

April 2015
FM Booster KKIQ-FM1
Hayward, California Channel 269D
Allocation Study

The instant application is being filed in order to modify the authorized facility of FM booster KKIQ-FM1 at Hayward, California, to match the corrected coordinates of the structure 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: 150401

Channel: 269A 101.7 MHz
 Latitude: 37 40 44
 Longitude: 122 4 55
 Safety Zone: 32 km
 Job Title: KKIQ-FM1 HAYWARD

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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)
K216FV LIC	CONCORD CA	BLFT-41012ABM	216D 91.1	0.010 0.0	37-52-54 121-55-05	32.5	26.74 0.00	0 TRANS
KCSM LIC	SAN MATEO CA	BLED-00921ACN	216B1 91.1	11.000 113.3	37-32-08 122-20-00	234.3	27.31 15.31	12 CLEAR
KCSMaux LIC	SAN MATEO CA	BXLED-00930AJX	216B1 91.1	8.900 101.9	37-32-08 122-19-60	234.3 SS	27.31 0.00	0 AUX
KIOI-FM2 LIC	PLEASANTON CA	BLFTB-990225UB	267D 101.3	0.900 0.0	37-39-34 121-55-54	99.2	13.43 0.00	0 BOOST
KIOIaux LIC	SAN FRANCISCO CA	BLH-790820AB	267B 101.3	61.000 360.0	37-41-24 122-26-13	272.4	31.34 0.00	0 AUX
KIOI LIC	SAN FRANCISCO CA	BLH-6225	267B 101.3	125.000 354.0	37-41-24 122-26-13	272.4	31.34 -37.66	69 SHORT
KIOIaux CP	SAN FRANCISCO CA	BXPH-40808AAH	267B 101.3	9.000 394.0	37-41-17 122-26-07	272.0	31.18 0.00	0 AUX
KIOI-FM1 LIC	WALNUT CREEK CA	BLFTB-990225UC	267D 101.3	0.150 300.0	37-55-57 122-07-20	352.9	28.37 0.00	0 BOOST
KSTG-LP LIC	LODI CA	BLL-90701AAB	268L1 101.5	0.100 28.1	38-07-08 121-15-39	55.6	87.18 31.18	56 CLEAR
KCDU LIC	CARMEL CA	BLH-941228KG	269A 101.7	2.350 161.0	36-33-09 121-47-17	168.2	127.70 12.70	115 CLEAR
KKIQ-FM1 LIC	HAYWARD CA	BLFTB-30625AAO	269D 101.7	0.600 0.0	37-40-43 122-04-58	247.2	0.08 0.00	0 BOOST
KKIQ LIC	LIVERMORE CA	BMLH-900130KA	269A 101.7	4.500 116.0	37-35-42 121-39-42	104.0	38.25 -76.75	115 SHORT
KKIQ APP	LIVERMORE CA	BPH-50316ABZ	269A 101.7	4.100 123.0	37-35-42 121-39-43	104.0	38.22 -76.78	115 SHORT

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Latitude: 37 40 44

Longitude: 122 4 55

Safety Zone: 32 km

Job Title: KKIQ-FM1 HAYWARD

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KKIQaux APP	LIVERMORE CA	BXPB-50316ACA	269A 101.7	2.450 123.0	37-35-42 121-39-43	104.0	38.22 0.00	0 AUX
KHTH-FM1 LIC	PETALUMA CA	BLFTB-930712TD	269D 101.7	0.045 400.0	38-19-56 122-35-42	328.4	85.38 0.00	0 BOOST
KHTH LIC	SANTA ROSA CA	BLH-920818KG	269B1 101.7	2.200 332.0	38-30-31 122-39-41	331.4 SS	105.19 -37.81	143 SHORT
K269FB LIC	SAUSALITO CA	BLFT-20410AEF	269D 101.7	0.025 351.0	37-51-04 122-29-50	297.8	41.28 0.00	0 TRANS
K269FB CP	SAUSALITO CA	BPFT-31217DGV	269D 101.7	0.250 147.0	37-47-54 122-24-59	294.4	32.32 0.00	0 TRANS
KKIQ-FM2 LIC	TRACY CA	BLFTB-930614TA	269D 101.7	1.200 85.0	37-46-52 121-21-37	79.6	64.62 0.00	0 BOOST
KKIQ-FM2 CP	TRACY CA	BPFTB-50326AAN	269D 101.7	1.200 0.0	37-46-43 121-21-38	79.9	64.55 0.00	0 BOOST
K270BE LIC	MODESTO CA	BLFT-61206ADN	270D 101.9	0.055 63.0	37-38-03 120-59-50	92.6	95.85 0.00	0 TRANS
KYTH-LP CP MOD	SANTA CRUZ CA	BMPL-50223ACA	270L1 101.9	0.003 167.4	37-00-28 122-04-23	179.4	74.49 18.49	56 CLEAR
KRBQ LIC	SAN FRANCISCO CA	BMLH-20530ALA	271B 102.1	33.000 319.0	37-51-03 122-29-51	297.8	41.29 -27.71	69 SHORT
KRBQaux LIC	SAN FRANCISCO CA	BXLH-900604KB	271B 102.1	16.000 294.0	37-50-57 122-29-56	297.4	41.32 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	32.5	26.74 0.00	0 BOOST

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

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Hayward, 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 460 watts. Operation is with two Scala CL-FM(V) antennas, one each at zero and 165 degrees True.

The antenna support structure 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.

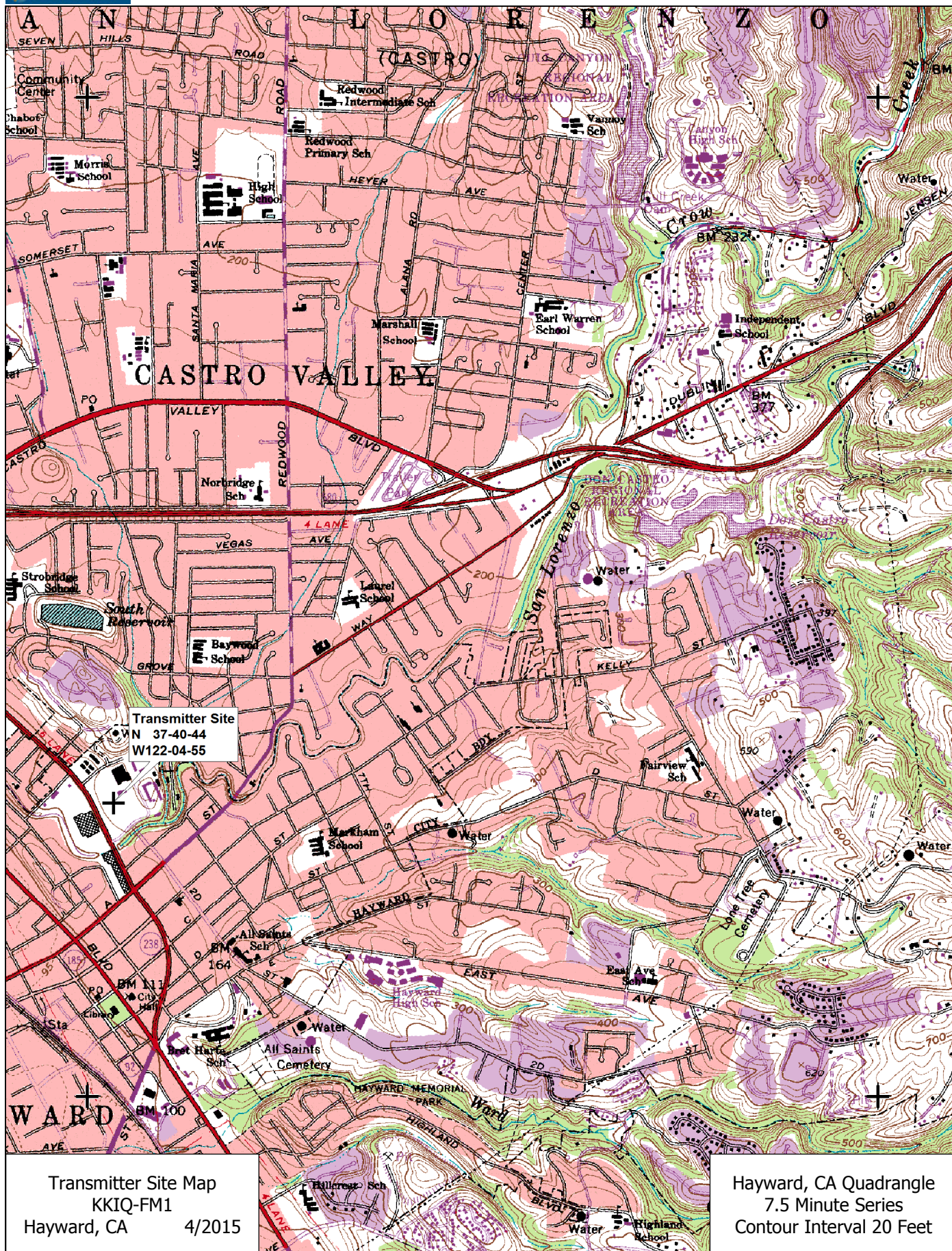
Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 1000 meters. Values past this point are increasingly negligible.

"Worst case" calculations of the ground-level power density produced by the booster antenna system have been made assuming that the antenna radiates 100% power straight down to a point 2 meters above ground (32 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 15.0 $\mu W/cm^2$, which is 7.5% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

The antenna will be installed on a metal pipe extending above a building rooftop, with the antenna radiation center located 3 feet above the roof of the mechanical penthouse. There is no public access to the main building rooftop, which is about 13 feet below the antenna's radiation center.

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.

Hatfield & Dawson Consulting Engineers



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