

AMERICAN NATIONAL STANDARD

Gas Turbine Installation Sound Emissions

ANSI B133.8 - 1977

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FOR CURRENT COMMITTEE PERSONNEL
PLEASE SEE ASME MANUAL AS-11

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APPENDIX B

GUIDE TO DETERMINE SPECIFIED C-WEIGHTED SOUND LEVEL

The sound level specified for Procedure A (see 2.2.1) must also include a C-weighted level for gas turbine installations located near occupied frame structures to avoid complaints of building vibration caused by low frequency airborne sound (see reference 6).

The first step in this procedure is to select a maximum value for the C-weighted sound level outside the nearest occupied frame structure. The upper limit for this C-weighted level at the nearest frame structure should be selected not to exceed 75 to 80 dB(C). The range of values is given because there is some uncertainty as to the sound level required to induce struc-

tural vibration in a frame structure.

After selecting an appropriate C-weighted sound level, the second step is to find a distance correction from Figure A2 which is added to it to obtain the C-weighted sound level at the specification distance at 400 ft (120m). As an example, for a selected sound level of 75 dB(C) at a residence at 1000 ft (300m) from the gas turbines, the specified level at 400 ft (120m) should not exceed 83 dB(C). This calculated C-weighted level at 400 ft (120m) is entered into Table 1A for the specification in Procedure A (see 2.3.1).

References for Appendices

1. "Community Noise," U.S. Environmental Protection Agency, NTID 300.3, December 31, 1971.
2. "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety," U.S. Environmental Protection Agency, 550/9-74-004, March 1974.
3. K. M. Eldred, "Assessment of Community Noise," Noise Control Engineering, Vol. 3, No. 2, September-October 1974.
4. L. L. Beranek, "Noise and Vibration Control," McGraw-Hill, New York, pp. 164-193 (1971).
5. R. B. Tatge, "Effect of Community Population on the Applicability of Noise Rating Procedures," Noise Control Engineering, Vol. 4, No. 1, January-February 1975.
6. R. M. Hoover, "Beware Low-Frequency Gas-Turbine Noise," Power, pp. 87-88, May 1973.