

# MICROWAVE CHARACTERIZATION OF LIQUIDS (1-50 GHz)



We offer the most accurate and highly repeatable resonant fixtures dedicated to the measurement of liquids in the **1-50 GHz** range. These fixtures allow measuring the **dielectric constant (Dk)** and **dissipation factor (Df)** of the liquid under from the test measured resonance frequency and the corresponding quality factor, respectively.

The family of solutions consists of:

## 1. **Dielectric resonators** operating at $TE_{0m\delta}$ modes

- **frequency range:** 1– 5 GHz
- **dielectric constant:**  $Dk = 1 - 100$  (accuracy:  $\delta Dk < 0.5\%$ )
- **loss tangent:**  $Df > 10^{-4}$  (achievable accuracy:  $\delta Df < 2\%$ )
- **temperature:** 0–100°C

## 2. **Cavity resonators** operating at $TE_{011}$ modes

- **frequency range:** 10 – 24 GHz
- **dielectric constant:**  $Dk = 1 - 20$  (accuracy:  $\delta Dk < 0.5\%$ )
- **loss tangent:**  $Df > 10^{-4}$  (achievable accuracy:  $\delta Df < 2\%$ )
- **temperature:** -40 – +100°C

## 3. **Fabry-Perot open resonator** (FPOR) operating at Gaussian modes

- **frequency range:** 15 – 50 GHz (1.5 GHz resolution)
- **dielectric constant:**  $Dk = 1 - 15$  (accuracy:  $\delta Dk < 0.5\%$ )
- **loss tangent:**  $Df > 10^{-4}$  (achievable accuracy:  $\delta Df < 2\%$ )
- **room temperature only**

