



*Thin Film Measurement solution
Software, sensors, custom development
and integration*

Measurement of PCBA coatings

Summary.

During PCBA manufacturing conformal protective coating is customary applied to protect the circuit. Different coating is applied depending on specification requirements. The coating range from a simple water soluble dust protection (typically, < 20 μ m) to specialized hydrophobic coatings (<1 μ m). MProbe 40 enables measurement of the coating thickness directly on the PCBA to avoid cost and inaccuracy of using test coupons. The measurement can be done on different areas of the PCBA, including on SMT elements surface to verify uniformity and thickness of the coating. The measurement is, typically, done using 40 μ m or 20 μ m measurement spot in the Visible or Vis-NIR range (400-1000 nm).

Example 1. Measuring water soluble coating on PCB surface

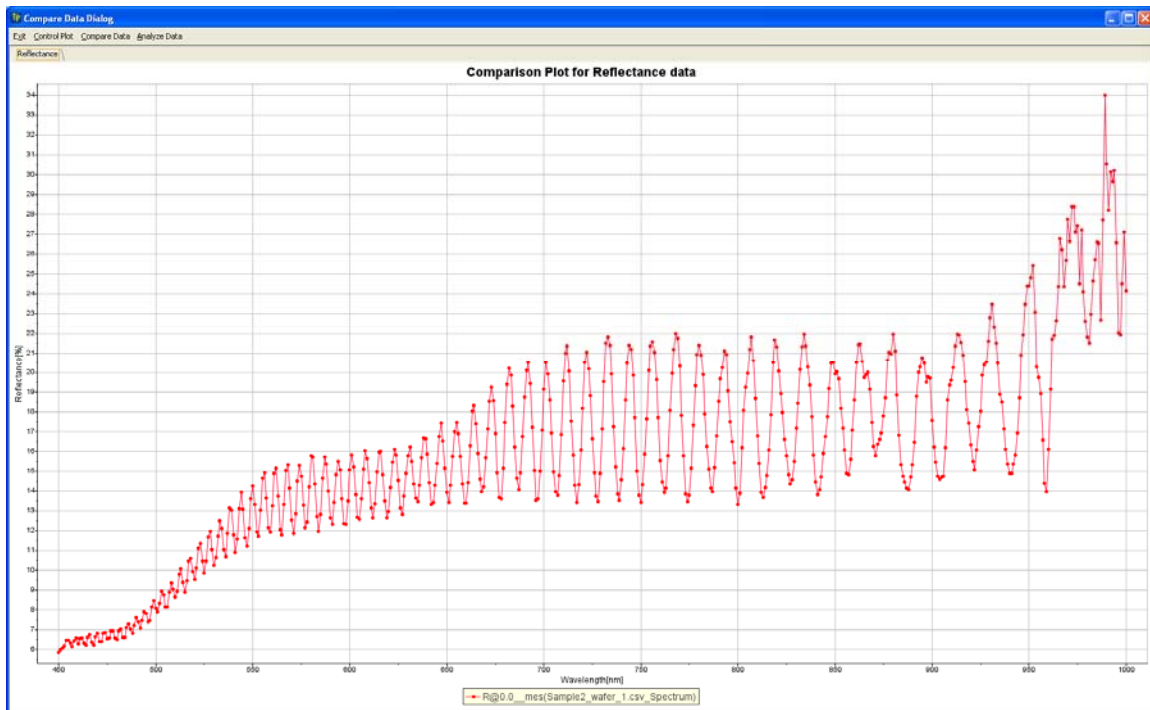


Fig. 1 Reflectance spectrum of the coated PCB

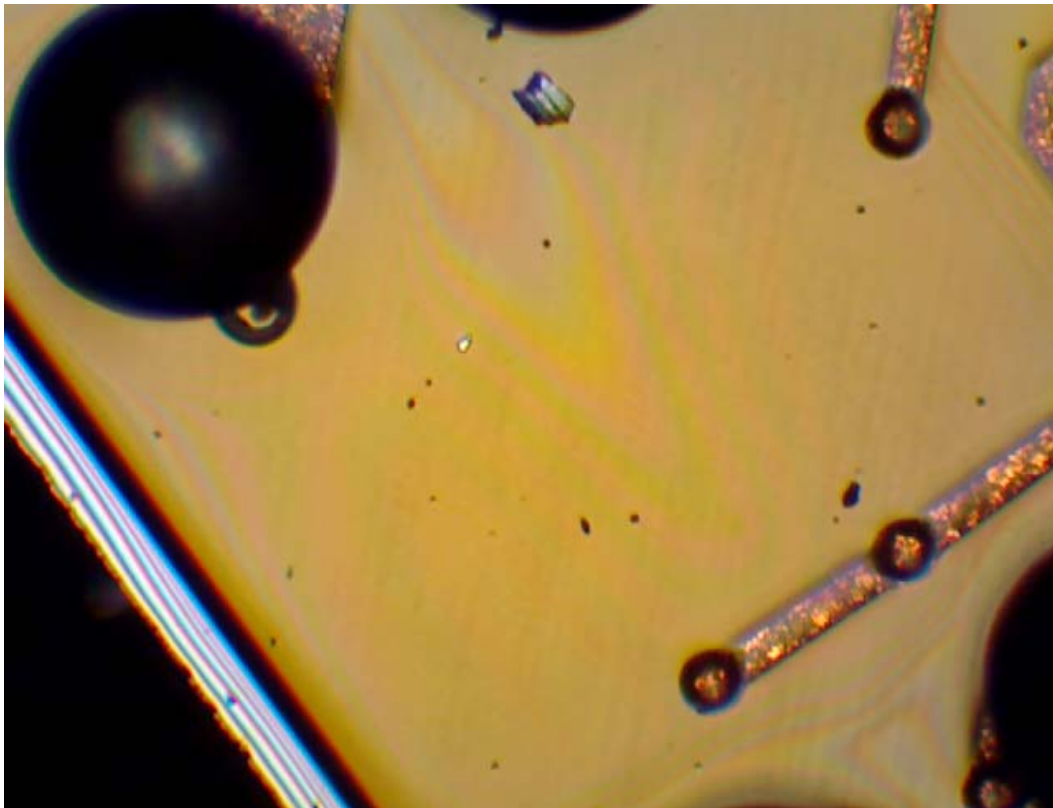


Fig.2 PCB Measurement area

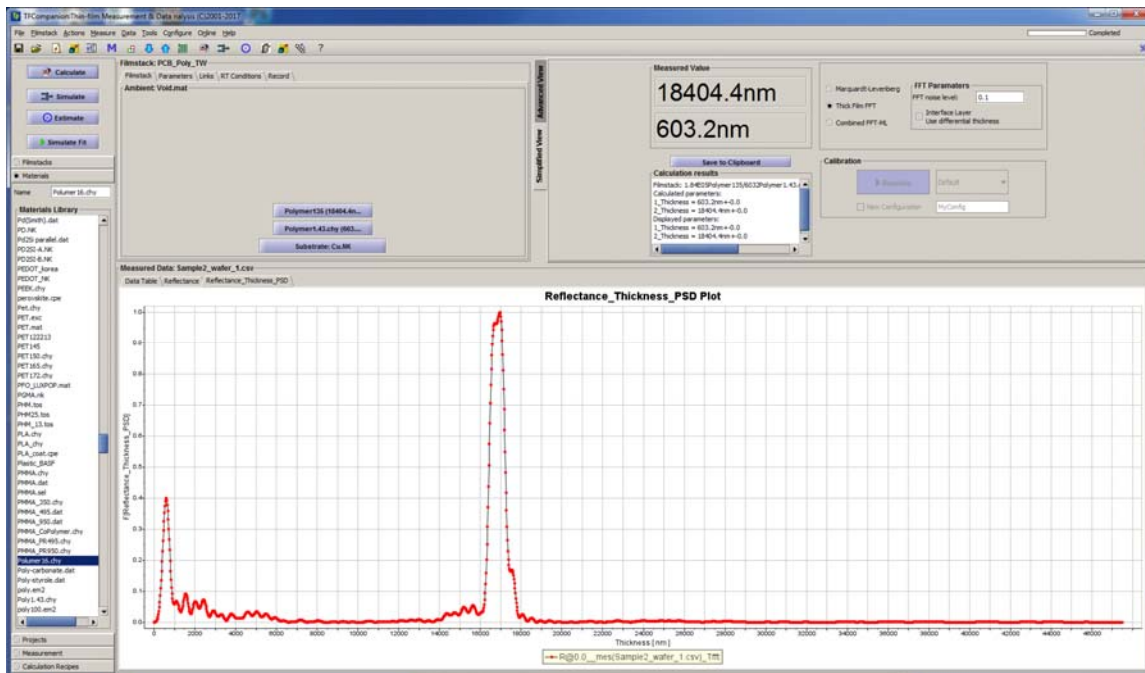


Fig. 3 Measurement result: 18.4μm coating layer and 0.6 μm interface layer.

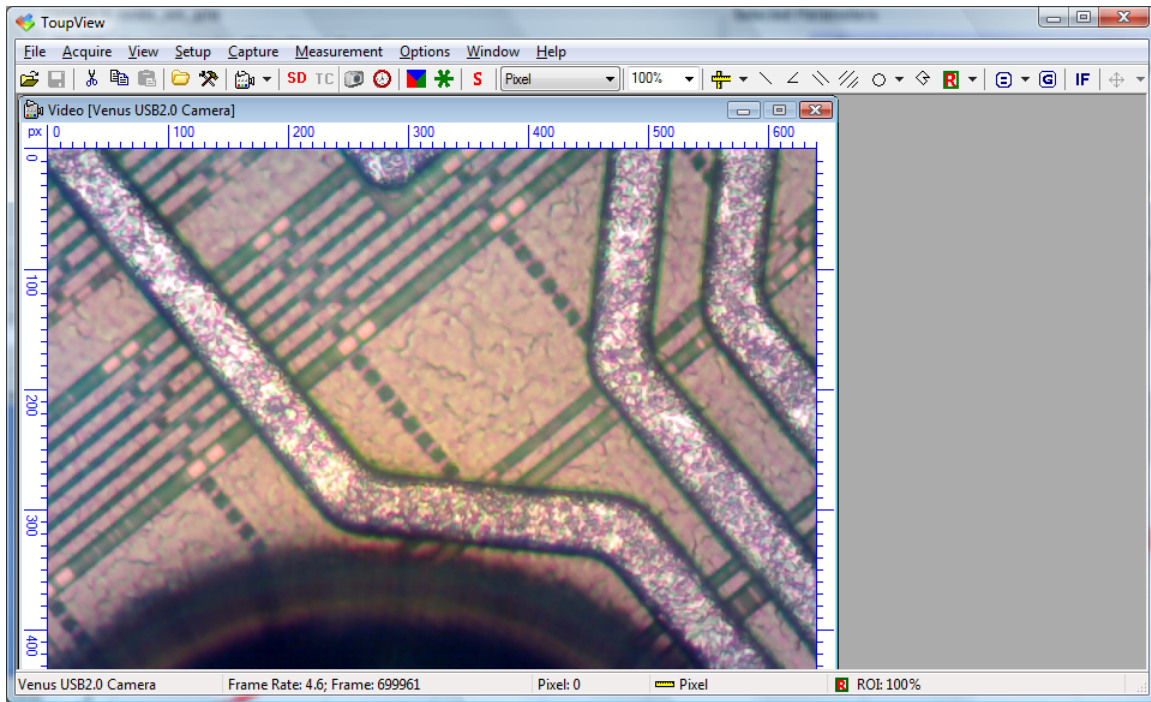


Fig. 4 Measurement area (silicon area gray square) on the PCB

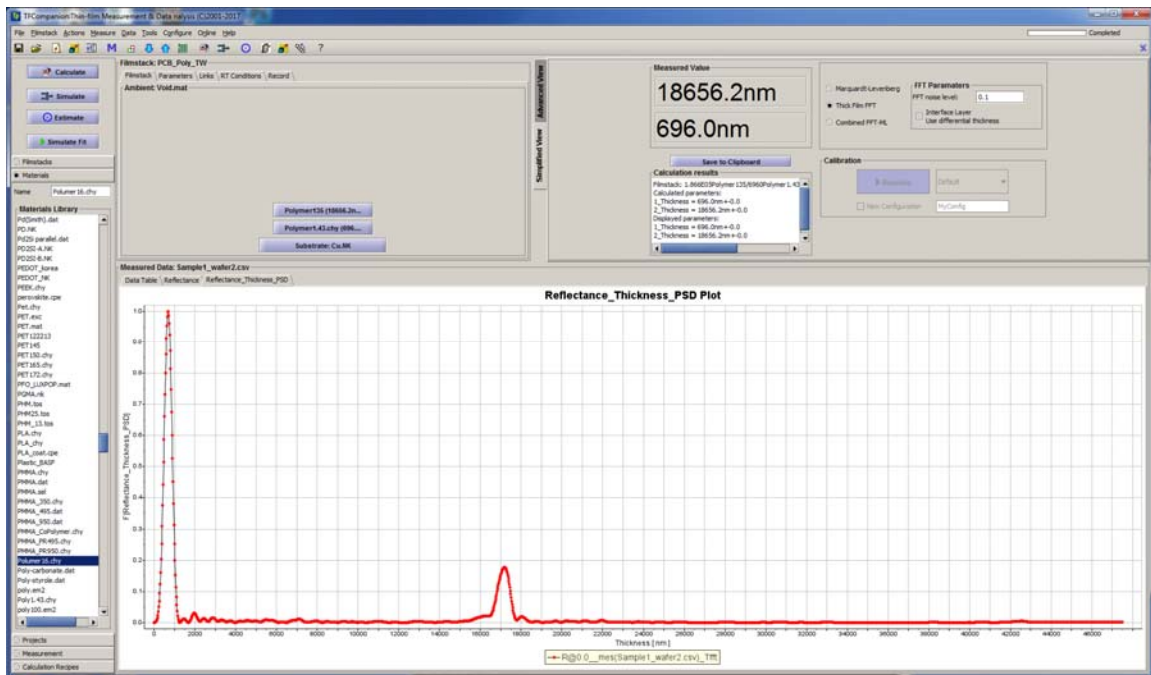


Fig. 5 Measurement result (area Fig. 4): Layer thickness 18.6 μ m and 0.7 μ m interface layer.

Example 2: Measuring hydrophobic coating on PCBA

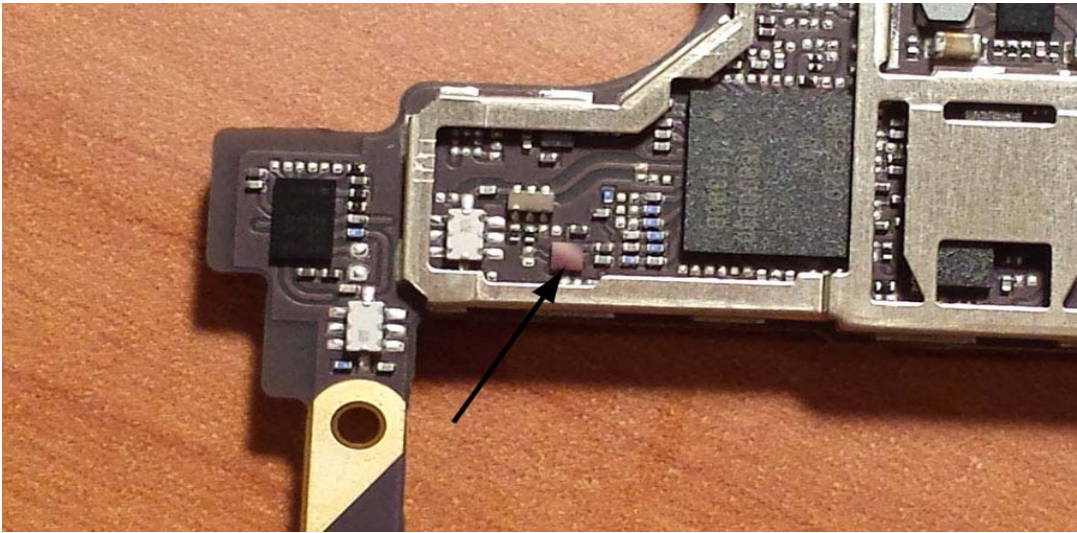


Fig. 6 Measurement location.

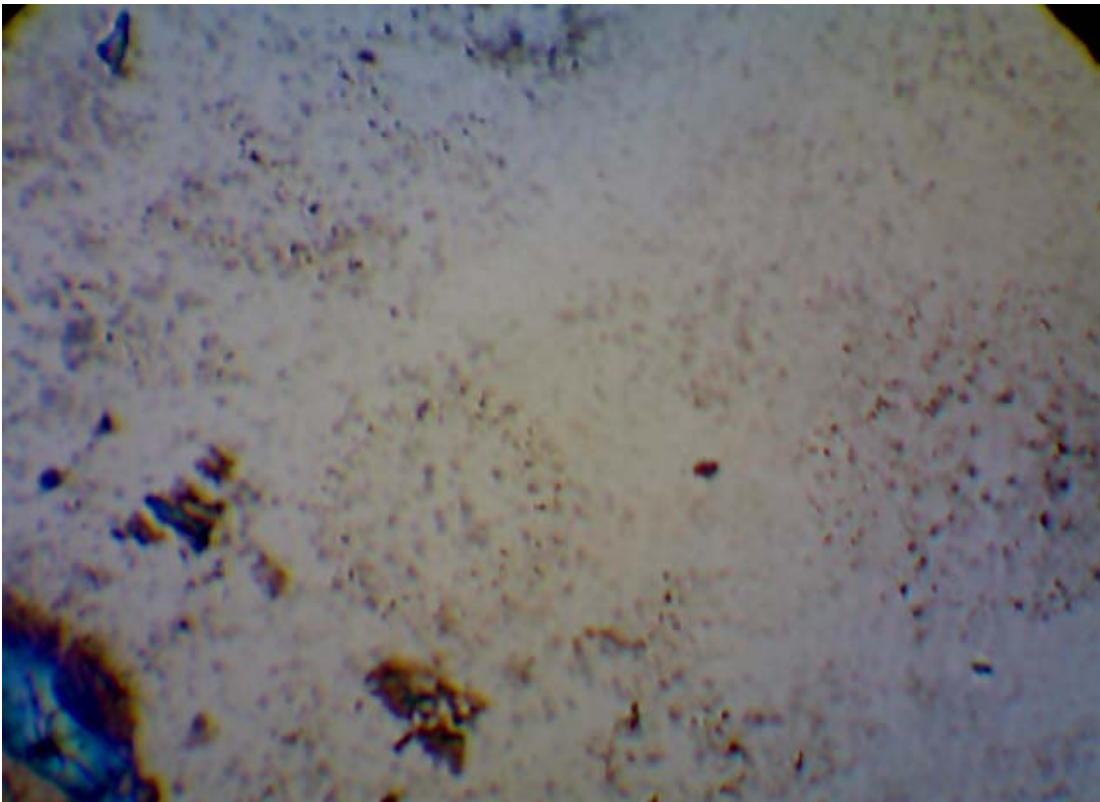


Fig. 7 Measurement spot (Fig. 6) at 20x magnification

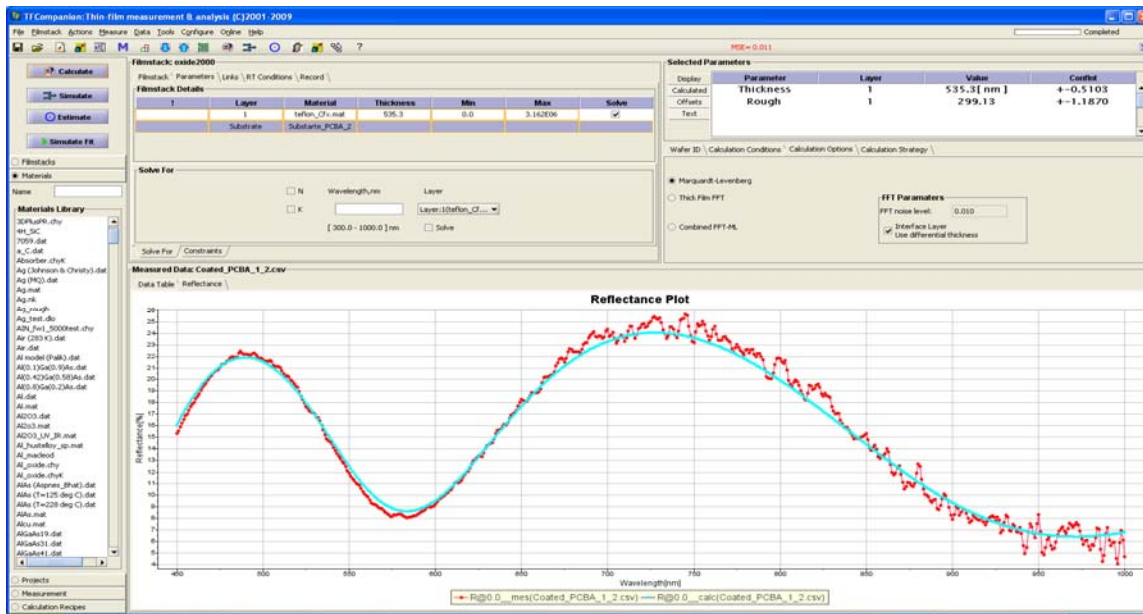


Fig. 8 . Fit of the model to measurement data
Results of the measurement: layer thickness 535 nm