Abstracts

Random Discrete Imperfections in Millimeter Waveguide Systems

A method has been developed to compute the increase of attenuation due to imperfections of finite length randomly distributed in a link. As a limit for the vanishing length the formulas yield the result for random discontinuities. The approach is quite general and can apply to a circular waveguide link as well as to other cases, where the statistics of the problem are described by the power spectrum of the deformation. The applications presented here show how random spacing of the deformations causes significant modifications on the attenuation results; as a particular case some expressions are found to be in agreement with others previously derived. The results are interesting in determining what random variation in the waveguide lengths is sufficient to avoid a serious frequency dependent effect in the attenuation characteristic of a circular waveguide link.

❑ Return to main document.

Click on title for a complete paper.