A Resonant Bridge Detection Method by On-Board Measurements

Kodai MATSUOKA   Tsutomu WATANABE   Fumiaki UEHAN

Large vibration due to resonance is an important issue in high-speed railway bridges. In order to inspect resonant bridges efficiently and frequently, this study proposed a detection index, amplification factor, based on the vertical acceleration on the leading and trailing vehicles of a passing train. The field test employing the actual train and the bridges revealed that the amplification factor tends to increase with the bridge resonance as well as impact factor. In addition, train-bridge dynamic interaction simulation clarified that the amplification factor has more than 0.9 correlation with impact factor and the amplification factor of a train with short vehicle length has possibility to detect potential resonant bridges.