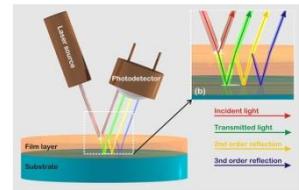


## ThetaMetrisis APPLICATION NOTE #044

### Thickness measurement of thick glass substrates



#### Introduction:

**Glass** is an unlimited and innovative material with wide range of applications in everyday life such as tableware, packaging, electronics, automotive, buildings, medical technology, renewable energy, optical glass etc. In several cases the glass is used as substrate and is important to know the actual glass thickness. In this Application Note, total thickness of glass wafer and microscope slide that are extensively used in microsystems and medical devices respectively are measured by using **FR Tools**.

#### Means & Methods:

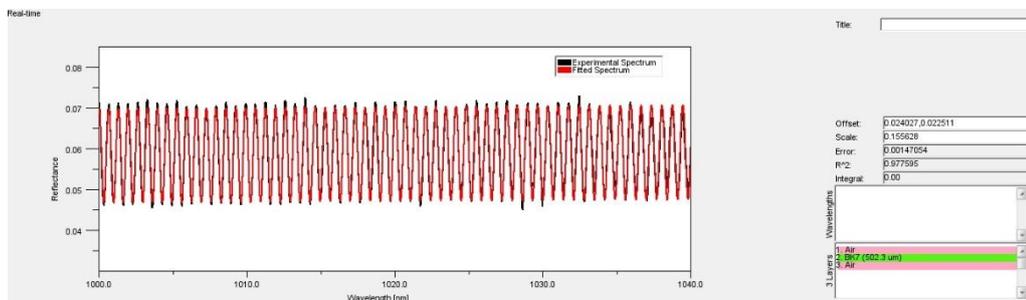
The glass wafer has nominal thickness 500µm and the microscope glass 1mm. The interference fringes from such thick samples are very dense and standard spectrometers operating in UV/VIS and VIS/NIR cannot resolve them. In the present study an FR-tool operating in a narrow spectral range, so that to deliver very high optical resolution, is employed. In particular the samples were characterized by an **FR-pRo NIR-980 tool**, operating in the **900nm-1050nm spectral range**, equipped with 3648pixels CCD and capable to measure **thicknesses from 1micrometer up to 1.2 millimeters**.

#### Results:

Typical experimental reflectance spectra (black line) and fitted reflectance spectra (red line), as recorded by the FR-Monitor software, and the thickness values measured, are illustrated in the figures below.

**Double side polished glass wafer**

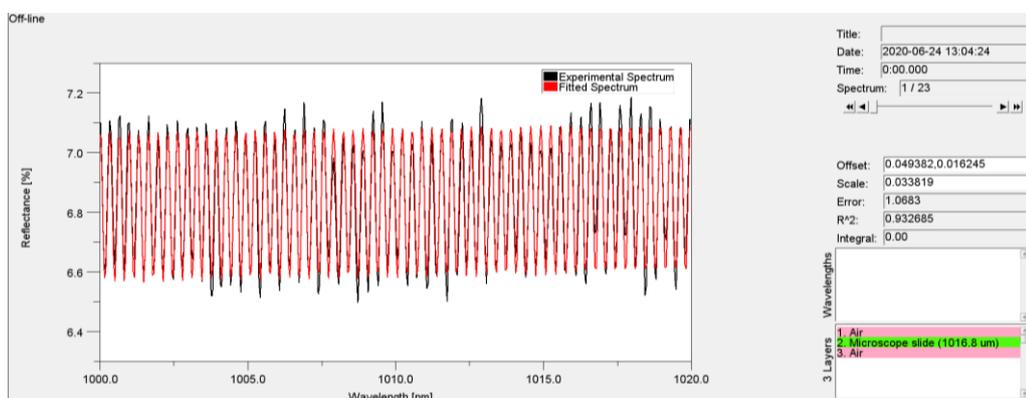
**Thickness measured**



**Total BK7 thickness measured at 502.3um**

**Microscope Slide**

**Thickness measured**



**Total glass thickness measured at 1016.8um**

#### Conclusions:

Total thickness of **thick transparent samples** successfully measured by using the **FR-pRo NIR-980 tool**.