

## RAIN RATE TREND-LINE ESTIMATION MODELS AND WEB APPLICATION FOR THE GLOBAL ITU RAIN ZONES

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### ABSTRACT

The International Telecommunication Union (ITU) published data on rain rate exceeded for the following percentage of time; 99%, 99.7%, 99.9%, 99.97%, 99.99%, 99.997% and 99.999% in the ITU-R Recommendation p.838-3. This paper presents the development of trend line models and web application for estimating rain rate based on the published rain rate data in the ITU-R Recommendation P.838-3. The trend line models and web application make it possible for users to estimate the rain rate exceeded for any given percentage of time. An Online Nonlinear Regression (ONLR) tool is used to develop the trend line models for estimating the rain rate for each of the 15 rain zones in the ITU-R Recommendation p.838-3. The web application is developed using Visual Basic for Application programming tool in Microsoft excel. The models generated along with the web application are useful in communication link analysis and design; they will facilitate the computation of rain attenuation for any given link availability.