

Engineering Statement San Francisco Community Radio Application for LPFM Station

Location Consideration

To best provide a radio signal over the City and County of San Francisco a central location is desired and approximately in the center of the City and County of San Francisco is Twin Peaks and Mount Sutro. Located on Mount Sutro is the Mount Sutro Tower that is already an existing radio and television transmitter location.

Unfortunately for a LPFM location this site is 248.3m AMSL. The proposed antenna location is the lowest potential location available on the tower, the second level of Sutro Tower at 58m AGL.

Calculation of average terrain per §73.313 using the National Land Cover Database with 1 degree radials over the full 360 degrees results in an average terrain height of 28.62 meters.

§73.313 (d) (2) allows a radial to be completely omitted from the computation of antenna height above average terrain where the entire 3 to 16 kilometers portion of the radial extends over large bodies of water and the 50 $\mu\text{V}/\text{m}$ (34 dBu) contour does not so encompass United States land area. The radials to the west from 199° to 305° are over the Pacific Ocean that clearly is a large body of water with no land area. Radials from the southeast from 108° to 140° are where the 34 dBu contour is fully over the San Francisco Bay.

With the radials over water eliminated the average terrain is 35.84 meters.

The ground height at Mt. Sutro is 248.3 meters AMSL and the proposed antenna location on the second level of the Mount Sutro Tower is 58.0 meters AGL, for an antenna height AMSL of 306.3 meters. The antenna height above average terrain is 270.5 meters.

§73.333 Figure 1 with a Transmitting Antenna Height of 270 meters and Distance of 5.6 km shows the power is 28 dB below 1 kW. This calculates to an ERP of 2 Watts.

Channel Separation Analysis

There are no FM channels that meet the requirements of §73.807 in and around San Francisco. There are only a few that may be useable with a second-adjacent channel waiver. After consideration of the few potential channels, Channel 273, 102.5 MHz was selected for this application. The instant application is requesting a waiver of §73.807 (a) as allowed in §73.807 (e) (1).

Mass Media CDBS search shows co-channel KSFM, Class B, at 112.3 km distant and KDON-FM, Class B, at 139.3 km distant meeting the requirement of §73.807 (a).

Mass Media CDBS search shows nearest lower first adjacent channel KJSN, Class A, at 210.3 km distant meeting the requirement of §73.807 (a).

Mass Media CDBS search shows nearest upper first adjacent channel KWVF, Class A, at 96.0 km distant meeting the requirement of §73.807 (a).

Mass Media CDBS search shows lower second adjacent channel 102.1 MHz, KUZX, Class B, at 11.3 km distant, transmitting from Mt. Beacon to the north of San Francisco.

Mass Media CDBS search shows upper second adjacent upper channel 02.9 MHz, KBLX, Class B, at 7.5 km distant, transmitting from Mount San Bruno to the south of San Francisco.

Interference Consideration

At the proposed ERP of 2.0 Watts there is no 94 dB μ V/m contour for the proposed station. The highest signal level contour that can be displayed is 87 dB μ V/m with a small radius. On the exhibit maps, this contour is displayed in blue as "cochannel interference".

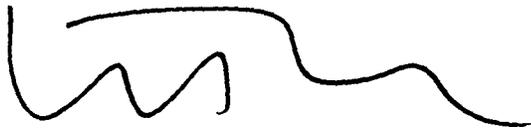
Engineering Exhibit Map 1 shows the proposed service area contour (green) and highest level contour, 87 dB μ V/m (blue).

Engineering Exhibit Map 2 shows the proposed contours vs. second adjacent channel KUZX and KBLX-FM. This map shows that KUZX 87 dB μ V/m contour touching the proposed 87 dB μ V/m contour and the KBLX-FM 94 dB μ V/m contour (yellow) touching the proposed 87 dB μ V/m contour. At no time does the proposed station contours exceed either second adjacent channel contour.

In perspective, a map at a much larger scale, Engineering Exhibit Map 3, shows the service area contours of KUZX and KBLX-FM and suggests that the proposed service area is substantially smaller than the existing KUZX and KNBLX-FM service area. The proposed 87 dB μ V/m contour of the proposed station is not discernable at this scale.

As shown on the exhibit maps at no time does the proposed contours exceed the existing second adjacent station contours and considering the extremely limited area of high signal level from the proposed LPFM station no interference is expected to second adjacent stations KUZX and KBLX-FM.

The above was prepared by myself using good engineering practices.

A handwritten signature in black ink, appearing to read 'W. Ruck', with a horizontal line above the first part of the signature.

William F. Ruck
PG-12-7920

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EDX® SignalPro®: SFGR LPFM APP 102-5 NAD27

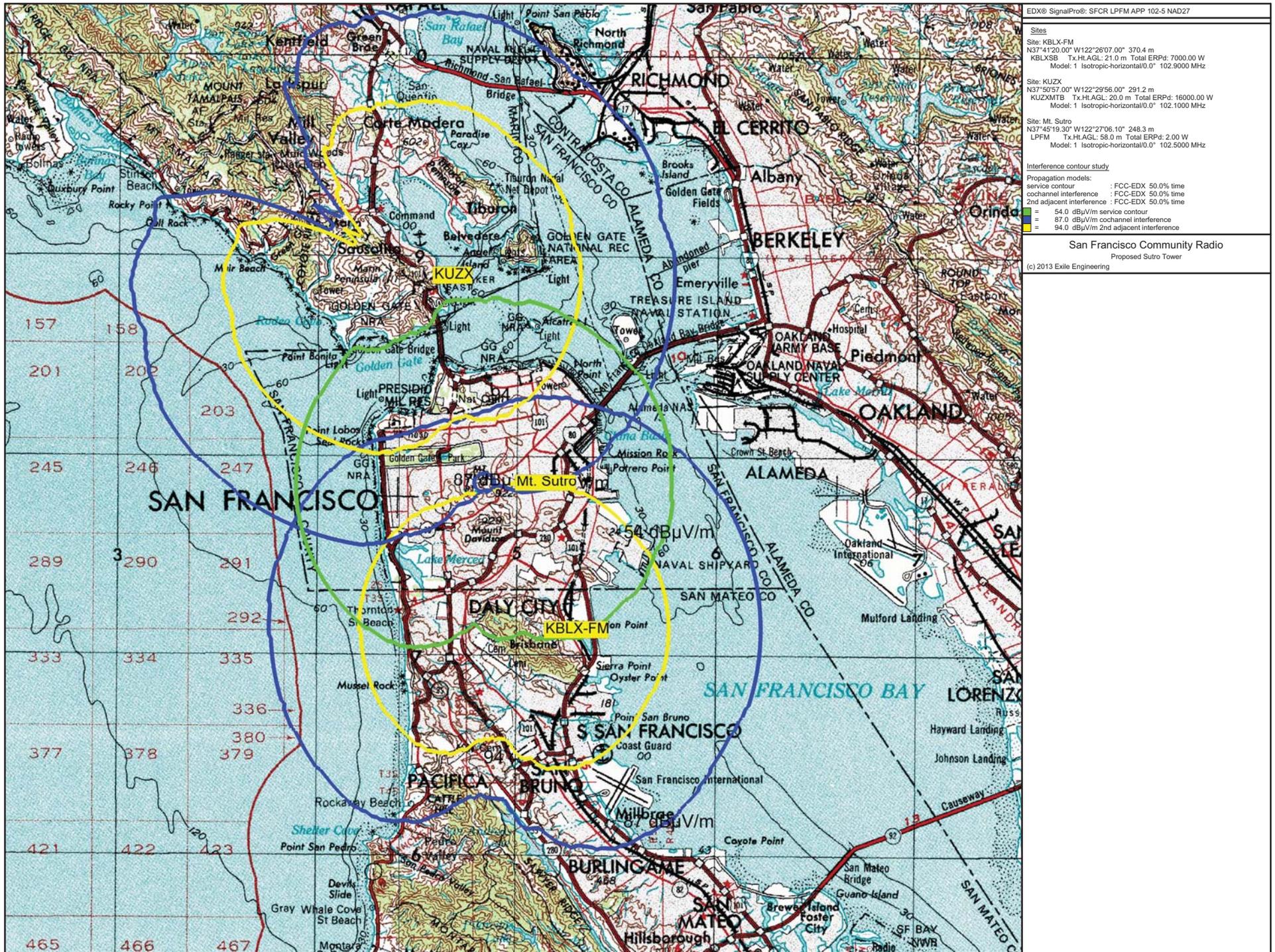
Sites
 Site: Mt. Sutro
 N37°45'19.30" W122°27'06.10" 248.3 m
 LPFM Tx: Ht:AGL: 58.0 m Total ERPd: 2.00 W
 Model: 1 Isotropic-horizontal/0.0° 102.5000 MHz

Interference contour study
 Propagation models: : FCC-EDX 50.0% time
 service contour : FCC-EDX 50.0% time
 cochannel interference : FCC-EDX 50.0% time
 2nd adjacent interference : FCC-EDX 50.0% time

■ = 54.0 dBuV/m service contour
■ = 87.0 dBuV/m cochannel interference
■ = 94.0 dBuV/m 2nd adjacent interference

San Francisco Community Radio
 Proposed Sutro Tower

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Sites

Site: KBLX-FM
 N37°41'20.00" W122°26'07.00" 370.4 m
 KBLXSB Tx.Ht.AGL: 21.0 m Total ERPd: 7000.00 W
 Model: 1 Isotropic-horizontal/0.0° 102.9000 MHz

Site: KUZX
 N37°50'57.00" W122°29'56.00" 291.2 m
 KUZXMTB Tx.Ht.AGL: 20.0 m Total ERPd: 16000.00 W
 Model: 1 Isotropic-horizontal/0.0° 102.1000 MHz

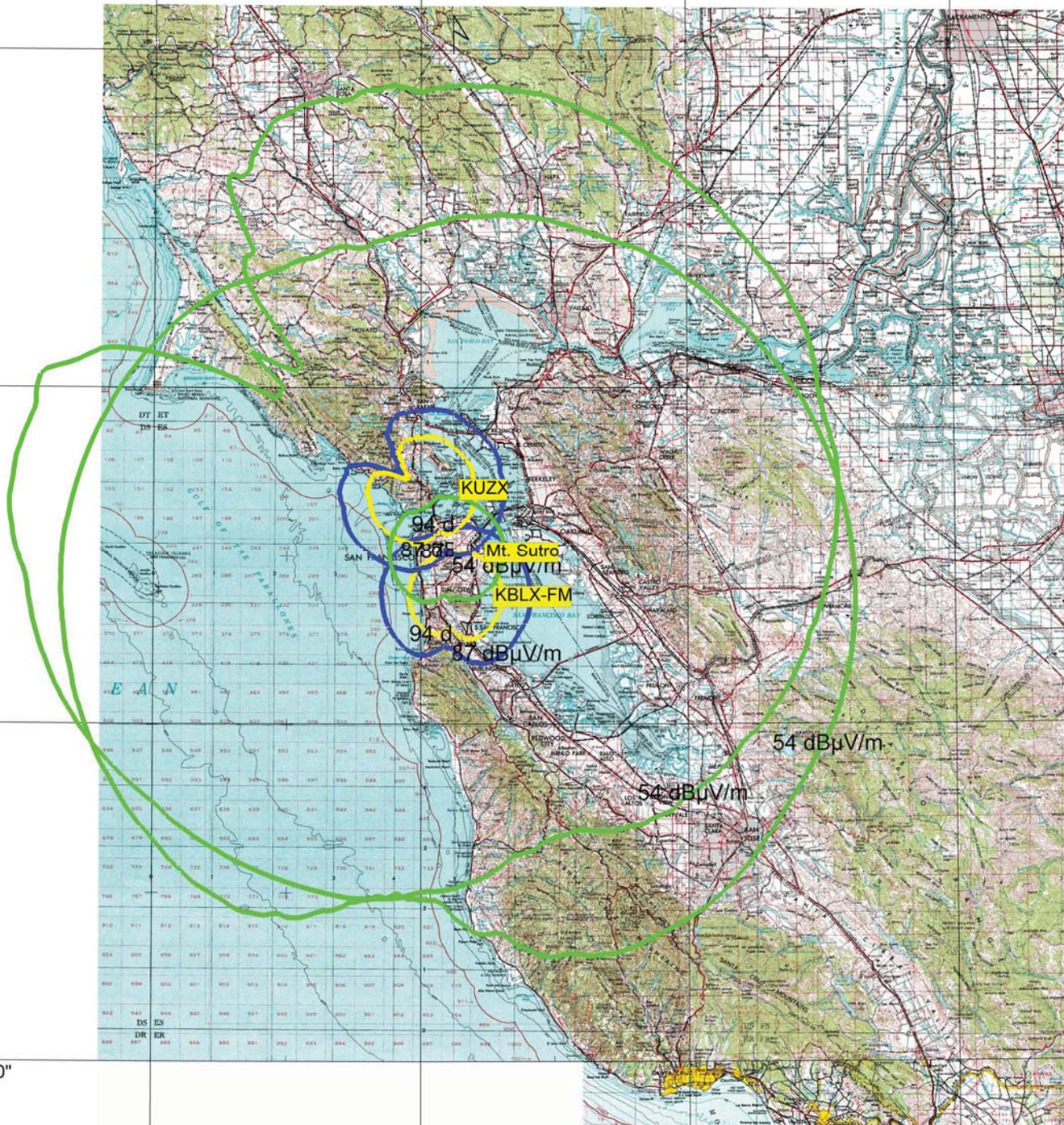
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 service contour : FCC-EDX 50.0% time
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■ = 54.0 dBµV/m service contour
 ■ = 87.0 dBµV/m cochannel interference
 ■ = 94.0 dBµV/m 2nd adjacent interference

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N37°00'00.00"
 W123°30'00.00"