

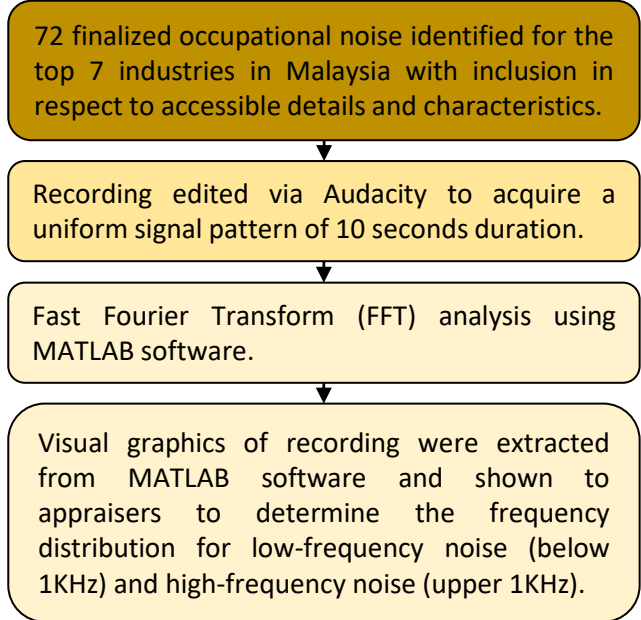
FREQUENCY SPECTRUM DISTRIBUTION OF COMMON OCCUPATIONAL NOISE IN MALAYSIA USING FAST FOURIER TRANSFORM ANALYSIS

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BACKGROUND

Determining the frequency spectrum of industrial noise is important as it can provide insights into the sources and characteristics of the hazardous noise, in order to develop better control measures for workers' health. Limited studies on frequency spectrum of occupational noise triggered the need for this pilot study, which hopefully would lead to similar future research.

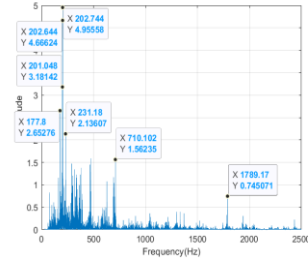
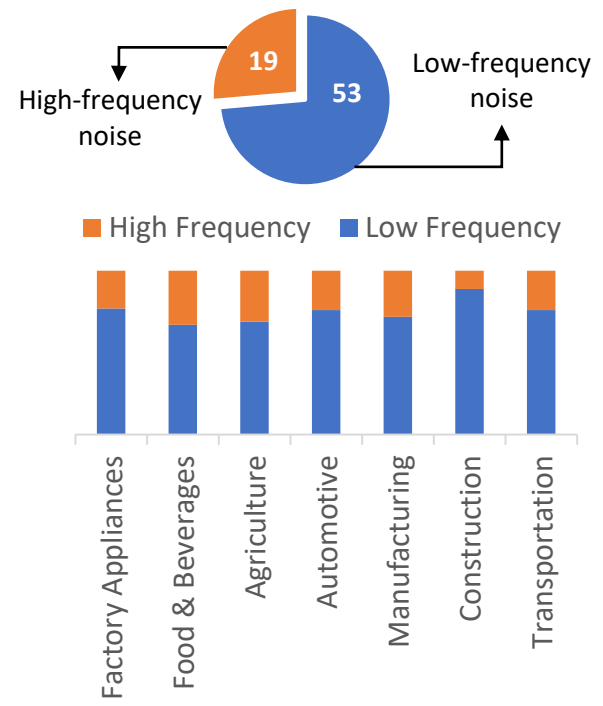
METHODOLOGY



RESULT



Frequency Distribution of Noise in Seven Most Common Industries in Malaysia



MATLAB analysis originated from the noise of metal grinding process in manufacturing industries shows that frequency dominated at low-frequency 177Hz to 710Hz.

DISCUSSION

Most industrial noise were dominated by low-frequency sound from sources such as loudspeakers, air-conditioning systems, machinery, vehicles, heating, and ventilation(1), industrial sites, industrial activities, and rotating and industrial machinery(2). This low frequency preponderance are generally harder to block at the source and difficult to protect against (3).

Suitable hearing protection devices (HPD) need to be studied in accordance with the types of noise in the workplace and the attenuation amount of HPD in order to reduce the negative impact of low-frequency noise in the workplace.



The above typical example of HPD with NRR of 29dB does not state the frequency spectrum covered best by this particular HPD. Suitability of HPD thus need to also consider the specific frequency spectrum to protect against occupational noise.

CONCLUSION & LIMITATION

This study concluded that most of Malaysia's occupational noise lies more in the low-frequency range. It is thus important to specifically measure exact noise spectrum and not just intensity to ensure optimal protection against hazardous noise exposure.

ACKNOWLEDGEMENT

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