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Dielectric Properties of $NdTi_{(0.5-x)}Ge_xMo_{0.5}O_4$ Ceramics at Microwave Frequency

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Abstract : The microwave characteristics of $NdTi_{(0.5-x)}Ge_xMo_{0.5}O_4$ are studied to determine the feasibility of their use in the liquid sensor. The microwave characteristics of $NdTi_{(0.5-x)}Ge_xMo_{0.5}O_4$ are determined using X-ray diffraction (XRD) patterns. The permittivity (ε_r) of $NdTi_{(0.49)}Ge_{0.01}Mo_{0.5}O_4$ that is sintered at 1425 ℃ for 4 h is 17.6, the unloaded quality factor (Qu×f) is 33,400 GHz, and it has a temperature coefficient at the resonance frequency (TCF) of -30.7 ppm/℃. The proposed liquid sensor is at the 5G FR1 bands.

Keywords : $NdTi_{(0.5-x)}Ge_xMo_{0.5}O_4$, X-ray diffraction pattern, permittivity, Unloaded quality factor
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