

1378. Wave barriers for the reduction of railway induced vibrations. Analysis in tracks with geometric restrictions

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Abstract. Railway-induced vibrations mitigation has become a priority issue in recent years. Among all the existing alternatives, wave barriers stand out because they can be implemented in any moment of the railway life span without interfering in the correct operation. However, limitations imposed by the track environment usually exist and may affect to the wave barriers design. In this paper the mitigation power of different types of trenches is studied using a 3D FEM model validated with real data. For this purpose, different scenarios are defined in order to assess the influence on the final vibration results of the location and the filling material, if exists. In any case, geometric limitations imposed by the track surrounding elements are taken into account. These limitations significantly hinder the search of the optimal solution.

Keywords: wave barriers, finite element method, railway vibrations, urban areas.

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