

**KMSW-LP FM – San Antonio, TX**  
**Engineering Exhibit for**  
**Auxiliary Antenna**

**Overview**

The Martinez Street Women's Center, licensee of Low power FM station KMSW-LP of San Antonio TX, seeks to establish an auxiliary facility at the site of its new main studio.

KMSW-LP's main antenna will remain co-located at the tower site owned by the time-shared licensee of KEPJ-LP (Facility ID# 197088). MSWC staff, however, does not have full, unrestricted 24/7 and weekend access to the main antenna facility.

For reasons including unanticipated outages at the main antenna site, building maintenance, or repairs on the roof or antenna itself, MSWC proposes an authorized backup facility as a proactive measure towards ensuring a continuous broadcast presence within the community.

**Technical facility**

In compliance with 73.1675(a)(1)(ii), the 1 mV/m contour of the auxiliary facility at 40 watts ERP and 20 meters AGL is fully contained within the 60 dBu main contour of KMSW-LP.

**Second Adjacent Channels**

Waiver is requested pursuant to § 73.807(e)(1) with respect to KONO-FM and KQXT-FM. Second adjacent exhibit attached below confirms no population will receive interference.

**Established precedence**

Over two thousand auxiliary licenses have been issued for FM stations. As listed below from CDBS, auxiliary permits have also been approved in recent years for Low power FM facilities. Although the Commission has authorized auxiliary facilities short-spaced to existing facilities<sup>1</sup>, additional protection to adjacent stations are ensured as per the second adjacent channel exhibit.

MSWC respectfully certifies the instant application as compliant with § 73.1675(a)(1)(ii) and eligible for processing.

**Auxiliary permits granted for Low Power FM stations**

Application Search Results									
File Number		Form	Paper/ Elect	Call Sign	Facility Id	Service	Status	Status Date	Details
BXPL	20180628AAA	318	E	WLOV-LP	192886	FS	GRANTED	07/09/2018	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20180525AAL	318	E	WMXR-LP	195408	FS	GRANTED	06/15/2018	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20180427ABE	318	E	WMXR-LP	195408	FL	DISMISSED	06/01/2018	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20171019AAZ	318	E	WBNH-LP	193211	FS	GRANTED	10/30/2017	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20170807AAG	318	E	WMXR-LP	195408	FS	GRANTED	08/17/2017	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20160419AAP	318	E	KQRZ-LP	134266	FS	GRANTED	04/22/2016	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20160126AAZ	318	E	KQRZ-LP	134266	FS	GRANTED	02/02/2016	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20151016ABD	318	E	WOPC-LP	196628	FS	GRANTED	10/23/2015	<a href="#">Info</a>   <a href="#">Application</a>
BXPL	20081016ABC	301	E	WLQZ-LP	123939	FS	GRANTED	11/07/2008	<a href="#">Info</a>   <a href="#">Application</a>

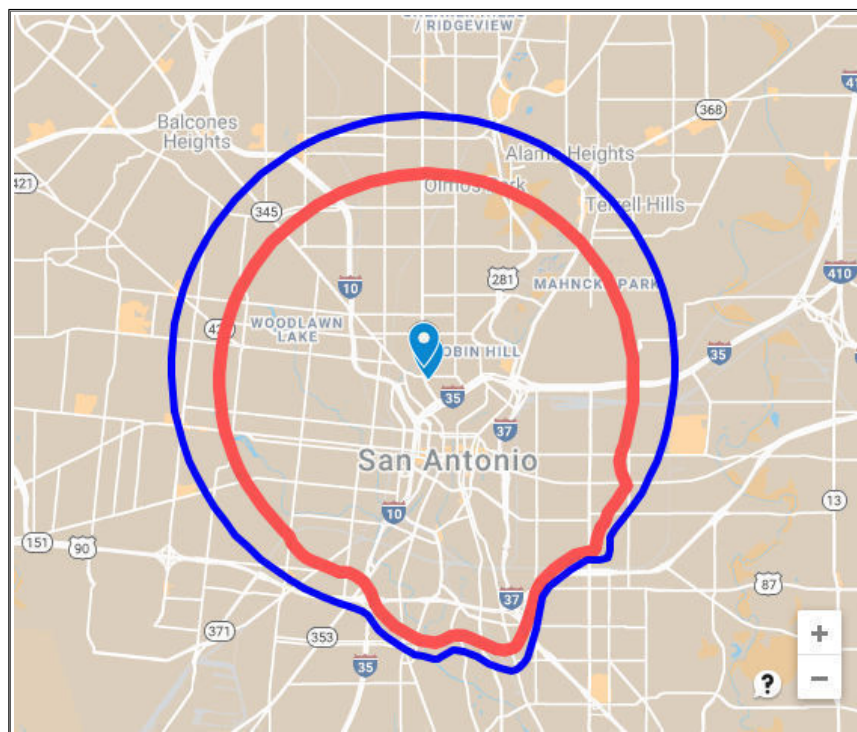
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<sup>1</sup> KVGS Auxiliary BXLH-20121120ADM is short-spaced to KXTE, FacID# 2100 ; KYLI Aux BXLH-20110422AAW is short-spaced to KKLZ FID# 40757 and KXPT FID# 38450. Although short-spaced, these auxiliary facilities were compliant with § 73.1675(a)(1)(ii) and eligible for authorization without requiring concurrence or "Raleigh"-type waivers for processing.

## **KMSW-LP FM – San Antonio, TX**

Blue Contour: Main LIC authorization – 100 w ERP (BPL-20191017 / LMS Lic # 0000086824)

Red Contour: Auxiliary contour – 50 watts ERP (proposed)



## **Second Adjacent Channel Exhibit & Waiver Request**

Waiver is requested pursuant to § 73.807(e)(1) with respect to KQXT-FM and KONO-FM.

At the proposed site, KQXT-FM is calculated with an estimated signal strength of 114.9 dBuV/m, and KONI-FM at 86.41 dBuV/m. With an additional 40 dBu, KMQ-FM is protected to 126.41 dBuV/m.

Depression angle calculations for a single-bay antenna mounted on an existing mast at 23 meters above ground level show worst-case interference radius of 12 meters as fully clearing occupied areas of the 3-story building structure. No population will receive interference according to the undesired-to-desired ratio method.

## **FM Model Calculations**

Attached printout from FM Model using the “ring stub” setting calculates power density at 4.56  $\mu\text{W}/\text{cm}^2$  less than 5 % of the 200  $\mu\text{W}/\text{cm}^2$  minimum requirement. Actual exposure will be considerably less due to attenuation by the roof and building structure.

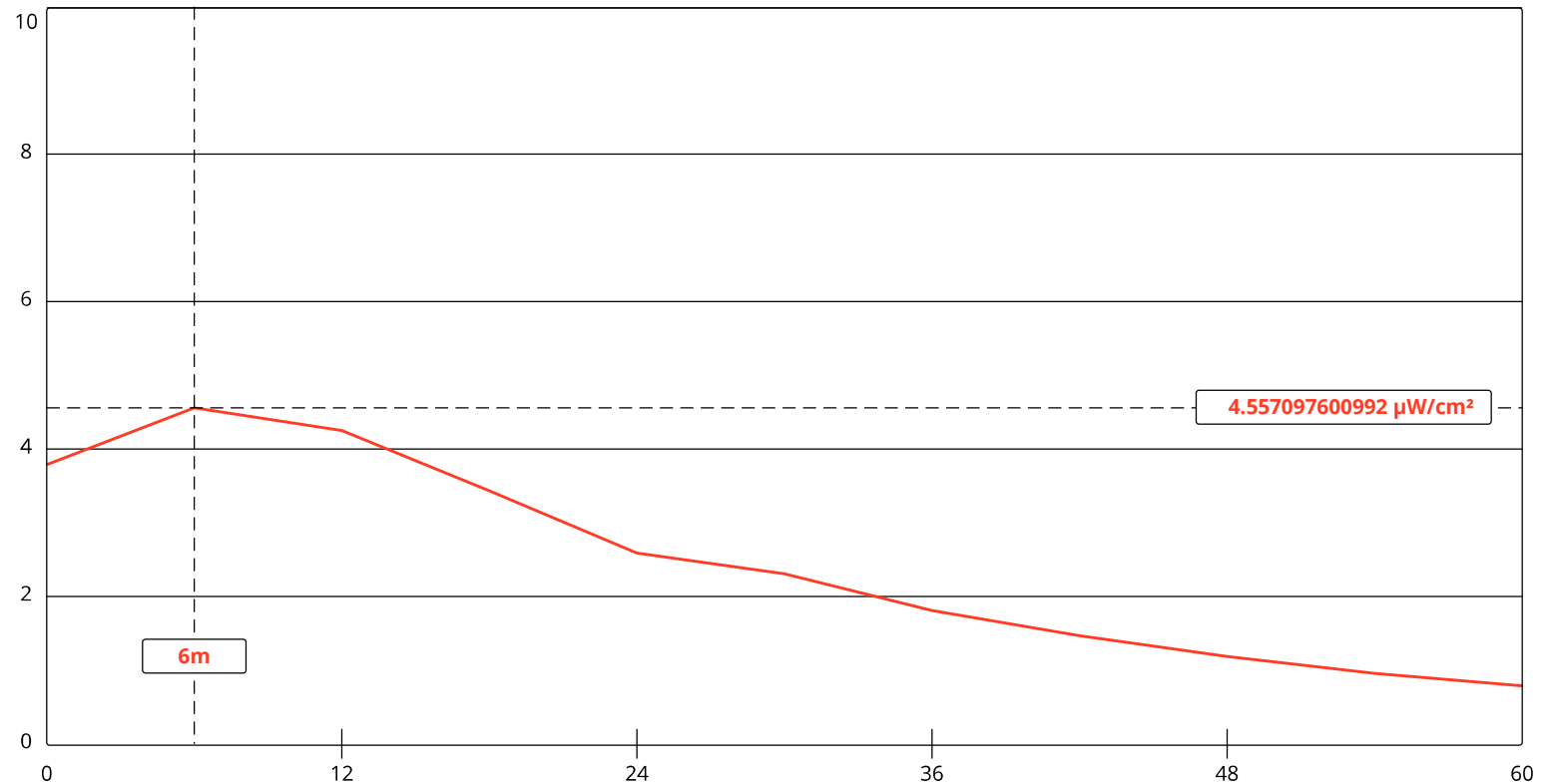
Rooftop facility will be off limits and accessible only to authorized personnel. In an abundance of caution, warning signage will be posted at the base of the antenna. Power will be reduced or operations ceased as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic exposure in excess of FCC guidelines.



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# FM Model

The FM Model calculator determines the potential exposure from radiofrequency (RF) electromagnetic fields produced by FM broadcast station antennas at ground level. The FM Model software was originally developed by the FCC in 1997 as a standalone executable program and this improved version provides more precise predictions and runs via a JavaScript enabled web browser. The FM Model is originally based on measured data [published in 1985 by the EPA](http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL) (<http://nepis.epa.gov/Exe/ZyNET.exe/2000ED2W.TXT?ZyActionD=ZyDocument&Client=EPA&Index=1981+Thru+1985&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A\zyfiles\Index%20Data\81thru85\Txt\00000003\2000ED2W.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h|-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=p|f&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL>). [▼ Show More....](#)



Channel Selection	Channel 268 (101.5 MHz)		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other"		
Height (m)	<input type="text" value="23"/>	Distance (m)	<input type="text" value="60"/>
ERP-H (W)	<input type="text" value="50"/>	ERP-V (W)	<input type="text" value="50"/>
Num of Elements	<input type="text" value="1"/>	Element Spacing (λ)	<input type="text" value="1"/>
Num of Points	<input type="text" value="10"/>	<input type="button" value="Apply"/>	

\* To Print - On your browser, please select Shrink to Fit under the Scale tab from Print Preview

Hide Tabular Results -

Distance (m)	Power Density ( $\mu\text{W}/\text{cm}^2$ )
0	3.8
6	4.6
12	4.2
18	3.4
24	2.6
30	2.3
36	1.8
42	1.5
48	1.2
54	1.0
60	0.8

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**Updated:**

Friday, June 8, 2018

## Antenna Depression Angle Calculations

Shively 6812 – 1 Bay

Power – 50 w

Height – 23 m

Contour – 126.41

depression angle below horizon	relative field	db from relative	ERP	angular distance to contour	vertical distance	horizontal distance	clearance above ground
0	1.000	0.00	50.00	23.698	0.000	23.698	23.000
5	0.996	-0.03	49.60	23.603	2.057	23.513	20.943
10	0.985	-0.13	48.51	23.342	4.053	22.987	18.947
15	0.967	-0.29	46.75	22.916	5.931	22.135	17.069
20	0.942	-0.52	44.37	22.323	7.635	20.977	15.365
25	0.910	-0.82	41.41	21.565	9.114	19.544	13.886
30	0.871	-1.20	37.93	20.641	10.320	17.875	12.680
35	0.826	-1.66	34.11	19.574	11.227	16.034	11.773
40	0.774	-2.23	29.95	18.342	11.790	14.051	11.210
45	0.717	-2.89	25.70	16.991	12.015	12.015	10.985
50	0.654	-3.69	21.39	15.498	11.872	9.962	11.128
55	0.586	-4.64	17.17	13.887	11.375	7.965	11.625
60	0.514	-5.78	13.21	12.181	10.549	6.090	12.451
65	0.437	-7.19	9.55	10.356	9.386	4.377	13.614
70	0.357	-8.95	6.37	8.460	7.950	2.893	15.050
75	0.273	-11.28	3.73	6.469	6.249	1.674	16.751
80	0.186	-14.61	1.73	4.408	4.341	0.765	18.659
85	0.096	-20.35	0.46	2.275	2.266	0.198	20.734
90	0.001	-60.00	0.00	0.024	0.024	0.000	22.976

## Elevation pattern



Antenna model: 6812b, single bay

Test frequency: 98.1 MHz

Gain (maximum):

Power	dB
0.46	-3.39 dB

Document No. 6812b 1-bay fw (130701)

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Degrees	Rel. Field
1	1.000
2	0.999
3	0.999
4	0.998
5	0.996
6	0.995
7	0.993
8	0.991
9	0.988
10	0.985
11	0.982
12	0.979
13	0.975
14	0.971
15	0.967
16	0.963
17	0.958
18	0.953

Degrees	Rel. Field
19	0.948
20	0.942
21	0.936
22	0.930
23	0.924
24	0.917
25	0.910
26	0.903
27	0.895
28	0.887
29	0.879
30	0.871
31	0.862
32	0.854
33	0.845
34	0.835
35	0.826
36	0.816

Degrees	Rel. Field
37	0.806
38	0.796
39	0.785
40	0.774
41	0.763
42	0.752
43	0.741
44	0.729
45	0.717
46	0.705
47	0.693
48	0.680
49	0.667
50	0.654
51	0.641
52	0.628
53	0.614
54	0.600

Degrees	Rel. Field
55	0.586
56	0.572
57	0.558
58	0.544
59	0.529
60	0.514
61	0.499
62	0.484
63	0.469
64	0.453
65	0.437
66	0.422
67	0.406
68	0.390
69	0.373
70	0.357
71	0.341
72	0.324

Degrees	Rel. Field
73	0.307
74	0.290
75	0.273
76	0.256
77	0.239
78	0.221
79	0.204
80	0.186
81	0.168
82	0.151
83	0.133
84	0.114
85	0.096
86	0.078
87	0.059
88	0.040
89	0.021
90	0.000

## Elevation Pattern Tabulation

Antenna model: 6812b, single bay

Relative Field at 0° Depression = 1.000

## Antenna Height Above Average Terrain Calculations -- Results

### Input Data

Latitude **29° 26' 22.56"** North

Longitude **98° 29' 52.94"** West (NAD 27)

These coordinates convert to NAD 83 coordinates of  
29° 26' 23.40", North, 98° 29' 54.00" West (NAD 83).

Height of antenna radiation center above mean sea level: **228.5** meters AMSL

Number of Evenly Spaced Radials = **8**      0° is referenced to True North

### Results

Calculated HAAT = **12 meters**

Antenna Height Above Average Terrain calculated  
using FCC 30 second terrain database (continental USA only)

### Individual "Radial HAAT" Values, in meters

0°	-19.1 m
45°	2.0 m
90°	20.5 m
135°	42.5 m
180°	49.7 m
225°	29.5 m
270°	6.7 m
315°	-35.7 m

Print Results?

New Calculation?



## Antenna Structure Registration

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### TOWAIR Determination Results

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#### \*\*\* NOTICE \*\*\*

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

#### DETERMINATION Results

**Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.**

#### Your Specifications

##### NAD83 Coordinates

Latitude	29-26-23.4 north
Longitude	098-29-54.0 west

##### Measurements (Meters)

Overall Structure Height (AGL)	30
Support Structure Height (AGL)	9
Site Elevation (AMSL)	205.5

##### Structure Type

BMAST - Building with Mast