

Comprehensive Technical Statement

In support of

Nevada County Broadcasters, Inc.

Minor Amendment to FM Translator

K233CA, Facility ID # 147454

Grass Valley, CA

Introduction

K233CA was granted a Construction Permit (BMPFT-20100112AAK) to relocate, reduce power, and change to channel 235. The facility has been constructed and a License Application (BLFT-20100113ABH) has been filed to cover the permit. The instant application proposes to change to mutually exclusive channel 289 at the permitted location. It is therefore a minor change proposal.

The following changes from the permitted / licensed-applied-for facility are proposed:

- Frequency / Channel
- Effective Radiated Power
- Change to Directional Antenna

Allocation Study

The following table lists all full power and low power FM conflicts that do not exceed the 73.207 required spacings for a full power Class A FM station by at least 25km:

app_id	adj	chan	status	call	st	city	erp	da	haat	brg	dkm	req	Δ
544777	0	289C	LIC	KOZZ-FM	NV	RENO	25	N	893	85	93.61	226	-132.39
71821	3	286B	LIC	KNCI	CA	SACRAMENTO	50	N	152	189	67.89	69	-1.11
1129491	1	290L1	LIC	KRYC-LP	CA	YUBA CITY	0.1	N	12	257	58.21	56	2.21
235401	1	288B1	LIC	KSAC-FM	CA	DUNNIGAN	2.55	Y	308	243	111.80	96	15.80

In addition, the following translator records were considered:

app_id	adj	chan	status	call	st	city	erp	da	brg	dkm
637268	1	290D	APP	NEW	CA	ROSEVILLE	0.016	N	210	59.17
650402	0	289D	APP	NEW	CA	BUTTE CREEK	0.01	N	317	62.21
1146952	54	235D	LIC	K235BJ	CA	HOMWOOD	0.01	N	100	62.83
632569	1	290D	APP	NEW	CA	ROSEVILLE	0.25	Y	212	64.73
1016422	3	286D	LIC	K286AN	CA	TRUCKEE	0.01	Y	90	71.27
639729	1	288D	APP	NEW	CA	CHICO	0.01	N	311	81.47
169290	3	292D	LIC	K292EP	NV	INCLINE VILLAGE	0.024	Y	91	82.97
1093039	1	290D	LIC	K290AI	CA	NATOMAS	0.005	N	211	87.65
650048	2	287D	APP	NEW	NV	VERDI	0.01	N	67	95.72
1165582	2	291D	CP	K291BJ	NV	RENO, SPARKS	0.01	Y	66	97.12
1146693	2	291D	LIC	K291BJ	NV	RENO, SPARKS	0.006	Y	66	97.12

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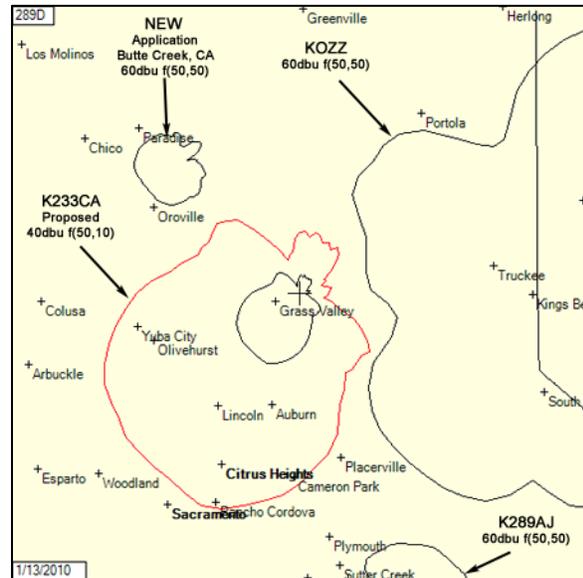
Detailed Interference Study

The following collection of maps and the narrative accompanying each show conclusively that no prohibited overlap will occur between the proposed facility and the conflicts listed in the allocation study.

Map 1 – Co-channel Interference

There are three co-channel conflicts, all protected to the 60dbu f(50,50) contour. There is no overlap between these contours and the proposed 40dbu f(50,10) contour.

It should be noted that KOZZ and the proposed site are on opposite sides of the Sierra Nevada mountain range, which effectively blocks VHF signals.



Map 2a – First Adjacent Interference

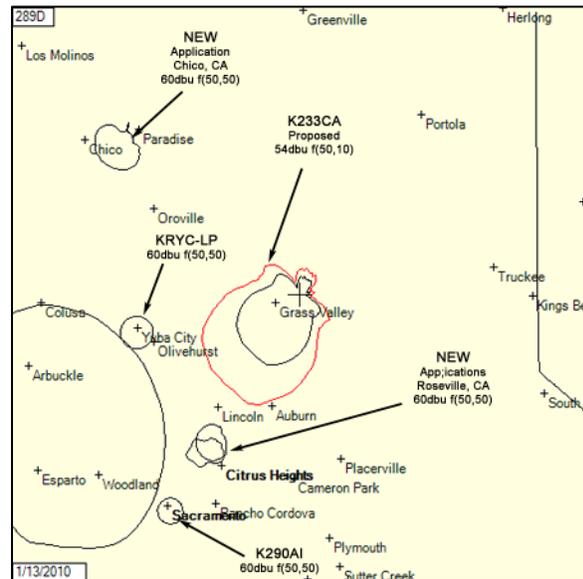
There are six first adjacent conflicts:

Three new translator applications in Chico and Roseville are protected to the 60dbu f(50,50) contour.

KRYC-LP is protected to its 60dbu f(50,50) contour.

K290AI is protected to its 60dbu f(50,50) contour.

There is no overlap between any of these 60dbu f(50,50) contours and the proposed 54dbu f(50,10) contour.



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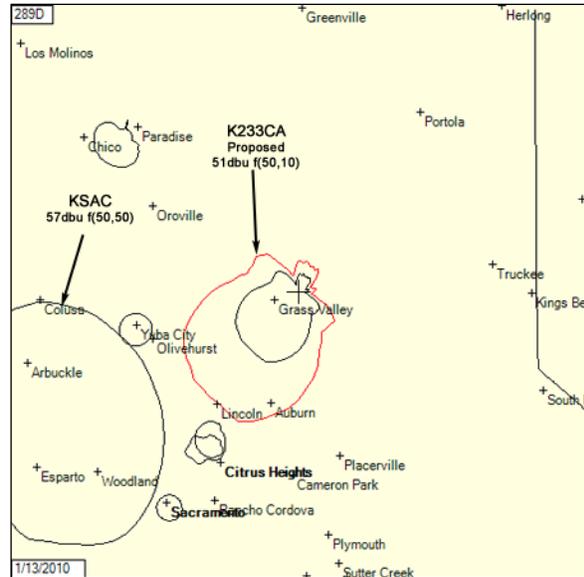
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Map 2b – First Adjacent Interference

KSAC is a Class B1 station, protected to its 57dbu f(50,50) contour.

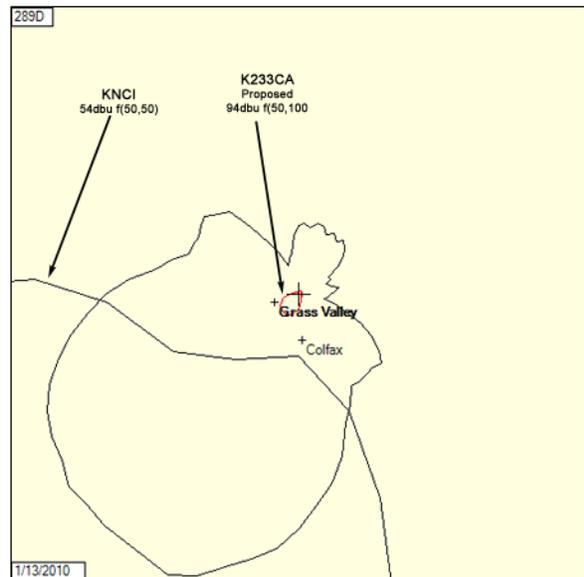
There is no overlap between KSAC and the proposed 51dbu f(50,10) contour.



Map 3 – 2nd / 3rd Adjacent Interference

Only one second or third adjacent conflict is nearby. KNCI is a third adjacent Class B station, protected to its 54dbu f(50,50) contour.

There is no overlap with the proposed 94dbu f(50,10) contour.



IF Separation requirements

There are no IF-separated translators within 10km other than the current facility of K233CA.

The proposed ERP is more than 99W, and Class A IF separations are required for full power stations. As shown in the allocation study, no such stations exist.

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Channel 6 Interference

The proposed facility is not on a channel that is implicated in channel 6 interference.

International

The distance between the proposed transmitter site and the Canadian border is 1,019 km.

The distance between the proposed transmitter site and the Mexican border is 822 km.

The proposed 34dbu f(50,10) contour does not cross any international border.

International notification is therefore not required.

Minor Change

The licensed channel is 235. The proposed channel is 289, the 54th adjacent channel.

No change is proposed to the transmitter site, therefore the existing and proposed contours overlap.

Therefore, the proposal represents a minor change.

Fill-In Translator

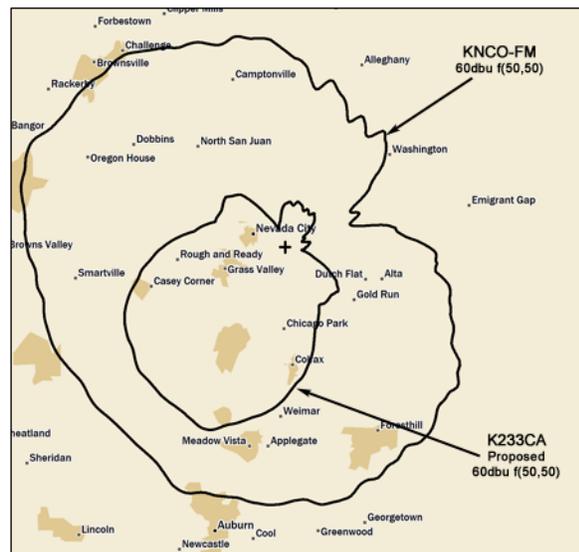
The primary station is KNCO (FM).

The proposed 60dbu f(50,50) contour of K233CA is contained entirely within the 60dbu f(50,50) contour of the primary station.

K233CA is co-owned with KNCO.

KNCO operates on channel 231. K233CA is proposed to move to channel 289, which is not a mutually exclusive channel with KNCO.

Therefore, the proposal is for a fill-in translator.



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Transmitter Location

The proposed transmitter site is owned and operated by the applicant. Control over the site is therefore not an issue.

RF Exposure

The proposed location is on the same tower as KNCO-FM.

KNCO uses a Jampro "Double-V" type antenna with two bays at $\lambda/2$ spacing. According to FMMODEL, the maximum exposure from KNCO is $18.1 \mu\text{W}/\text{cm}^2$. This occurs at 30m from the tower.

FMMODEL does not include the pattern for the proposed Kathrein/Scala HDCA-5CP, so the worst-case model is used. This results in a predicted exposure of $51.3 \mu\text{W}/\text{cm}^2$ at a distance of 4m from the tower. It should be noted that the proposed antenna is significantly suppressed in this region, and the actual exposure will be lower.

Summing the FMMODEL predicted exposure of both antennas at 2m intervals out to 40m results in a worst-case exposure of $51.3 \mu\text{W}/\text{cm}^2$ at 4m from the tower. This is less than 26% of the maximum permissible level for casual / uncontrolled exposure.

Appropriate signage and fencing are in place.

The applicant agrees to coordinate with other users of the site to reduce power or shut down in order to protect workers at the site.

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