Evaluation for Lateral Resistance Force of Ballasted Track Equipped with Countermeasures to Prevent Track Buckling during Earthquakes

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The authors have performed shaking table tests using full-scale models for examining the lateral resistance force of the ballasted track during and after the earthquakes to evaluate the seismic performance of ballasted tracks so far. However seismic performance of the ballasted track equipped with countermeasures to prevent ballasted tracks buckling has not been considered enough. Therefore, in this study, to evaluate the seismic lateral resistance of the ballasted track equipped with the countermeasures to prevent track buckling, shaking table tests using full-scale model were conducted. As a result, it has become obvious that the countermeasure of the sleeper anchor or the prestressed ballast shoulder decreased the sleeper lateral displacement during earthquake by improving the lateral resistance force, and the countermeasure of the ballast wall decreased the sleeper displacement during earthquake by preventing decrease of the lateral resistance force during earthquake.