

# **Noise Exposure and Hearing Loss Prevention Among Aerospace Industry Workers in Taiwan**

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## **ABSTRACT**

According to a survey of the Taiwan Council of Labor Affairs, in many environments where health and safety regulations are ignored, hearing loss due to noise pollution is a common and serious occupational disease. This study describes worker noise exposure effects, including permanent hearing loss, and hearing loss prevention, in a large aerospace industrial company in Taiwan. First, the equivalent sound level ( $L_{eq}$ ) in 14 noisy work areas of the aircraft factory's production line was measured. Sound levels ranged from 89.6 dB(A) to 117.7 dB(A), with the peak level ranging from 93.9 dB(A) to 132.4 dB(A). Next, hearing examinations were performed on 278 workers, who were working in the 14 work areas. It was found that 84.5% of the workers in noisy work spaces had hearing loss exceeding 10 dB(A) at the frequency of 4k Hz. The average hearing loss at high frequencies (8k, 6k, 4k Hz) is considerably larger than that at low frequencies (2k, 1k, 0.5k Hz). Third, a frequency spectrum analysis was conducted, which indicated that the noise in the production line is generally has a high frequency (3k~8k Hz). The hearing tests from the aircraft factory workers showed that the maximum damage is induced at a frequency of around 6k Hz. Therefore, ear plugs should be used in areas where the sound occurs at such frequency level. Finally, the legal framework for worker hearing protection in Taiwan is discussed, and preventive measures taken by the Aerospace Industrial Development Corporation (AIDC) are documented.

