

**March 2015**  
**FM Booster KKIQ-FM2**  
**Tracy, California Channel 269D**  
**Allocation Study**

The instant application is being filed in order to modify the authorized facility of FM booster KKIQ-FM2 at Tracy, California, to match the corrected coordinates of the tower on which the booster antenna is installed. Contours in this application have been calculated using terrain data extracted from the 3-second terrain database.

The attached spacing study shows the spacing between the proposed booster 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 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.

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SEARCH PARAMETERS                               FM Database Date: 150316
Channel: 269A    101.7 MHz                      Page 1
Latitude: 37 46 43
Longitude: 121 21 38
Safety Zone: 32 km
Job Title: KKIQ-FM2 TRACY

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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)
KIOI-FM2 LIC	PLEASANTON CA	BLFTB-990225UB	267D 101.3	0.900 0.0	DA 37-39-34 121-55-54	255.4	52.06 0.00	0 BOOST
KIOIaux LIC	SAN FRANCISCO CA	BLH-790820AB	267B 101.3	61.000 360.0	37-41-24 122-26-13	264.4	95.39 0.00	0 AUX
KIOI LIC	SAN FRANCISCO CA	BLH-6225	267B 101.3	125.000 354.0	DA 37-41-24 122-26-13	264.4	95.39 26.39	69 CLEAR
KIOIaux CP	SAN FRANCISCO CA	BXPB-40808AAH	267B 101.3	9.000 394.0	37-41-17 122-26-07	264.2	95.27 0.00	0 AUX
KSTG-LP LIC	LODI CA	BLL-90701AAB	268L1 101.5	0.100 28.1	38-07-08 121-15-39	13.0	38.77 -17.23	56 SHORT
KAMB LIC	MERCED CA	BLED-971112KJ	268B 101.5	1.850 638.0	37-32-01 120-01-46	102.7	120.57 7.57	113 CLOSE
KCCL LIC	WOODLAND CA	BLH-30211ACV	268A 101.5	5.700 100.0	38-35-47 121-40-49	343.0 SS	95.00 23.00	72 CLEAR
KCDU LIC	CARMEL CA	BLH-941228KG	269A 101.7	2.350 161.0	36-33-09 121-47-17	195.7	141.27 26.27	115 CLEAR
KKIQ-FM1 LIC	HAYWARD CA	BLFTB-30625AAO	269D 101.7	0.600 0.0	DA 37-40-43 122-04-58	260.3	64.63 0.00	0 BOOST
KKIQ LIC	LIVERMORE CA	BMLH-900130KA	269A 101.7	4.500 116.0	37-35-42 121-39-42	232.5	33.48 -81.52	115 SHORT
KHTH-FM1 LIC	PETALUMA CA	BLFTB-930712TD	269D 101.7	0.045 400.0	DA 38-19-56 122-35-42	300.0	124.56 0.00	0 BOOST
KHTH LIC	SANTA ROSA CA	BLH-920818KG	269B1 101.7	2.200 332.0	DA 38-30-31 122-39-41	305.9 SS	139.89 -3.11	143 SHORT
K269FB LIC	SAUSALITO CA	BLFT-20410AEF	269D 101.7	0.025 351.0	DA 37-51-04 122-29-50	275.0	100.41 0.00	0 TRANS
K269FB CP	SAUSALITO CA	BPFT-31217DGV	269D 101.7	0.250 147.0	DA 37-47-54 122-24-59	271.7	93.03 0.00	0 TRANS

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SEARCH PARAMETERS FM Database Date: 150316

Channel: 269A 101.7 MHz Page 2

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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)
KKIQ-FM2 LIC	TRACY CA	BLFTB-930614TA	269D 101.7	1.200 85.0	37-46-52 121-21-37	5.0	0.28 0.00	0 BOOST
K270BE LIC	MODESTO CA	BLFT-61206ADN	270D 101.9	0.055 63.0	37-38-03 120-59-50	116.6	35.83 0.00	0 TRANS
KNTY LIC	SHINGLE SPRINGS CA	BLH-10925AAQ	270B 101.9	47.000 154.0	38-51-12 120-56-23	16.9 SS	124.84 11.84	113 CLEAR
KRBQaux LIC	SAN FRANCISCO CA	BXLH-900604KB	271B 102.1	16.000 294.0	37-50-57 122-29-56	274.8	100.54 0.00	0 AUX
KRBQ-FM2 LIC	SAN FRANCISCO CA	BLFTB-60209AAG	271D 102.1	1.000 0.0	37-52-54 121-55-05	283.3	50.40 0.00	0 BOOST
KRBQ LIC	SAN FRANCISCO CA	BMLH-20530ALA	271B 102.1	33.000 319.0	37-51-03 122-29-51	274.9	100.43 31.43	69 CLEAR
K271BX CP	STOCKTON CA	BNPFT-30321AAB	271D 102.1	0.025 56.0	37-57-24 121-17-15	17.9	20.78 0.00	0 TRANS
KJSN LIC	MODESTO CA	BMLH-00211ABM	272A 102.3	6.000 88.0	37-40-50 120-55-26	105.7	40.00 9.00	31 CLOSE

===== END OF FM SPACING STUDY FOR CHANNEL 269 =====

**March 2015**  
**FM Booster KKIQ-FM2**  
**Tracy, California Channel 269D**  
**RF Exposure Study**

**Facilities Proposed**

The proposed booster operation will be on Channel 269D (101.7 MHz) with a maximum lobe effective radiated power of 1.2 kilowatts. Operation is with separate Scala CL-FM antennas, one each in the vertical and horizontal polarizations.

Notice of the proposed tower coordinate correction has been filed with the Federal Aviation Administration on FAA Form 7460-1. Upon receipt of the FAA's determination of no hazard, modification of the FCC Antenna Structure Registration for the tower will be filed on Form 854.

**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.

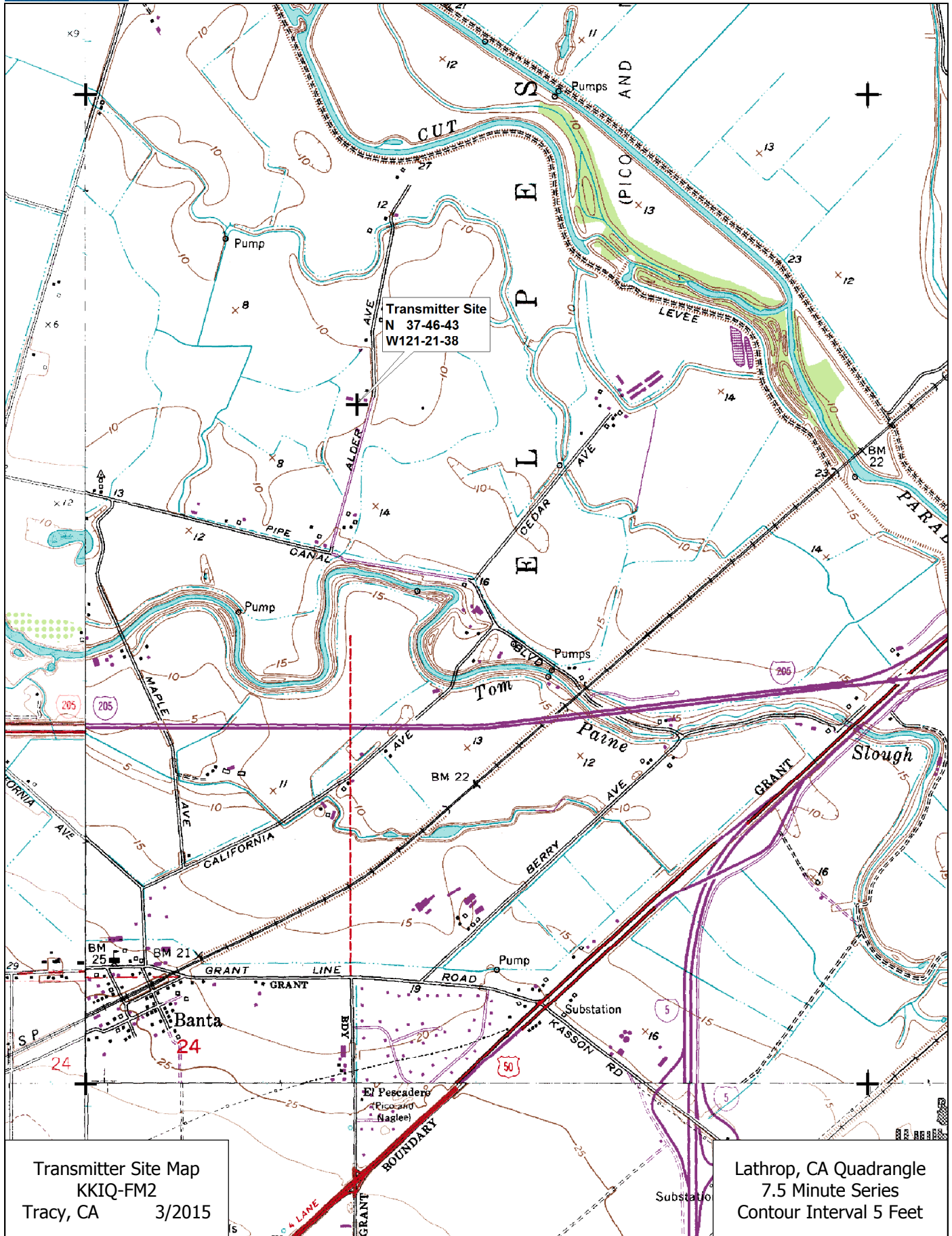
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

"Worst case" calculations of the ground-level power density produced by the vertically-polarized component of the booster antenna system have been made assuming that the antenna radiates 100% power straight down to a point 2 meters above ground (97 meters below the antenna). Under this worst-case assumption, the highest calculated ground level power density from the booster occurs at the base of the antenna support structure. At this point the power density is calculated to be 4.3  $\mu W/cm^2$ .

"Worst case" calculations of the ground-level power density produced by the horizontally-polarized component of the booster antenna system have been made assuming that the antenna radiates 100% power straight down to a point 2 meters above ground (94 meters below the antenna). Under this worst-case assumption, the highest calculated ground level power density from the booster occurs at the base of the antenna support structure. At this point the power density is calculated to be 4.5  $\mu W/cm^2$ .

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation of KKIQ-FM2 (were the horizontal and vertical maxima to coincide) is  $8.8 \mu\text{W}/\text{cm}^2$ , which is 4.4% 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.



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