Abstracts

Open-Ended Metallized Ceramic Coaxial Probe for High-Temperature Dielectric Properties Measurements

S. Bringhurst and M.F. Iskander. "Open-Ended Metallized Ceramic Coaxial Probe for High-Temperature Dielectric Properties Measurements." 1996 Transactions on Microwave Theory and Techniques 44.6 (Jun. 1996 [T-MTT]): 926-935.

A metallized ceramic coaxial probe has been developed for high temperature complex permittivity measurements. The probe is made of alumina and metallized with a 3.0-mil-thick layer of moly-manganese, and a 0.5-mil-thick protective coating of nickel plating. It is shown that based on carrying out the network analysis calibration procedure up to 1000° C, and on actual dielectric properties measurements, the probe provides accurate dielectric measurements over a broad frequency range (500 MHz to 3 GHz) and for temperatures up to 1000° C. An uncertainty analysis based on two different calibration techniques was also given to help quantify possible measurement errors.

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