

Comparative Microwave Measurements of Complex Dielectric Constant of High Permittivity Thin Films

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In the proposed work, complex dielectric constants of high permittivity thin films of BaTiO₃/sub 3/ and PbNbO₃/sub 3/ are measured at microwave frequencies. Working equations are presented for ϵ' and $\tan\delta$ by means of a new method of measurement, earlier reported by the author, with corrections for supporting substrate reactance in the present work. Verification of experimental results are done by means of multilayered dielectric slab loaded waveguide method and modified Drude's method. The working equations for latter two methods are also presented. Experimental results of BaTiO₃/sub 3/ and PbNbO₃/sub 3/ thin films as measured by these three methods are given.

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