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**Proposed Translator
Channel 297D at Arcata, CA
To Rebroadcast KATA(AM) 1340 kHz Arcata, CA
February 2018**

Allocation Study

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study map demonstrates compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

The spacing study demonstrates compliance with §73.207 of the Commission's Rules regarding spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

K294AZ Eureka

The proposed translator transmitter site is located within the 60 dBu protected contour of third-adjacent channel station K294AZ Eureka. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

Protected Station	Distance & Bearing to Proposal	Station ERP and HAAT on that azimuth	Station Field Strength at Proposal	Corresponding Translator Interfering Contour	Distance to Translator Interfering Contour
K294AZ 294D	0.08 km 246 deg True	0.0096 kW 686 meters	108.7 dBu Free Space	148.7 dBu	4.1 meters Free Space

The 148.7 dBu contour from the proposed facility extends just 4.1 meters from the antenna per a Free Space calculation and does not reach ground level (which is 23 meters below the antenna).

There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to K294AZ.

KHSQ 299C3 Trinidad (BMPH-20180129ACP)

The proposed translator transmitter site is located within the 60 dBu protected contour of second-adjacent channel station KHSQ 299C3 Trinidad (application BMPH-20180129ACP). Even though a translator application is not required to provide interference protection to pending full-power station applications, the following calculation, performed using the *Living Way* methodology, is included to demonstrate interference protection to that facility, in the event that BMPH-20180129ACP is granted prior to evaluation of the instant application.

Protected Station	Distance & Bearing to Proposal	Station ERP and HAAT on that azimuth	Station Field Strength at Proposal	Corresponding Translator Interfering Contour	Distance to Translator Interfering Contour
KHSQ 299C3	0.08 km 246 deg True	1.000 kW 703 meters	128.9 dBu Free Space	168.9 dBu	0.4 meters Free Space

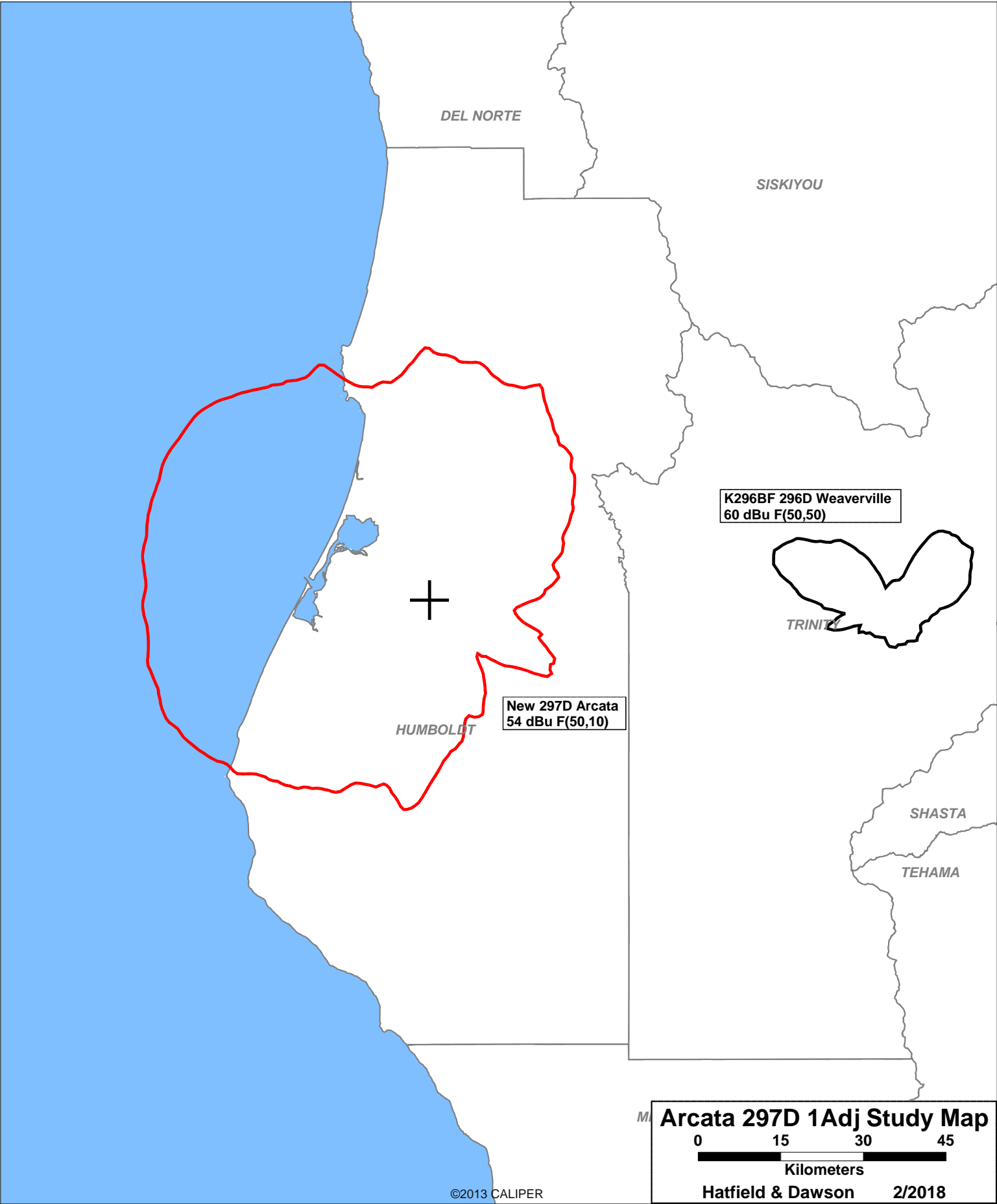
The 168.9 dBu contour from the proposed facility extends just 0.4 meters from the antenna per a Free Space calculation and does not reach ground level (which is 23 meters below the antenna). There is no population within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KHSQ application BMPH-20180129ACP.

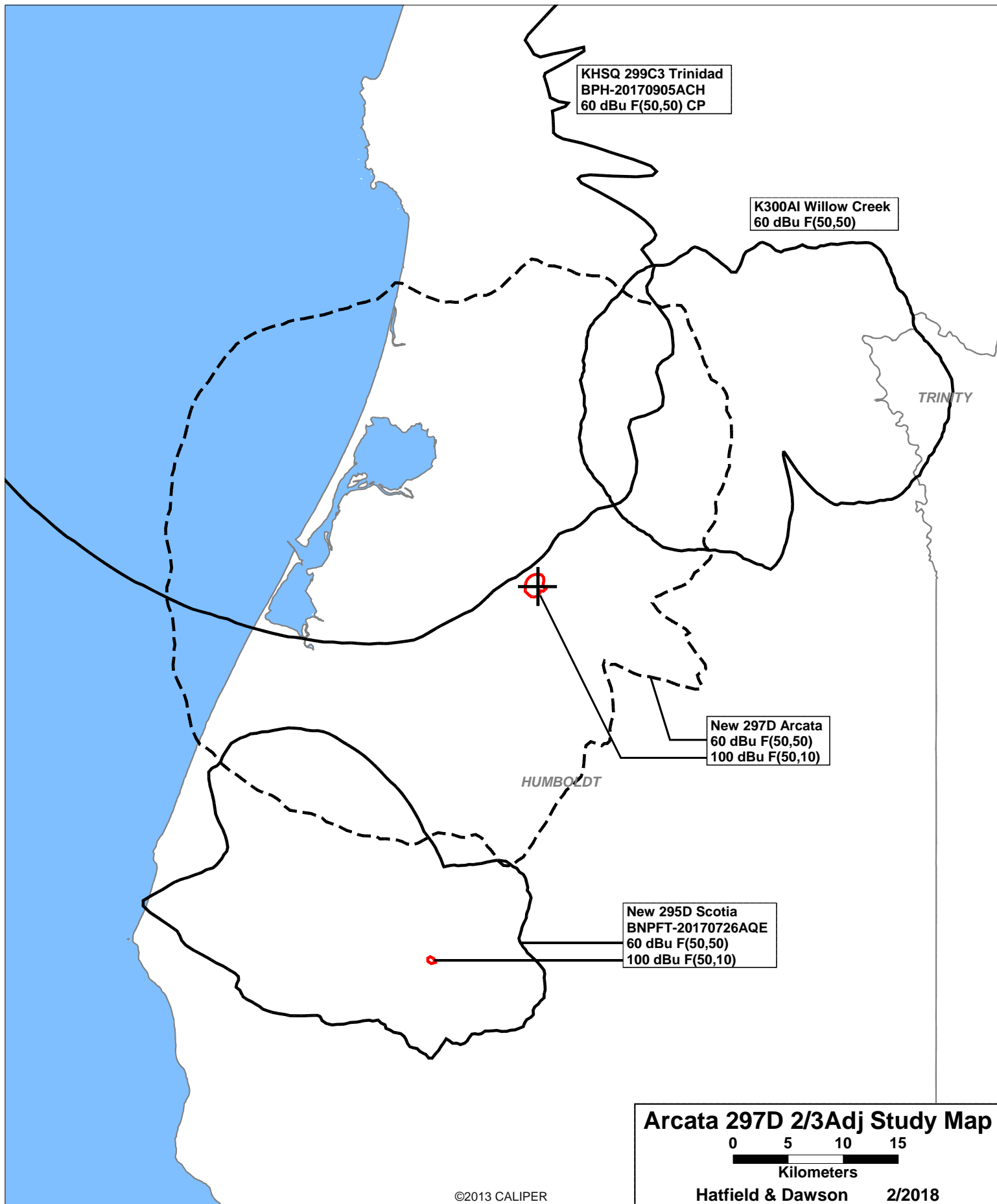
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SEARCH PARAMETERS FM Database Date: 180222
 Channel: 297A 107.3 MHz Page 1
 Latitude: 40 43 37
 Longitude: 123 58 25
 Safety Zone: 50 km
 Job Title: ARCATA 297

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KZZH-LP LIC	EUREKA CA	BLL-60819AAE	244L1 96.7	0.100 7.4	40-47-20 124-09-23	294.2	16.90 10.90	6 CLEAR
K294AZ LIC	EUREKA CA	BLFT-50223ABW	294D 106.7	0.250 759.0	DA 40-43-38 123-58-22	66.3	0.08 0.00	0 TRANS
NEW-T APP	SCOTIA CA	BNPFT-70726AQE	295D 106.9	0.120 864.0	DA 40-25-12 124-05-00	195.2	35.33 0.00	0 TRANS
KESR LIC	SHASTA LAKE CITY CA	BLH-980713KD	296C3 107.1	1.400 415.0	40-39-06 122-31-32	93.4	122.69 33.69	89 CLEAR
K296BF LIC	WEAVERVILLE, ETC. CA	BLFT-781026IB	296D 107.1	0.057 656.0	DA 40-43-09 122-58-48	90.3	83.95 0.00	0 TRANS
NEW-T APP	ARCATA CA	BNPFT-70731AFQ	297D 107.3	0.250 0.0	DA 40-43-37 123-58-25	0.0	0.00 0.00	0 TRANS
K298AF LIC	SHASTA CA	BLFT-10701ABY	298D 107.5	0.010 859.0	40-39-15 122-31-26	93.3	122.81 0.00	0 TRANS
KHSQ CP	TRINIDAD CA	BPH-70905ACH	299C3 107.7	3.900 258.0	41-05-58 124-07-33	342.9	43.31 1.31	42 CLOSE
KHSQ APP	TRINIDAD CA	BMPH-80129ACP	299C3 107.7	1.000 479.0	40-43-37 123-58-22	66.3	0.08 -41.92	42 SHORT
K300AI LIC	WILLOW CREEK CA	BLFT-10817ACH	300D 107.9	0.010 1121.0	40-52-29 123-43-54	51.0	26.20 0.00	0 TRANS

===== END OF FM SPACING STUDY FOR CHANNEL 297 =====





Facilities Proposed

The proposed operation will be on Channel 297D (107.3 MHz) with a maximum lobe effective radiated power of 0.250 kilowatts. Operation is proposed with an antenna to be mounted on an existing tower at the Kneeland communications site, currently used by KRED(FM). This tower does not exceed 60.96 meters (200 feet) above ground and does not require notification to the Federal Aviation Administration. Therefore, this structure does not require an Antenna Structure Registration Number.

RF Exposure Calculations

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.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

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.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

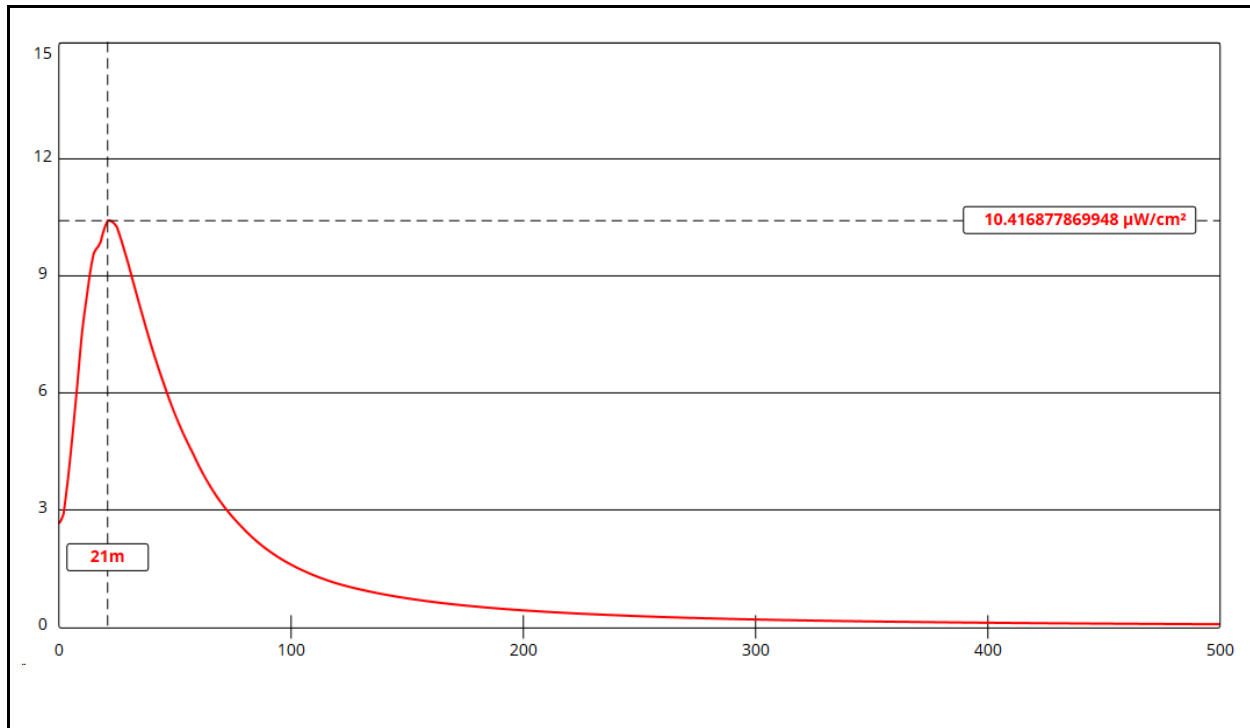
Calculations of the power density produced by the proposed antenna system assume a Type 2 element pattern, which is the element pattern for the PSIFMT-3DB-1 antenna proposed for use. The highest calculated ground level power density occurs at a distance of 21 meters from the base of the antenna support structure. At this point the power density is calculated to be 10.4 $\mu W/cm^2$, which is 5.2% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

Calculations of the power density produced by the proposed translator and the other stations on tower 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
Arcata 297D	0.250 kW H 0.250 kW V PSI FMT-3DB-1	FMMModel (Type 2)	23 m	10.4 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	5.2%
K224ER License	0.250 kW V SCA CL-FMV	FMMModel (Type 1)	26 m	13.8 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	6.9%
K224ER CP	0.250 kW H 0.250 kW V PSI FMT-3DB-1	FMMModel (Type 2)	26 m	or 8.0 $\mu\text{W}/\text{cm}^2$		or 4.0%
KRED 222C1	25 kW H 25 kW V 10-bay double-V	FMMModel (Type 2)	47 m	79.7 $\mu\text{W}/\text{cm}^2$	200 $\mu\text{W}/\text{cm}^2$	39.9%

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation and the present operation of the other stations on this tower (were their maxima to coincide, which they do not) is 103.9 $\mu\text{W}/\text{cm}^2$, which is 52% of 200 $\mu\text{W}/\text{cm}^2$ (the FCC standard for uncontrolled environments).

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.



Ground-Level RF Exposure

OET FMModel

Arcata 297D

Antenna Type: PSI PSIFMT-3DB-1 (Type 2)

No. of Elements: 1

Element Spacing: 1.0 wavelength

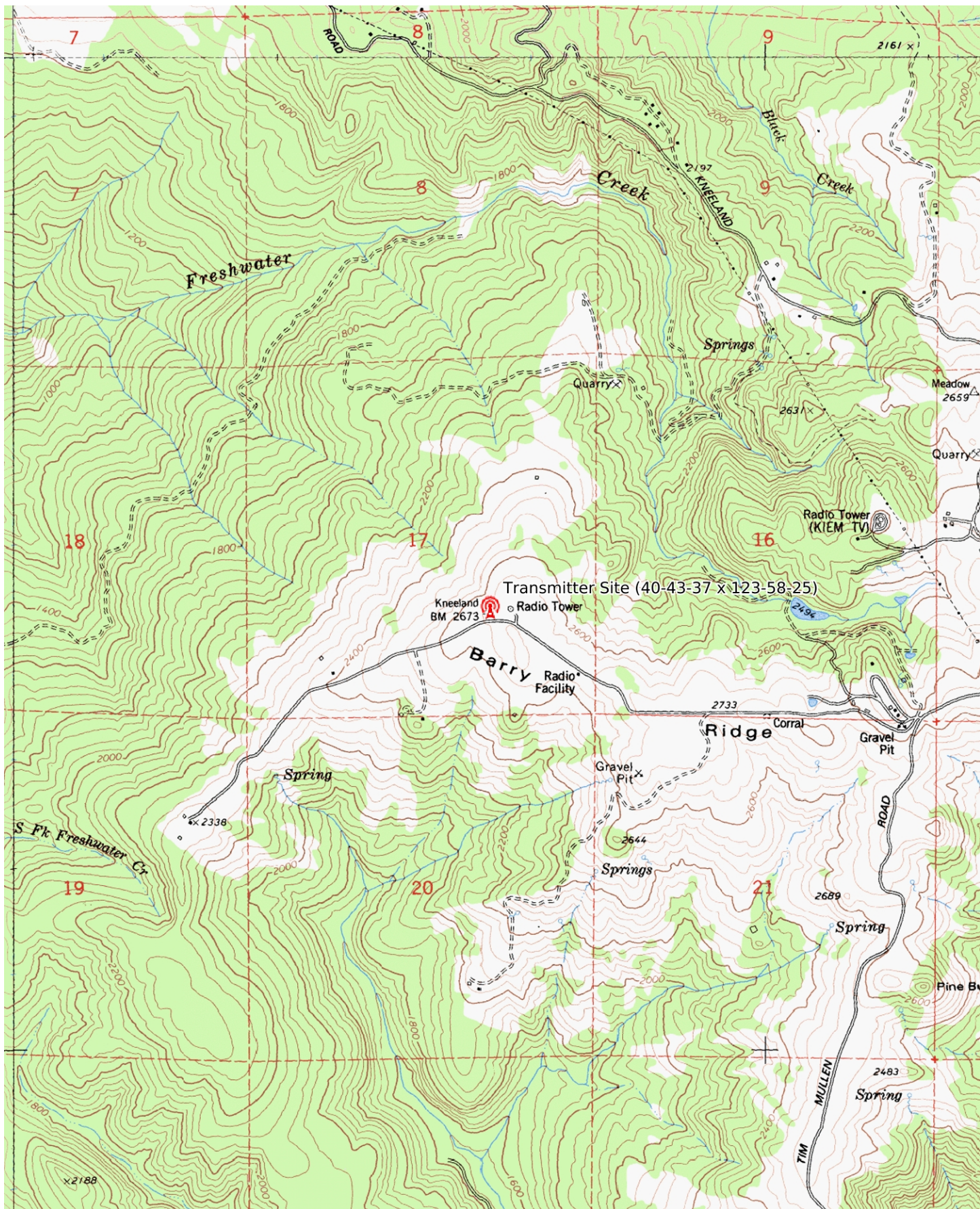
Distance: 500 meters

Horizontal ERP: 250 W

Vertical ERP: 250 W

Antenna Height: 23 meters AGL

Maximum Calculated Power Density is 10.4 $\mu\text{W}/\text{cm}^2$ at 21 meters from the antenna structure.



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 NAD27 Conus
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