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Prediction of rain-induced cross polarization at millimeter wave bands in Guinea (Conference Paper)

Camara, M.F. ✉, Bashir, S.O., Isa, F.N.M., Musa, A.

Department of Electrical and Computer Engineering, Faculty of Engineering, International Islamic University Malaysia, Kuala Lumpur, Malaysia

Abstract

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Microwave communication systems are planned to utilize orthogonal polarization. Two independent information channels of the same frequency band sent over a single link to make an optimum use of the frequency spectrum. However, above 10 GHz, the amount of rain on the transmission line can severely degrade the performance of both satellite and terrestrial links, especially in tropical regions, at millimetre wave bands. This paper evaluates the differential attenuation and differential phase shift for the prediction of cross polarization discrimination using a 10-year rain data recorded in Conakry, Guinea. The drop size distribution (DSD) was computed using Marshall and Palmer (MP) model. © 2014 IEEE.

Author keywords

differential attenuation | differential phase shift | DSD | millimetre wave | Orthogonal Polarization | transmission line | XPD

Indexed keywords

Engineering controlled terms: Electric lines | Frequency bands | Microwave devices | Phase shift | Phase shifters | Polarization | Rain | Satellite links | Transmission line theory

Differential attenuation
Differential phase shifts
DSD
Millimetre waves
Orthogonal polarizations
XPD

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