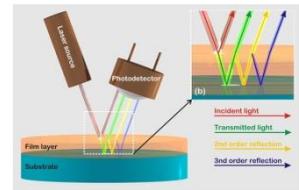


## ThetaMetrisis APPLICATION NOTE #041

### Thickness measurements of films used for LCD panels



#### Introduction:

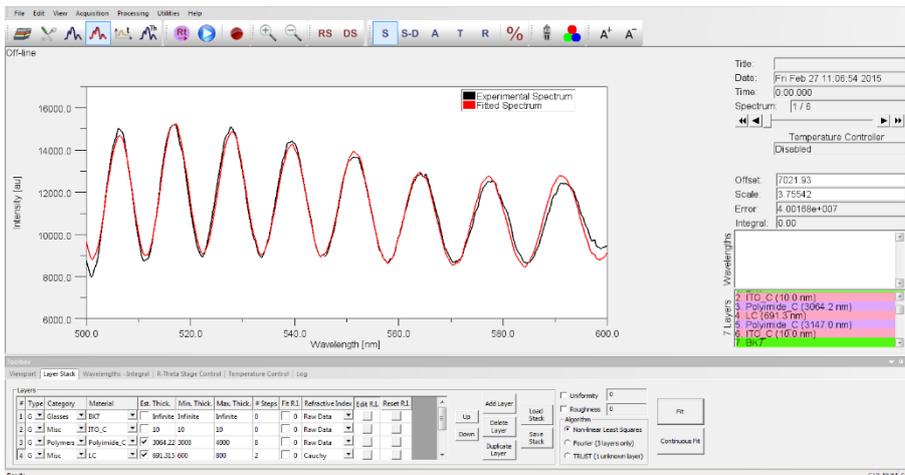
**Liquid Crystal Displays (LCDs)** have already flooded the market and are widely used in a wide variety of applications (cell phones, computers, car navigators, TV's etc). LCDs consists of multiple layers the characterization of which helps in the optimization of the performance of the devices. In this application note, a **ThetaMetrisis FR-pRo** tool is used for the characterization of layer stacks used for the development of LCDs.

#### Means & Methods:

Sample under characterization was a **Liquid Crystal (LC)** layer on top of glass. Measurements were performed by a standard **FR-pRo VIS/NIR** tool operating in the **370nm-1020nm** spectral range capable to measure thicknesses from 12nm up to 120µm.

#### Results:

In the following screenshot, the case of five layers stack of ITO/polyimide/LC/polyimide/ITO on BK7 glass is illustrated. The fitting process was applied for the three layers (polyimide/LC/polyimide) while the thickness of ITO is fixed at 10 nm.



#### 5 layers stack of ITO/polyimide/LC/polyimide/ITO on BK7 glass.

layers	Thickness
BK7	Infinite
ITO	10 nm (fixed)
Polyimide	3064.2 nm
LC	691.3 nm
Polyimide	3147.0 nm
ITO	10 nm (fixed)
BK7	infinite

**Conclusions:** FR-pRo VIS/NIR tool was successfully used for the thickness calculation of the TAC/LC sample.