A Method to Predict Quality of Digital Terrestrial Television Broadcasting Picture Received in the Area along Railway Lines

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Digital terrestrial television broadcasting services have been started in 2006 in Japan, and the Ministry of Internal Affairs and Communications is planning to close all analog broadcasting services in 2011. To measure and evaluate quality of digital terrestrial television broadcasting picture received in the area along railway lines, we have to carry out on-site measuring tests at the present time. Especially, to carry out measuring tests for evaluating effects of running trains, we need so much time and cost. Then, to reduce the time and cost, we have developed a calculation program to predict amount of variation of carrier-to-noise ratio (C/N) during train passing by taking into account diffraction of broadcast wave due to the edge of railway structures or a train body, interference by broadcast wave which passes under elevated railway structures, and radio noise radiated from a running train. This paper outlines the prediction method and introduce the feature of the developed calculation program.