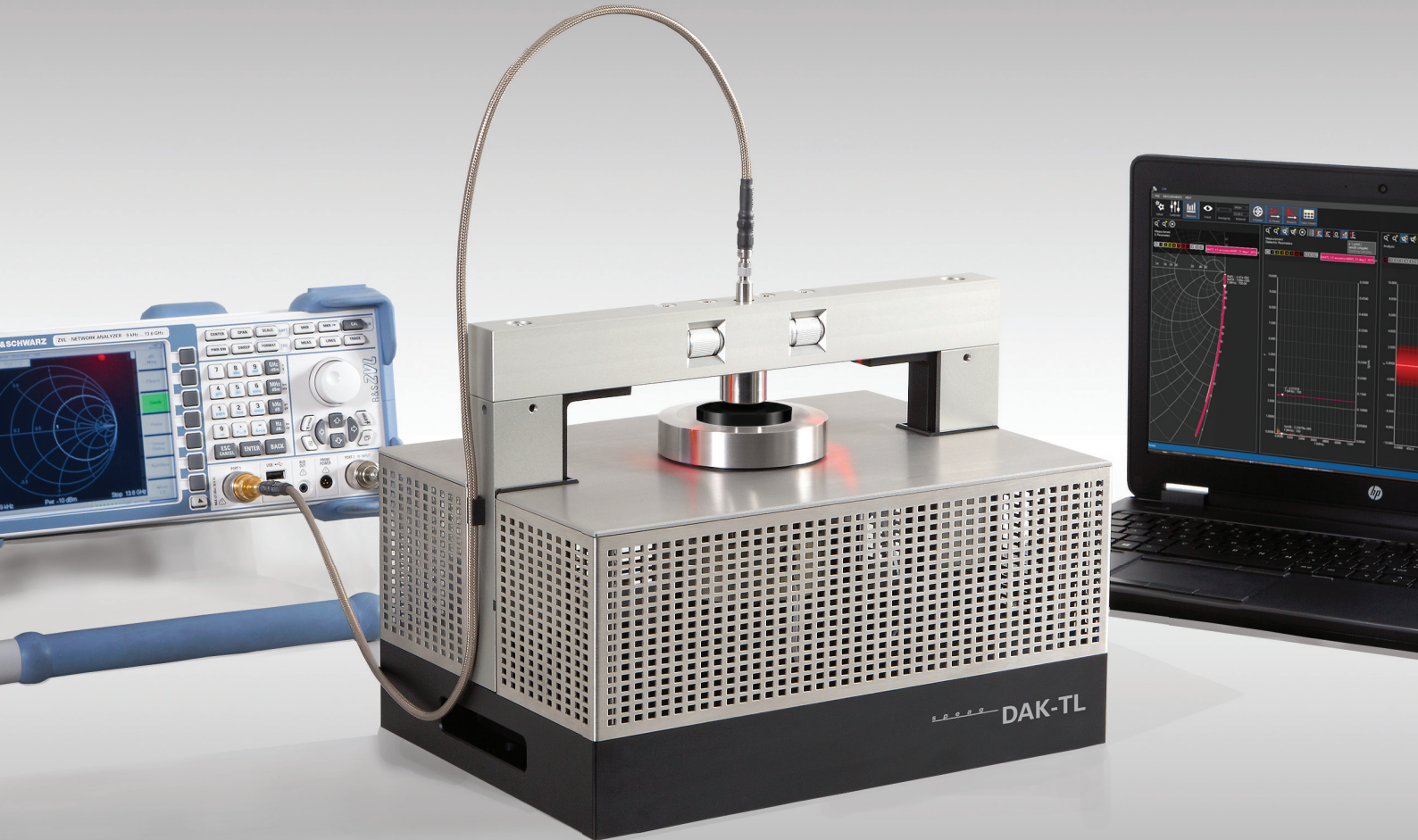




DAK-TL

Fully Automatic Dielectric Material Measurement



What is DAK-TL-P?

The Dielectric Assessment Kit for Thin Layers to measure Permittivity (DAK-TL-P) allows material characterization of samples with limited size or volume. It is a turn-key system for dielectric measurements in the frequency range from 10 MHz–67 GHz of thin layers (thickness 0.1–10 mm) of solids, or small volumes (0.5–50 ml) of liquids

or biological samples. DAK-TL-P is based on open coaxial probes, fully automated, and software controlled. It is ideal for PCB or substrate characterization, to measure dielectric properties of electronic components, such as capacitors, coils, and resonators, and provides reliable material parameters for antenna design.

DAK-TL

System to measure dielectric properties of thin material layers over a broad frequency range

Applications

- evaluation of raw printed circuit board materials
- characterization of microwave substrates, antenna materials and covers
- analysis of dielectric materials for electronic components, e.g., capacitors, coils, and resonators
- characterization of liquids available in only small quantities, e.g., precious pharmaceutical or biochemical samples
- evaluation of small biological samples, e.g., human skin or tumor tissue samples

Operation

- compatible with most vector network analyzer on market
- automated software-guided measurement workflow
- hardware customization to integrate with other systems
- export data to DASY6 and SEMCAD X

Accuracy (typ. < 3%)

- novel algorithms for finite sample thickness
- improved flange design to minimize resonances
- new short to ensure precise calibration
- high measurement repeatability (typ. within +/- 1%)

Software

- modern intuitive graphical user interface
- streamlines the workflow for dielectric measurements
- fast and robust VNA control, data acquisition, and calculation of dielectric parameters
- includes averaging function and numerical noise filtering
- flexible scripting for measurement automation and hardware customization

Hardware Specifications

probe beam	frequency range	connector type
DAK12-TL	4 MHz – 600 MHz	3.5 mm
DAK3.5-TL	200 MHz – 20 GHz	3.5 mm
DAK1.2E-TL	5 GHz – 67 GHz	1.85 mm

Beam dimensions: 40 × 30 × 350 mm

Thickness measurement range: 0.1 – 10 mm

Thickness measurement precision: < 0.003 mm (preliminary specification)

Force measurement range: 0 – 1000 N

USB connector: Type B, Weight: ~16 kg

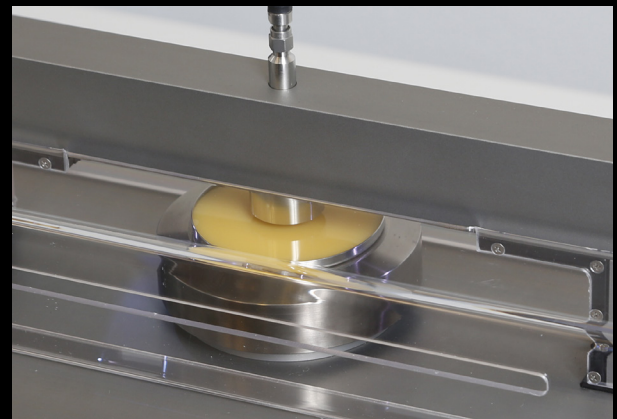
Operating temperature range: 10 – 50 °C

Calibration

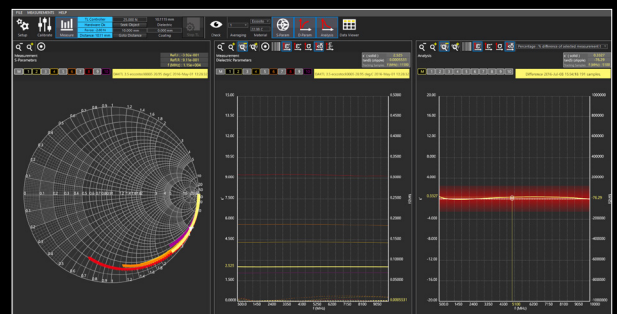
DAK-TL-P systems are calibrated according to SPEAG's high-quality procedure (scope extension of ISO/IEC 17025 accreditation to DAK-TL-P calibration is pending).



Calibrating DAK-TL-P



Liquid measurement with the DAK-TL-P system



Graphical user interface

For further information and technical specifications, visit www.speag.swiss

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