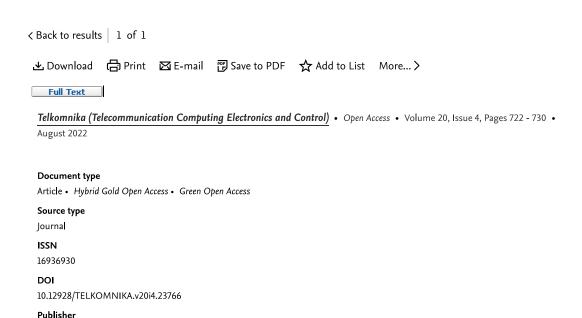
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Ku-band specific attenuation coefficients for high-throughput satellites in equatorial region

Ahmad, Yasser Asrul 🔀 ; Ismail, Ahmad Fadzil; Badron, Khairayu Save all to author list

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Abstract

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Abstract

Ku-band have a larger attenuation during heavy rain in the equatorial region. Despite that, Kuband has been identified as a frequency band in high-throughput satellite systems (HTS) for broadband satellite communication. The available rain fade prediction models are still not able to accurately predict rain attenuation in the equatorial region. The models depend on the specific attenuation parameters produced based on the international telecommunication union radiocommunication sector (ITU-R) instead of the measured value. Direct measurement of specific attenuation is more accurate but difficult to obtain because the correlation of rainfall rate and satellite signal loss due to rain must be obtained simultaneously. This paper aims to derive new

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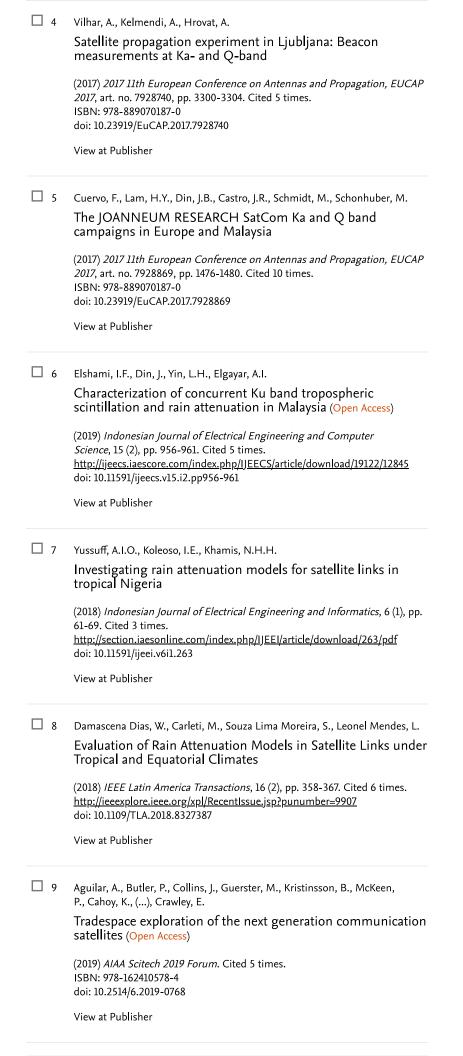
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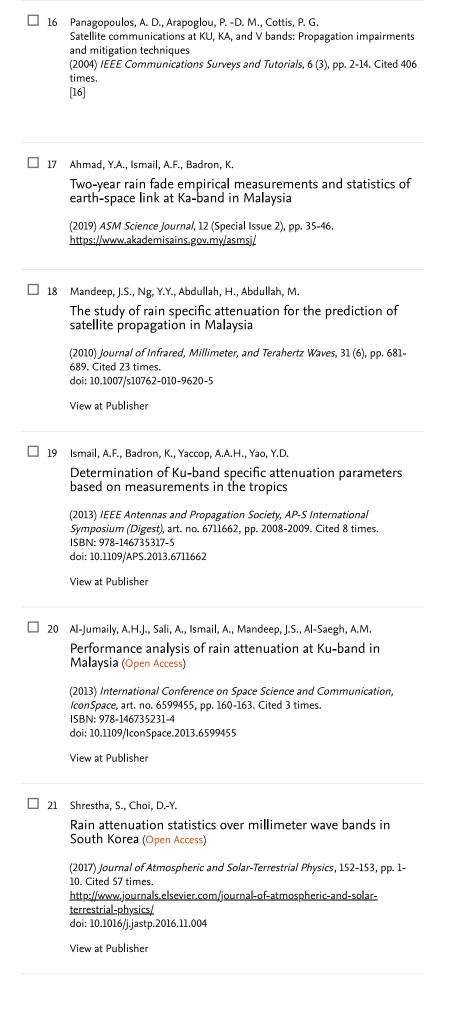
specific attenuation frequency-dependent coefficients for Ku-band using the semi-empirical method. The Malaysia East Asia Satellite 3 (MEASAT-3) satellite data was collected using a 13 m antenna located at Cyberjaya, Selangor while the rainfall data was collected by the nearby hydrological station. The specific attenuation was obtained from correlations of the direct measurement of rain attenuation and rainfall rate. The new frequency-dependent coefficients for Ku-band specific is

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	ved the ra) and α = 0.1941. The newly acquired specific attenuation ain attenuation model prediction for the equatorial region . © This e CC BY-SA license.
Author keywords Equatorial region; Hig attenuation	rh-throug	ghput satellite; Ku-band; Rain attenuation; Specific
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