

# Analysis of Path Loss about Radio Duct Phenomenon with Atmospheric Refractive Index Information

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**Abstract**— The radio duct phenomenon is one of the factors that explain the radio interference between neighbouring countries. When the signal transmitted from the coast passes through the sea surface, the attenuation of the signal is relatively reduced due to the ducting phenomenon, and the received signal is affected to be interfered with the receiver in the coastal area of the neighbouring country. The ducting phenomenon is caused by the refractive index reversal of the high-level atmospheric information, and the amount of interference varies depending on the depth and slope of the duct due to the atmospheric refractive index. In this paper, we analyse the atmospheric refractive index in a specific region and explain the occurrence of duct phenomenon through path loss simulation related to the region.

**Keyword**— Radio duct phenomenon, Atmospheric Refractive index, Neighbouring country interference



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