Reduction of Carbody Flexural Vibration by the High-damping Elastic Support of Under-floor Equipment

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This paper presents a technique for reducing flexural vibrations in a railway vehicle carbody just by supporting under-floor equipment using high-damping elastic mounts. This is a kind of dynamic vibration absorber utilising under-floor equipment as mass element which we have introduced based on the inspiration of damping effect of passengers. A series of excitation tests were conducted in the rolling stock testing plant in the Railway Technical Research Institute using a Shinkansen type test vehicle applying those elastic mounting devices. As a result of the tests, good vibration reduction performance, including multi-modal vibration reduction and vibration isolation from the equipment, was observed.