

Countermeasure for Reducing a Micro-pressure Wave by Spreading Ballast on the Slab Track in the Tunnel

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An impulsive pressure wave (micro-pressure wave) emitted from a tunnel portal is one of the environmental problems in high-speed railways. The magnitude of the micro-pressure wave emitted from long the ballast track tunnels becomes smaller than that emitted from the long slab track tunnels by the effect of the distortion of a compression wave propagating through the tunnels. In this study, the effect of spreading ballast on the slab track in the tunnel on the reduction of the micro-pressure wave is investigated by conducting four series of field measurement and numerical analysis. The results show that the ballasting is one of the useful countermeasures for complementing the frequently applied ones such as a tunnel entrance hood.