RECOMMENDATION ITU-R P.678-1*

CHARACTERIZATION OF THE NATURAL VARIABILITY OF PROPAGATION PHENOMENA

(Question ITU-R 209/3)

(1990-1992)

The ITU Radiocommunication Assembly,

considering

a) that knowledge of the natural variability of propagation phenomena is required for use in telecommunication system design;

b) that a prediction procedure exists for the estimation of the statistics of the year-to-year variations in the annual worst-month time fraction of excess as defined in Recommendation ITU-R P.581,

recommends

1. that Fig. 1 be used for the estimation of the expected year-to-year variation of the annual worst-month time fraction of excess;

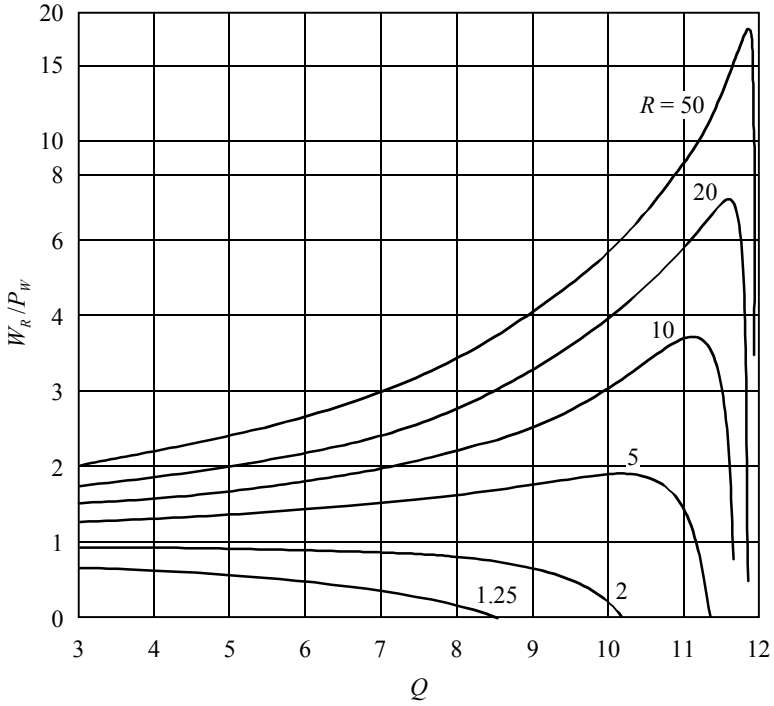
2. that the expected variation about a long-term average predicted value be reported as a function of return period.

Note 1 – The return period is the average time duration between two consecutive occurrences of a defined stochastic event. For a long series of observation the value of the return period is 1/*P* (times the unit time between two subsequent observations) where *P* is the probability of occurrence of the event. For example, the median value of a long series of annual worst-month time fraction of excess values would have a two-year return period.

* Radiocommunication Study Group 3 made editorial amendments to this Recommendation in 2000 in accordance with Resolution ITU-R 44.

FIGURE 1

Dependance of W_R / P_W on Q for several value of the return period R (years)



P_W: average annual worst-month time fraction of excess
W_R: annual worst-month time fraction of excess associated with a return period of R years
Q: worst-month quotient, a propagation climatic factor (see Recommendation ITU-R P.841)

Note 1 – P_W, W_R, Q should be referred to the same pre-selected threshold value.

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