

**ENGINEERING STATEMENT**

**In support of a request to**

**Modify Construction Permit LMS File No. 27887 for**

**KAXT-CD Channel 22**

**San Francisco/San Jose, CA**

**Facility ID: 37689**

**PURPOSE**

MARSAND, INC. has been retained by OTA Broadcasting (SFO), LLC, the “applicant”, to prepare this engineering statement in support of a request to Modify its Construction Permit(CP) (LMS File No. 27887). The applicant proposes to change its antenna pattern and increase its Effective Radiated Power(ERP) to 15 kW.

**DISCUSSION**

The Commission has granted the applicant authorization to construct its post-repack facility on channel 22 with 7kW ERP elliptically polarized at 885.7m RCAMSL. The current CP specifies a heavily engineered antenna that was required to produce a pattern to meet the initial filing window requirements. The applicant proposes to use a standard antenna pattern and increase the ERP from 7kW to 15kW using same site, elevation, and circular polarization. No other changes are proposed.

**INTERFERENCE STUDY**

The study results of this proposal utilizing the FCC TVStudy v2.2.3 software are included as **Exhibit 1**. There is no predicted interference beyond the 0.5% to full-service and Class A stations or the 2.00% to LPTV stations.

**ENVIRONMENTAL ASSESMENT**

FCC OET Bulletin No. 65 “Evaluating Compliance With FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields”, Edition 97-01, and has been found to comply with the limits set forth in Section 1.1310 of the Rules as shown below:

Channel Frequency	ERP (H + V)	Relative Field Factor	Distance to the Ground	Calculated Power Density 2 m above ground	ANSI Minimum Standard	
					Occupational / Controlled 1.7367 mW/cm <sup>2</sup>	General / Uncontrolled 347.3 µW/cm <sup>2</sup>
CH 22 521 MHz	30 kW	0.108	91.4 m	1.41 µW/cm <sup>2</sup>	0.08 %	0.40%

The proposed facility contributes power densities less than 5% of the exposure limit at this site and is therefore categorically excluded from further RF exposure evaluation. The Applicant agrees to maintain full compliance with the safety precautions to workers on the tower (controlled) and the general public (uncontrolled) by reducing or removing radiated power during the time of construction or maintenance on or near the antenna. The Applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from Radiofrequency Electromagnetic exposure in excess of FCC guidelines.

#### **ANTENNA TECHNICAL**

The proposed coverage contour shown in **Exhibit 2**.

The proposed antenna technical information is shown in **Exhibit 3**.

#### **CONCLUSION**

It is respectfully requested that the Commission grant this request for Minor Change to the Construction Permit as specified herein.

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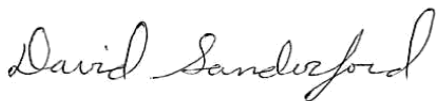
## DECLARATION

David Sanderford, EIT, declares and states that he is a graduate Electrical Engineer with a Bachelor of Science Degree in Electrical Engineering from the Georgia Institute of Technology, and his qualifications are known to the Federal Communications Commission, and that he is Vice-President of MARSAND, INC., a Registered Professional Engineering firm in the State of Texas, and that firm has been retained by OTA Broadcasting (SFO), LLC., to perform the engineering support as contained in this report.

All facts contained herein are true of his own knowledge except where stated to be on information or belief provided by others, and as to those facts, he believes them to be true.

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I declare under penalty of perjury that the foregoing is true and correct.



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David Sanderford, EIT  
Vice-President - MARSAND, INC.

Executed this 30<sup>th</sup> of October, 2017  
State of Texas

**Matthew A. Sanderford, Jr., P.E.****EXHIBIT 1**

Study created: 2017.10.28 16:31:00

Study build station data: LMS TV 2017-10-26 (18)

Proposal: KAXT-CD D22 DC CP SAN FRANCISCO, SAN JO, CA  
File number: KAXT\_Maximization\_Final  
Facility ID: 37689  
Station data: User record  
Record ID: 359  
Country: U.S.

Build options:  
Protect LPTV records from Class A

Stations affected by proposal:

Call	Chan	Svc	Status	City, State	File Number	Distance
KSPX-TV	D21	DT	APP	SACRAMENTO, CA	BLANK0000030649	91.5 km
KTXL	D22	DT	APP	SACRAMENTO, CA	BLANK0000030659	91.7
KSPX-TV	D22	DT	CP	SACRAMENTO, CA	BLANK0000027009	91.5
KLFB-LD	D22	LD	CP	SALINAS, CA	BPDTL20120425AAW	109.5
KLFB-LD	D22	LD	LIC	SALINAS, CA	BLDTL20101005ABL	110.2
KQCA	D23	DT	CP	STOCKTON, CA	BLANK0000024621	91.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D22  
Mask: Full Service  
Latitude: 37 29 57.00 N (NAD83)  
Longitude: 121 52 20.00 W  
Height AMSL: 885.7 m  
HAAT: 0.0 m  
Peak ERP: 15.0 kW  
Antenna: Dielectric 0.0 deg  
Elev Pattn: Dielectric

49.6 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.006 kW	729.1 m	23.7 km
45.0	0.002	529.2	14.6
90.0	0.002	298.9	11.0
135.0	1.33	434.7	49.6
180.0	14.0	817.4	74.1
225.0	10.3	868.7	72.9
270.0	13.5	872.4	74.9
315.0	6.20	777.7	67.7

Database HAAT does not agree with computed HAAT  
Database HAAT: 0 m Computed HAAT: 666 m

\*\*Proposal service area extends beyond baseline plus 1.0%  
Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 1199.8 km

Distance to Mexican border: 677.1 km

Conditions at FCC monitoring station: Livermore CA  
Bearing: 22.4 degrees Distance: 27.2 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:  
Bearing: 73.4 degrees Distance: 1466.2 km

Matthew A. Sanderford, Jr., P.E.

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Study cell size: 1.00 km  
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%  
Maximum new IX to LPTV: 2.00%

No IX check failures found.

**EXHIBIT 2**

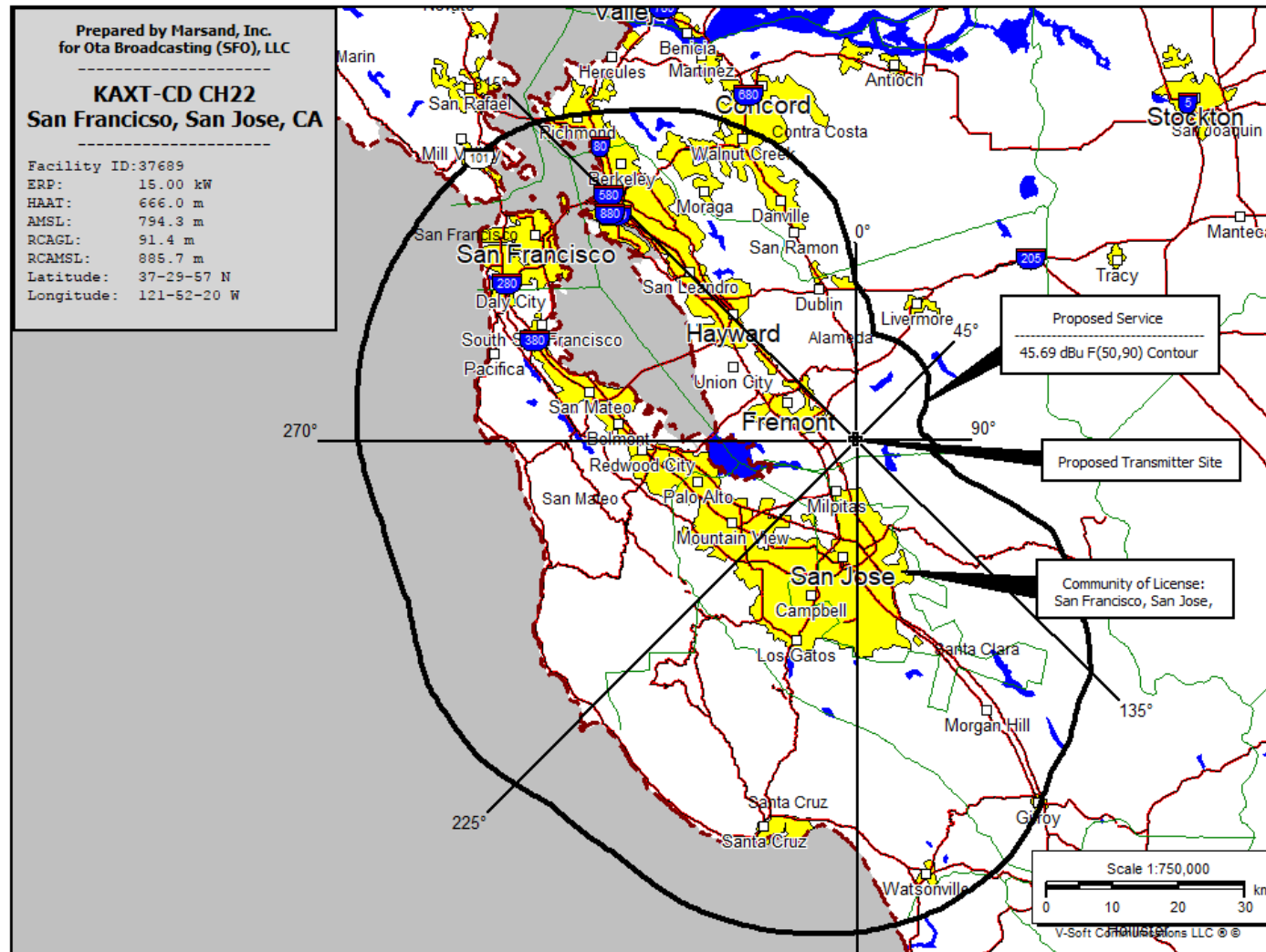
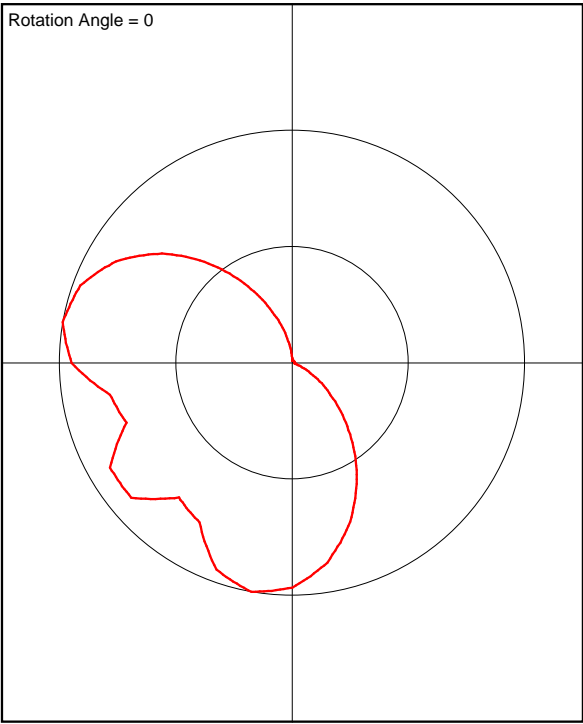


EXHIBIT 3

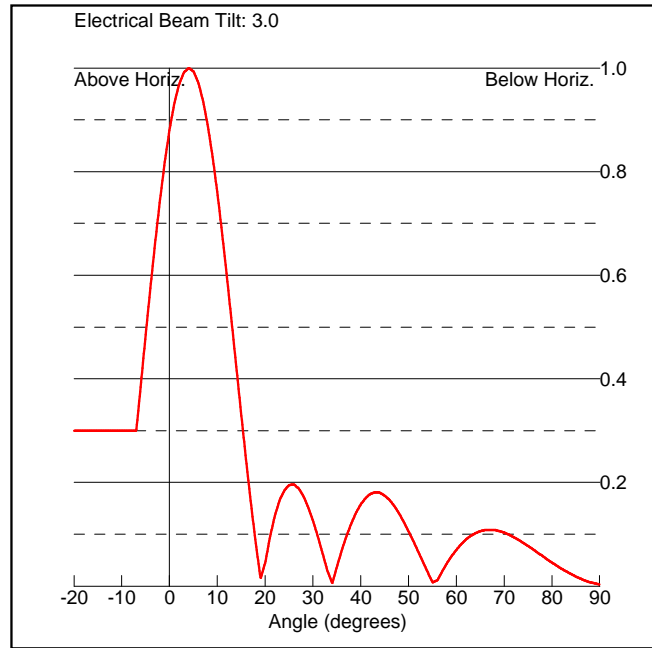
Dielectric TUA-C2-2/4M-1-K  
Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	0.02
10.0	0.01
20.0	0.01
30.0	0.01
40.0	0.01
50.0	0.01
60.0	0.01
70.0	0.01
80.0	0.01
90.0	0.01
100.0	0.01
110.0	0.021
120.0	0.094
130.0	0.218
140.0	0.378
150.0	0.556
160.0	0.729
170.0	0.872
180.0	0.967
190.0	1.0
200.0	0.947
210.0	0.793
220.0	0.756
230.0	0.902
240.0	0.902
250.0	0.756
260.0	0.793
270.0	0.947
280.0	1.0
290.0	0.967
300.0	0.872
310.0	0.729
320.0	0.556
330.0	0.378
340.0	0.218
350.0	0.094



Dielectric TUA-C2-2/4M-1-K

Angle (deg)	Relative Field
-7.0	0.3
-6.0	0.394
-5.0	0.489
-4.0	0.581
-3.0	0.668
-2.0	0.749
-1.0	0.822
0.0	0.884
1.0	0.934
2.0	0.97
3.0	0.992
4.0	1.0
5.0	0.993
6.0	0.971
7.0	0.935
8.0	0.886
9.0	0.826
10.0	0.756
11.0	0.677
12.0	0.593
13.0	0.505
14.0	0.416
15.0	0.327
16.0	0.24
17.0	0.158
18.0	0.082
19.0	0.014
20.0	0.046
21.0	0.096
22.0	0.136
23.0	0.166
24.0	0.185
25.0	0.195
26.0	0.196
27.0	0.188
28.0	0.173
29.0	0.151
30.0	0.125
31.0	0.095
32.0	0.062
33.0	0.029
34.0	0.005
35.0	0.038
36.0	0.069
37.0	0.097
38.0	0.121
39.0	0.142
40.0	0.158



41.0	0.17
42.0	0.178
43.0	0.181
44.0	0.18
45.0	0.174
46.0	0.166
47.0	0.154
48.0	0.14
49.0	0.123
50.0	0.105
51.0	0.086
52.0	0.066
53.0	0.046
54.0	0.026
55.0	0.007
56.0	0.011
57.0	0.028
58.0	0.044
59.0	0.058
60.0	0.07
61.0	0.081
62.0	0.09

10/29/2017

V-Soft Communications LLC



63.0	0.097
64.0	0.102
65.0	0.106
66.0	0.108
67.0	0.108
68.0	0.108
69.0	0.106
70.0	0.103
71.0	0.099
72.0	0.094
73.0	0.089
74.0	0.083
75.0	0.077
76.0	0.071
77.0	0.064
78.0	0.058
79.0	0.051
80.0	0.045
81.0	0.039
82.0	0.033
83.0	0.028
84.0	0.023
85.0	0.018
86.0	0.014
87.0	0.01
88.0	0.007
89.0	0.005
90.0	0.003

10/29/2017

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V-Soft Communications LLC