

Engineering Statement  
**San Francisco Television Station KBCW Inc**  
KBCW(TV)(STA) San Francisco, California  
Facility ID 69619  
Ch. 45 790 kW(Max-DA) 483.7 m

*San Francisco Television Station KBCW Inc (CBS)* seeks approval to install and operate a temporary antenna that is required during repack reconstruction of the KBCW San Francisco, California main antenna.<sup>1</sup> The proposed directional antenna will be located 255.4 meters above ground level and 483.7 meters above average terrain (HAAT) on Sutro Tower, the main KBCW antenna support structure.<sup>2</sup> The antenna will operate with a maximum horizontally-polarized effective radiated power (ERP) of 790 kW and a vertically polarized ERP of 79.0 kW. This Statement addresses allocations, environmental, and radiofrequency factors related to this proposal.

The attached coverage map **Figure 1** demonstrates that the proposed service contour does not extend over land areas beyond that of the main KBCW antenna<sup>3</sup> as required by FCC Rule §73.1675.<sup>4</sup> The licensed and STA facilities are both 61.7 kilometers from the FCC monitoring station at Livermore, California, which is also indicated on **Figure 1**. Although this distance is less than the coordination radius specified in §73.1030(c), the proposed facility will have a lower antenna height and less ERP toward Livermore. Therefore, because operation of the proposed facility will *reduce* the field strength at Livermore compared to already authorized KBCW facility, the coordination requirement in the Rule is not triggered. There are no AM transmitter sites are within 3 kilometers of the proposed facility and no “significant modification” is proposed. Therefore, the KBCW antenna is expected to have no significant effect on any AM station antenna system. Considering the above, it is believed that the proposed facility satisfies all pertinent FCC allocation concerns.

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<sup>1</sup> Because the KBCW auxiliary antenna (file number BXLCDT-20130729AJR) is authorized for half the ERP and significantly less height than the main KBCW antenna, it is unsuited for long-term repack reconstruction project.

<sup>2</sup> See FCC Antenna Structure Registration number 1001289.

<sup>3</sup> See FCC file number BLCDDT-20110713AAE. The only contour extension shown is over the Pacific Ocean.

<sup>4</sup> §73.1675 specifies an analysis of Grade B contours. Because “Grade B” is not defined in a digital television context, Figure 1 provides dipole-corrected 41 dB $\mu$  contours instead.

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The proposed facility uses an existing tower with no change in overall height, marking specifications, or lighting specifications. Consequently, this application is categorically excluded from environmental processing.

The proposed operation was evaluated for human exposure to radiofrequency energy using equation ten (10) from the Commission's OET Bulletin No. 65 along with the antenna manufacturer's elevation pattern field values. RF exposure values were calculated at points two meters above ground level extending outward from the tower at antenna elevation slant-angles below the horizon. This study shows that the proposed facility would contribute a worst-case power density of 21.84  $\mu\text{W}/\text{cm}^2$  at a point approximately 152 meters from the tower. This is 4.97 percent of the FCC's 439.3  $\mu\text{W}/\text{cm}^2$  "uncontrolled/general population" exposure limit for UHF Channel 45 (659 MHz).

According to §1.1307(b)(3), facilities at locations with multiple emitters are categorically excluded from responsibility for taking corrective action in areas where their contribution is less than five percent of the limit. Since the calculated exposure is less than five percent at all ground level areas, the impact of other possible contributors should not be a factor.

Tower access will continue to be controlled and appropriate RF exposure warning signs will continue to be posted. A site exposure policy is in effect that includes restriction of access, power reduction, or the complete shutdown of facilities when work must be performed where predicted RF levels would otherwise exceed appropriate guidelines. On-site RF exposure measurements may also be undertaken to establish the bounds of safe working areas. The applicant will coordinate exposure procedures with all pertinent stations.

