



Effects of frequency, loudness, and ringing cycle of warning sound on urgent impression

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ABSTRACT

Warning sound is a very important sound that enables people to survive in emergency situation. Such warning sound should not only be heard clearly, but also should attract people's attention instantly in emergent circumstance. In the present research, effects of warning sound on urgent impression is investigated from the viewpoint of auditory cognition. Four experiments are carried out to reveal the effects of frequency, loudness, and ringing cycle of warning sound. Results shows that louder warning sound makes more urgent impression, and that warning sound that has frequency of 125 Hz and 4,000 Hz is able to cause more urgent impression. Furthermore, warning sound that has ringing cycle of 0.25 s and 0.125 s invokes larger sense of urgency than cycle of 1 s. The ringing cycle of 1 s that is defined in the present research is equivalent to the standard ringing cycle of warning sound that is required in ISO 8201. And almost all of the measured warning sounds in the city of Tokyo and Taipei have frequency of 1,000 or 2,000 Hz. As a result, it is suggested that more shorter ringing cycle makes warning sound more urgent, and that lower or higher frequency of warning sound causes larger sense of urgency.