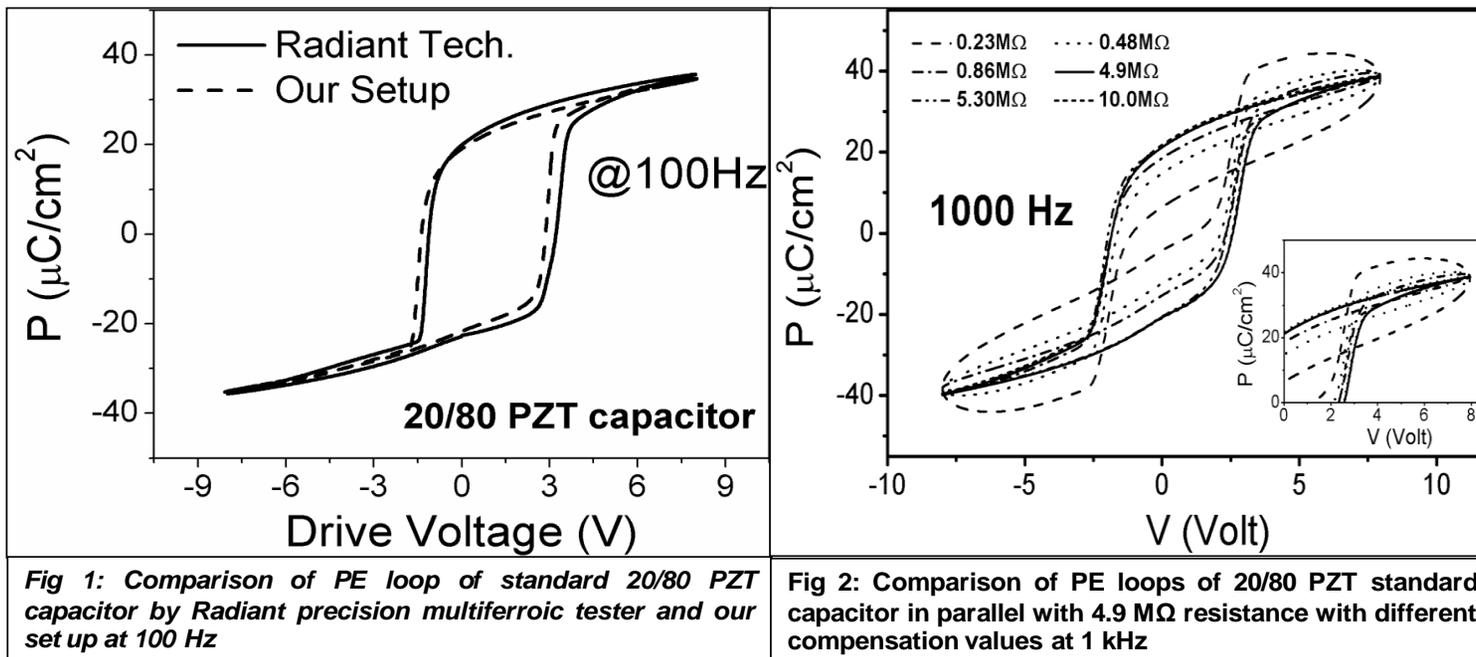




**Name of the Technology: Apparatus for polarization vs Electric field measurement at various frequencies in thin film samples.**

**Summary:**

An apparatus that measures electric polarization of ferroelectric samples at various frequencies is described. This invention is particularly suitable for measurements in thin film samples. This apparatus employs technique for offset removal; compensation setup for lossy dielectric. It facilitates in-situ monitoring and on screen plotting of PE loop; real time calculation of saturation field ( $E_{sat}$ ), coercive field ( $E_c$ ), saturation polarization ( $P_s$ ) and remnant polarization ( $P_r$ ); data acquisition and data saving in file for future analysis. PE loop of 20/80 Piezoelectric capacitor (Standard Sample) of Radiant technology and the comparison of data taken by developed setup and Radiant precision multiferroic tester at 100Hz (Fig.1) and PE loop at 1kHz after applying corrections for lossy dielectric on 20/80 piezoelectric capacitor in parallel with 4.9 M $\Omega$  resistor (Fig.2) can be seen below.



**Applications:**

Ferroelectric hysteresis loop measurement with compensation for dielectric loss in thin film ferroelectrics.

**Advantages:**

Low cost & compensation for lossy sample after evaluation of resistive losses in the sample.

**Choose the Readiness level of the Technology:**

Idea	Concept Definition	Proof of Concept	Prototype	Lab Validation	Technology Development	Technology Demonstration	Technology Integrated	Market Launch

**Related Patents:**

Patent No: 0233NF2016

Country: India

Publication Date: ---

Grant Date:

Year of Introduction: 2016

**Broad Area/Category**

Electronics & Instrumentation

**User Industries:**

The product may be used in academic/research institutes carrying on research in the field of ferroelectric/multiferroic thin film materials. It will be useful also for industries working on ferroelectric RAM, ferroelectric sensors.