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Rain induced attenuation studies for V-band satellite communication in tropical region (Article)

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Abstract

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Satellite communications operating at 10. GHz and above in the tropics suffer severe signal degradation due to rain. Attenuation due to rain at 38. GHz had been measured for a period of 20 months in Malaysia. Analyses carried out include seasonal variations, diurnal effects and the annual cumulative distributions. Obtained results were compared with several established prediction models including the ITU-R. The rain fade characteristics were also investigated in determining the levels of signal loss and fading. In addition, the studies highlight several potential fade mitigation techniques that can be embarked. These fundamental apprehensions are very critical for future earth space communication link design and can be exploited as preliminary groundwork plan for the researchers as well as engineers. © 2010 Elsevier Ltd.

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Fade duration Inter-fade interval Rain attenuation Tropical region
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