

A low cost homodyne reflectometer based on the FMCW method and digital signal processing

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Abstract

The application of the well known FMCW-method for homodyne network analysis is presented. A network analyzer based on this principle needs only a simple RF-part and therefore a more complex IF-part which makes extensive use of modern digital signal processing. The system theory is presented and explained with the help of measurements. A measuring system of such kind facilitates low cost, high speed measurements with a certain reduction in measuring precision. The validity of theory is proved by reflectometer measurements in X- and Ka-band.

B. Geck, J. Marquardt, M. Sagebiel