Results From A Long Term Propagation Measurement Campaign[1]

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Abstract

This paper describes the measurement results from the first phase of a unique long-term microwave propagation experiment that is currently running in the United Kingdom. The experiment aims to improve the interference models used for channel assignment to allow more efficient packing of co-channel terrestrial microwave point-to-point links. The results form a database against which link joint attenuation models can be tested and improved. The deployment was completed in February 2005 and has been gathering data since then on 17 links. This paper presents an analysis of the data recorded over up to the time of preparation in December 2006.

Standard Cumulative distributions of the path loss for each link and the joint probability distributions of multiple entry interference are given. The cumulative distributions have been plotted to emphasise both ends of the distribution from 99.99% to 0.01%. This new data is required for developing 100% time models. Current models tend to favour either fading or enhancement but do not predict both. The measured single entry distributions are compared against the predictions from ITU-R P.452 and ITU-R P.530.

Keywords: Trans-horizon propagation, terrain diffraction, troposheric scatter, ducting/super-refraction,joint statistics of fading and enhancement, area variability, measurement results, time series.