Abstracts

Band-Limited Deconvolution of Locating Reflectometer Results

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The locating reftectometer is a frequency-swept microwave instrument which, by analog Fourier transformation, converts the reflection coefficient, a function of frequency Gamma(s), into the spatial distribution of the reflection coefficient Gamma(x). It will be shown that by the method of deconvolution an increase in axial resolution may result. By making use of the fact that the real and imaginary parts of the "locating plot" Gamma(x) are a Hilbert transform pair, a signal-to-noise ratio improvement is achieved by averaging the results of complex deconvolution using only the real and then only the imaginary parts of the locating plots. A number of experimental results are given, illustrating the increase in axial resolution when the method of band-limited deconvolution is applied to some typical waveguide components and obstacles.

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