Permittivity and Dielectric Loss Tangent Measurement System for Millimeter Wave for sheet and ultra-thin sheet

System No. DPS03

Agilent Technologies and KEYCOM Corp.

Supports specimens as thin as 5μm in wide frequency range of 18GHz~110GHz

(JIS Standard)
KEYCOM's Fabry-Perot ετ and tanδ measurement system combines the high measurement accuracy in the millimeter wave range and simplicity of installing the specimens, expanding its measurement capability for ultra-thin sheet to supporting specimens as thin as 5μm. It is also ideal for low tanδ measurement.

Standardization
JIS R 1660-2
(Japanese Industrial Standards)

Publications
H. Suzuki, T. Kamijo

Specifications
Frequency: 18~110GHz
Permittivity: 1.05~30
(Accuracy: ±3%)
tanδ : 0.0001~0.05
(Accuracy: ±7%)
Specimen size:
70mm x 70mm min. (18GHz)
30mm x 30mm min. (50GHz)
Specimen thickness:
5μm ~ 0.2mm or integral multiplication of half the effective wave length (with software option)

Measurement Process
1. Set a frequency range and the number of frequency steps.
2. Make sure the resonance without the specimen is shown on the graph.
3. Enter the thickness of the specimen, and place it on the measurement stage.
4. Make sure the resonance with the specimen is shown on the graph.
5. Adjust the altitude of the specimen by controlling the stage so that the resonant frequency is minimum.
6. Measure the resonant frequency and the Q value of the specimen, and register the values.
7. Then measure the resonant frequency and the Q value without the specimen under the same condition, and register the values.
8. The software will calculate the values and come up with the results.

Applications
-Printed circuit board
-Radome
-Thin film
-Ceramics
-Collision avoidance radar etc.

Specimen examples
-10um thick PTFE film
-20um thick PE film
-0.2mm thick sapphire plate
-0.1mm thick BaTiO3 plate etc.
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Ordering Information

Agilent Technologies
Vector network analyzer
- PNA series (N52xx)
- ENA series (E50xx)

KEYCOM Corp.
System No. DPS03
1. Precision automatic mobile stage ......................... MDM-02
   (common to all frequencies)
2. Fabry-Perot resonator
   18-33GHz .............................................. FPR-33
   26.5-40GHz ............................................. FPR-40
   33-50GHz ............................................... FPR-50
   39-60GHz ............................................... FPR-60
   50-75GHz ............................................... FPR-75
   59-90GHz ............................................... FPR-90
   75-110GHz ............................................. FPR-110
   89-140GHz ............................................. FPR-140
3. Software (common to all frequencies)
   For sheet ............................................. P118050123-04
   For ultra-thin sheet ................................. P118050123-05
4. Windows PC, Printer ................................. Available upon request
5. GPIB cable ................................................. GP-01

Product specifications and descriptions in this document subject to change without notice.