

THE AUDIO DEMONSTRATION SERIES

Program #1 Audio & Hearing Loss Demonstrations

Program #2 Listening in Noise: The Virtues of High Fidelity Hearing Protectors

This series has been created and narrated by 3M's Senior Scientist, Auditory Research and the Director of the E•A•RCAL Laboratory, [Elliott H. Berger](#). Since their introduction, these programs have been warmly received and widely utilized.

The Concept Behind the Series

The concept behind the Audio Demonstration Series is to explore that wonderful medium of sound as a means to educate us about the ear's intricacies and the efforts we must all take to protect it. 3M's E•A•R brand, one of the most well known names in hearing protection, and E•A•RCAL Laboratory, one of the most respected names in hearing protector research, join together to bring you this unique educational series. So often the safety-oriented videos we are all familiar with emphasize the visual at the expense of the auditory. But, if the task is to preserve and protect hearing, what better way to inform and motivate than to use and focus upon the sense we are striving to conserve? The sound pictures contained herein, whether they be the auditory blight caused by tinnitus, or the befogging of the delicacy and tranquility of the sounds of nature, or the difficulty of listening to speech in noise with conventional hearing protection are all intended to directly convey the importance and impact of the auditory realm and to educate us, our associates, our coworkers, and our students.

Presentation Instructions

It is important to carefully follow the listening instructions at the beginning of each program, namely, to adjust the narrator's speech for a comfortable and natural sound level. Better yet, if you have a sound level meter, adjust the speech for an average level of about 65dBA, slow response, in the center of the listening area. All other sound clips, be they of impaired hearing, the sounds of hearing-protector attenuated noise or of the loud factory environment will then play back at realistic sound levels. It is because of the need to preserve the accuracy of all the sound clips and of the fact that Program #2 presents brief sounds at almost 90dBA, that the general level of the overall program has been recorded well below peak system operating levels.

▼ Warning ▼ The overall speech levels on this CD are recorded about 20 dB below typical operating level is so that all the segments, including the 89-dBA industrial noise near the middle of Program #2, play at the proper loudness without overload. To properly reproduce the program, carefully set your system gain per the spoken instructions on the CD. You will have to turn the volume knob to a higher setting than that to which you are normally accustomed. Be prepared when the industrial noise begins – **it will be loud!**

Program #1 Audio and Hearing Loss Demonstrations

Program #1 provides audio demonstrations of basic acoustical concepts, the effects of noise-induced hearing loss, and information to motivate those exposed to potentially hazardous noise to protect their hearing.

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| 1. Introduction | 7. Changes in loudness: 3, 1, and 10 dB |
| 2. Pure-tone sweep, 20 Hz-20 kHz | 8. Forest sounds with and without hearing loss |
| 3. Pure-tones @ 250, 500, 8000, and 100 Hz | 9. Soda pop with and without hearing loss |
| 4. Pink noise | 10. Music with and without hearing loss |
| 5. Pink noise with and without A-weighting | 11. Speech with and without hearing loss |
| 6. Tinnitus demo using a 4-kHz square wave | 12. Concluding comments and help line information |

Program #2 Listening in Noise: The Virtues of High-Fidelity Hearing Protectors

Program #2 reviews issues related to listening in noisy situations and the merits of clear, natural-sounding hearing protection. Audio clips demonstrate aspects of sound quality, and compare the ability to hear with various hearing protectors in noise.

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| 13. Introduction | 21. Speech in noise w/Hi-Fi plugs vs. standard earplugs, with and without hearing loss |
| 14. Low and high-frequency sounds | 22. Speech in noise, Hi-Fi plugs vs. standard muffs, with hearing loss |
| 15. Flat-natural vs. muffled noise | 23. Speech in noise, Hi-Fi plugs vs. high-attenuation plugs, without hearing loss |
| 16. Flat 15-dB hearing protector | 24. Speech in noise, Hi-Fi plugs vs. high-attenuation plugs, with hearing loss |
| 17. Four reasons not to use HPDs | 25. Effects of earplugs on speech levels |
| 18. Music heard through Hi-Fi™ plug, standard plug, and standard muff | 26. Concluding comments and help line information |
| 19. Can you hear what you need to? | |
| 20. 89-dBA industrial noise | |