MICROWAVE CHARACTERIZATION (TV) 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_{0mδ} modes
 - frequency range: 1-5 GHz
 - dielectric constant: Dk = 1 100 (accuracy: δ Dk < 0.5%)
 - loss tangent: Df>10-4 (achievable accuracy: _δDf < 2%)
 - temperature:0-100°C
- 2. Cavity resonators operating at TE₀₁₁ modes
 - frequency range: 10 24 GHz
 - dielectric constant: Dk = 1 20 (accuracy: $\delta Dk < 0.5\%$)
 - **loss tangent**:Df > 10-4 (achievable accuracy: δDf < 2%)
 - temperature:-40 +100°C
- 3. Fabry-Perot open resonator (FPOR) operating at Gaussian modes

Cavity resonator

2.60

2.55

2.50

2.45

2.40

235

2 30

- frequency range: 15 50 GHz (1.5 GHz resolution)
- dielectric constant: Dk = 1 15 (accuracy: δ Dk < 0.5%)
- loss tangent:Df> 10-4 (achievable accuracy: _δDf < 2%)
- room temperature only

- FPOR

Dielectric/Cavity resonators

10 15 20 25 30 35 40 45 50

Dielectric/Cavity resonators

10 15 20 25 30 35 40 45 50

Frequency (GHz)

Frequency (GHz)

3M™ Fluoroinert™ Electronic Liquid FC-40

2.00

1.95

1.95 1.90 1.85

1.90

1.80

4.0E-3

3.5E-3

tangent 3.0E-3

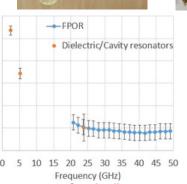
% 2.5E-3

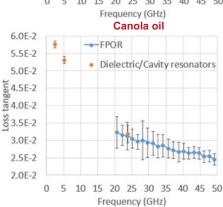
2.0E-3

1.5E-3













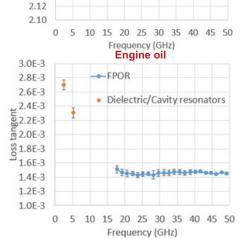
2.28

2.26

2.24 2.22

2.20 2.18

2.16 2.14



Dielectric/Cavity resonators