

## REQUEST FOR WAIVER OF SIGNAL DELIVERY RULE

California Lutheran University (“CLU”) hereby requests a waiver of Section 74.1231(b) of the Commission’s rules in order that FM translator K272DT, Santa Barbara, California, may receive the signal of noncommercial educational FM broadcast radio station KCLU(FM), Thousand Oaks, California, using alternative signal delivery means.

CLU is the licensee of both KCLU and K272DT. KCLU serves Ventura County, and K272DT serves the City of Santa Barbara and nearby communities in adjacent Santa Barbara County. The rule allowing noncommercial FM translators assigned to reserved channels and owned and operated by their parent stations to use any means for delivery of the primary station signal, *see Satellite and Terrestrial Microwave Feeds to Noncommercial Educational FM Translators*, 3 FCC Rcd 2196, 2198 (1988), recon. granted in part, 4 FCC Rcd 6459 (1989), does not apply to K272DT because the translator is located in the non-reserved band.

CLU has operated K272DT since January 1998 in full compliance with Rule 74.1231(b), which provides that “[a]n FM translator may be used for the purpose of retransmitting the signal of a primary FM radio broadcast station . . . the signal of which is received directly through space, converted, and suitably amplified.” The signal strength of KCLU at the K272DT transmitter site is approximately 54.5 dBuV/m, which, as explained in the Engineering Statement attached as Exhibit 1, should be more than adequate for rebroadcast.

As further explained in the Engineering Statement, however, the signal of KCLU at the K272DT transmitter site has been increasingly subject to anomalous interference from several sources:

- inversion layer or ducting interference from co-channel KSDS(FM), San Diego, a result of unique atmospheric conditions along the Southern California coastline;
- spurious emissions (probably intermodulation mixes) from other stations that transmit from the same site as K272DT; and
- IBOC sideband emissions from second adjacent channel KFAC(FM), Santa Barbara, which also broadcasts from the same site as K272DT.

Over the years, CLU has found “fixes” for many of these interference problems, but CLU cannot find a solution for the inversion layer or ducting interference from co-channel KSDS that occurs with relative frequency because of the location of K272DT on the Pacific coast. Additionally, to date, CLU has not been able to find a solution to eliminate the interference that results when KFAC broadcasts in IBOC mode. KFAC has ceased IBOC transmissions because of the problem, but ultimately it will need to resume IBOC operation. Therefore, unless the Commission waives the requirements of Section 74.1231(d) to permit K272DT to receive KCLU’s signal by alternative delivery means, K272DT will be forced off the air.

The Commission may waive its rules when (1) the underlying purpose of the rule would not be served or would be frustrated by application to the instant case, and a grant of the requested waiver would be in the public interest, or (2) in view of unique or unusual circumstances of the case, application of the rule would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative. *Nextwave Personal Communications, Inc.*, FCC 04-26 at ¶ 44 (released Feb. 12, 2004).

The Commission's grant of the requested waiver for K272DT would be consistent with the purpose of the signal delivery rule. The Commission has explained the purpose of the rule as follows:

We continue to believe that, to the extent that translator service is desirable beyond a station's predicted contour, the over-the-air signal will generally be suitable for rebroadcast . . . . Moreover, we believe that the signal delivery provision [of Section 74.1231(b)] will eliminate disincentives for service by full-service radio broadcast stations in instances where sufficient community interest exists for additional services, but where the existence of "other area" translators financed by primary stations would work to limit the economic viability of such stations.

*FM Translator Stations*, 8 FCC Rcd 5093, 5098 (1993) (omitted language concerns "white-area" situations that are not relevant to this waiver request). *See also Peninsula Communications, Inc.*, 13 FCC Rcd 23992, 23998 (1998) (the purpose of the signal delivery rule is "to promote incentives for full service FM and AM broadcast station development and prevent some stations from being forced to compete economically with translators").

Grant of the requested waiver is consistent with this purpose. **First**, as indicated above, K272DT is located at a site where historically the received signal of KCLU has been suitable for rebroadcast and where based on signal strength alone it remains suitable for rebroadcast. The problem is not signal strength but anomalous interference from unique atmosphere conditions, spurious emissions and a co-located IBOC facility. Thus, operation of the K272DT is consistent with the general purpose of the signal delivery rule not to extend signals too far beyond the primary station service area. **Second**, grant of the requested waiver will not create a disincentive for service by full-service broadcast stations. The Santa Barbara Metro is home to 18 full-power radio stations. As demonstrated in the spacing studies attached at Exhibit 2, there are no remaining unused fully spaced channels that could be allotted at either of the two broadcast transmitter sites in the area. Thus, the existence of K272DT will not "work to limit the economic viability" of any new station. **Third**, K272DT rebroadcasts a noncommercial educational service and does not therefore compete economically with full power stations in Santa Barbara. The Commission has "long recognized that NCE-FM and commercial licensees participate in fundamentally different broadcast services." *FM Translator Stations*, 8 FCC Rcd at 5098.

Grant of the requested waiver will also serve the public interest. Because K272DT extends KCLU's signal into Santa Barbara, KCLU broadcast news covering issues, events and people in Santa Barbara, as well as Ventura County. In fact, KCLU/K272DT is the only broadcast outlet providing long-form coverage of local news in Santa Barbara on a daily basis. Santa Barbara will lose this unique local service if K272DT is forced off the air because of the signal delivery rule.

Accordingly, CLU respectfully requests that the Commission waive Section 74.1231(b) of the Rules to permit K272DT to receive the signal of commonly owned noncommercial educational FM broadcast station KCLU(FM), Thousand Oaks, California, using alternative delivery means.

**EXHIBIT 1**

**ENGINEERING STATEMENT**

## ENGINEERING STATEMENT

In the instant application, California Lutheran University (“CLU”), licensee of FM translator K272DT, Santa Barbara, CA and non-commercial FM station KCLU, Thousand Oaks, CA respectfully requests a waiver of 74.1231(b) to allow K272DT to be fed via an alternate signal delivery method rather than from direct off-air pickup at the translator site; no other changes in the translator’s operation are being proposed at this time. CLU requests a waiver to allow signal delivery by alternate means because the signal of the primary station, KCLU, is subject to anomalous interference at the receive site notwithstanding that KCLU's signal measures approximately 54.5 dBuV/m (0.53 mV/m) at that location and is otherwise suitable for rebroadcast.

### **Background**

FM translator station K272DT, Santa Barbara was issued its Construction Permit on October 15, 1997. The station was immediately constructed and went on the air in January of 1998, with its License granted on April 24, 1998. K272DT operates with a non-directional, circularly polarized ERP of 4 watts and retransmits the signal/programming of commonly owned non-commercial FM station KCLU, 88.3 MHz, Thousand Oaks.

K272DT operates on channel 272 (102.3 MHz), which is in the non-reserved band of FM channels, as no channel in the reserved band of channels 201-220 (88.1–91.9 MHz) could be found which would not cause predicted interference to either existing FM Broadcast or FM Broadcast Translator stations.<sup>1</sup> K272DT is not a “Fill-in Translator”, as it operates outside of the 1 mV/m contour of KCLU (see Figure 1).<sup>2</sup> Consequently, K272DT does not qualify to receive its input signal via any other method except via direct, off-air reception at the transmitter site.

Under normal receiving conditions, K272DT receives an adequate RF signal level from KCLU to produce a broadcast quality retransmission of KCLU. The received signal level from KCLU is approximately –53 dBmW (613 uV into 75 ohms), as measured at the receiver input terminals.<sup>3</sup>

---

<sup>1</sup> In searching for a frequency in the reserved group of channels, at least one channel was found that would have met the traditional interference criteria specified in 74.1204. However, listening tests in the Santa Barbara area revealed that adjacent market FM stations were easily receivable on these channels. 74.1203(a)(3) prohibits a new translator station from causing interference to the regularly used signals of existing stations, so these channels were not pursued.

<sup>2</sup> At the time K272DT was first constructed, KCLU was operating as a Class A station with a directional ERP of 1.25 kW. KCLU has since upgraded its facilities and is now a Class B1 station operating with a directional ERP of 3.2 kW.

<sup>3</sup> After factoring in the frequency, receive antenna gain and transmission line loss, this equates to a free-space field strength of 54.5 dBuV/m.

### **Specifics of Received Interference**

Since its first year of operation, K272DT has received interference on its input from non-commercial FM station KSDS, San Diego, which operates co-channel to KCLU on channel 202 (88.3 MHz). This interference is not calculated to occur using traditional analysis, but rather occurs due to the unique atmospheric conditions that occur along the Southern California coastline. This inversion layer/ducting occurs most often during the summer and fall seasons, but can occur sporadically at other times of the year as well.

The interference manifests itself primarily in two different forms. First, as the Desired/Undesired ratio falls, noise/distortion in the desired/primary (KCLU) station's audio occurs. Finally, when the D/U ratio is low enough, the signal of KSDS wins out over KCLU and KSDS is then being rebroadcast on K272DT due to the FM capture effect. This battle of competing signals can go on for hours until the atmospheric conditions stabilize and return to normal.

Various attempts on the technical front have been made to combat this interference. Initially, the K272DT directional receiving antenna was horizontally polarized. Polarizing it vertically seemed to improve (reduce) the occurrence of interference. However, KSDS has since begun broadcasting using vertical-only polarization<sup>4</sup> in efforts to increase its ERP and minimize interference to TV channel 6, XETV, Tijuana. The interference to K272DT worsened when KSDS made the polarization and power change, so CLU was forced to return K272DT's receiving antenna back to horizontal polarity.

As viewed from K272DT's transmitter location, the angular difference between KCLU and KSDS is only 16° (see Figure 2). The KSDS signal travels to the K272DT transmitter site mostly over water while the KCLU signal travels mostly over mountainous terrain. K272DT uses a Scala HDCA-5FM directional receiving antenna to receive its primary station, KCLU. The directional characteristics of the Scala HDCA-5FM antenna can be seen in Figure 3. Due to the wavelengths involved, a significantly narrower beam-width receiving antenna would be impractical to design or construct. Moreover, due to the atmospheric nature of the interference, the precise angle and polarity at which the interfering signal appears to K272DT's receiving antenna is not predictable.

Multiple receiving locations on the property along with various antenna combinations have been tried, but due to the unpredictable atmospheric nature of the interference, a location that receives KCLU well in the morning may not be useable at all during the evening. In fact, during one late night experiment, the undersigned engineer was listening to KCLU in his parked car (vertically polarized) while the translator was receiving and rebroadcasting KSDS from its horizontally polarized receiving antenna that was located less than 15 meters away.

It was hoped that the 4 dB power increase of KCLU in 2002<sup>5</sup> would have eliminated the interference by simply increasing the D/U ratio, but it has not.

---

<sup>4</sup> See BSTA-19991104AAS, BPED-20020219ABE and BLED-20020405ABG.

<sup>5</sup> See BPED-20010119AFD and BLED-20020307ABN.

### **Other Factors**

The Gibraltar Peak electronics site, where K272DT is located, is an excellent transmitter site with an elevation of approximately 665m AMSL and with good line-of-sight into Santa Barbara and the neighboring coastline communities. However, Gibraltar Peak is by no means an ideal (“RF Quiet”) receiving site; in fact, the RF noise floor of this site is quite high due to the fact that this is the home to 7 full power FM Broadcast stations, 4 FM Translator stations, 11 Low Power TV stations, 1 AM Broadcast station as well as numerous land-mobile two-way, paging, cellular and other wireless service providers.<sup>6</sup> Indeed, on more than one occasion, the undersigned engineer was asked to investigate listener complaints of random noise in the audio only to find spurious emissions, presumably intermodulation mixes, being received within KCLU’s passband; and as the Commission knows, low level intermodulation mixes are extremely difficult to find the source of, especially at a multi-user site such as this one.<sup>7</sup>

The K272DT receiving antenna is located approximately 100 meters from 2<sup>nd</sup> adjacent KFAC, 88.7 MHz, Santa Barbara. KFAC operates with a non-directional ERP of 12 kW. To overcome the receiver overload and audio degradation that would be caused by this strong 2<sup>nd</sup> adjacent carrier, CLU installed a dual-cavity bandpass filter along with a single cavity notch filter to attenuate the undesired frequencies, both in-band and out-of-band, to manageable levels. The effectiveness of these filters can be seen in Figures 4A and 4B. This combination of filters has yielded acceptable results since K272DT’s debut in 1998.

Recently, however, KFAC changed out its analog-only transmitter and installed a transmitter capable of simultaneous analog and IBOC digital transmissions. When KFAC turned on the IBOC digital carrier(s), the results were disastrous relative to receiving KCLU, 88.3 MHz, at the site. When notified, KFAC fully cooperated and turned off the IBOC transmissions while the matter was investigated.

With regard to FM transmission system requirements, 73.317(c) states: *“Any emission appearing on a frequency removed from the carrier by more than 240 kHz and up to and including 600 kHz must be attenuated at least 35 dB below the level of the unmodulated carrier.”* Modern day analog FM transmitters can easily comply with this requirement, but a station running IBOC must also fit within this emission mask. A measurement of KFAC’s emissions (while in IBOC mode) showed complete compliance with this rule (see Figure 5A and 5B), yet because of the close proximity to K272DT’s receiving system, the KFAC IBOC sidebands, which appear as co-channel and first adjacent carriers relative to KCLU, approached the level of KCLU’s incoming carrier amplitude.

---

<sup>6</sup> Additionally, due to local ordinances, all of the transmitting and receiving antennas are relatively low to the ground, mounted either on the single story buildings, short poles or short towers.

<sup>7</sup> Indeed, note the spurious emission captured during a recent site visit at approximately 88.425 MHz in Figure 4.

KFAC continues to seek technical solutions to mitigate the problem. However, any additional noise under (or on top of) the already fragile incoming carrier of KCLU will further impair the audio quality for the listeners of K272DT.

**Conclusion**

For the reasons mentioned above, CLU requests a waiver of 74.1231(b) to allow K272DT to be fed via alternate signal delivery means rather than from direct off-air pickup at the translator site in order to provide a more reliable and higher quality of service that the listening public expects and demands in this day and age.

A handwritten signature in blue ink, reading "Timothy P. Schultz", is written over a horizontal line.

Timothy P. Schultz, CPBE

7007 Arizona Avenue  
Los Angeles, CA 90045



Figure 1



Predicted 1 mV/m Coverage Contours  
of  
KCLU and K272DT



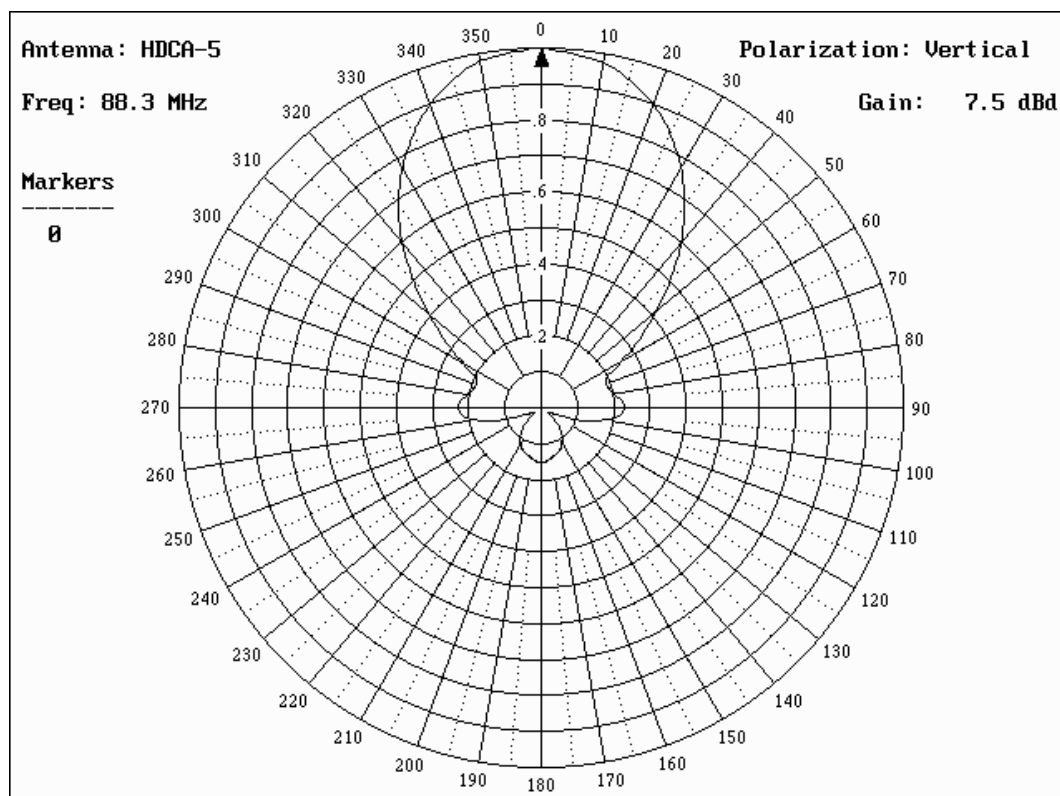
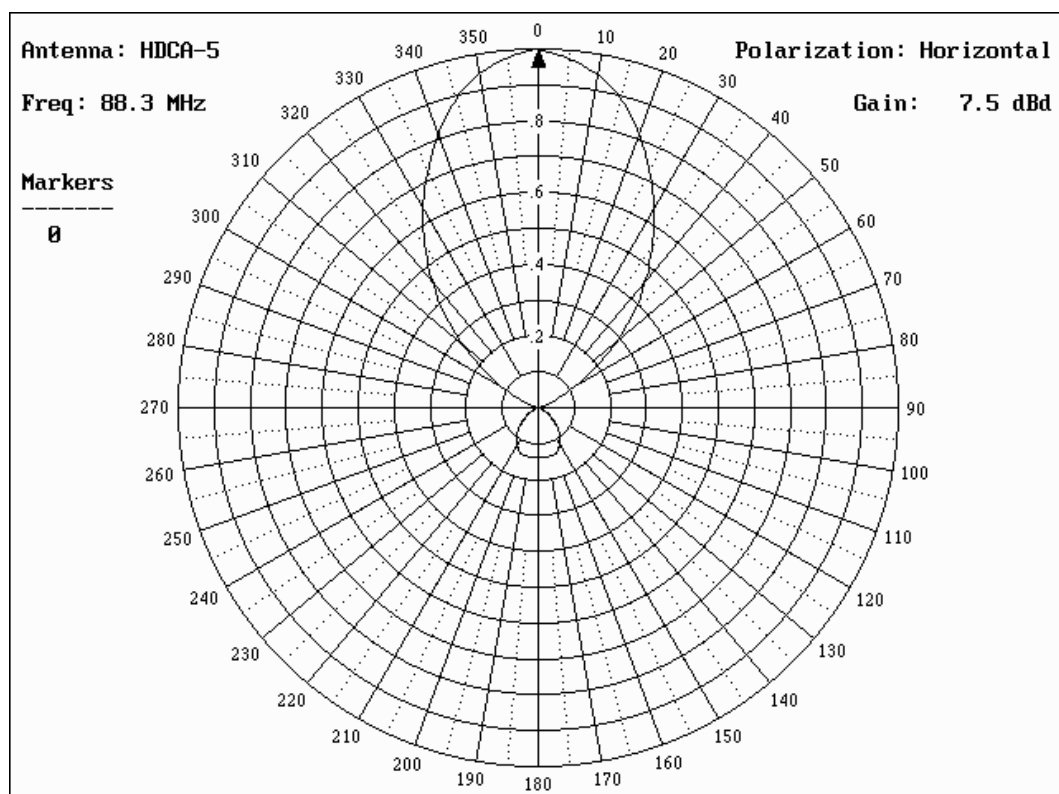
Figure 2



Relative Receiving Angle Difference of  
KCLU, Thousand Oaks  
VS  
KSDS, San Diego



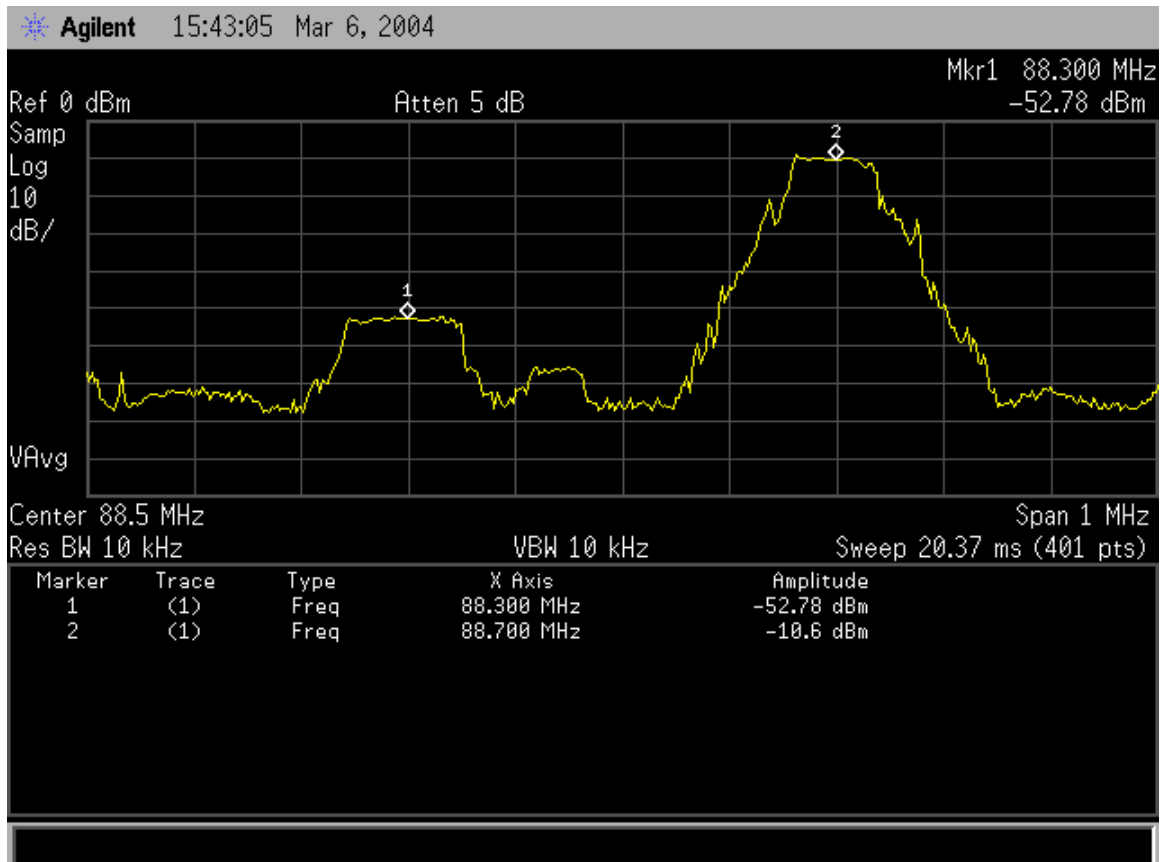
**FIGURE 3**



## K272DT Receive Antenna

(SCALA, HDCA-5FM)

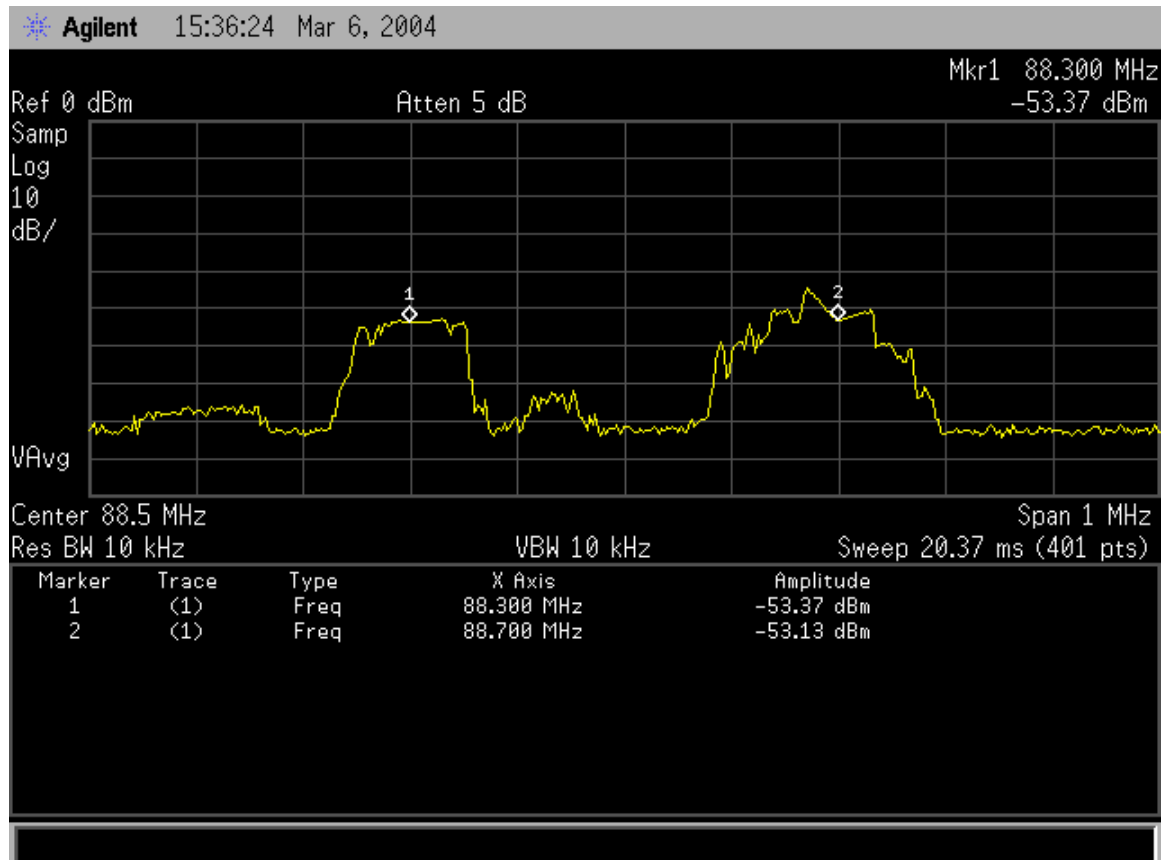
Figure 4A



## K272DT Receiver Input (No Filter)

Spectrum plot captured using maximum hold time of approximately 10 seconds.

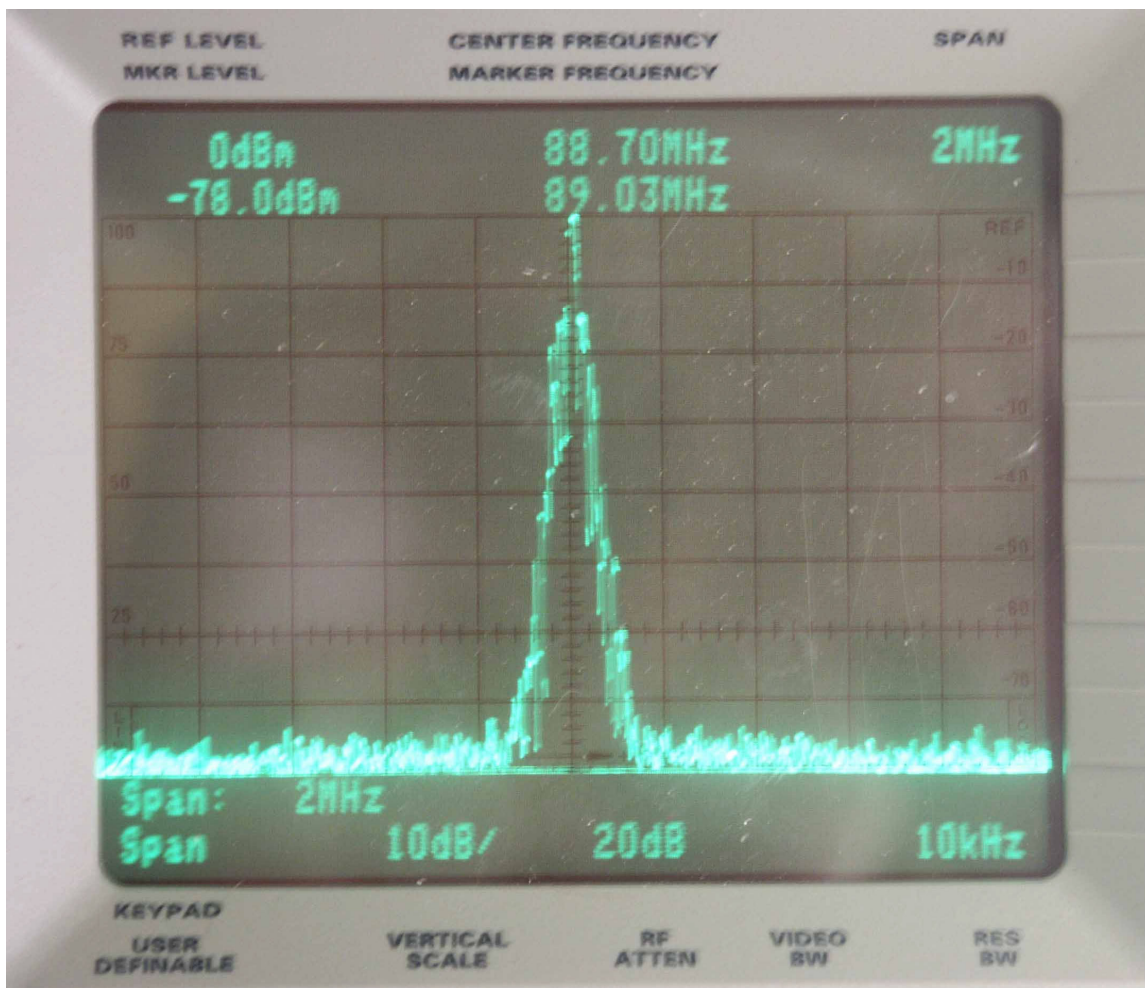
Figure 4B



## K272DT Receiver Input (With Filter)

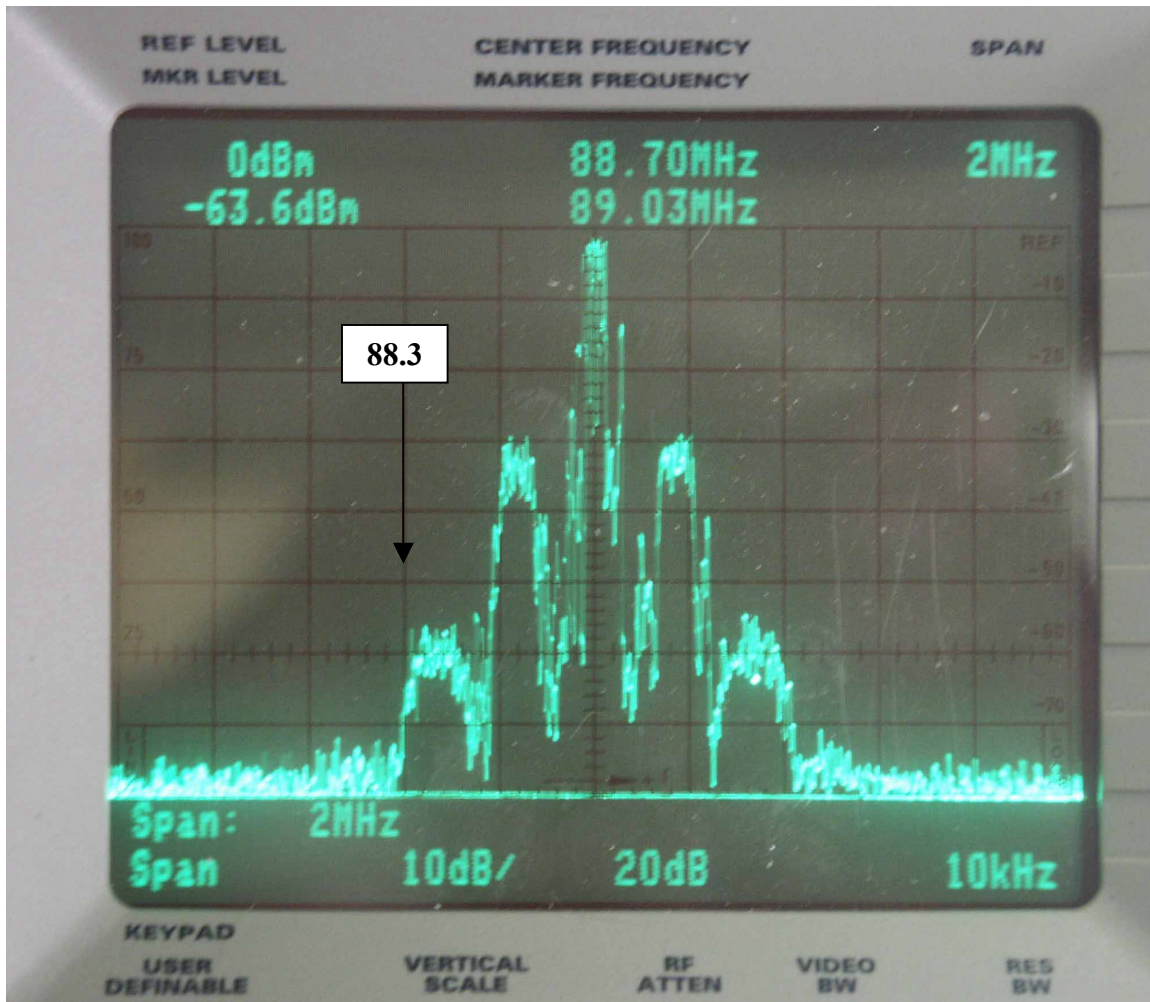
Spectrum plot captured using maximum hold time of approximately 10 seconds.

Figure 5A



KFAC without IBOC

Figure 5B



KFAC with IBOC

## **EXHIBIT 2**

### **ALLOCATION STUDIES**



**CLASS A SPACING STUDY - GIBRALTAR PEAK TRANSMITTER SITE**  
**(N34-27-55/W119-40-37)**

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
201	88.1	SANTA BARBARA	KFAC	N342755	W1194037	LIC	B	0.0	Protect 1 mV/m Contour	Inside Protected 1 mV/m Contour
202	88.3									
203	88.5									
204	88.7									
205	88.9									
206	89.1									
207	89.3	SANTA BARBARA	KSBX	N342757	W1194037	LIC	A	0.0	Protect 1 mV/m Contour	Inside Protected 1 mV/m Contour
208	89.5									
209	89.7									
210	89.9									
211	90.1	CAMARILLO	KMRO	N342447	W1191110	LIC	B	45.5	Protect 1 mV/m Contour	Inside Protected 1 mV/m Contour
212	90.3									
213	90.5									
214	90.7									
215	90.9	THOUSAND OAKS	KCPB	N342447	W1191110	LIC	B	45.5	Protect 1 mV/m Contour	Inside Protected 1 mV/m Contour
216	91.1									
217	91.3									
218	91.5	SANTA BARBARA	KCSB-FM	N343131	W1195729	LIC	B	26.7	Protect 1 mV/m Contour	Inside Protected 1 mV/m Contour
219	91.7									
220	91.9								105	-78.3
221	92.1								69	-42.3
222	92.3									
223	92.5	MONTECITO	KJEE	N342757	W1194037	LIC	A	0.0	27	-27.0
224	92.7								64	-64.0
225	92.9								105	-105.0
226	93.1								64	-64.0
227	93.3								27	-27.0

**CLASS A SPACING STUDY - GIBRALTAR PEAK TRANSMITTER SITE**  
**(N34-27-55/W119-40-37)**

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
228	93.5								105	-104.9
229	93.7	SANTA BARBARA	KDB	N342758	W1194037	LIC	B	0.1	163	-162.9
230	93.9								105	-104.9
231	94.1								69	-68.9
232	94.3								105	-78.4
233	94.5	ELLWOOD	KSPE-FM	N343132	W1195728	LIC	B	26.6	163	-136.4
234	94.7								105	-78.4
235	94.9								105	-36.0
236	95.1	VENTURA	KBBY-FM	N340647	W1190334	LIC	B	69.0	163	-94.0
237	95.3								105	-36.0
238	95.5								48	-14.2
239	95.7								88	-54.2
240	95.9	CAMARILLO	KOCP	N342055	W1192013	LIC	B1	33.8	138	-104.2
241	96.1								88	-54.2
242	96.3	GOLETA	KVRY-LP	N342650	W1195328	CP	L1	19.8	67	-47.2
243	96.5								64	-18.2
244	96.7	SOLVANG	KSYP	N343630	W1200842	LIC	A	45.8	105	-59.2
245	96.9								64	-18.2
246	97.1								69	-42.3
247	97.3								105	-78.3
248	97.5	SANTA BARBARA	KMGQ	N343131	W1195729	LIC	B	26.7	163	-136.3
249	97.7								105	-78.3
250	97.9								69	-42.3
251	98.1								88	-53.8
252	98.3	OXNARD	KDAR	N342055	W1191957	LIC	B1	34.2	138	-103.8
253	98.5								88	-53.8
254	98.7								48	-13.8

**CLASS A SPACING STUDY - GIBRALTAR PEAK TRANSMITTER SITE**  
**(N34-27-55/W119-40-37)**

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
255	98.9								105	-37.1
256	99.1	SANTA MARIA	KXFM	N345437	W1201108	LIC	B	67.9	163	-95.1
257	99.3								105	-37.1
258	99.5								69	-68.4
259	99.7								105	-104.4
260	99.9	SANTA BARBARA	KTYD	N342815	W1194033	LIC	B	0.6	163	-162.4
261	100.1								105	-104.4
262	100.3								69	-68.4
263	100.5								105	-70.8
264	100.7	VENTURA	KHAY	N342055	W1191957	LIC	B	34.2	163	-128.8
265	100.9								105	-70.8
266	101.1								69	-34.8
267	101.3								27	-27.0
268	101.5								64	-64.0
269	101.7	CARPINTERIA	KSBL	N342755	W1194037	LIC	A	0.0	105	-105.0
270	101.9								64	-64.0
271	102.1								27	-27.0
272	102.3								105	-26.9
273	102.5	SANTA MARIA	KSNI-FM	N345008	W1202406	LIC	B	78.1	163	-84.9
274	102.7								105	-26.9
275	102.9								69	-42.3
276	103.1								105	-78.3
277	103.3	SANTA BARBARA	KRUZ	N343129	W1195732	CP	B	26.7	163	-136.3
278	103.5								105	-78.3
279	103.7								69	-42.3
279	103.7	EL RIO	KMLA	N341810	W1191341	LIC	A	45.1	105	-59.9

**CLASS A SPACING STUDY - GIBRALTAR PEAK TRANSMITTER SITE**  
**(N34-27-55/W119-40-37)**

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
280	103.9								88	-12.6
281	104.1	LOMPOC	KBOX	N344350	W1202601	LIC	B1	75.4	138	-62.6
282	104.3								88	-12.6
283	104.5								105	-71.2
284	104.7	OXNARD	KCAQ	N342055	W1192013	LIC	B	33.8	163	-129.2
285	104.9								105	-71.2
286	105.1	LOMPOC	KWSZ	N344128	W1201558	LIC	A	59.6	105	-45.4
287	105.3								64	-30.2
288	105.5	OJAI	KFYV	N342055	W1192013	LIC	A	33.8	105	-71.2
289	105.7								64	-30.2
290	105.9	SANTA YNEZ	KRAZ	N343132	W1195729	LIC	A	26.7	105	-78.3
291	106.1								64	-64.0
292	106.3	GOLETA	KKSB	N342757	W1194037	LIC	A	0.0	105	-105.0
293	106.5								64	-64.0
294	106.7	LOMPOC	KSMY	N344431	W1202646	LIC	B1	76.9	138	-61.1
295	106.9								64	-29.8
296	107.1	VENTURA	KSSC	N342055	W1191957	LIC	A	34.2	105	-70.8
297	107.3								64	-29.8
298	107.5								88	-71.7
299	107.7	SANTA BARBARA	KIST-FM	N343010	W1195056	LIC	B1	16.3	138	-121.7
300	107.9								88	-71.7

**CLASS A SPACING STUDY - BROADCAST PEAK TRANSMITTER SITE**  
(N34-31-31/W119-57-29)

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
201	88.1	LOMPOC	980414MD	N343438	W1202846	CP	B	48.2	Protect 1 mV/m	Inside Protected
202	88.3								Contour	1 mV/m Contour
203	88.5									
204	88.7	SANTA BARBARA	KFAC	N342755	W1194037	LIC	B	26.7	Protect 1 mV/m	Overlapping 1 mV/m
205	88.9								Contour	and Interfering
206	89.1									Contours over City of
										License
207	89.3									
									Protect 1 mV/m	Overlapping 1 mV/m
									Contour	Contours over City of
208	89.5	SANTA BARBARA	KSBX	N342757	W1194037	LIC	A	26.6		License
209	89.7	SANTA MARIA	KHFR	N345437	W1201108	CP	B	47.5	Protect 1 mV/m	Inside Interfering
210	89.9								Contour	Contour
211	90.1									
212	90.3	CAMARILLO	KMRO	N342447	W1191110	LIC	B	72.0	Protect 1 mV/m	Overlapping 1 mV/m
214	90.7								Contour	Contours over City of
										License
215	90.9									
									Protect 1 mV/m	Overlapping 1 mV/m
									Contour	Contours over City of
216	91.1	THOUSAND OAKS	KCPB	N342447	W1191110	LIC	B	72.0		License
217	91.3									
218	91.5									
219	91.7								Protect 1 mV/m	Inside Protected
220	91.9	SANTA BARBARA	KCSB-FM	N343131	W1195729	LIC	B	0.0	Contour	1 mV/m Contour
221	92.1								105	-105.0
222	92.3								69	-69.0
223	92.5								69	-69.0
224	92.7								64	-37.4
225	92.9	MONTECITO	KJEE	N342757	W1194037	LIC	A	26.6	105	-78.4
226	93.1								64	-37.4

**CLASS A SPACING STUDY - BROADCAST PEAK TRANSMITTER SITE**  
**(N34-31-31/W119-57-29)**

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
227	93.3	SANTA BARBARA	KDB	N342758	W1194037	LIC	B	26.6	69	-42.4
228	93.5								105	-78.4
229	93.7								163	-136.4
230	93.9								105	-78.4
231	94.1								69	-42.4
232	94.3	ELLWOOD	KSPE-FM	N343132	W1195728	LIC	B	0.0	105	-105.0
233	94.5								163	-163.0
234	94.7								105	-105.0
235	94.9	VENTURA	KBBY-FM	N340647	W1190334	LIC	B	94.5	105	-10.5
236	95.1								163	-68.5
237	95.3								105	-10.5
238	95.5	ORCUTT	KPAT	N344420	W1202641	LIC	B1	50.5	88	-37.5
239	95.7								138	-87.5
240	95.9	CAMARILLO	KOCF	N342055	W1192013	LIC	B1	60.4	138	-77.6
241	96.1								88	-27.6
242	96.3	GOLETA	KVRY-LP	N342650	W1195328	CP	L1	10.6	67	-56.4
243	96.5	SOLVANG	KSYV	N343630	W1200842	LIC	A	19.5	64	-44.5
244	96.7								105	-85.5
245	96.9								64	-44.5
246	97.1	SANTA BARBARA	KMGQ	N343131	W1195729	LIC	B	0.0	69	-69.0
247	97.3								105	-105.0
248	97.5								163	-163.0
249	97.7								105	-105.0
250	97.9								69	-69.0
251	98.1	OXNARD	KDAR	N342055	W1191957	LIC	B1	60.7	88	-27.3
252	98.3								138	-77.3
253	98.5								88	-27.3

**CLASS A SPACING STUDY - BROADCAST PEAK TRANSMITTER SITE**  
**(N34-31-31/W119-57-29)**

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
254	98.7	SANTA MARIA	KXFM	N345437	W1201108	LIC	B	47.5	69	-21.5
255	98.9								105	-57.5
256	99.1								163	-115.5
257	99.3								105	-57.5
258	99.5	SANTA BARBARA	KTYD	N342815	W1194033	LIC	B	26.6	69	-42.4
259	99.7								105	-78.4
260	99.9								163	-136.4
261	100.1								105	-78.4
262	100.3								69	-42.4
263	100.5	VENTURA	KHAY	N342055	W1191957	LIC	B	60.7	105	-44.3
264	100.7								163	-102.3
265	100.9								105	-44.3
266	101.1								69	-8.3
267	101.3	LOS OSOS-BAYWOOD PARK	KSTT-FM	N352137	W1203918	LIC	B	112.4	163	-50.6
268	101.5	CARPINTERIA	KSBL	N342755	W1194037	LIC	A	26.7	64	-37.3
269	101.7								105	-78.3
270	101.9								64	-37.3
271	102.1	SANTA MARIA	KSNI-FM	N345008	W1202406	LIC	B	53.3	69	-15.7
272	102.3								105	-51.7
273	102.5								163	-109.7
274	102.7								105	-51.7
275	102.9	SANTA BARBARA	KRUZ	N343129	W1195732	LIC	B	0.1	69	-68.9
276	103.1								105	-104.9
277	103.3								163	-162.9
278	103.5								105	-104.9
279	103.7								69	-68.9
280	103.9	LOMPOC	KBOX	N344350	W1202601	LIC	B1	49.2	88	-38.8
281	104.1								138	-88.8
282	104.3								88	-38.8

**CLASS A SPACING STUDY - BROADCAST PEAK TRANSMITTER SITE**  
**(N34-31-31/W119-57-29)**

CH	FREQ	CITY	CALLSIGN	LAT	LONG	STATUS	CLASS	DISTANCE (km)	REQUIREMENT (km)	PRECLUSION (km)
283	104.5								105	-44.6
284	104.7	OXNARD	KCAQ	N342055	W1192013	LIC	B	60.4	163	-102.6
285	104.9								105	-44.6
286	105.1	LOMPOC	KWSZ	N344128	W1201558	LIC	A	33.7	105.0	-71.3
287	105.3								64	-30.3
288	105.5	OJAI	KFYV	N342055	W1192013	LIC	A	60.4	105	-44.6
289	105.7								64	-64.0
290	105.9	SANTA YNEZ	KRAZ	N343132	W1195729	LIC	A	0.0	105	-105.0
291	106.1								64	-64.0
291	106.1								64	-37.4
292	106.3	GOLETA	KKSB	N342757	W1194037	LIC	A	26.6	105	-78.4
293	106.5								64	-37.4
294	106.7	LOMPOC	KSMY	N344431	W1202646	LIC	B1	50.8	138	-87.2
295	106.9								88	-37.2
296	107.1	VENTURA	KSSC	N342055	W1191957	LIC	A	60.7	105	-44.3
297	107.3								48	-37.7
298	107.5								88	-77.7
299	107.7	SANTA BARBARA	KIST-FM	N343010	W1195056	LIC	B1	10.3	138	-127.7
300	107.9								88	-77.7