

March 2015
FM Booster KKDV-FM3
Martinez, California Channel 221D
Allocation Study

The instant application is being filed in order to modify the authorized facility of FM booster KKDV-FM3 at Martinez, California. 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.

=====

SEARCH PARAMETERS

FM Database Date: 150316

Channel: 221A 92.1 MHz
 Latitude: 38 0 43
 Longitude: 122 8 9
 Safety Zone: 32 km
 Job Title: KKDV-FM3 MARTINEZ

Page 1

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
KASK LIC	FAIRFIELD CA	BLED-70727AJF	218A 91.5	0.075 198.0	38-19-09 121-59-31	20.2	36.36 5.36	31 CLOSE
KRVH LIC	RIO VISTA CA	BLED-60922ACG	218D 91.5	0.050 31.0	38-09-17 121-41-48	67.4	41.66 0.00	0 CLS=D
KALW LIC	SAN FRANCISCO CA	BLED-1644	219B1 91.7	1.900 280.0	37-45-17 122-26-44	223.6	39.47 -8.53	48 SHORT
K220JV LIC	BYRON CA	BLFT-10308AAL	220D 91.9	0.010 617.0	37-49-17 121-46-49	124.1	37.75 0.00	0 TRANS
K220JB LIC	LEISURE TOWN CA	BMLFT-40219AAU	220D 91.9	0.010 750.0	38-23-32 122-05-46	4.7	42.35 0.00	0 TRANS
KLVR LIC	MIDDLETOWN CA	BMLD-00201AAJ	220B 91.9	0.830 911.0	38-40-09 122-37-53	329.6 SS	84.85 -28.15	113 SHORT
K220BV LIC	SAN JOSE, ETC. CA	BLFT-30925ATN	220D 91.9	0.010 932.0	37-09-35 121-54-29	168.0	96.70 0.00	0 TRANS
KKDV-FM3 LIC	MARTINEZ CA	BLFTB-931118TD	221D 92.1	0.253 0.0	38-00-43 122-08-10	321.8	0.04 0.00	0 BOOST
K221DQ CP	PETALUMA CA	BPFT-30327AGV	221D 92.1	0.010 353.0	37-50-57 122-29-56	240.5	36.68 0.00	0 TRANS
K221DQ LIC	PETALUMA CA	BLFT-60120ADV	221D 92.1	0.010 537.0	38-19-57 122-35-40	311.8	53.68 0.00	0 TRANS
NEW CP	SACRAMENTO CA	BNPL-31104AUY	221L1 92.1	0.083 32.8	38-33-07 121-27-58	44.0	83.82 16.82	67 CLEAR
NEW CP	STOCKTON CA	BNPL-31114BXL	221L1 92.1	0.100 15.2	37-59-31 121-17-22	91.5	74.37 7.37	67 CLOSE
KKDV LIC	WALNUT CREEK CA	BMLH-90325ACY	221A 92.1	3.000 24.0	37-54-02 122-05-07	160.3	13.14 -101.86	115 SHORT
KKDVaux APP	WALNUT CREEK CA	BXPB-50310AJI	221A 92.1	3.000 19.0	37-54-02 122-05-07	160.3	13.14 0.00	0 AUX

```

=====
SEARCH PARAMETERS                               FM Database Date: 150316
Channel: 221A      92.1 MHz                      Page 2
Latitude: 38 0 43
Longitude: 122 8 9
Safety Zone: 32 km
Job Title: KKDV-FM3 MARTINEZ

```

Call Status	City St	FCC File No.	Channel Freq.	ERP(kW) HAAT(m)	Latitude Longitude	Bearing deg-True	Dist (km)	Req (km)
K222CO LIC	LAGUNITAS CA	BLFT-40509ABR	222D 92.3	0.010 416.0	38-01-37 122-42-55	272.1	50.91 0.00	0 TRANS
KSJO LIC	SAN JOSE CA	BLH-80214ABH	222B 92.3	32.000 136.0	37-12-32 121-46-27	160.3	94.68 -18.32	113 SHORT
KSJOaux LIC	SAN JOSE CA	BXLH-50602ACB	222B 92.3	7.500 115.0	37-12-32 121-46-27	160.3	94.68 0.00	0 AUX
NEW CP	SANTA ROSA CA	BNPL-31113BSB	222L1 92.3	0.100 12.7	38-29-33 122-43-28	316.3	74.16 18.16	56 CLEAR
NEW CP	SANTA ROSA CA	BNPL-31113BTH	222L1 92.3	0.100 12.7	38-29-33 122-43-28	316.3	74.16 18.16	56 CLEAR
KBEB LIC	SACRAMENTO CA	BLH-850412KK	223B 92.5	50.000 137.0	38-42-26 121-28-33	36.5	96.35 27.35	69 CLEAR
KREV LIC	ALAMEDA CA	BLH-40110AAC	224A 92.7	6.000 DA 100.0	37-42-58 122-23-38	214.6 SS	39.92 8.92	31 CLOSE
KBLXaux LIC	BERKELEY CA	BLH-920702KB	275B 102.9	7.000 336.0	37-41-20 122-26-07	216.3	44.50 0.00	0 AUX
KBLX-FM LIC	BERKELEY CA	BLH-41219ACO	275B 102.9	7.200 387.0	37-41-21 122-26-08	216.3	44.49 29.49	15 CLEAR
KBLX-FM LIC	BERKELEY CA	BMLH-31127BJS	275B 102.9	6.600 393.0	37-41-20 122-26-07	216.3	44.50 29.50	15 CLEAR
KBLX-FM2 LIC	PLEASANTON CA	BLFTB-10302ABP	275D 102.9	0.185 DA 927.0	37-52-55 121-55-05	127.1	23.97 0.00	0 BOOST

===== END OF FM SPACING STUDY FOR CHANNEL 221 =====

March 2015
FM Booster KKDV-FM3
Martinez, California Channel 221D
RF Exposure Study

Facilities Proposed

The proposed booster operation will be on Channel 221D (92.1 MHz) with an effective radiated power of 253 watts.

The proposed antenna support structure will 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.

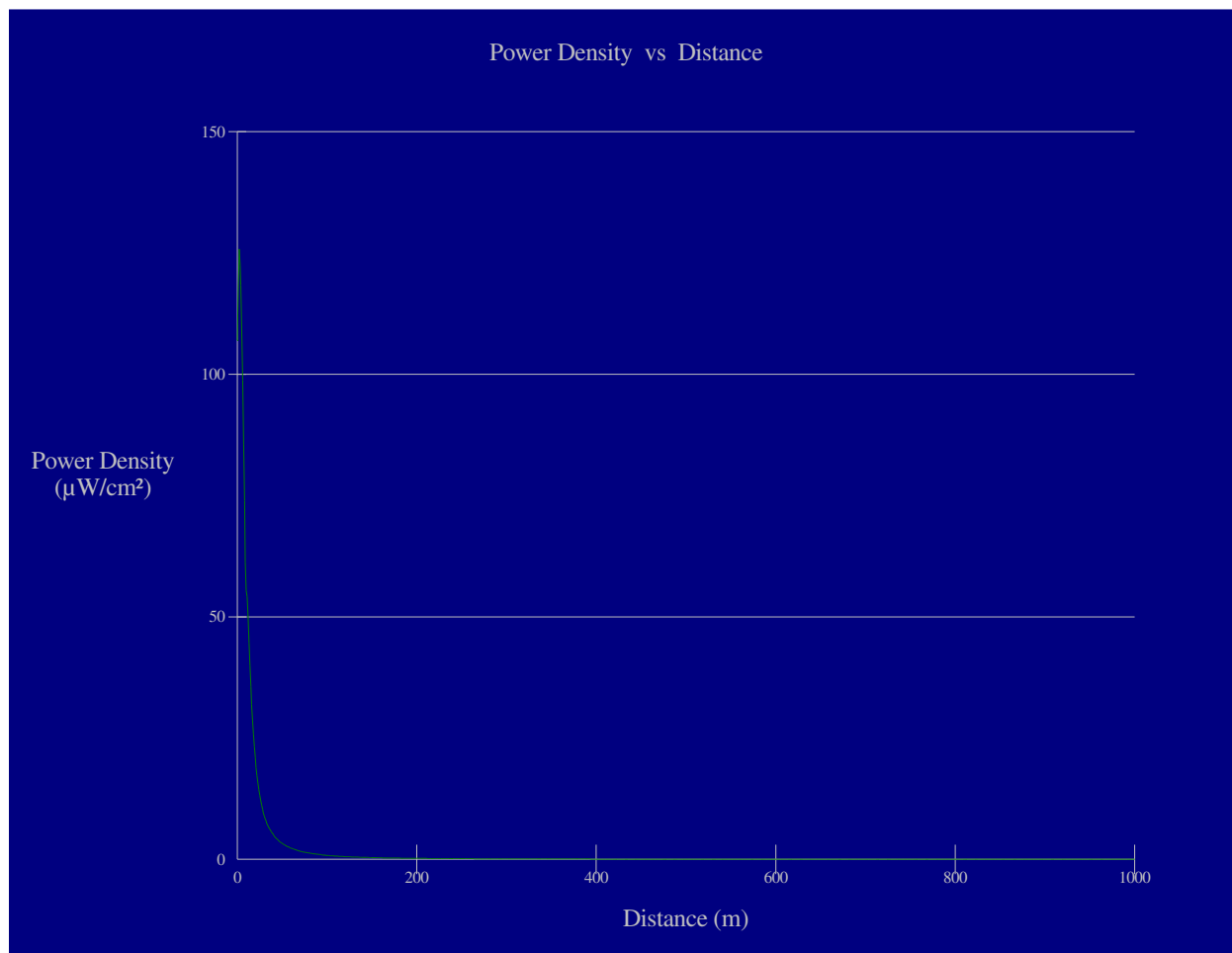
Calculations of the ground-level power density produced by the proposed booster antenna system have been made using the "worst case" element pattern for a dipole antenna. Under this worst-case assumption, the highest calculated ground level power density from the booster occurs at a distance of 2 meters from the base of the antenna support structure. At this point the power density is calculated to be 125.8 $\mu W/cm^2$, which is 63% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).¹

The antenna will be installed on a metal pipe extending above a building rooftop, with the antenna

¹ When this calculation is performed using the manufacturer's vertical plane pattern for the Scala CL-FM(V) antenna, the highest calculated ground level power density from the booster occurs at a distance of 13 meters from the base of the antenna support structure. At this point the power density is calculated to be 13.9 $\mu W/cm^2$, which is just 7% of 200 $\mu W/cm^2$ (the FCC standard for uncontrolled environments).

radiation center located 8 feet above the highest point of the peaked roof. There is no permanently installed ladder or staircase accessing the roof.

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

KKDV-FM3 Martinez

Antenna Type: Scala CL-FM(V) (dipole element model assumed)

No. of Elements: 1

Element Spacing: dna

Distance: 1000 meters

Horizontal ERP: zero W

Vertical ERP: 253 W

Antenna Height: 10 meters AGL

Maximum Calculated Power Density is 125.8 $\mu\text{W}/\text{cm}^2$ at 2 meters from the antenna structure.

Hatfield & Dawson Consulting Engineers

