

**MINOR LICENSE MODIFICATION APPLICATION**  
**K212AA, Minor modification, 212D to 215D**  
**Changing to a Fill-in Translator for KXSC(FM)**

March 18, 2022

**TECHNICAL STATEMENT**

This technical statement and attached exhibits have been prepared on behalf of the UNIVERSITY OF SOUTHERN CALIFORNIA, licensee of K212AA, Los Gatos, CA (Facility ID 51716). The licensee proposes to modify the license (File no. BLFT-20080122ARL) to change frequency by two channels. To 215D and modify the antenna pattern. The coordinates of the tower are corrected as well. It will continue to operate as a fill-in translator for co-owned KXSC (FM), Facility ID 54478. The relocation is necessitated due to a new NCE Construction Permit (Lexington Hills, CA 211A) which will displace the currently licensed K212AA. The proposed changes are considered minor under 74.1233.

**Facilities Proposed**

Location (NAD83)	37° 12' 14" N Latitude, 121° 57' 2.6" W Longitude
Channel	215D (90.9MHz)
Tower Overall AGL Height-	30m
Tower ASR	N/A- Existing Tower
Proposed Antenna	Kathrein Scala CA5-FM/CP
Antenna AGL Height-	14m
Site AMSL Height-	567m
COR AMSL Height	581m
ERP	55w Directional (EXHIBIT A)

## Interference Study

ComStudy 2.2 search of channel 215 (90.9 MHz Class D) at 37-12-14 N, 121-57-02.6 W.

CALL	CITY	ST CHN CL	DIST	SEP	BRNG	CLEARANCE
KKUP-FM1	LOS GATOS	CA 218 D	0.10	0.00	270.0	-53.25 dB EXHIBIT C
KKUP	CUPERTINO	CA 218 B1	13.98	0.00	138.0	-12.16 dB EXHIBIT C
KSJS	SAN JOSE	CA 213 A	15.52	0.00	88.1	-9.16 dB EXHIBIT C
KCSM	SAN MATEO	CA 216 B1	50.09	0.00	317.4	0.21 dB EXHIBIT B
K216AX	LAUREL	CA 216 D	21.88	0.00	223.8	3.24 dB EXHIBIT B
KYKL	TRACY	CA 214 B1	49.94	0.00	37.4	6.42 dB
NCE-MXG-28	SANTA NELLA	CA 215 A	86.08	0.00	98.9	7.72 dB
NCE-APP	PLEASANTON	CA 214 A	51.86	0.00	14.1	10.60 dB
KBDG	TURLOCK	CA 215 A	101.81	0.00	69.7	10.34 dB
NCE-MXG-28	VOLTA	CA 215 B1	95.81	0.00	103.6	11.60 dB
KSQD	SANTA CRUZ	CA 214 A	24.09	0.00	202.1	12.82 dB
KAZU	PACIFIC GROVE	CA 212 B1	73.72	0.00	168.8	14.69 dB
KHDC	CHUALAR	CA 215 A	82.53	0.00	146.8	18.33 dB
K269GX	SAN JOSE	CA 269 D	21.79	0.00	52.6	21.8

### COMPLIANCE, 74.1204(a) [Contour overlap]

Exhibit B demonstrates compliance with 74.1204 contour protections to the closest pertinent facilities.

### COMPLIANCE, 74.1204(d) [3<sup>rd</sup> Adjacent Interference]

The proposed translator is located within the 60dBu contour of KKUP (218B1), collocated KKUP-FM1 (218D), and KSJS, 213A, therefore an analysis was conducted to demonstrate that there are no residences that will receive 2<sup>nd</sup> adjacent interference from the translator on 215D. That study is attached as Exhibit C.

Since KKUP-FM1 is collocated at the K212AA site, there is no location where the proposed translator on 215D could be in excess of 20dB above the KKUP-FM1 signal. The KSJS 60dBu contour, on 213A encompasses the K212AA (215D) site and places the least amount of signal between KKUP, KKUP-FM1 and KSJS, therefore, a study was undertaken to assure that the proposed 55 watt directional translator does not cause interference to any residences. As shown in Exhibit C, there are two houses where potential interference could occur. There is a house close-by the antenna between 300 and 320 degrees. Because of the antenna pattern, the antenna field is at 0.158 at 300 degrees and 0.187 at 320 degrees. As shown in Exhibit C1 and C2, there is no location at ground level where the signal from the proposed facility is more than 20dB above the signal from KSJS.

## **COMPLIANCE, 74.1201(g) [AM Fill-in], 74.1233 [Minor Change]**

Since the location of the translator is the same, the 60dBu contour clearly provides 1mV/m to some portion of the currently authorized 1mV/m service area. The proposed changes are considered minor based upon 74.1233(a). As demonstrated in Exhibit D, the proposed translator will be entirely contained within the 60dBu contour of the primary station, KXSC in accordance with 74.1201(g)

### **Environmental Exhibit**

The proposed translator facility will utilize a directional antenna located on an existing tower. The attachment of the proposed translator antenna will not alter the existing tower structure for purposes of the Nationwide Programmatic Agreement and the NHPA Section 106.

The proposed 215D facility will operate using an EPA type 2 antenna operating at 55 peak watts and 14m AGL. Based upon the FCC website "FM MODEL" the proposed antenna will generate  $7\mu\text{W}/\text{cm}^2$  which is 3.5% of the allowable MPE. There are other non-excluded facilities in the proximity of the antenna, however, because the RF emission will be less than 5% of the allowable MPE, the facility will be in compliance with FCC guidelines and is excluded from further Environmental Assessment under 47CFR 1.1306 and 1.1307 and may be considered independently of other facilities operating at the tower site.

The proposed new FM translator along with other users at the site will maintain an occupational safety policy and agrees to reduce power or cease operation during periods of maintenance to avoid potentially harmful exposure of personnel to non-ionizing RF radiation.

Respectfully Submitted

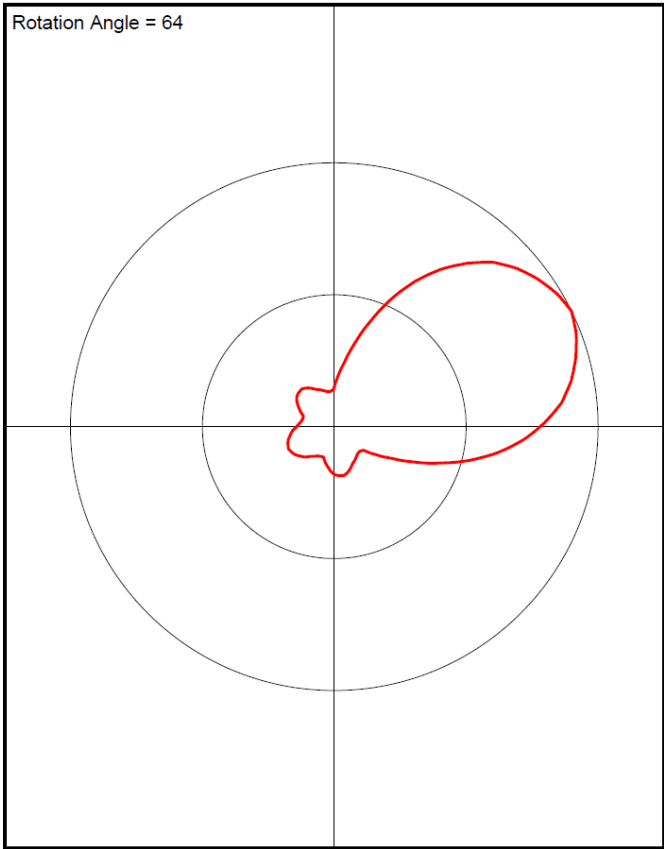


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EXHIBIT A- ANTENNA PATTERN

K212AA PROP Antenna Pattern  
Post-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	0.151
5.0	0.201
10.0	0.263
15.0	0.348
20.0	0.444
25.0	0.548
30.0	0.646
35.0	0.734
40.0	0.81
45.0	0.876
50.0	0.922
55.0	0.958
60.0	0.986
65.0	0.996
70.0	0.976
75.0	0.945
80.0	0.905
85.0	0.852
90.0	0.78
95.0	0.7
100.0	0.608
105.0	0.507
110.0	0.405
115.0	0.313
120.0	0.235
125.0	0.18
130.0	0.14
135.0	0.134
140.0	0.136
145.0	0.143
150.0	0.151
155.0	0.16
160.0	0.172
165.0	0.183
170.0	0.188
175.0	0.186
180.0	0.18
185.0	0.168
190.0	0.152
195.0	0.137
200.0	0.123
205.0	0.124
210.0	0.128
215.0	0.137
220.0	0.148
225.0	0.162
230.0	0.172
235.0	0.183
240.0	0.189
245.0	0.192
250.0	0.187
255.0	0.179
260.0	0.168
265.0	0.157
270.0	0.143
275.0	0.133
280.0	0.126
285.0	0.123
290.0	0.127
295.0	0.143
300.0	0.158
305.0	0.173
310.0	0.183
315.0	0.187



320.0	0.187
325.0	0.179
330.0	0.167
335.0	0.156
340.0	0.148
345.0	0.14
350.0	0.135
355.0	0.136

EXHIBIT B- 74.1204 Compliance Contour Protection

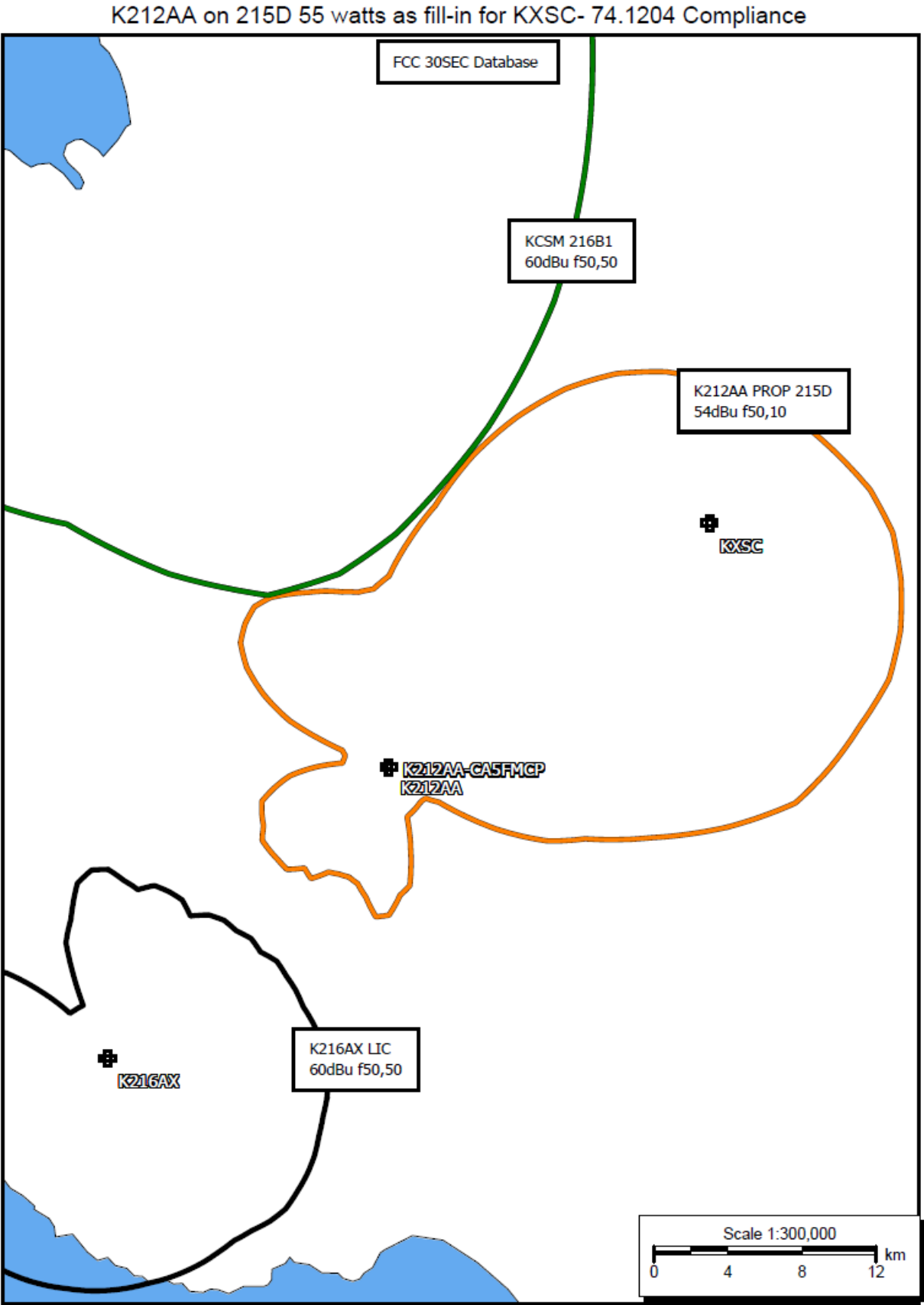
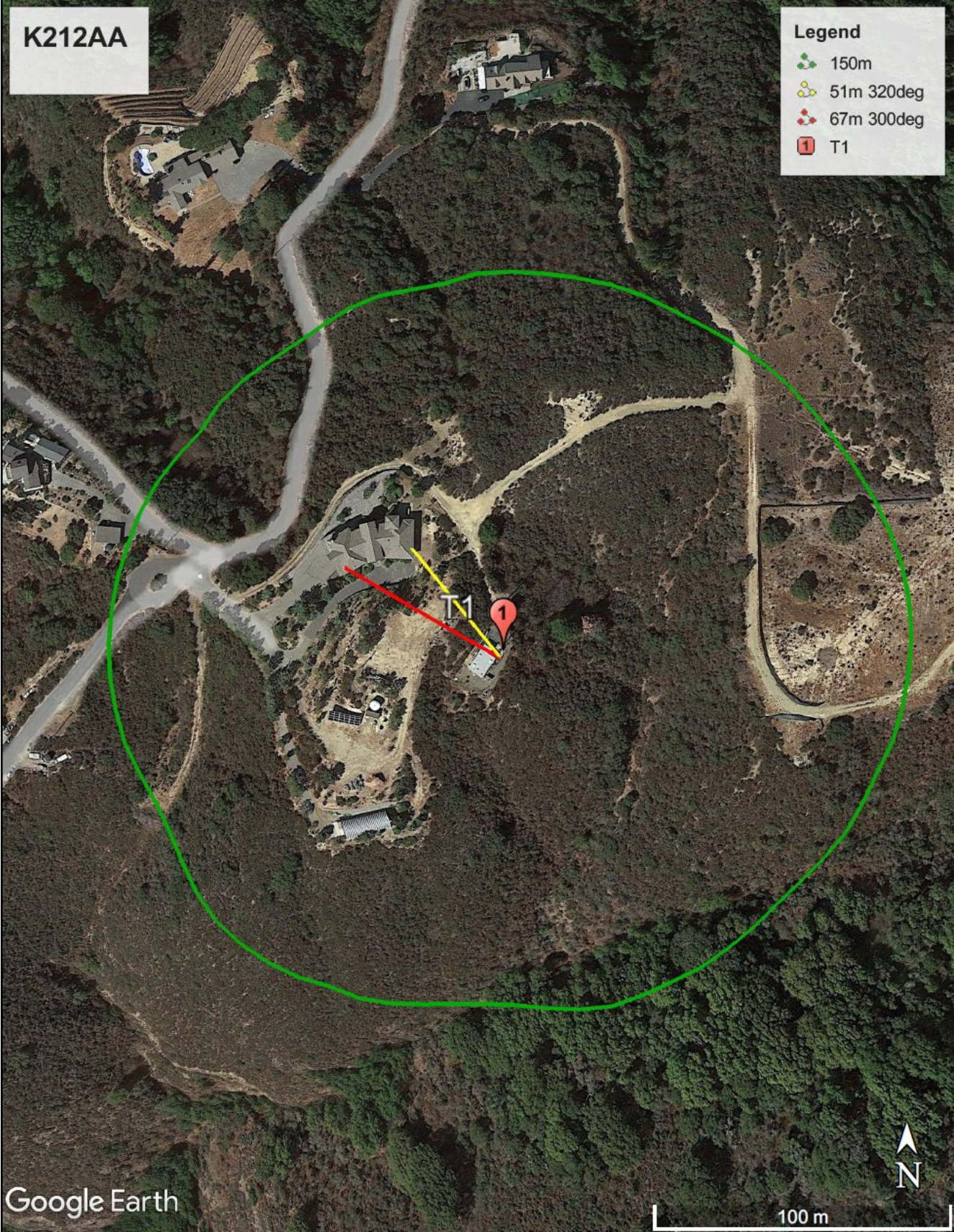




EXHIBIT C- 74.1204(d) Third Adjacent Compliance





## EXHIBIT C- 74.1204(d) 2<sup>nd</sup> Adjacent Protection to KSJS (213A) @ 300deg

K212AA Los Gatos, CA, Showing Protection to KSJS, Channel: 213

Geographic Coordinates: N. 371214 W. 1215702.6

74.1204(d) Study - Using NED 03 SEC Terrain Database

Translator or LPFM Maximum Licensed ERP = 0.055 kW, Channel: 215

Translator or LPFM Antenna Height AG = 21 meters (14m AGL + 7m terrain delta)

K212AA Antenna Azimuth Model = CA5-FM-CP-RM\_0098-MHz\_Cpol\_000dt.PAT

Vertical Model Name = CA5-FM-CP-RM\_0098-MHz\_Cpol\_000dt.PAT

Protected Station's Contour = 66.94081 dBu

Translator's or LPFM's full Interference contour 106.94081

### Review Azimuth = 300 Degrees True

#### **Horizontal Relative Field at Review Azimuth = 0.158**

Translator/LPFM ERP on the horizontal at Review Azimuth = 0.001 kW

Distance between stations = 15.5 km

Protected Station= KSJS, 1.5 kW, 396 M meters COR AMSL

Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m)
00.00	1.0	0.16	0.0079	088.7254	088.7254	021.000
05.00	0.848	0.16	0.0057	075.2391	074.9528	014.442
10.00	0.493	0.16	0.0019	043.7416	043.0771	013.404
15.00	0.108	0.16	0.0001	009.5823	009.2558	018.520
20.00	0.191	0.16	0.0003	016.9465	015.9245	015.204
25.00	0.214	0.16	0.0004	018.9429	017.1681	012.994
30.00	0.132	0.16	0.0001	011.6822	010.1171	015.159
35.00	0.01	0.16	0.0000	000.8873	000.7268	020.491
40.00	0.091	0.16	0.0001	008.0740	006.1850	015.810
45.00	0.112	0.16	0.0001	009.9372	007.0267	013.973
50.00	0.082	0.16	0.0001	007.2755	004.6766	015.427
55.00	0.036	0.16	0.0000	003.1941	001.8321	018.384
60.00	0.01	0.16	0.0000	000.8873	000.4436	020.232
65.00	0.027	0.16	0.0000	002.3956	001.0124	018.829
70.00	0.046	0.16	0.0000	004.0814	001.3959	017.165
75.00	0.064	0.16	0.0000	005.6784	001.4697	015.515
80.00	0.079	0.16	0.0000	007.0093	001.2172	014.097
85.00	0.092	0.16	0.0001	008.1627	000.7114	012.868
90.00	0.099	0.16	0.0001	008.7838	000.0000	012.216

## EXHIBIT C2- 3<sup>rd</sup> Adjacent Protection to KSJS (213A) @ 320deg

K212AA Los Gatos, CA, Showing Protection to KSJS, Channel: 213

Geographic Coordinates: N. 371214 W. 1215702.6

74.1204(d) Study - Using NED 03 SEC Terrain Database

Translator or LPFM Maximum Licensed ERP = 0.05 kW, Channel: 215

Translator or LPFM Antenna Height AG = 21 meters (14m AGL + 7m Terrain delta)

K212AA Antenna Azimuth Model = CA5-FM-CP-RM\_0098-MHz\_Cpol\_000dt.PAT

Vertical Model Name = CA5-FM-CP-RM\_0098-MHz\_Cpol\_000dt.PAT

Protected Station's Contour = 66.94081 dBu

Translator's or LPFM's full Interference contour 106.94081

### Review Azimuth = 320 Degrees True

#### **Horizontal Relative Field at Review Azimuth = 0.187**

Translator/LPFM ERP on the horizontal at Review Azimuth = 0.002 kW

Distance between stations = 15.5 km

Protected Station= KSJS, 1.5 kW, 396 M meters COR AMSL

Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m)
00.00	1.0	0.19	0.0094	096.4898	096.4898	021.000
05.00	0.848	0.19	0.0067	081.8233	081.5120	013.869
10.00	0.493	0.19	0.0023	047.5695	046.8468	012.740
15.00	0.108	0.19	0.0001	010.4209	010.0658	018.303
20.00	0.191	0.19	0.0003	018.4296	017.3181	014.697
25.00	0.214	0.19	0.0004	020.6006	018.6705	012.294
30.00	0.132	0.19	0.0002	012.7045	011.0024	014.648
35.00	0.01	0.19	0.0000	000.9649	000.7904	020.447
40.00	0.091	0.19	0.0001	008.7806	006.7263	015.356
45.00	0.112	0.19	0.0001	010.8069	007.6416	013.358
50.00	0.082	0.19	0.0001	007.9122	005.0858	014.939
55.00	0.036	0.19	0.0000	003.4736	001.9924	018.155
60.00	0.01	0.19	0.0000	000.9649	000.4824	020.164
65.00	0.027	0.19	0.0000	002.6052	001.1010	018.639
70.00	0.046	0.19	0.0000	004.4385	001.5181	016.829
75.00	0.064	0.19	0.0000	006.1753	001.5983	015.035
80.00	0.079	0.19	0.0001	007.6227	001.3237	013.493
85.00	0.092	0.19	0.0001	008.8771	000.7737	012.157
90.00	0.099	0.19	0.0001	009.5525	000.0000	011.448



Exhibit D- 74.1233 Service Compliance

