Prediction of noise annoyance from various passing trains based on acoustic analysis

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ABSTRACT

Noise from passing trains depends on the types of trains, the types of rails, train speed, and the regime of train movement, and each noise has its unique characteristics. Accordingly, the actions for lowering or prevent the noise shall be suggested according to the noise characteristics of each passing train. It is because even though the volume of noise maybe the same when indicated in the equivalent sound level, people shows the different response to the different sound and non-acoustic elements, as well. In Korea, noise impact models have been constructed for the annoyance of noise exposure from airplane, train and road. However, the annoyance evaluation of noise for each type of train has not been conducted yet. In this research, an experimental study was performed to compare the annoyance from various passing train noise and the annoyance prediction model have been developed for sound pressure level, high frequency component and level variability and then analyzed their contributions by each element. The results of this research are expected to contribute to the development of the effective methods and technology for reducing the annoyance of train noise.