

**April 2024
 FM Translator K298DH
 Bakersfield, California Channel 298D
 Allocation Study**

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 attached 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.

Second-Adjacent Channel Stations

The proposed translator transmitter site is located within the protected contours of second-adjacent channel stations KCWR 296A Bakersfield and KUZZ-FM 300B Bakersfield. The following calculations, performed using the *Living Way* methodology, demonstrates interference protection to those stations.

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
KCWR 296A	3.16 km 135 deg True	6 kW 77 meters	95.7 dBu F(50,50)	135.7 dBu	18.2 meters Free Space
KUZZ-FM 300B	23.92 km 246 deg True	6 kW 845 meters	82.0 dBu F(50,50)	122.0 dBu	88.0 meters Free Space

The worst-case of these two is the protection requirement to KUZZ-FM, which would extend 88 meters from the antenna. However, taking into account the manufacturer's elevation pattern for the ERI model 100A-4F antenna to be used, the attached Free Space calculations demonstrate that the interference area will not reach ground level, reaching only as low as 24.5 meters above ground level. There are no buildings of more than two stories in the vicinity. There is no population

within this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to KCWR and KUZZ-FM.

SEARCH PARAMETERS

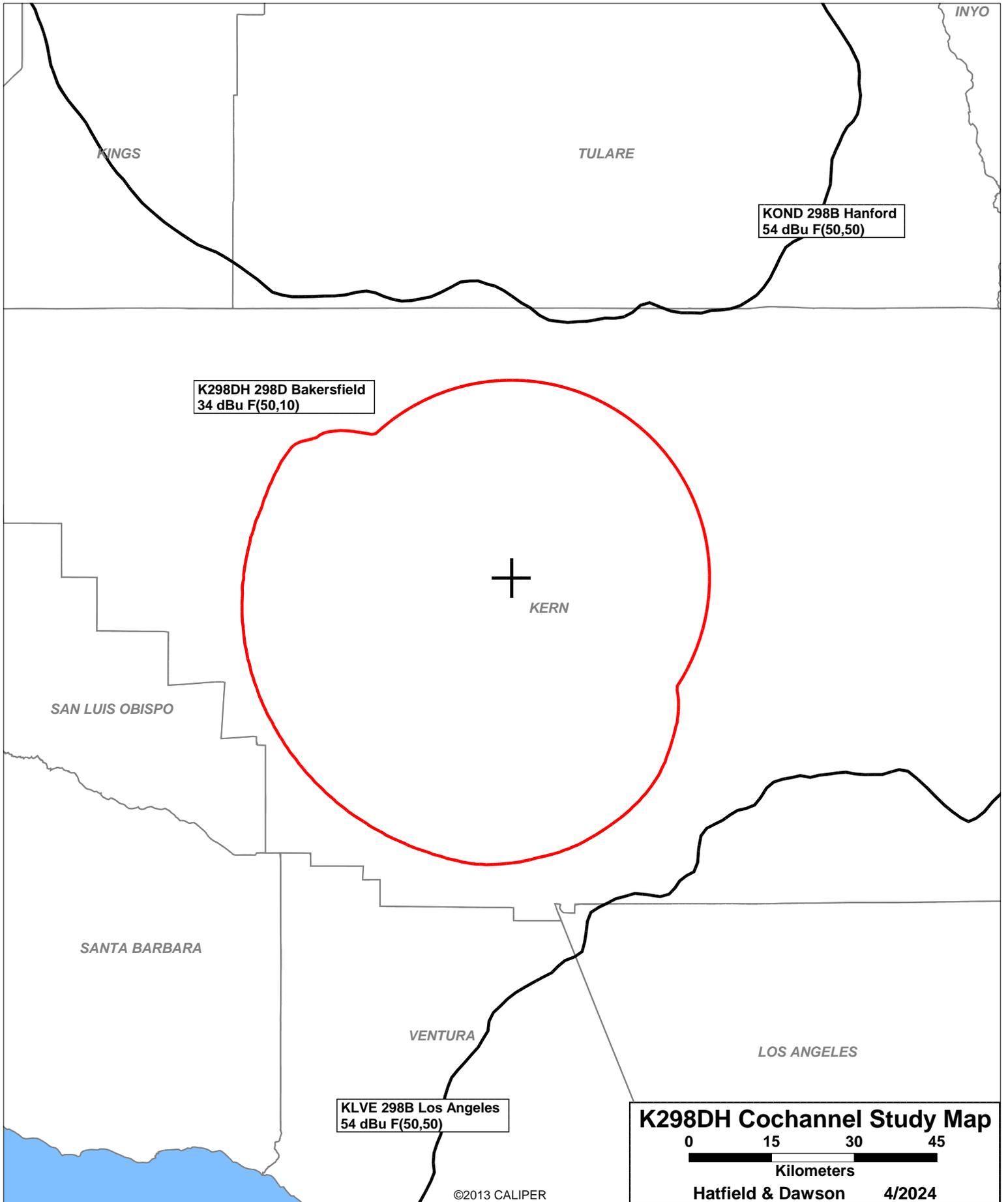
FM Database Date: 20240422

Channel: 298A 107.5 MHz
 Latitude: 35 20 59.1 (NAD83)
 Longitude: 118 58 52.1
 Safety Zone: 50 km
 Job Title: K298DH BAKERSFIELD

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Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KCPK-LP LIC	PINE MOUNTAIN CA	CLUB BLL-20170130AJM	295L1 106.9	0.006 115.7	34 51 19.8 119 10 13.0	197.4	57.48 28.48	29 CLEAR
K296GG LIC	TEHACHAPI CA		296D 107.1	0.010 0.0	35 7 21.8 118 27 48.3	118.1	53.44 0.00	0 TRANS
KCWR LIC	BAKERSFIELD CA		296A 107.1	6.000 48.0	35 22 10.9 119 0 21.4	314.6	3.16 -27.84	31 SHORT
KMLM-FM LIC	GROVER BEACH CA		297B 107.3	3.500 503.0	35 21 36.9 120 39 21.6	270.9	152.24 39.24	113 CLEAR
K298DH LIC	BAKERSFIELD CA		298D 107.5	0.250 0.0	DA 35 20 58.9 118 58 52.4	230.7	0.01 0.00	0 TRANS
KLVE LIC	LOS ANGELES CA		298B 107.5	29.500 914.0	34 13 44.0 118 4 5.2	146.0	149.81 -28.19	178 SHORT
KLVE-FM1 LIC	SANTA CLARITA CA		298D 107.5	0.100 0.0	DA 34 19 47.9 118 35 59.3	162.8	118.38 0.00	0 BOOST
KOND LIC	HANFORD CA		298B 107.5	24.600 215.0	36 38 11.8 118 56 37.3	1.3	142.82 -35.18	178 SHORT
KIST-FM LIC	CARPINTERIA CA		299B1 107.7	0.930 496.0	34 30 9.9 119 50 59.5	220.3	123.00 27.00	96 CLEAR
KUZZ-FM LIC	BAKERSFIELD CA		300B 107.9	6.000 416.0	35 26 16.8 118 44 27.4	65.7	23.92 -45.08	69 SHORT

==== END OF FM SPACING STUDY FOR CHANNEL 298 =====



KOND 298B Hanford
54 dBu F(50,50)

K298DH 298D Bakersfield
34 dBu F(50,10)

+

KERN

SAN LUIS OBISPO

SANTA BARBARA

VENTURA

LOS ANGELES

KLVE 298B Los Angeles
54 dBu F(50,50)

K298DH Cochannel Study Map

0 15 30 45

Kilometers

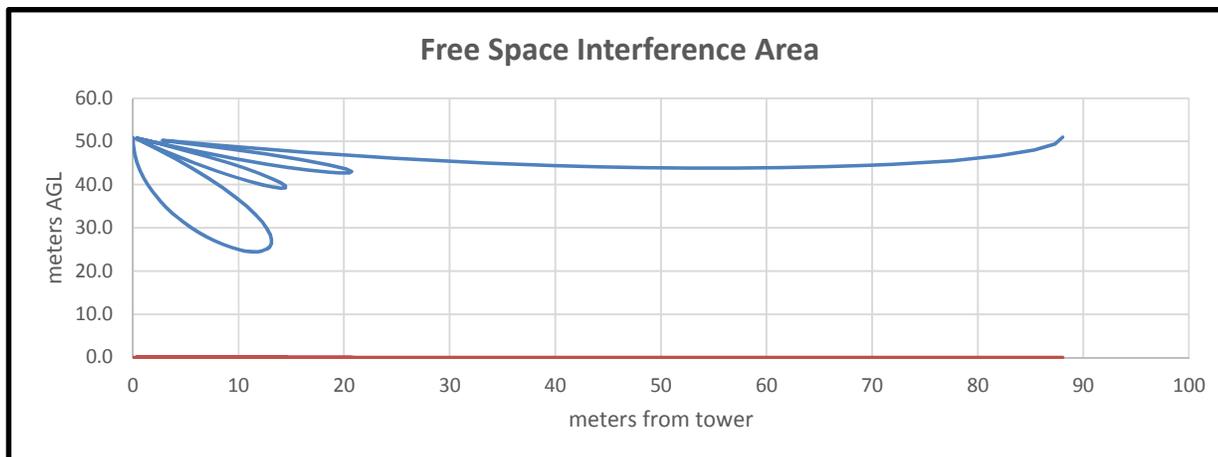
Hatfield & Dawson 4/2024

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K298DH Free Space Interference Area Calculator

Interference Area to KUZZ-FM

Antenna Height:	51 meters AGL		
Contour Level:	122 dBu	equals	1.3 V/m
ERP in watts:	250 watts		
Maximum distance to interfering contour is:	288.9 feet	equals	88.0 meters
Antenna:	100A-4		



Depression Angle (degrees)	ERI 100A-4 Relative Field	Adjusted ERP (watts)	Free Space Distance To 122 dBu Contour Along the depr angle	Horizontal Distance (meters)	Contour AGL (meters)
-90	0.001	0.0	0.1 meters	0	50.9
-89	0.017	0.1	1.5	0.0	49.5
-88	0.035	0.3	3.1	0.1	47.9
-87	0.052	0.7	4.6	0.2	46.4
-86	0.070	1.2	6.2	0.4	44.9
-85	0.087	1.9	7.7	0.7	43.4
-84	0.104	2.7	9.2	1.0	41.9
-83	0.121	3.7	10.7	1.3	40.4
-82	0.139	4.8	12.2	1.7	38.9
-81	0.155	6.0	13.6	2.1	37.5
-80	0.172	7.4	15.1	2.6	36.1
-79	0.188	8.8	16.6	3.2	34.8
-78	0.205	10.5	18.0	3.8	33.3
-77	0.220	12.1	19.4	4.4	32.1
-76	0.235	13.8	20.7	5.0	30.9
-75	0.250	15.6	22.0	5.7	29.7
-74	0.263	17.3	23.2	6.4	28.7
-73	0.276	19.0	24.3	7.1	27.8
-72	0.288	20.7	25.4	7.8	26.9
-71	0.299	22.4	26.3	8.6	26.1
-70	0.308	23.7	27.1	9.3	25.5
-69	0.316	25.0	27.8	10.0	25.0
-68	0.323	26.1	28.4	10.7	24.6
-67	0.327	26.7	28.8	11.2	24.5
-66	0.330	27.2	29.1	11.8	24.5
-65	0.330	27.2	29.1	12.3	24.7
-64	0.328	26.9	28.9	12.7	25.0
-63	0.324	26.2	28.5	13.0	25.6
-62	0.317	25.1	27.9	13.1	26.4
-61	0.307	23.6	27.0	13.1	27.4
-60	0.295	21.8	26.0	13.0	28.5
-59	0.280	19.6	24.7	12.7	29.9
-58	0.262	17.2	23.1	12.2	31.4
-57	0.242	14.6	21.3	11.6	33.1
-56	0.219	12.0	19.3	10.8	35.0
-55	0.193	9.3	17.0	9.7	37.1
-54	0.165	6.8	14.5	8.5	39.2

K298DH Free Space Interference Area Calculator

Interference Area to KUZZ-FM

-53	0.136	4.6	12.0	7.2	41.4
-52	0.104	2.7	9.2	5.6	43.8
-51	0.072	1.3	6.3	4.0	46.1
-50	0.039	0.4	3.4	2.2	48.4
-49	0.005	0.0	0.4	0.3	50.7
-48	0.028	0.2	2.5	1.6	49.2
-47	0.061	0.9	5.4	3.7	47.1
-46	0.091	2.1	8.0	5.6	45.2
-45	0.120	3.6	10.6	7.5	43.5
-44	0.146	5.3	12.9	9.2	42.1
-43	0.168	7.1	14.8	10.8	40.9
-42	0.186	8.6	16.4	12.2	40.0
-41	0.199	9.9	17.5	13.2	39.5
-40	0.208	10.8	18.3	14.0	39.2
-39	0.211	11.1	18.6	14.4	39.3
-38	0.208	10.8	18.3	14.4	39.7
-37	0.199	9.9	17.5	14.0	40.5
-36	0.184	8.5	16.2	13.1	41.5
-35	0.164	6.7	14.4	11.8	42.7
-34	0.138	4.8	12.2	10.1	44.2
-33	0.108	2.9	9.5	8.0	45.8
-32	0.073	1.3	6.4	5.5	47.6
-31	0.035	0.3	3.1	2.6	49.4
-30	0.005	0.0	0.4	0.4	50.8
-29	0.047	0.6	4.1	3.6	49.0
-28	0.088	1.9	7.7	6.8	47.4
-27	0.127	4.0	11.2	10.0	45.9
-26	0.164	6.7	14.4	13.0	44.7
-25	0.196	9.6	17.3	15.6	43.7
-24	0.222	12.3	19.5	17.9	43.0
-23	0.241	14.5	21.2	19.5	42.7
-22	0.251	15.8	22.1	20.5	42.7
-21	0.252	15.9	22.2	20.7	43.0
-20	0.243	14.8	21.4	20.1	43.7
-19	0.223	12.4	19.6	18.6	44.6
-18	0.192	9.2	16.9	16.1	45.8
-17	0.149	5.6	13.1	12.5	47.2
-16	0.096	2.3	8.5	8.1	48.7
-15	0.033	0.3	2.9	2.8	50.2
-14	0.040	0.4	3.5	3.4	50.1
-13	0.121	3.7	10.7	10.4	48.6
-12	0.207	10.7	18.2	17.8	47.2
-11	0.299	22.4	26.3	25.8	46.0
-10	0.392	38.4	34.5	34.0	45.0
-9	0.486	59.0	42.8	42.3	44.3
-8	0.578	83.5	50.9	50.4	43.9
-7	0.666	110.9	58.6	58.2	43.9
-6	0.747	139.5	65.8	65.4	44.1
-5	0.820	168.1	72.2	71.9	44.7
-4	0.883	194.9	77.7	77.6	45.6
-3	0.933	217.6	82.1	82.0	46.7
-2	0.970	235.2	85.4	85.4	48.0
-1	0.992	246.0	87.3	87.3	49.5
0	1.000	250.0	88.0	88.0	51.0

April 2024
FM Translator K298DH
Bakersfield, California Channel 298D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 298D (107.5 MHz) with an effective radiated power of 250 watts. Operation is proposed with an antenna to be mounted on an existing tower with FCC Antenna Structure Registration Number 1250431. This is the licensed antenna tower of AM station KLHC 1350 kHz Bakersfield.

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.

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

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.

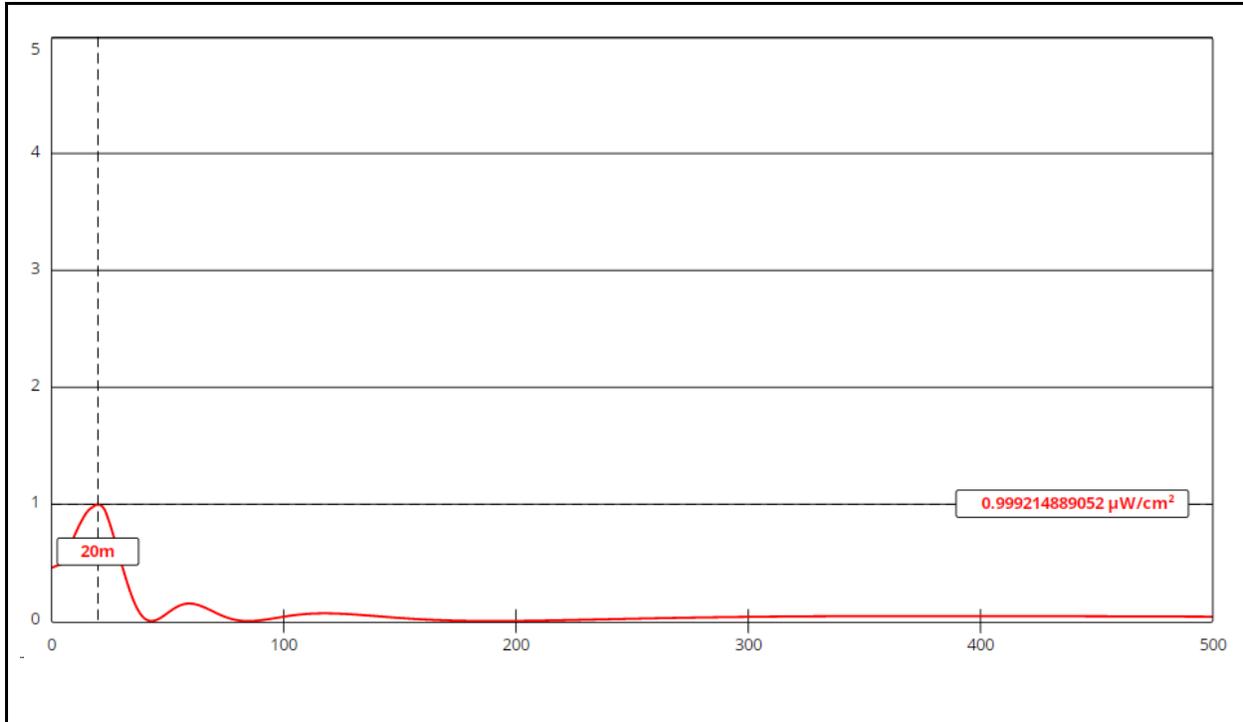
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

Calculations of the power density produced by the proposed antenna system assume a Type 4 element pattern, which is the element pattern for the ERI model 100A-4F antenna proposed for use. The highest calculated ground level power density occurs at a distance of 20 meters from the base of the antenna support structure. At this point the power density is calculated to be 1.0 $\mu W/cm^2$, which is 0.5% of 200 $\mu W/cm^2$ (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.

AM Station KLHC

The transmitting antenna will be installed on the tower used by AM station KLHC 1350 kHz Bakersfield. KLHC operates with 1 kilowatts nondirectional daytime and 0.033 kilowatts nondirectional nighttime. The radiator is 89 electrical degrees tall, or 24.7% of the station wavelength. Using Tables 1-4 in OET Bulletin No. 65, the fencing distance requirement for this station is 1 meter from the tower base. The tower is fenced to at least this distance.



Ground-Level RF Exposure

OET FMModel

K298DH Bakersfield

Antenna Type: ERI 100A-4F (Type 4)

No. of Elements: 4

Element Spacing: 1.0 wavelength

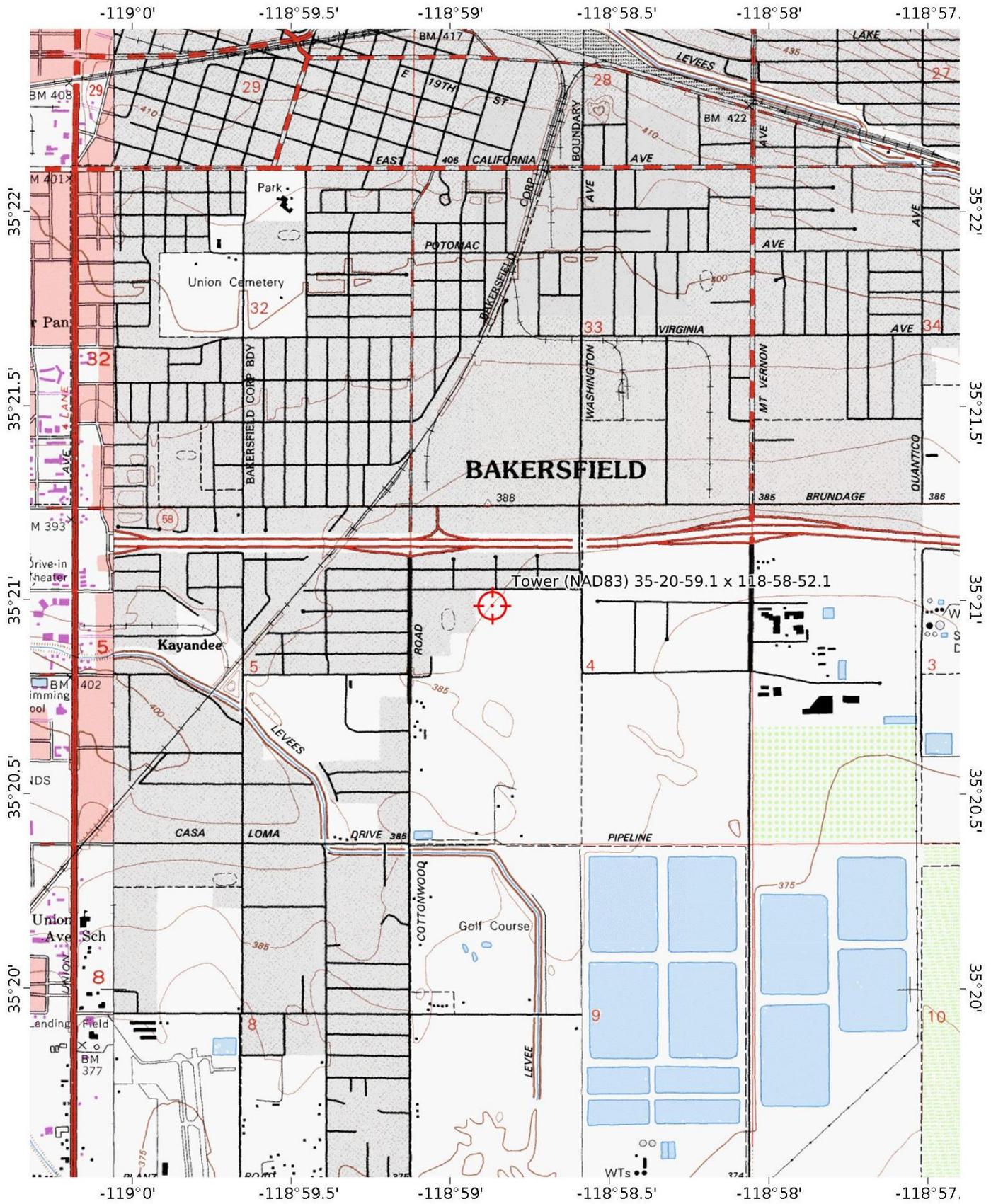
Distance: 500 meters

Horizontal ERP: 250 W

Vertical ERP: 250 W

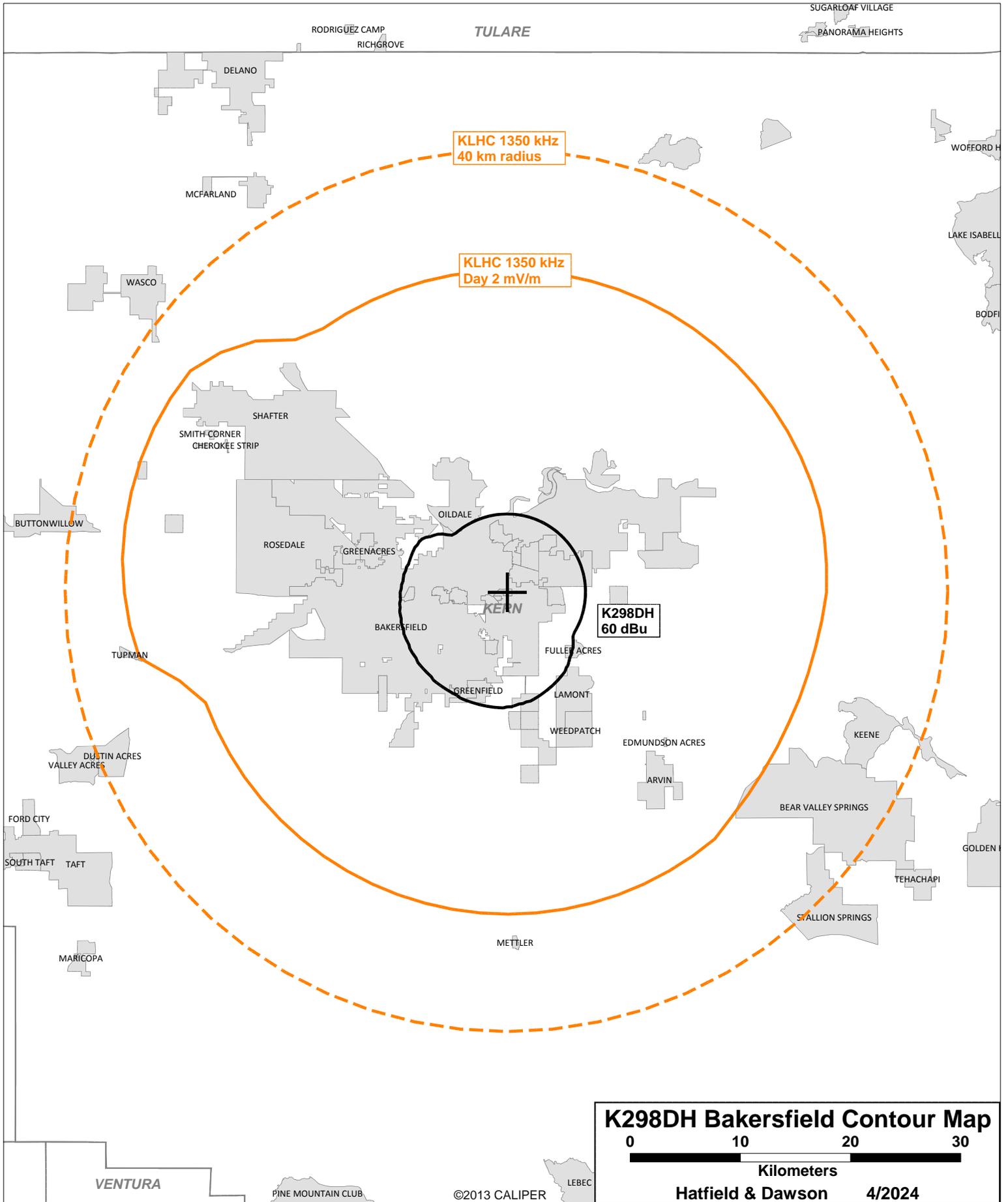
Antenna Height: 51 meters AGL

Maximum Calculated Power Density is 1.0 µW/cm² at 20 meters from the antenna structure.



Mercator Projection
 WGS84
 UTM Zone 11S



TULARE

SUGARLOAF VILLAGE
PANORAMA HEIGHTS

RODRIGUEZ CAMP
RICH GROVE

KLHC 1350 kHz
40 km radius

KLHC 1350 kHz
Day 2 mV/m

K298DH
60 dBu

KERN

VENTURA

PINE MOUNTAIN CLUB

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LEBEC

K298DH Bakersfield Contour Map

0 10 20 30

Kilometers

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4/2024