

Prediction Models of Wayside Noise Level of Shinkansen at Railway Cuttings

Mariko AKUTSU Yukie OGATA Toshiki KITAGAWA

Nobuyuki KIMURA Kenichi KURIBAYASHI Masaaki MATSUNUMA

This paper introduces a prediction model for the wayside noise of Shinkansen in the cut sections in which the cut shape is oblique. The distinctive characteristic of the cutting section is that the ground below the measuring points tends to be raised above the vehicle. In order to develop the model, sound reflections at the slope and the noise barrier located adjacent to the track should be taken into consideration. The effect of the sound reflection was examined by the field tests and the acoustic experiments with scale-models. The results of the prediction model were validated by comparing the measured results with them. It was found through the parametric study by the calculations that the noise reduction due to the sound barrier installed at the top of the slope was greater than that due to the barrier located adjacent to the track.