Allocation Study**

The proposed transmitter facility is short-spaced to a Mexican allotment on Channel 253B at Agua Prieta. An allocation study has been conducted in order to demonstrate equivalent protection to the Mexican allotment. Attached is an engineering study, conducted pursuant to the radial interpolation method set forth in the US-Mexico FM Agreement, which demonstrates that full protection is provided to this Mexican allotment.

The proposed directional antenna pattern should be utilized, in referral of this proposal to Mexican authorities for concurrence. The proposed pattern extends the null clockwise from 140 to 165 degrees True.

It is therefore believed that the proposed KPSA-FM 253C2 transmitting facility can operate without risk of interference to the Agua Prieta 253B allotment, in accordance with the requirements of the US-Mexico FM Agreement.

## Channel 253C2 Allotment Site Spacing Study

FMSTUDY.EXE

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Version 5.10

SEARCH PARAMETERS

Channel: 253C2 98.5 MHz  
 Latitude: 31 50 53.0 (NAD83)  
 Longitude: 110 13 21.0  
 Safety Zone: 32 km  
 Job Title: MESCAL 253C2 ALLOT SITE

Page 1

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
K250AN LIC	ORACLE AZ	BLFT-20151020ADK	250D 97.9	0.005 0.0	DA 32 26 29.2 110 46 57.3	321.5	84.39 0.00	0 TRANS
ALC	NACO SO		251A 98.1	0.000 0.0	31 19 53.4 109 57 7.3	155.9	62.76 -2.24	65 SHORT
KTBX LIC	TUBAC AZ	BLH-20120723ACF	251A 98.1	0.270 461.0	31 42 17.3 110 55 27.3	256.7	68.34 13.34	55 CLEAR
K251CG LIC	WILLCOX AZ	BLFT-20170404AAT	251D 98.1	0.050 0.0	32 16 1.3 109 50 2.2	38.1	59.20 0.00	0 TRANS
K251CQ LIC	SIERRA VISTA AZ	BLFT-20190531AAD	251D 98.1	0.050 0.0	DA 31 32 48.1 110 16 33.3	188.6	33.80 0.00	0 TRANS
KOHT LIC	MARANA AZ	BLH-19980218KG	252A 98.3	6.000 56.0	32 27 9.3 111 5 13.4	309.8 SS	105.57 -0.43	106 SHORT
XHSAPFM LIC	AGUA PRIETA SO		253B 98.5	50.000 150.0	31 18 24.4 109 33 39.2	133.7	86.88 -150.12	237 SHORT
KRDX ALC	VAIL AZ		253A 98.5	0.000 0.0	31 55 39.3 110 37 59.3	283.0	39.84 -126.16	166 SHORT
NOTE: NO LONGER RELEVANT; KRDX IS NOW ON CH279A								
KRDX ALC	CORONA DE TUCSON AZ		253A 98.5	0.000 0.0	31 55 39.3 110 37 59.3	283.0	39.84 -126.16	166 SHORT
NOTE: NO LONGER RELEVANT; KRDX IS NOW ON CH279A								
KRFM LIC	SHOW LOW AZ	BLH-20170810ABW	253C0 98.5	100.000 310.0	34 12 20.2 109 56 28.4	5.6 SS	262.77 23.77	239 CLEAR
KPSA-FM LIC	LORDSBURG NM	0000195591	253A 98.5	0.250 -41.0	32 20 56.5 108 42 22.0	68.3 SS	153.54 -12.46	166 SHORT

## Channel 253C2 Allotment Site Spacing Study

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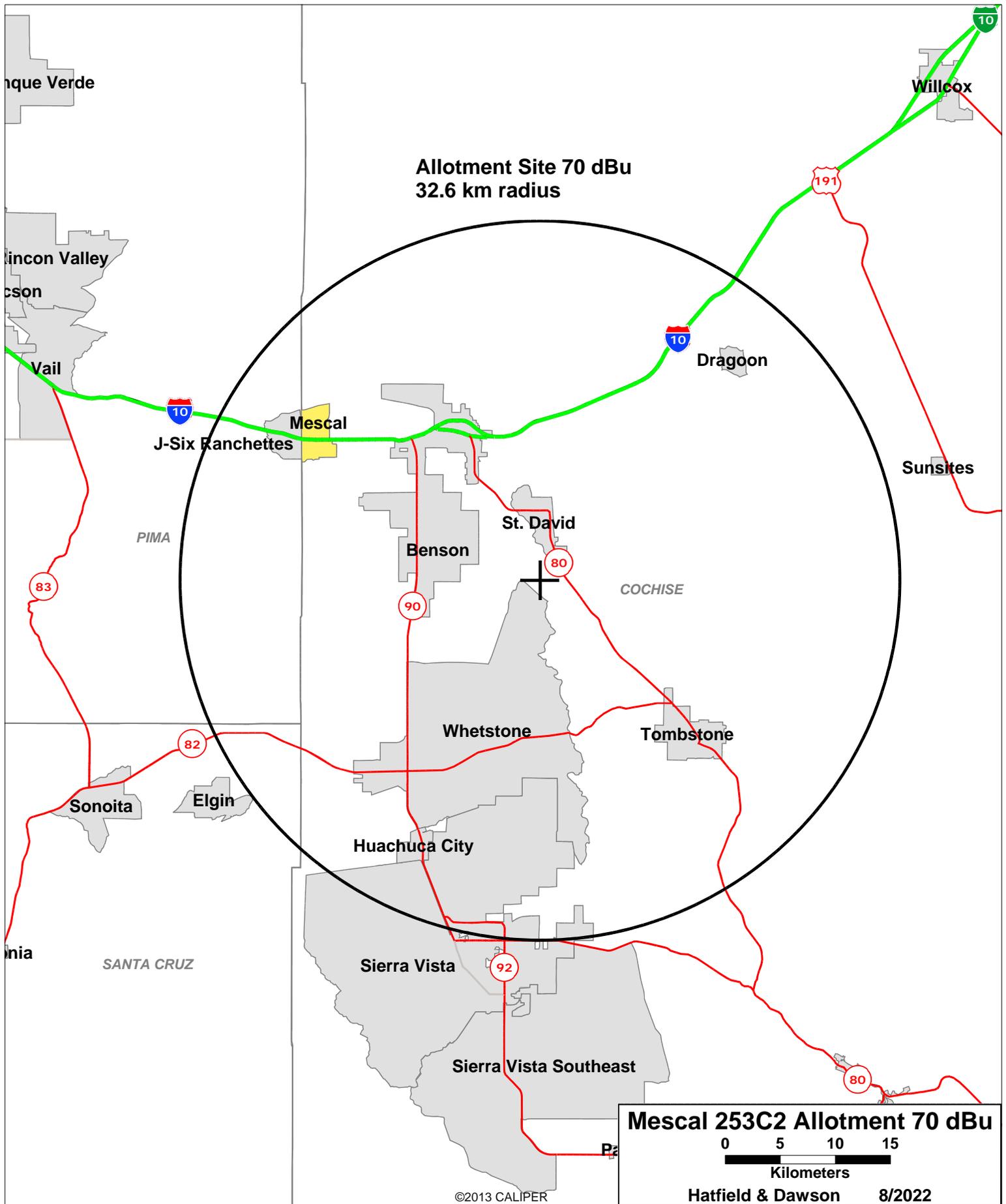
SEARCH PARAMETERS

Channel: 253C2 98.5 MHz  
 Latitude: 31 50 53.0 (NAD83)  
 Longitude: 110 13 21.0  
 Safety Zone: 32 km  
 Job Title: MESCAL 253C2 ALLOT SITE

Page 2

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KWXL-LP LIC	TUCSON AZ	BLL-20060227ADB	254L1 98.7	0.050 0.0	32 10 59.2 110 58 41.8	297.8	80.49 0.00	0 LPFM
NEW ALC	SANTA ANA SO		254B1 98.7	0.000 0.0	30 32 50.4 111 7 21.3	210.9	167.80 22.80	145 CLEAR
K255AC LIC	TUCSON AZ	BLFT-19950113TD	255D 98.9	0.010 0.0	32 26 29.2 110 46 46.3	321.7	84.21 0.00	0 TRANS
ALC	SAN PEDRO SO		255A 98.9	0.000 0.0	31 14 5.4 110 11 5.3	177.0	68.09 3.09	65 CLOSE
KOFH LIC	NOGALES AZ	0000089638	256A 99.1	6.000 95.0	31 23 40.1 110 55 48.7	233.2	83.89 28.89	55 CLEAR
KTDT-LP LIC	TUCSON AZ	BLL-20171019AAJ	256L1 99.1	0.050 0.0	32 13 38.3 110 58 24.8	301.0	82.47 0.00	0 LPFM
K256CJ LIC	SIERRA VISTA AZ	BLFT-20190102ABY	256D 99.1	0.050 0.0	31 32 55.3 110 14 42.3	183.7	33.26 0.00	0 TRANS

===== END OF FM SPACING STUDY FOR CHANNEL 253 =====



## Channel 253C2 Transmitter Site Spacing Study

FMSTUDY.EXE

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SEARCH PARAMETERS

FM Database Date: 20220719

Channel: 253C2 98.5 MHz  
 Latitude: 31 59 28.7 (NAD83)  
 Longitude: 110 10 38.0  
 Safety Zone: 32 km  
 Job Title: KPSA-FM 253C2 SYBIL RD SITE

Page 1

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
K250AN LIC	ORACLE AZ	BLFT-20151020ADK	250D 97.9	0.005 0.0	DA 32 26 29.2 110 46 57.3	311.5	75.82 0.00	0 TRANS
ALC	NACO SO		251A 98.1	0.000 0.0	31 19 53.4 109 57 7.3	163.7	76.21 11.21	65 CLEAR
KTBX LIC	TUBAC AZ	BLH-20120723ACF	251A 98.1	0.270 461.0	31 42 17.3 110 55 27.3	245.9	77.52 22.52	55 CLEAR
K251CG LIC	WILLCOX AZ	BLFT-20170404AAT	251D 98.1	0.050 0.0	32 16 1.3 109 50 2.2	46.4	44.54 0.00	0 TRANS
K251CQ LIC	SIERRA VISTA AZ	BLFT-20190531AAD	251D 98.1	0.050 0.0	DA 31 32 48.1 110 16 33.3	190.7	50.18 0.00	0 TRANS
KOHT LIC	MARANA AZ	BLH-19980218KG	252A 98.3	6.000 56.0	32 27 9.3 111 5 13.4	301.2 SS	99.86 -6.14	106 SHORT
ABSOLUTE MINIMUM 73.215 SPACING = 89 KM								
XHSAPFM LIC	AGUA PRIETA SO		253B 98.5	50.000 150.0	31 18 24.4 109 33 39.2	142.4	95.89 -141.11	237 SHORT
KRDX ALC	VAIL AZ		253A 98.5	0.000 0.0	31 55 39.3 110 37 59.3	260.8	43.68 -122.32	166 SHORT
NOTE: NO LONGER RELEVANT; KRDX IS NOW ON CH279A								
KRDX ALC	CORONA DE TUCSON AZ		253A 98.5	0.000 0.0	31 55 39.3 110 37 59.3	260.8	43.68 -122.32	166 SHORT
NOTE: NO LONGER RELEVANT; KRDX IS NOW ON CH279A								
KRFM LIC	SHOW LOW AZ	BLH-20170810ABW	253C0 98.5	100.000 310.0	34 12 20.2 109 56 28.4	5.0 SS	246.56 7.56	239 CLOSE
KPSA-FM LIC	LORDSBURG NM	0000195591	253A 98.5	0.250 -41.0	32 20 56.5 108 42 22.0	73.6 SS	144.31 -21.69	166 SHORT

## Channel 253C2 Transmitter Site Spacing Study

FMSTUDY.EXE

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Version 5.10

SEARCH PARAMETERS

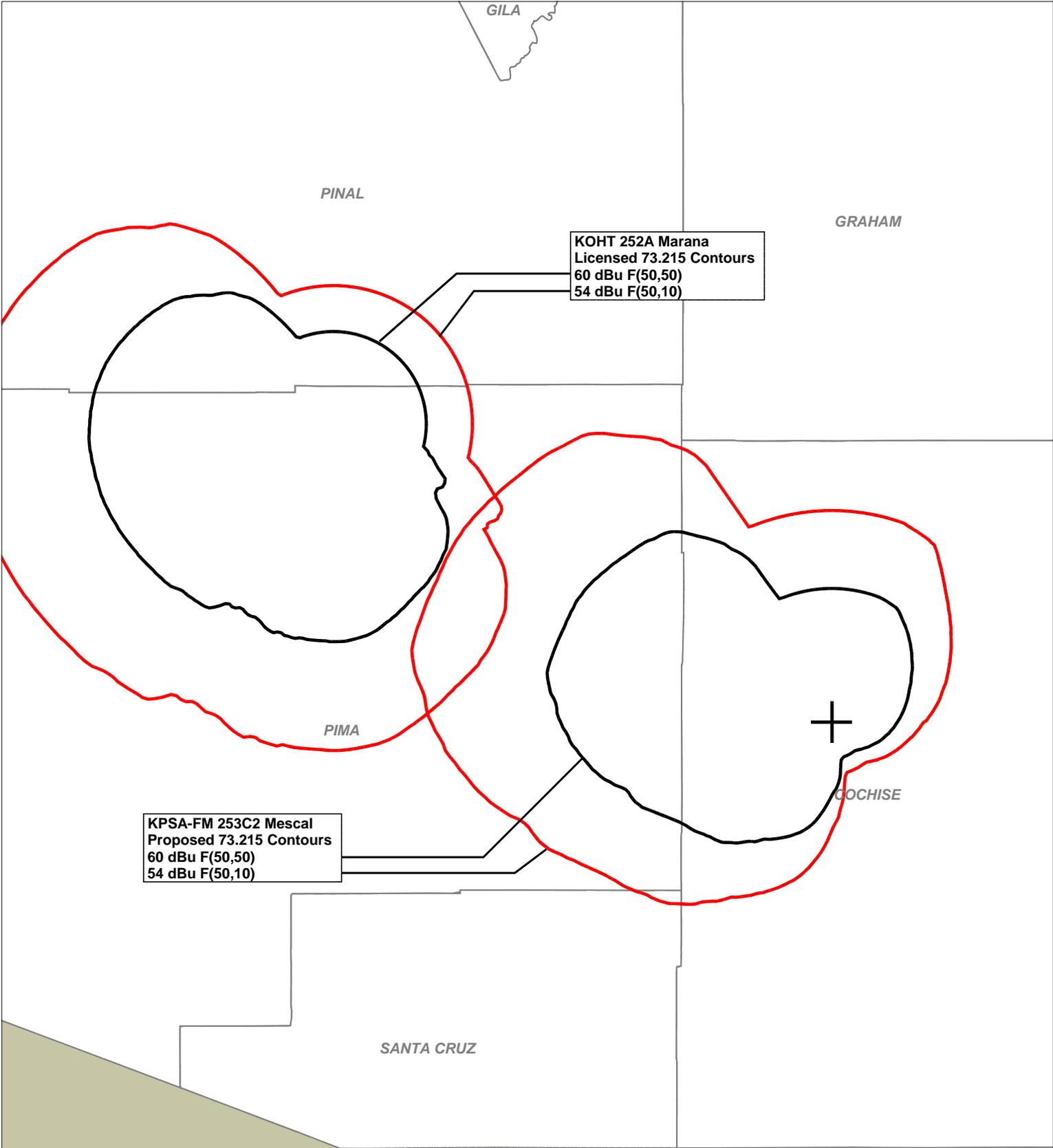
FM Database Date: 20220719

Channel: 253C2 98.5 MHz  
 Latitude: 31 59 28.7 (NAD83)  
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Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KWXL-LP LIC	TUCSON AZ	BLL-20060227ADB	254L1 98.7	0.050 0.0	32 10 59.2 110 58 41.8	286.0	78.56 0.00	0 LPFM
K255AC LIC	TUCSON AZ	BLFT-19950113TD	255D 98.9	0.010 0.0	32 26 29.2 110 46 46.3	311.6	75.60 0.00	0 TRANS
ALC	SAN PEDRO SO		255A 98.9	0.000 0.0	31 14 5.4 110 11 5.3	180.5	83.88 18.88	65 CLEAR
KTDT-LP LIC	TUCSON AZ	BLL-20171019AAJ	256L1 99.1	0.050 0.0	32 13 38.3 110 58 24.8	289.5	79.59 0.00	0 LPFM
K256CJ LIC	SIERRA VISTA AZ	BLFT-20190102ABY	256D 99.1	0.050 0.0	31 32 55.3 110 14 42.3	187.4	49.50 0.00	0 TRANS

==== END OF FM SPACING STUDY FOR CHANNEL 253 =====



**KOHT 252A Marana**  
 Licensed 73.215 Contours  
 60 dBu F(50,50)  
 54 dBu F(50,10)

**KPSA-FM 253C2 Mescal**  
 Proposed 73.215 Contours  
 60 dBu F(50,50)  
 54 dBu F(50,10)

**KPSA-FM 253C2 Allocation Study Map**

0                      20                      40                      60

Kilometers

Hatfield & Dawson      8/2022

**Mescal Channel 253C2 (KPSA-FM)  
Contour Protection to Mexican Station/Allotment Agua Prieta 253B**

PROPOSED FACILITY

COMMUNITY : MESCAL, ARIZONA  
CHANNEL : 253  
CALL : KPSA-FM  
CLASS : C2  
INTERNATIONAL : B  
COORDINATES : 31-01-01.0 N 110-05-38.4 W  
RADIATING CENTER : 1304.8 METERS AMSL  
AZIMUTH TO PROTECTED FACILITY: 142.4 DEGREES  
STANDARD RADIALS : 135.0 HAAT: -55.3 M  
: 180.0 HAAT: 88.5 M  
  
INTERPOLATED : 142.4 HAAT: **-27.5 M**  
  
RESTRICTED POWER : 0.150 W AT -27.5 M ON 142.4 DEG RADIAL  
INTERFERING CONTOUR : 34 DBU (50,10)  
DISTANCE TO INTERFERING CONTOUR: 30.26 KM

PROTECTED ALLOCATION AT AGUA PRIETA, SONORA, MEXICO

COMMUNITY : **AGUA PRIETA, SONORA**  
CHANNEL : 253  
CALL : XHSAP-FM  
CLASS : B  
COORDINATES : 31-18-24.4 N 109-33-29.2 W  
MAXIMUM FACILITY : 150 M AT 50 KW  
RELATIONSHIP : COCHANNEL  
PROTECTED CONTOUR : 54 DBU (50,50)  
DISTANCE TO PROTECTED CONTOUR : 65.0 KM  
(MAXIMUM PROTECTION FOR CLASS)

SUMMARY

DISTANCE TO PROTECTED CONTOUR (AGUA PRIETA) : 65.00 KM  
DISTANCE TO RESTRICTED CONTOUR (KPSA-FM) : 30.26 KM  
TOTAL DISTANCE RESTRICTED PLUS PROTECTED : 95.26 KM  
ACTUAL SPACING : 95.89 KM

**CLEARANCE 0.63 KM**

**NO OVERLAP OF PROTECTED AND INTERFERING CONTOURS**

**August 2022**  
**KPSA-FM Channel 253C2**  
**Mescal, Arizona**  
**RF Exposure Study**

**Facilities Proposed**

The proposed operation will be on Channel 253C2 (98.5 MHz) with a maximum lobe effective radiated power of 26 kilowatts. Operation is proposed with a 6-element horizontally-polarized 0.75 wavelength-spaced directional antenna. The antenna will be side-mounted on a tower to be constructed adjacent to Interstate 10 east of Mescal.

The proposed antenna support structure will not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

<b>DETERMINATION Results</b>	
<b>Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.</b>	
<b>Your Specifications</b>	
<b>NAD83 Coordinates</b>	
Latitude	31-59-28.7 north
Longitude	110-10-38.0 west
<b>Measurements (Meters)</b>	
Overall Structure Height (AGL)	36.6
Support Structure Height (AGL)	36.6
Site Elevation (AMSL)	1275
<b>Structure Type</b>	
LTOWER - Lattice Tower	

**RF Exposure Calculations**

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

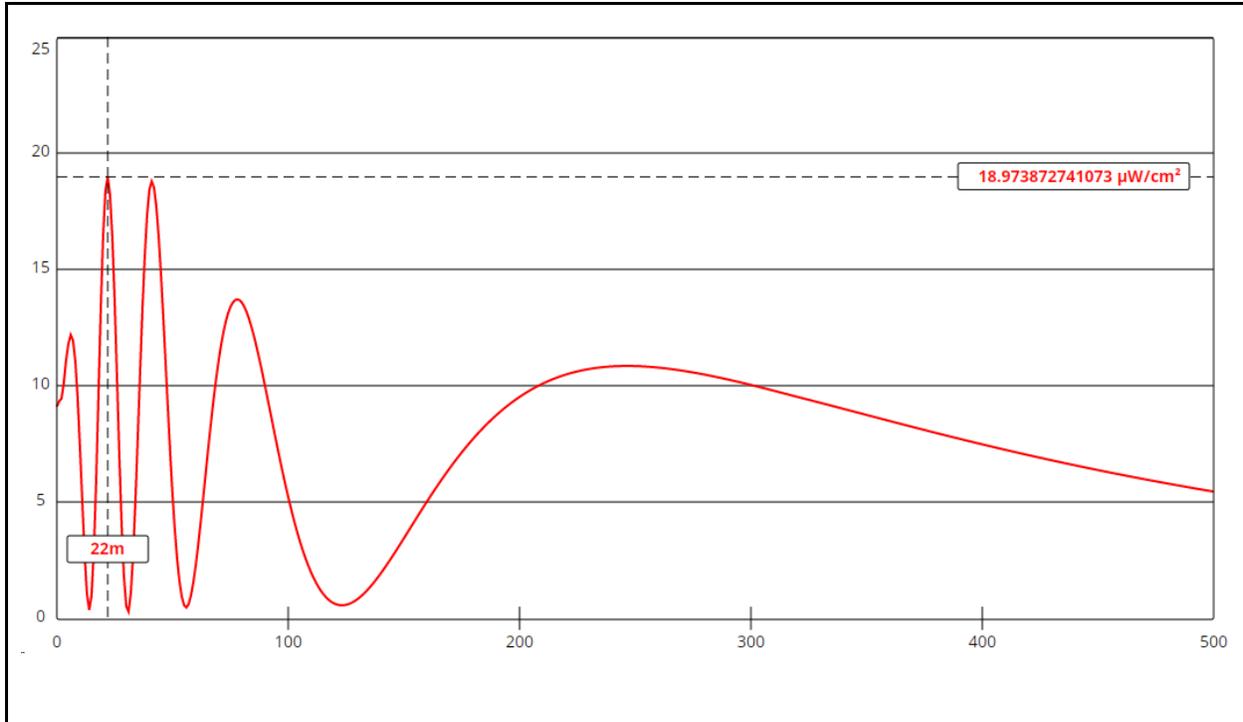
Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

*D* is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 4 element pattern, which is the element pattern for the Shively SLV antenna proposed for use. The highest calculated ground level power density occurs at a distance of 22 meters from the base of the antenna support structure. At this point the power density is calculated to be 19.0  $\mu W/cm^2$ , which is 8% of 200  $\mu W/cm^2$  (the FCC standard for uncontrolled environments).

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.



### Ground-Level RF Exposure

OET FMModel

#### KPSA-FM 253C2 Mescal

Antenna Type: Shively SLV (Type 4)

No. of Elements: 6

Element Spacing: 0.75 wavelength

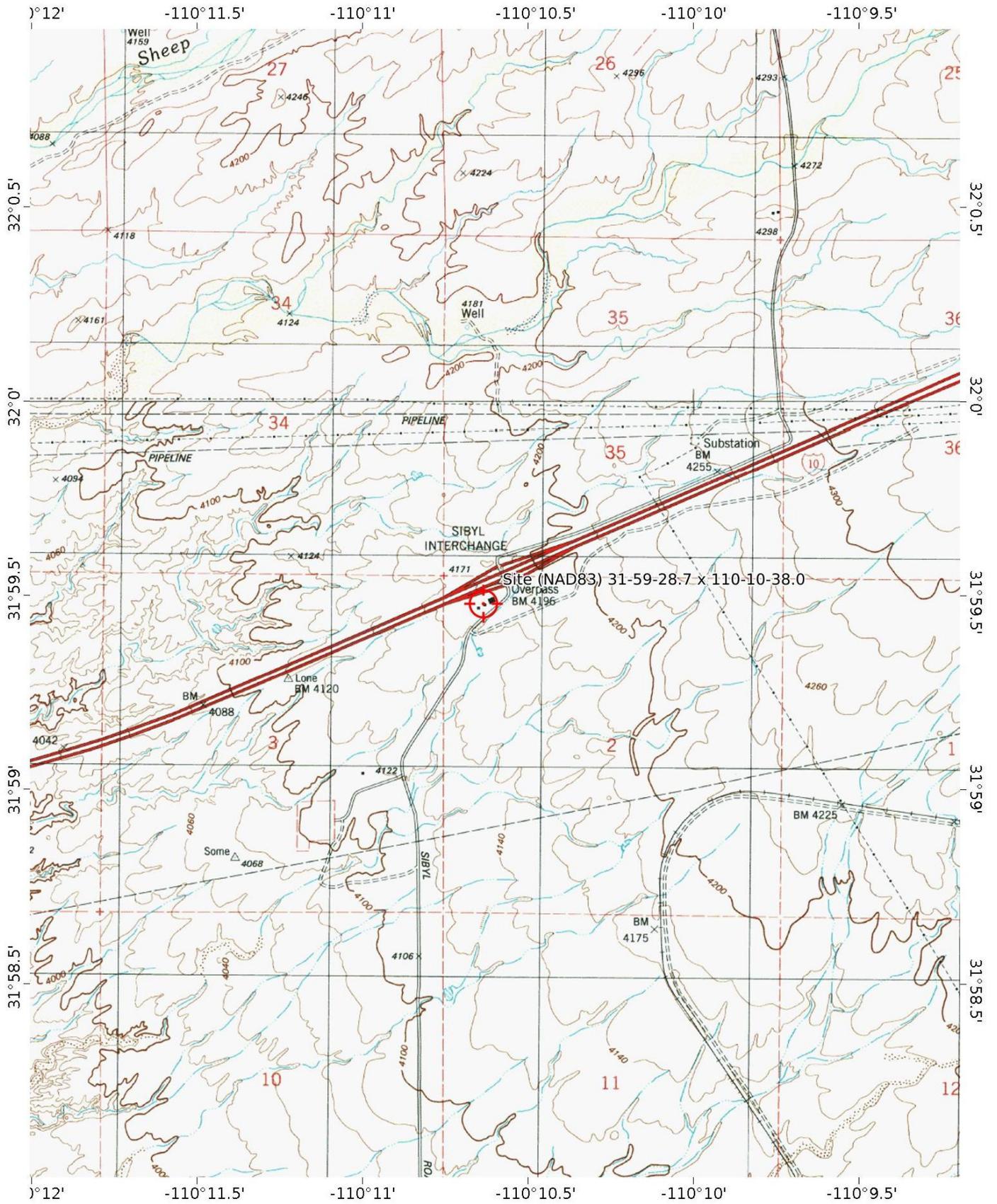
Distance: 500 meters

Horizontal ERP: 26 kW

Vertical ERP: 26 kW

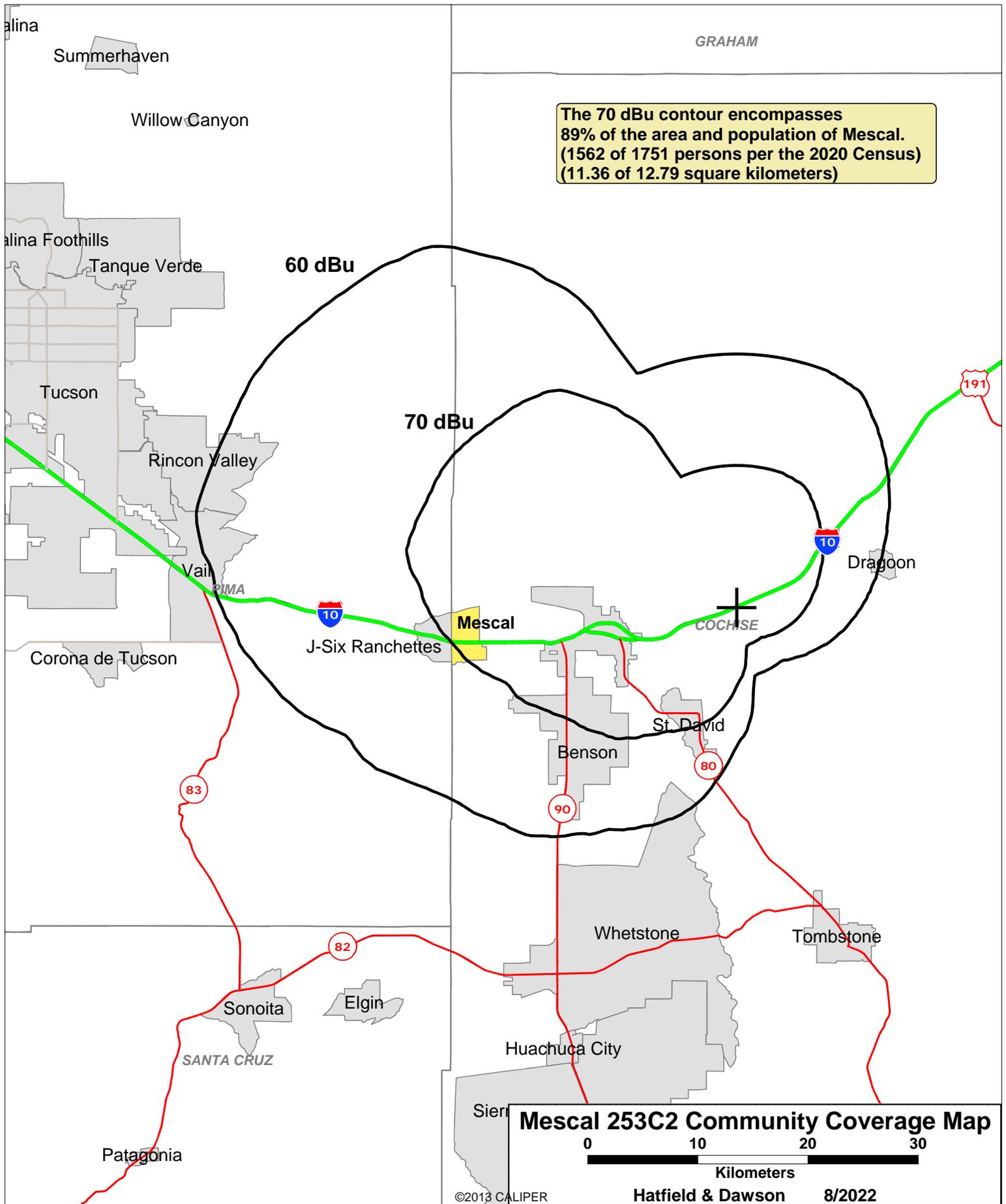
Antenna Height: 29.8 meters AGL

Maximum Calculated Power Density is 19.0  $\mu\text{W}/\text{cm}^2$  at 22 meters from the antenna structure.



Mercator Projection  
 WGS84  
 UTM Zones 12R-12S  
 CALTOPO





The 70 dBu contour encompasses 89% of the area and population of Mescal. (1562 of 1751 persons per the 2020 Census) (11.36 of 12.79 square kilometers)

**Mescal 253C2 Community Coverage Map**

0 10 20 30

Kilometers

Hatfield & Dawson 8/2022

**August 2022**  
**KPSA-FM Channel 253C2**  
**Mescal, Arizona**  
**Waiver of §73.316(b)(1)**

The proposed KPSA-FM facility is short-spaced to a Mexican allotment on Channel 253B at Agua Prieta, Sonora. In order to provide protection to the Agua Prieta allotment in accordance with the requirements of the US-Mexico FM Agreement, it is necessary to utilize a directional antenna pattern with a maximum-to-minimum ratio of 22.4 dB. The allocation study included in this application demonstrates that this power limitation is more than sufficient to provide the necessary protection to Agua Prieta.

Cochise Media Licenses, LLC (“Cochise”) respectfully requests waiver of the 15 dB maximum-to-minimum ratio in §73.316(b)(1) of the Commission’s Rules, to permit the use of a directional antenna pattern with a maximum-to-minimum ratio of 22.4 dB. This waiver will allow KPSA-FM to provide a first local service to Mescal. The additional suppression will also enable KPSA-FM to minimize undesirable signal reflections from the Dragoon Mountains, which lie to the southwest of the proposed tower site (i.e. in the direction of Agua Prieta).

It should be noted that while the proposed KPSA-FM facility is short-spaced to one domestic facility (KOHT 252A Marana), the proposed directional antenna pattern (and the requested waiver) are not being used to protect that station. The antenna pattern is at its maximum ERP in the direction of KOHT, and KPSA-FM could operate at the full requested ERP in the direction of KOHT without creating any prohibited overlap of the two stations’ 60 dBu protected and 54 dBu interfering contours.

The US-Mexico FM Agreement (see Annex 1, Section 1.4.1) expressly contemplates the use of directional antennas with greater than 15 dB minimum-to-maximum ratio, and the Commission has previously waived §73.316(b)(1) for other stations in the US-Mexico border area, including KFMA 271C1 Oro Valley (18 dB) and KXKR 266C3 Catalina Foothills (19 dB, with previous authorizations having included a 23.5 dB null).