STEPHEN S. LOCKWOOD, PE, PMP
———
THOMAS M. ECKELS, PE
ERIK C. SWANSON, PE, PMP
THOMAS S. GORTON, PE
———
JAMES B. HATFIELD, PE
BENJAMIN F. DAWSON III, PE
STEPHEN PUMPLE, M.Eng, MBA, PMP
CONSULTANTS

HATFIELD & DAWSON
CONSULTING ELECTRICAL ENGINEERS
9500 GREENWOOD AVE. N.
SEATTLE, WASHINGTON 98103

TELEPHONE (206) 783-9151

E-MAIL hatdaw@hatdaw.com
———
MAURY L. HATFIELD, PE
(1942-2009)
PAUL W. LEONARD, PE
(1925-2011)

Engineering Statement
Minor Modification of K10RU-D
Channel 10 at Salinas, CA
August 2023

I. Background

This Engineering Statement has been prepared on behalf of Rubin Broadcasting, Inc., permittee of low-power station K10RU-D Salinas. This material has been prepared in connection with an application for minor modification of construction permit BNPDTL-20090825AEI.

II. Interference Study

Study has been made of all cochannel and adjacent-channel facilities in the vicinity of the proposed operation, including a detailed Longley-Rice interference study to demonstrate that the proposed operation will not cause interference to any authorized or pending proposed facilities. This study was performed using the Commission's *TVStudy* software.

The results of this study indicate that the proposed facility is predicted to cause zero additional interference to any of the listed stations, beyond the allowed values of 0.5% to full-power and Class A stations, and 2.0% to low-power stations. Based on the foregoing interference study, it is believed that the proposed facility can operate without risk of interference to other stations.

Study created: 2023.08.20 12:14:35

Study build station data: LMS TV 2023-08-20

```
    Proposal: K10RU-D D10 LD APP SALINAS, CA
 File number: K10RU
 Facility ID: 182258
Station data: User record
   Record ID: 1522
     Country: U.S.
```

Build options:
Protect pre-transition records not on baseline channel

Stations potentially affected by proposal:

IX	Call	Chan	Svc	Status	City, State	File Number	Distance
No	K09AAF-D	D9	LD	LIC	MONTEREY, CA	BLANK0000193985	39.7 km
No	KVIE	D9	DT	LIC	SACRAMENTO, CA	BLANK0000160094	193.1
No	KERO-TV	D10	DT	LIC	BAKERSFIELD, CA	BLCDT20100929AEF	298.1
No	K10OG-D	D10	DC	LIC	LOMPOC, CA	BLANK0000001603	226.4
Yes	KXTV	D10	DT	LIC	SACRAMENTO, CA	BLANK0000146119	189.6
No	K10PV-D	D10	LD	CP	SANTA BARBARA, CA	BPDTV20111104ABY	290.0
No	K10PV-D	D10	LD	LIC	SANTA BARBARA, CA	BLDTV20100111AFH	290.0
No	K10GT-D	D10	LD	LIC	MINA / LUNING, NV	BLDTV20100120ACO	377.0
No	K10QX-D	D10	LD	LIC	RENO, NV	BLANK0000152358	344.0
No	DK27GZ	D11+	LD	APP	MARIPOSA, CA	BLANK0000121605	178.4
No	KGMC	D11	DT	LIC	MERCED, CA	BLANK0000156689	204.2
No	K11XS-D	D11	LD	LIC	MODESTO, CA	BLANK0000216441	158.1
Yes	KCBA	D11	DT	LIC	SALINAS, CA	BLANK0000115967	26.8
No	KPJC-LD	D11	LD	LIC	SAN FRANCISCO, CA	BLANK0000117056	155.9
No	KPJC-LD	D11	LD	CP	SAN FRANCISCO, CA	BLANK0000207336	146.5

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

```
    Channel: D10
       Mask: Simple
   Latitude:  36 32 13.10 N (NAD83)
  Longitude: 121 37 36.90 W
Height AMSL: 969.3 m
       HAAT: 0.0 m
   Peak ERP: 0.085 kW
    Antenna: NIC-LOGIIP7 (ID 1010534) 300.0 deg
Elev Pattrn: Generic
```

48.0 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	0.007 kW	916.3 m	38.0 km
45.0	0.000	898.6	12.3
90.0	0.000	840.7	10.2
135.0	0.000	120.7	6.4
180.0	0.000	486.3	10.5
225.0	0.001	566.5	20.1
270.0	0.048	696.4	49.8
315.0	0.074	748.2	54.1

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 659 m

Distance to Canadian border: 1308.4 km

Distance to Mexican border: 580.9 km

```
Conditions at FCC monitoring station: Livermore CA
Bearing: 355.1 degrees   Distance: 132.5 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 69.4 degrees   Distance: 1479.7 km


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.
```

III. RF Exposure Study

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.4 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Calculations of the power density produced by K10RU-D and the other authorized broadcast stations at this transmitter site are summarized in the following table:

Call	Avg or Peak ERP Antenna Model	Relative Field	Height AGL	Calculated Max Exposure	Gen Pub FCC Limit	% of Limit
K10RU-D Ch10	0.085 kW H NIC LOGIIP7	0.729	6.1 m	89.8 µW/cm²	200 µW/cm²	44.9%
K12XN-D Ch12	0.085 kW H NIC LOGIIP7	0.729	6.1 m	89.8 µW/cm²	200 µW/cm²	44.9%
KOTR-LD Ch7	0.7 kW H SCA CL-713	0.207	15 m	5.9 µW/cm²	200 µW/cm²	3.0%
KMBY-LD Ch27	15 kW H KAT 750 10210 4X2	0.100	42.7 m	3.0 µW/cm²	365 µW/cm²	0.8%

KBNY-LD Ch29	15 kW H KAT 750 10210 4X2	0.100	42.7 m	3.0 μW/cm²	373 μW/cm²	0.8%
K31OL-D Ch31	15 kW H ALP24M2-HSOC	0.200	46.9 m	9.9 μW/cm²	381 μW/cm²	2.6%
K247BL	0.010 kW H 0.010 kW V RFS CPF500	FMModel Type 1	33 m	0.4 μW/cm²	200 μW/cm²	0.2%
Total 97.2%						

For TV translators, the relative field value indicated is the maximum value which occurs at 45 degrees or more below the horizontal, based on the manufacturer's vertical plane pattern, or as represented in the station's construction permit application. The resulting adjusted ERP value is assumed to be radiated straight down to a point 2 meters above ground level at the base of the tower.

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of K10RU-D and the present operation of the other authorized stations at this site (were their maxima to coincide, which they do not) is 97.2% of the FCC Maximum Permissible Exposure level for uncontrolled environments. In fact, many of these facilities are located fully 160 meters away from the proposed operation.

Pursuant to OET Bulletin No. 65, all station personnel and contractors are required to follow appropriate safety procedures before any work is commenced on the antenna tower, including reduction in power or discontinuance of operation before any maintenance work is undertaken. The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.

August 20, 2023

Erik C. Swanson, P.E.