

ENGINEERING STATEMENT

The engineering data contained herein have been prepared on behalf of CHINESE CULTURE AND ART HERITAGE FOUNDATION in support of its Application for Construction Permit to operate a Low Power FM station on Channel 245 (96.9 MHz) in San Francisco, California

It is proposed to mount a standard two-bay circularly polarized antenna at the 4-meter level of an existing building. The proposed effective radiated power is 10 watts. Exhibit B is a map upon which the proposed 60 dBu service contour for the proposed facility is plotted. It is important to note that the proposed location meets all of the Commission's spacing requirements to pertinent co-channel and adjacent-channel full-power, FM translator and LPFM stations, except in two instances. The proposed site is short-spaced to second-adjacent-channel station KOIT(FM) and KLLC(FM) in San Francisco, California. As a result, we request a waiver of the Commission's Rules with respect to KOIT(FM) and KLLC(FM) and the justification appears in Exhibit C. We have also determined that the proposed facility should not cause objectionable interference to the input signal of any existing translator station, based on the information contained in the FCC's CDBS database.

Employing the methods of OET Bulletin No. 65, and based on the elevation pattern of a standard 2-bay FM antenna, maximum power density two meters above ground of  $0.0024 \text{ mW/cm}^2$  is calculated to occur 4 meters from the base of the tower. Since this is only 1.2 percent of the  $0.2 \text{ mW/cm}^2$  reference for uncontrolled environments (areas with public access) surrounding a facility operating in the FM band, a grant of this proposal can be considered a

EXHIBIT A

minor environmental action with respect to human exposure to non-ionizing electromagnetic radiation. Further the station owner will take whatever precautionary steps are necessary to ensure that workers operating in the vicinity of the antenna are not exposed to RF energy in excess of the Commission's guideline values.

Due to the diminutive height of the existing building and its proximity to the nearest airport runways, the FAA has not been notified of this application. In addition, FCC registration of this structure is not required for the same reasons. This conclusion is supported by the Commission's TOWAIR program.

I declare under penalty of perjury that the foregoing statements and the attached exhibit, which was prepared by me or under my immediate supervision, are true and correct to the best of my knowledge and belief.



KYLE T. FISHER

November 14, 2013

**CONTOUR POPULATION  
2010 U.S. CENSUS DATA  
186,041**



**Proposed Site**

Latitude: 37-46-44.70 N  
Longitude: 122-29-59.60 W  
ERP: 0.01 kW  
Channel: 245  
Frequency: 96.9 MHz  
AMSL Height: 115.2 m  
Horiz. Pattern: Omni

**60 DBU FCC  
CONTOUR**

San Francisco

Proposed-Site

San Francisco

Daly City

Colma

Brisbane

**PREDICTED SERVICE CONTOUR  
PROPOSED LPFM STATION  
96.9 MHZ - SAN FRANCISCO, CA**

Scale 1:125,000



REQUEST FOR WAIVER OF SECOND-ADJACENT-CHANNEL SPACING RULE  
PROPOSED LPFM STATION  
CHANNEL 245 – SAN FRANCISCO, CALIFORNIA

The site proposed herein is located 5.0 kilometers from that of KOIT(FM), which operates on Channel 243B in San Francisco, and 8.0 kilometers from the site of KLLC(FM), Channel 247B in San Francisco. Since the required spacing to each of these stations is 66.5 kilometers, a waiver of the Commission's spacing rules with regard to these stations is requested and believed to be justified for the reasons stated below.

In Exhibit C-2, we have plotted the proposed LPFM site. As shown, the 105.5 dBu contour of KOIT and the 103.5 dBu contour of KLLC pass very close to the proposed site. Based on the 40 dB desired-to-undesired ratio applied to second-adjacent-channel situations such as this, we have also plotted the proposed LPFM 145.5 and 143.5 dBu interference contours, respectively, both of which extend less than 10 meters from the antenna. Since the antenna will be mounted 10 meters above ground, the proposed LPFM facility will not cause any adverse effect on the reception of either KOIT or KLLC.

Further, we have conducted a Longley-Rice-based interference analysis for each station, the results of which are attached as Exhibits C-3 and C-4. The studies were run with a cell size of 1.0 kilometer and a 0.1- kilometer increment spacing. It calculates predicted interference (based on the 40 dB desired-to-undesired ratio for second-adjacent-channel situations such as this) from the proposed LPFM station in locations where there is a signal of at least 54 dBu for KOIT or KLLC available.

**EXHIBIT C-1**

The studies conclude that there is no population within the KOIT or KLLC protected contours that would be adversely affected by the operation of the proposed LPFM station.

Accordingly, a waiver of the Commission's Rules with regard to KOIT and KLLC is requested and believed to be justified.

NOTE : PROPOSED LPFM INTERFERENCE CONTOUR EXTENDS LESS THAN 10 METERS FROM ANTENNA. SINCE ANTENNA WILL BE MOUNTED 10 METERS ABOVE GROUND, NO ADVERSE EFFECT ON THE RECEPTION OF KOIT OR KLLC IS PREDICTED.



Sausalito

KLLC

KOIT 105.5 DBU  
FCC CONTOUR

Proposed Site

San Francisco

KLLC 103.5 DBU  
FCC CONTOUR

PROPOSED LPFM  
INTERFERENCE  
CONTOUR (<10 M.)

KOIT

San F

Scale 1:72,743

0 0.67 1.33 2.0 mi

EXHIBIT C-2  
WAIVER REQUEST FOR KOIT AND KLLC  
PROPOSED LPFM STATION  
96.9 MHZ - SAN FRANCISCO, CA

*Smith and Fisher Population Report**KOIT (243) San Francisco, CA - BMLH20111004ACJ**Lat: 37-45-19 N Lng: 122-27-06 W ERP: 24.0 kW AMSL: 511.0 m**FM Interference Study**Protected: FCC F(50-50): 54 dBu**Interference considered within 100 km.**Signal Resolution: 1.0 km**Study Date: 11/14/2013**FM Database Date: 10/25/2013**D/U Ratios Used:**Co: 20.0 dB**First Adj: 6.0 dB**Second Adj: -40.0 dB**Third Adj: -40.0 dB**Threshold for reception: 54.0 dBu.**Primary Terrain: V-Soft 3 Second US Terrain**Secondary Terrain: V-Soft 3 Second Alaska Terrain**Population Database: 2010 US Census (PL)**Percentages calculated using a baseline population of 6,215,239.**Stations considered which do not cause interference:**Proposed San Francisco LPFM (245)**Totals for KOIT (243)**Calculation Area Population: 6,923,226 ( 22745.3 sq. km )**Not Affected by Terrain Loss: 6,215,239 ( 20349.1 sq. km )**Interfered Population: 0 ( 3138.5 sq. km )**Interference Free: 6,215,239 ( 17210.6 sq. km )**Percent Interference: 0.00**Terrain Blocked Population: 707,987 ( 2396.2 sq. km)**Contour Area Population: 6,922,337*

*Smith and Fisher Population Report**KLLC (247) San Francisco, CA - BMLH20080818ABJ**Lat: 37-51-03 N Lng: 122-29-51 W ERP: 82.0 kW AMSL: 368.0 m**FM Interference Study**Protected: FCC F(50-50): 54 dBu**Interference considered within 100 km.**Signal Resolution: 1.0 km**Study Date: 11/14/2013**FM Database Date: 10/25/2013**D/U Ratios Used:**Co: 20.0 dB**First Adj: 6.0 dB**Second Adj: -40.0 dB**Third Adj: -40.0 dB**Threshold for reception: 54.0 dBu.**Primary Terrain: V-Soft 3 Second US Terrain**Secondary Terrain: V-Soft 3 Second Alaska Terrain**Population Database: 2010 US Census (PL)**Percentages calculated using a baseline population of 6,432,427.**Stations considered which do not cause interference:**Proposed San Francisco LPFM (245)**Totals for KLLC (247)**Calculation Area Population: 6,827,853 ( 23014.6 sq. km )**Not Affected by Terrain Loss: 6,432,427 ( 21475.8 sq. km )**Interfered Population: 0 ( 2740.2 sq. km )**Interference Free: 6,432,427 ( 18735.5 sq. km )**Percent Interference: 0.00**Terrain Blocked Population: 395,426 ( 1538.8 sq. km)**Contour Area Population: 6,829,067*