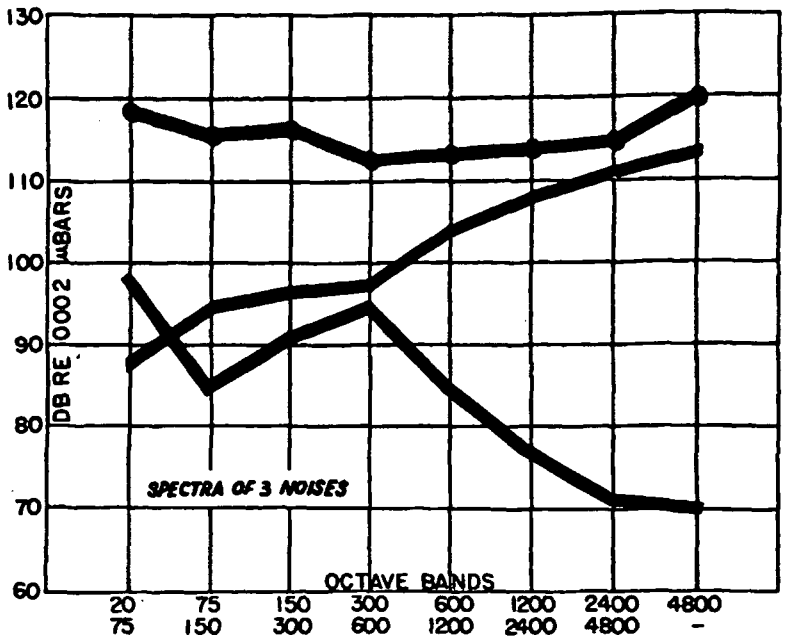

FIG 45-3 —Three representative octave band analyses

the exact frequency of a musician's "concert A" pitch The quality of a sound is determined by the number of overtones present and their respective intensities Various musical instruments have different sound spectra

Measurement

Overall sound levels of steady noises may be measured with a sound level meter (often designated "SLM") The "C" or flat response scale of a sound level meter measures average overall sound pressure level in decibels relative to 0 0002 dyne per square centimeter The meter indicator responds to irregular fluctuations present in steady noise and usually does not remain fixed in one position while a measurement is being made Because of these fluctuations, the average of several readings taken at a measuring point is recorded as the overall sound pressure level of the noise at that location

The A-scale of a standard SLM is gaining general acceptance for measurement of steady noise to determine the need for hearing conservation programs A-scale measurements indicate the integrated levels of the octave bands from approximately 600 Hz to 10,000 Hz For hearing conservation purposes it is not necessary to obtain detailed octave band analyses

An octave-band analyzer (often designated "OBA") consists of a series of electronic filters that select for measurement each of several octave bands in the noise Most standard analyzers are designed to filter eight octave bands 37 5-75, 75-150, 150-300, 300-600, 600-1200, 1200-2400, 2400-4800, and 4800-9600 (See Fig 45-3)

The octave bands shown in Table 45-A are recommended as preferred by the American Standards Institute and the International Organization for Standardization

Some analyzers are designed to measure sound pressure level in one-third octave bands or in narrow bands of constant width, for example, 5 Hz or 20 Hz Such measurements are entirely acceptable, but are not necessary for hearing conservation purposes

The sound level meter and octave-band analyzer do not measure impulsive noise levels accurately If a noise-exposure in-