

TECHNICAL EXHIBIT
APPLICATION FOR FM CONSTRUCTION PERMIT
FCC FILE NO. BLH-20030408ACH
STATION KOSO
FACILITY ID:35426
PATTERSON, CALIFORNIA

April 29, 2004

CH 226B 2.75 KW (MAX-DA) 546 M

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Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an application for construction permit to modify the licensed facilities of FM station KOSO at Patterson, California (BLH-20030408ACH). Currently, KOSO is licensed to operate on channel 226B (93.1 MHz) with a directional antenna maximum effective radiated power (ERP) of 50 kilowatts and an antenna radiation center height above average terrain (HAAT) of 150 meters. By means of this application, it is proposed to change the transmitter site location, directional antenna system, and to decrease the maximum directional ERP and to increase the HAAT. No other changes are proposed. Therefore, the instant application is considered a "minor" change in facilities in accordance with Section 73.3573(a)(1).

Response to Paragraph 14 - Community Coverage

Figure 1 is a map which demonstrates that KOSO's proposed operation complies with the provisions of Section 73.315. Specifically, it has been determined that the proposed 70 dBu contour will encompass 100% of the area within the Patterson city limits.

Response to Paragraph 12 - Directional Antenna Pattern Data

Figure 2 provides a polar graph and tabulation of the horizontal plane radiation pattern envelope for the proposed directional antenna. The directional antenna is proposed to permit compliance with Section 73.213(a) with respect to KBAY on channel 227B at San Francisco, California. Therefore, in accordance with Sections 73.316(a)(1) and 73.316(a)(2), the ratio of maximum to minimum radiation in the horizontal plane will not exceed 15 dB and the rate of change will not exceed 2 dB per 10 degrees of azimuth.

Response to Paragraph 16

Figure 3 is a separation study from KOSO's proposed antenna location for the channel 226B operation. As shown, the proposed antenna location complies with the minimum distance separation requirements of Section 73.207 for Class B operation on channel 227 towards all existing, authorized and proposed stations and allotments with the exception of: (1) KBAY on channel 227B at San Francisco, California; and (2) KNTD on channel 227A at Chowchilla, California. Each short-spacing is addressed below.

The proposed KOSO operation is short-spaced by 4.00 kilometers to KNTD on channel 227A at Chowchilla, California (BMLH-20021021ABH). This is considered a grandfathered short-spacing pursuant to Section 73.213(c)(1). Under that Section, KOSO would be permitted to operate with equivalent maximum Class B facilities with respect to KNTD as the distance to KNTD (109.00 km) exceeds the distance set forth in Section 73.213(c)(1) (105 km).¹

The proposed KOSO operation is short-spaced by 99.05 km to KBAY on channel 227B at San Francisco, California. This is a "grandfathered" short-spacing pursuant to Section 73.213(a). Therefore, the total area and population subject to co-channel interference for the current and proposed KOSO operations has been determined based on the provisions of Section 73.213(a)(1).

Specifically, the interference areas were determined using the desired-to-undesired (D/U) signal strength ratio method as required by the FCC. The D/U method involves a determination of the interference area within each station's desired (protected) field strength contour. The interference area is developed based on overlap of protected and interfering contours using the pertinent D/U ratio. The points of intersection of overlapping contours are located and

¹ The currently licensed KOSO site is short-spaced to KNTD by 8.0 kilometers, however the proposed site location will reduce the amount of short-spacing to 4.0 kilometers.

a line is drawn through all intersecting points. For first adjacent Class B stations the desired field strength is the 54 dBu contour and the D/U ratio is 6 decibels (dB). For the instant application, protected and interfering contours locations were determined based on each station's facilities and at 1 dB intervals using a 3-second terrain database and 72 equally spaced radials (5° increments). The land area within each interference area was determined based on mapping software using a Spherical method. The population within each interference area was determined using the 2000 Census and the Block Centroid Method.²

Figure 4 depicts the interference caused to KBAY from the licensed and proposed KOSO operations. Figure 5 depicts the interference received from KBAY by the licensed and proposed KOSO operations. The following tabulates the land area and population (2000 Census) within each interference areas depicted on Figures 4 and 5.

KOSO Operation	Interference to KBAY (See Figure 4)	Interference From KBAY (See Figure 5)	Total Interference
License	428 km ² ; 28,501 pop.	715 km ² ; 19,604 pop.	1,143 km ² ; 48,105 pop.
Proposed	369 km ² ; 26,758 pop.	767 km ² ; 9,721 pop.	1,136 km ² ; 36,479 pop.
Net Reduction			7 km ² ; 11,626 pop.

As indicated, the "total" interference population and area decreases. In addition, the interference population and area caused to KBAY is also decreased. Therefore, the proposal is believed to comply with Section 73.213(a)(2).

Figure 6 depicts the areas that will lose interference free service based on the proposed KOSO operation. Also shown are other AM (aural) services available to these areas.³ As indicated on Figure 6, there are at least 5 aural services available to the "new" KBAY and KOSO interference areas. Therefore, the proposed operation

² The Census Bureau has verified that the block centroid retrieval methodology is more accurate than the uniform distribution method for population determination. See paragraph 15 and footnote 10 of the Report and Order in MM Docket No. 96-120 ("Grandfathered Short-Spaced FM Stations"), adopted August 4, 1997, released August 8, 1997 (RM-7651).

³ Available aural services for this analysis are defined by the FCC as the AM daytime 0.5 mV/m contours.

complies with the provisions of Section 73.213(a)(2) as the areas that will lose interference free service are considered to have adequate aural service remaining. Figure 7 tabulates the AM stations providing aural service to the areas losing interference free service depicted on Figure 6.

Environmental Considerations

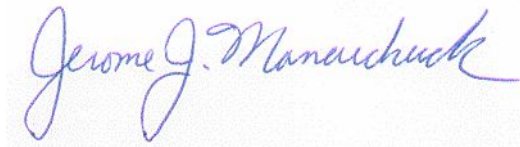
The proposed KOSO facilities were evaluated in terms of potential radiofrequency radiation exposure at 2 meters above ground level in accordance with OST Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation". This Bulletin provides assistance in determining whether FCC-regulated transmitting facilities, operations or devices comply with limits for human exposure to radiofrequency (RF) electromagnetic fields.

The calculated power density at 2 meters above ground level at the base of the tower was calculated using the appropriate equation contained in the Bulletin. Figure 8 is a vertical plane relative field pattern for the proposed Shively 6810-3R-SS-DA, 3 bay, 0.5 wavelength spaced directional antenna. As indicated on Figure 8, the maximum vertical relative field towards the tower base (-60° to -90° elevation) is less than 0.2. Therefore, using a "worst-case" vertical relative field value of 0.2, the total ERP of 5.5 kW (H+V) and an antenna center of radiation height above ground level of 36 meters, the calculated power density at 2 meters above ground level at the base of the tower is 0.0064 milliwatt per square centimeter (mW/cm^2), or 3.2% of the Commission's recommended limit applicable to general population/uncontrolled exposure areas ($0.2 \text{ mW}/\text{cm}^2$ for FM frequencies. Therefore, based on the responsibility threshold of 5%, the proposal will comply with the RF emission rules.

Access to the tower will be restricted and appropriately marked with warning signs. Furthermore, as this is a multi-user site, procedures will be in effect in the event that workers or other authorized personnel enter the restricted area or climb the tower to ensure that appropriate

measures will be taken to assure worker safety with respect to radio frequency radiation exposure. Such procedures include reducing the average exposure by spreading out the work over a longer period of time, wearing "accepted" RFR protective clothing and/or RFR exposure monitors or scheduling work when the station is at reduced power or shut down.

Finally, it is noted that this technical exhibit only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already has been provided to the FCC by the tower owner as part of the tower registration process.

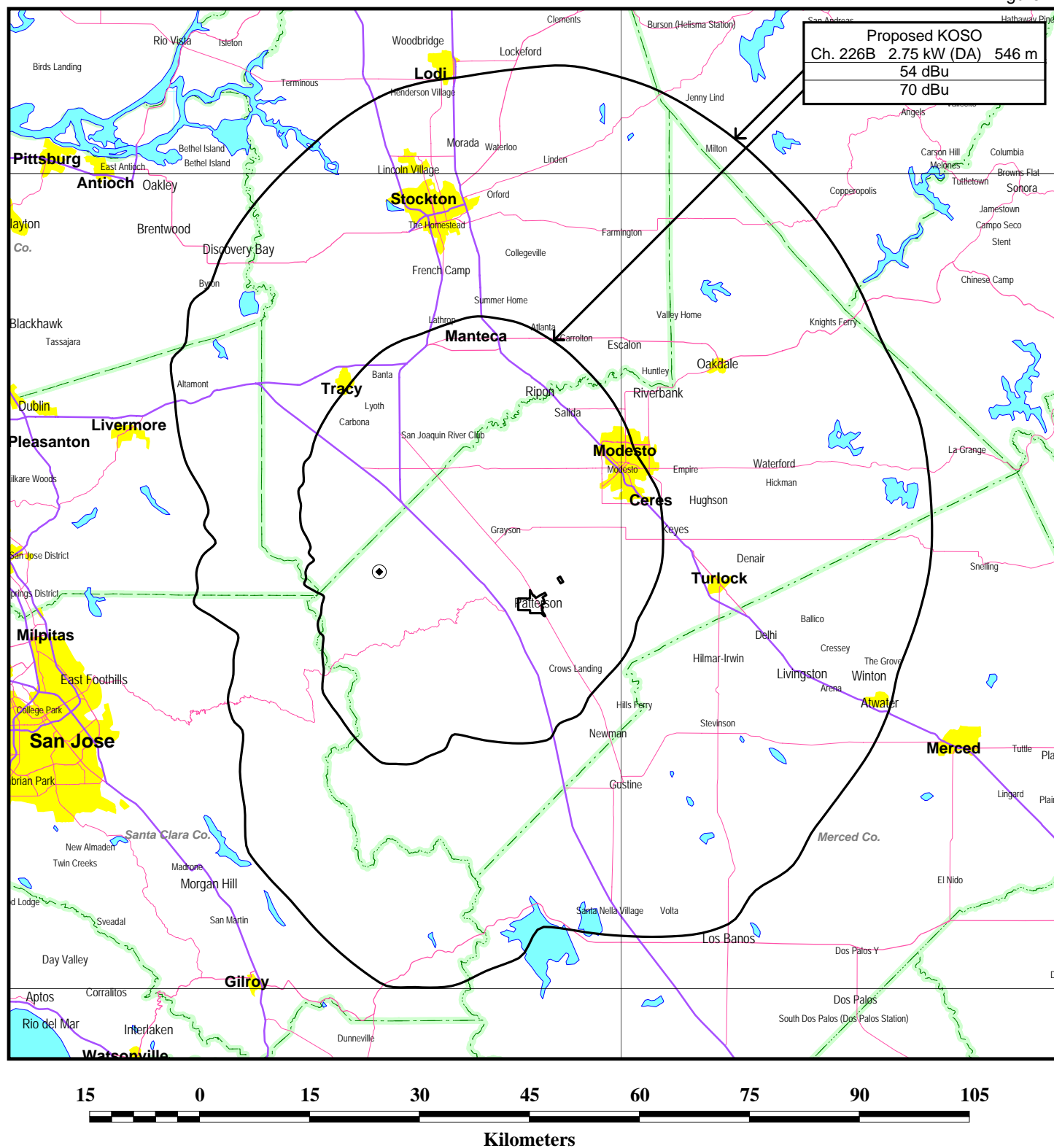


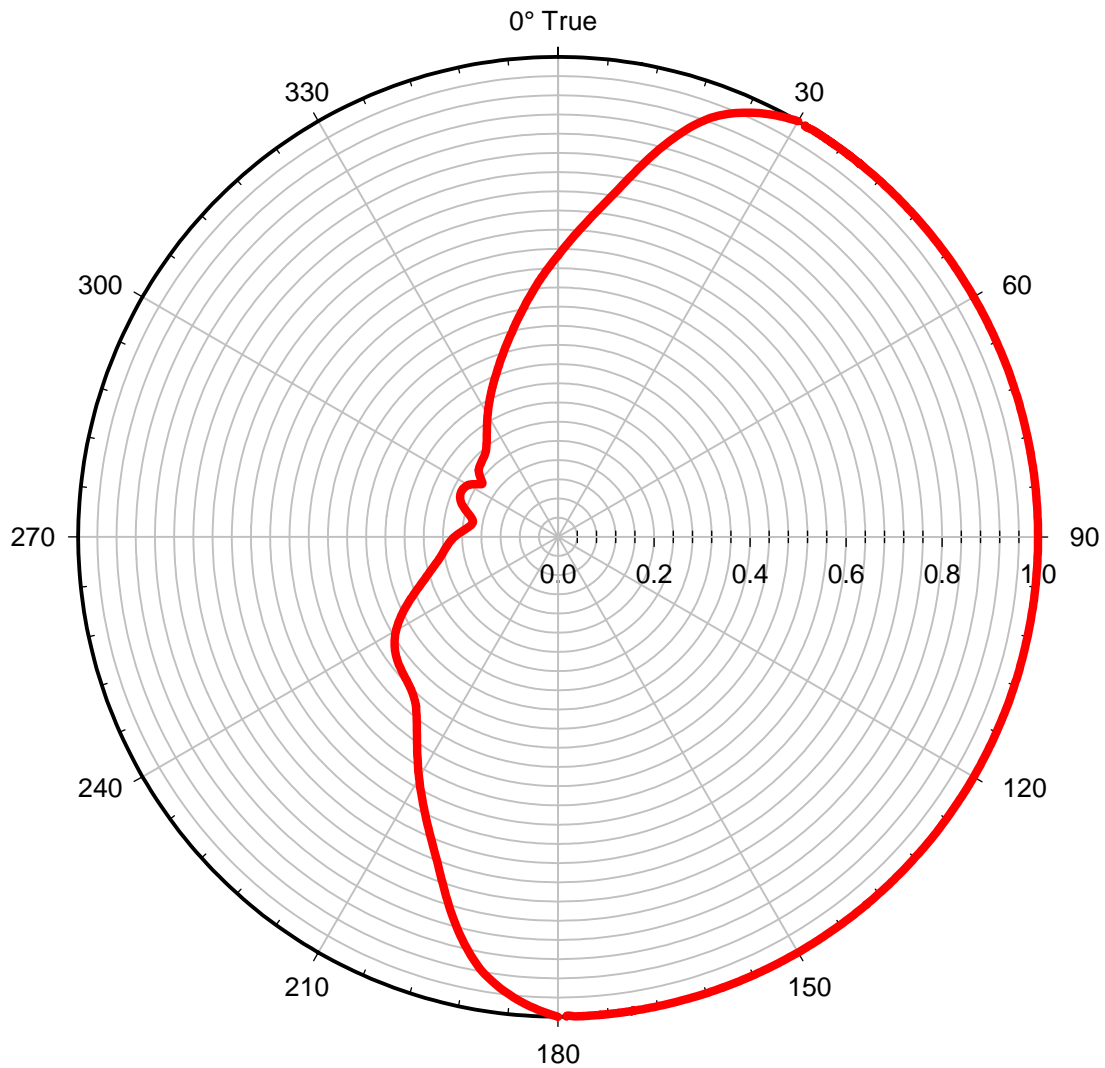
Jerome J. Manarchuck

du Treil, Lundin & Rackley, Inc.
201 Fletcher Avenue
Sarasota, FL 34237-6019
(941) 329-6000
JERRY@DLR.COM

April 29, 2004

Figure 1





HORIZONTAL PLANE RADIATION PATTERN ENVELOPE (RELATIVE FIELD)

FM STATION KOSO(FM)
PATTERSON, CA
CH 226B 2.75 KW (MAX-DA) 546 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

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Tabulation of Horizontal Relative Fields For
The Proposed Directional Envelope

Azimuth (deg. True)	Relative Field	Azimuth (deg. True)	Relative Field
0	0.586	180	1.000
10	0.738	190	0.918
20	0.929	200	0.730
30	1.000	210	0.580
40	1.000	220	0.461
50	1.000	230	0.428
60	1.000	240	0.390
70	1.000	250	0.310
80	1.000	260	0.250
90	1.000	270	0.216
100	1.000	280	0.180
110	1.000	290	0.216
120	1.000	300	0.216
130	1.000	310	0.216
140	1.000	320	0.234
150	1.000	330	0.294
160	1.000	340	0.370
170	1.000	350	0.466
Extra Bearings			
305	0.193		

Figure 3

CDBS FM SEPARATION STUDY

Job Title: Proposed KOSO-FM, Patterson, CA
Channel: 226 B

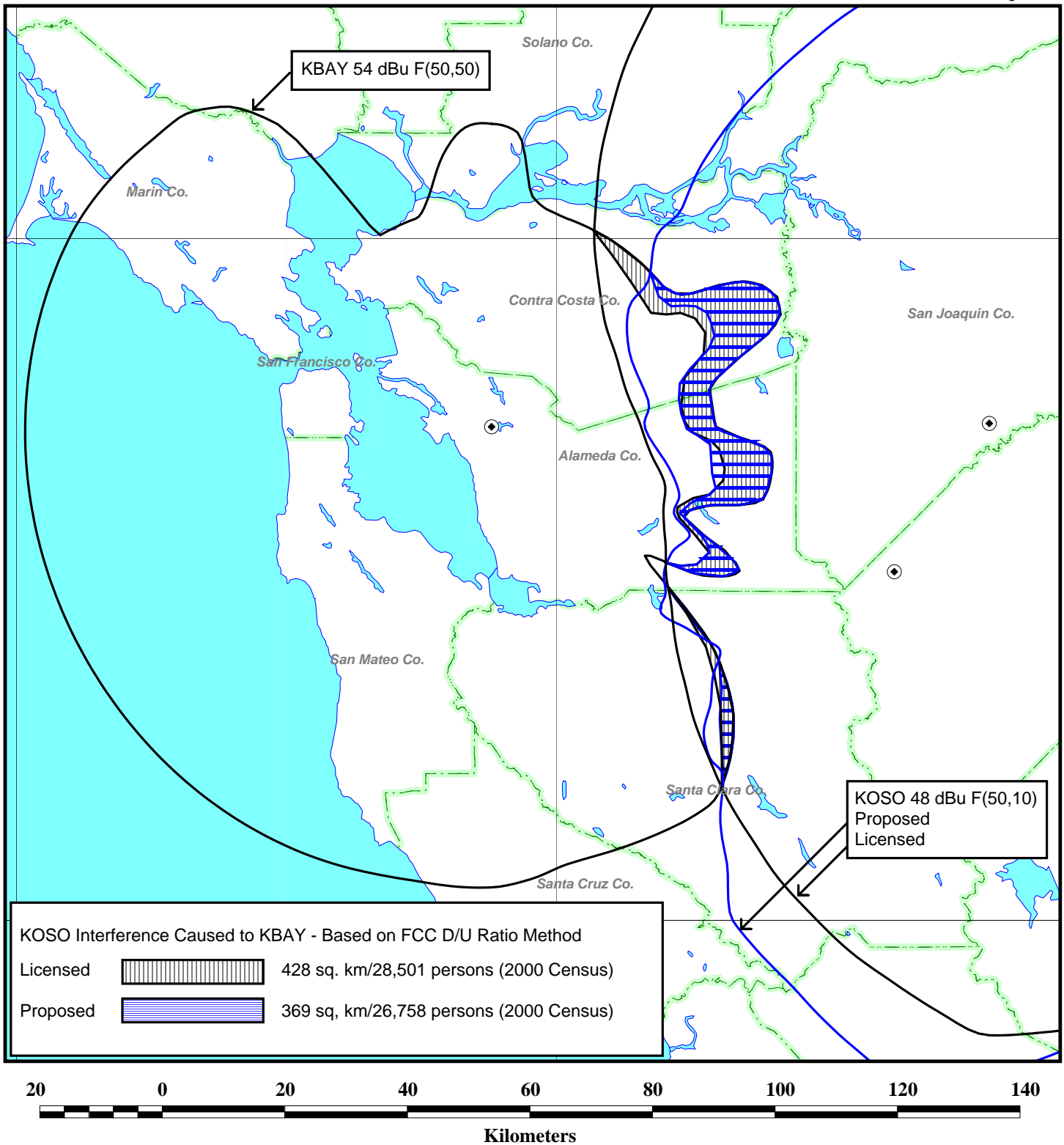
Separation Buffer: 32 km
Coordinates: 373041 1212222

Call Id	City St	File Status Num	Channel Freq	ERP HAAT	DA Id	Latitude Longitude	73 215	Bear	Dist. (km)	Req. (km) 215 207
KBRE 11707	ATWATER CA	LIC C 20040112ACU	BMLH 92.5	223 A 100	6.000 34102	Y 37-16-41 120-37-35	Y	111.3	70.99 1.99	63.0 69.0 Close
KPTI 36029	ALAMEDA CA	LIC C 19980908KD	BLH 92.7	224 A 128	3.600 128	N 37-47-54 122-24-59	N	289.5	97.44 28.44	63.0 69.0 Clear
KFGY 22879	HEALDSBURG CA	LIC C 19791211AJ	BLH 92.9	225 B 594	2.300 594	N 38-45-45 122-50-24	N	317.8	189.29 20.29	145.0 169.0 Clear
KOSO 35426	PATTERSON CA	LIC C 20030408ACH	BLH 93.1	226 B 150	50.000 43628	Y 37-43-45 121-11-49	N	32.5	28.73	
KBAY 1092	SAN FRANCISCO CA	LIC C 19880429KB	BLH 93.3	227 B 150	50.000 13775	Y 37-43-27 122-07-07	N	290.0	69.95 -99.05	145.0 169.0 Short ¹
KNTD 18858	CHOWCHILLA CA	LIC C 20021021ABH	BMLH 93.3	227 A 102	2.950 30488	N 37-13-02 120-11-56	N	107.1	109.00 -4.00	96.0 113.0 Short ²
KNTD 18858	CHOWCHILLA CA	LIC C 20031021AFU	BPH 93.3	227 A 114	4.600 114	N 36-59-14 120-12-21	N	119.1	118.76 5.76	96.0 113.0 Close
KOTR 34526	HOLLISTER CA	LIC C 20011128AAC	BMLH 93.5	228 A 700	0.110 700	N 36-45-22 121-30-06	Y	187.8	84.60 15.60	63.0 69.0 Close
KTEE 4698	FELTON CA	LIC C 19981112KN	BLH 93.7	229 A 384	0.028 384	N 37-03-43 122-07-14	Y	233.2	82.98 13.98	63.0 69.0 Close

¹ Grandfathered short-spacing pursuant to Section 73.213(a). There is no increase in total interference caused and received with KBAY (area or population). See Technical Narrative and Figures 4 and 5.

² Grandfathered short-spacing pursuant to Section 73.213(c)(1). Under that Section, KOSO would be permitted to operate with equivalent maximum Class B facilities with respect to KNTD as the distance to KNTD (109.00 km) exceeds the distance set forth in Section 73.213(c)(1) (105 km).

Figure 4

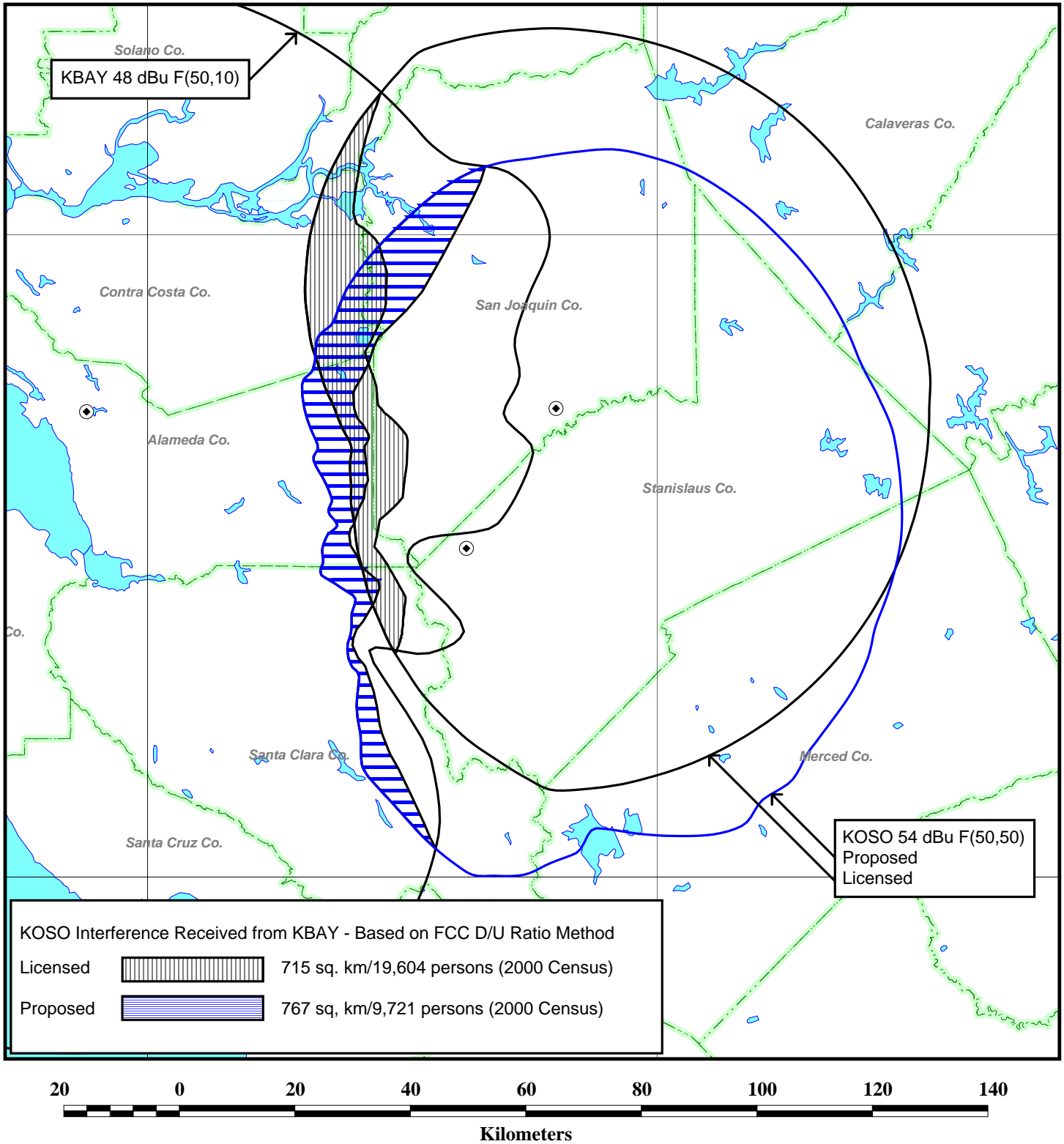


COMPLIANCE WITH SECTION 73.213(a)

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PATTERSON, CALIFORNIA
CH 226B 2.75 KW (MAX-DA) 546 M

du Treil, Lundin & Rackley, Inc. Sarasota, FL

Figure 5

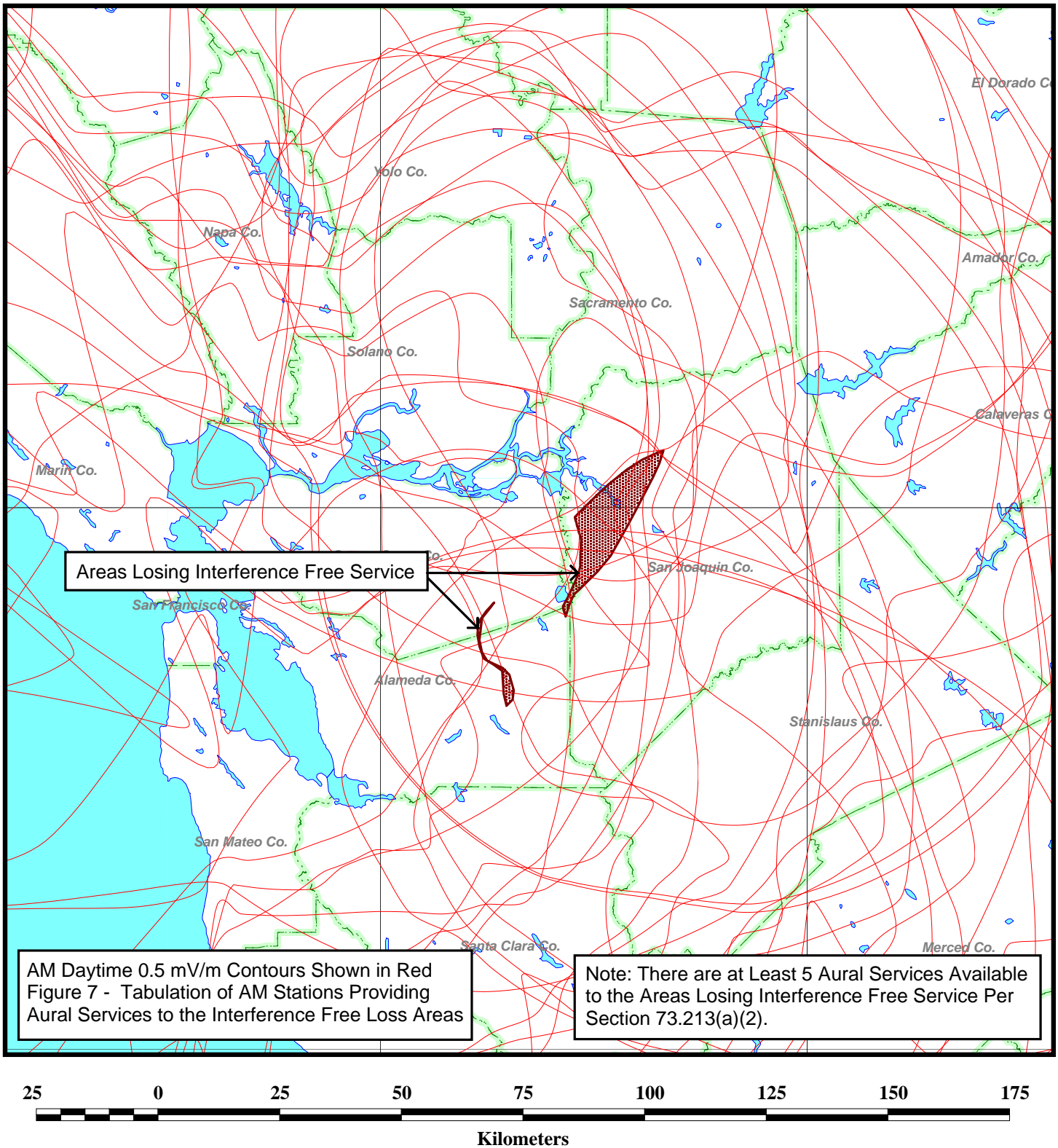


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Figure 6



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Figure 7

Tabulation of AM Stations Providing Service
To Areas Losing Interference Free Service

<u>Call Letters</u>	<u>City</u>	<u>State</u>	<u>Frequency</u>	<u>Power (kW)</u>	<u>Status</u>	<u>Service Contour</u>
KSFO	SAN FRANCISCO	CA	560	5	DAY	0.5
KFRC	SAN FRANCISCO	CA	610	5	UNLIMITED	0.5
KSTE	RANCHO CORDOVA	CA	650	21.4	DAY	0.5
KNBR	SAN FRANCISCO	CA	680	50	UNLIMITED	0.5
KCBC	RIVERBANK	CA	770	50	DAY	0.5
KGO	SAN FRANCISCO	CA	810	50	UNLIMITED	0.5
KTRB	MODESTO	CA	860	50	DAY	0.5
KNEW	OAKLAND	CA	910	5	DAY	0.5
KVIN	CERES	CA	920	0.5	DAY	0.5
KABL	OAKLAND	CA	960	5	UNLIMITED	0.5
KESP	MODESTO	CA	970	1	DAY	0.5
KATD	PITTSBURG	CA	990	5	DAY	0.5
KIQI	SAN FRANCISCO	CA	1010	10	DAY	0.5
KTCT	SAN MATEO	CA	1050	50	DAY	0.5
KSCO	SANTA CRUZ	CA	1080	10	DAY	0.5
KFAX	SAN FRANCISCO	CA	1100	50	UNLIMITED	0.5
KZSJ	SAN MARTIN	CA	1120	5	DAY	0.5
KHTK	SACRAMENTO	CA	1140	50	DAY	0.5
KLOK	SAN JOSE	CA	1170	50	DAY	0.5
KDYA	VALLEJO	CA	1190	1	DAY	0.5
KYAA	SOQUEL	CA	1200	25	DAY	0.5
KSFB	PALO ALTO	CA	1220	5	DAY	0.5
KWG	STOCKTON	CA	1230	0.9	DAY	0.5
KSQR	SACRAMENTO	CA	1240	1	UNLIMITED	0.5
KOIT	SAN FRANCISCO	CA	1260	5	DAY	0.5
KUYL	STOCKTON	CA	1280	1	DAY	0.5
KMKY	OAKLAND	CA	1310	5	UNLIMITED	0.5
KFIV	MODESTO	CA	1360	4	DAY	0.5
KZSF	SAN JOSE	CA	1370	5	UNLIMITED	0.5
KTkZ	SACRAMENTO	CA	1380	5	DAY	0.5
KLOC	TURLOCK	CA	1390	5	DAY	0.5
KVTO	BERKELEY	CA	1400	1	UNLIMITED	0.5
KSTN	STOCKTON	CA	1420	5	DAY	0.5
KVON	NAPA	CA	1440	5	DAY	0.5
KEST	SAN FRANCISCO	CA	1450	1	UNLIMITED	0.5
KIID	SACRAMENTO	CA	1470	5	DAY	0.5
KABN	CONCORD	CA	1480	0.5	UNLIMITED	0.5
KSJX	SAN JOSE	CA	1500	10	DAY	0.5
KMZT	SAN RAFAEL	CA	1510	8	DAY	0.5
KYCY	SAN FRANCISCO	CA	1550	10	DAY	0.5
KCVR	LODI	CA	1570	5	DAY	0.5
KLIV	SAN JOSE	CA	1590	5	DAY	0.5

FIELD ELEVATION PATTERN

ANT. MFG.: SHIVELY LABS

ANT. TYPE: 3 BAY 1/2WAVE

POWER GAIN 1.01 .05dB

