A Radio Propagation Characteristics of 90GHz Millimeter-Wave in Railway Environment and Study on Its Application to Railway Line Monitoring System

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Attenuation of the 90GHz band millimeter-wave in the atmosphere is small compared with millimeter-waves of the other frequency bands. Moreover, wide range of this frequency band can be utilized. However, there have been no cases where it is used in the railway environment until now. In order to utilize the 90GHz millimeter-wave in railway environment, we carried out field tests and simulations regarding distance attenuation characteristics and rain attenuation characteristics on a railway line. Further we performed basic tests of an algorithm for detecting obstacles on a railway line using 90GHz band millimeter-wave radar.