



cambridge[™]
SOUND MANAGEMENT

Unique Performance Advantages of
a Qt Quiet Technology[™]
Sound Masking System

Thomas R. Horrall, FASA

Unique Performance Advantages of a Qt Quiet Technology™ Sound Masking System

- The only 4 channel sound masking system on today's market. The system comprises four entirely separate incoherent channels all the way from digital generating source to emitters (loudspeakers). Four channels accurately simulate the turbulent air eddies characteristic of HVAC system air movement sound generation. This allows the system to sound entirely natural and unobtrusive. Users are not subjected to the harsh sound quality due to acoustical interference effects caused by adjacent coherent radiators so common with plenum based masking systems.
- Optimum spectrum. The spectrum provided by the system is delivered uniformly throughout the coverage area. Direct field technology means the spectrum is not distorted by the strongly frequency dependent acoustical transmission loss characteristics of the ceiling assembly or the acoustical spatial variance in the above-ceiling plenum space. Amazingly, the variation in the spectral balance at any office or cubicle is typically within 1 decibel of optimum at any octave band over the entire critical voice frequency range of 250 Hz to 4,000 Hz. Although typical plenum masking systems may appear to exhibit fair uniformity as measured by A-weighted sound pressure level, their variation within the critical speech bands far exceeds that routinely provided by the Qt Quiet Technology sound masking system.
- Low operating level. The spatial and spectral uniformity delivered by the Qt Quiet Technology sound masking system permits its operation at substantially lower sound levels than competitive systems while maintaining masking effectiveness. While many masking systems must be operated at 48-50 dBA in a well designed open plan office in order to provide acceptable privacy conditions for most occupants, the Qt Quiet Technology sound masking system is normally operated at 45 dBA under the same conditions. A frequent comment by users experienced with plenum masking systems is that the Qt Quiet Technology sound masking system "is not loud enough" to provide good speech privacy. Yet objective comparative standard measurements of the Articulation Index* clearly demonstrate it is at least as effective as louder plenum based systems. The result is dramatically reduced acoustical obtrusiveness and user awareness of the system.
- Truly independent control of sound masking level in open and closed office areas. A common issue in many offices is that the above-ceiling air plenum is common to both open and closed offices or conference rooms. For reasons of economy the separating walls often do not extend more than an inch or two above the suspended acoustical tile ceiling. When masking is delivered to the open area at an appropriate level, sound in the closed office typically builds up to excessive levels, even if there are no masking loudspeakers above it. Until now, the only solution was to "starve" the adjacent open area. With Qt Quiet Technology, the masking sound intended for the open office is entirely restricted to the open area. If masking is desired in the enclosed space a separate zone can be provided, with completely independent control of level.

* Articulation Index or AI is defined by ASTM Standard E1130 (2002), Standard Test Method for Objective Measurement of Speech Privacy in Open Offices Using Articulation Index