

Engineering Statement
CBS Television Licenses LLC
WSBK-TV(Aux) Boston, Massachusetts
Facility ID 73982
Ch. 21 163 kW 349.7 m

CBS Television Licenses LLC (CBS) proposes to install an auxiliary antenna for WSBK-TV Boston, Massachusetts. The proposed facility will operate with a non-directional, elliptically-polarized antenna height 346.9 meters above ground level and 349.7 meters above average terrain (HAAT). The antenna will operate with a horizontally-polarized effective radiated power (ERP) of 163 kW and a vertically polarized ERP of 32 kW. The facility will be required starting October 19, 2019 for post-transition operation. This post-transition facility will be retained as a permanent auxiliary antenna.¹ 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 beyond that of the authorized WSBK-TV main antenna² as required by FCC Rule §73.1675.³ The proposed facility is within 3 kilometers of three directional AM stations.⁴ However, since no “significant modification” is proposed, FCC Rule §1.30002 is not triggered.⁵ The nearest FCC monitoring station is 294 kilometers from the proposed facility at Belfast, Maine, well beyond the protection radius specified in §73.1030(c). Thus, it is believed that the proposed facility satisfies all allocation matters.

The proposed facility uses an existing tower⁶ with no change in overall height, marking specifications, or lighting specifications. Consequently, this application is categorically excluded from environmental processing.

¹ Notably, although this application seeks a post-transition channel 21 facility, the FCC’s filing system incorrectly shows a grayed-out channel 39 that cannot be corrected.

² See FCC file number 0000034574 for the WSBK-TV post-transition Construction Permit.

³ §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 dBμ contours instead.

⁴ AM stations WRCA Watertown, WUNR Brookline, and WXKS Newton, all Massachusetts are all located 2.85 km from the proposed WSBK-TV site.

⁵ According to §1.30002(d), a “significant modification” would alter tower height by more than five electrical degrees at the AM station frequency or involve construction on a detuned or base-insulated tower. Neither of those cases apply in this instance.

⁶ See Antenna Structure Registration 1004233.

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The proposed operation was evaluated for human exposure to radiofrequency energy using equation ten (10) from the Commission's OET Bulletin No. 65 using a typical UHF antenna elevation pattern field value of 10 percent or less toward angles 45 degrees or more below the horizon.⁷ This study shows that the proposed facility would contribute a power density of 0.5 $\mu\text{W}/\text{cm}^2$ at two meters above ground level near antenna support structure, or 0.1 percent of the FCC's 343.3 $\mu\text{W}/\text{cm}^2$ "uncontrolled/general population" exposure limit for UHF Channel 21 (515 MHz). RF power density is expected to be even lower at ground level locations away from the base of the tower, due to the increasing distance from the transmitting antenna.

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.

⁷ See page 31, FCC OET Bulletin 65 Supplement A, August 1997.

