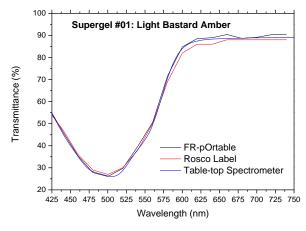# ThetaMetrisis APPLICATION NOTE #017

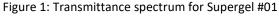## Transmittance measurement of colour filters

Goal: The accurate transmittance measurement of different colour filters.

Means & Methods: Transmittance measurements on #01 (Light Bastard Amber) and #04 (Medium Bastard Amber) colour filters made by Rosco Laboratories [1] were performed using a FR-pOrtable, operating in 370-1020nm spectral range. Additional transmittance measurements were taken on both colour filters using a high precision table-top spectrometer. The obtained results were compared with the Spectral Energy Distribution (SED) curves given by the manufacturer.

Results: The measurements of transmittance (%) as a function of wavelength (nm) for colour filters #01 and #04 are summarized in Figure 1 and Figure 2, respectively. The reference values (Rosco Label) were obtained after digitization of manufacturer's SED curves, while the same filters were characterized by the high precision table-top spectrometer. The results suggest that for both colour filters, the transmittance measurements taken with FR-pOrtable and the table-top spectrometer are similar for each wavelength. Considering the fact that FR-pOrtable consist a miniaturized spectrometer, this performance is remarkable. Moreover, Rosco Label values appear to be slightly reduced for wavelengths larger than 575nm which could be attributed to the wearing of the filters.
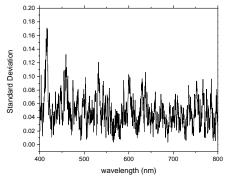

Figure 1: Transmittance spectrum for Supergel #01

Figure 2: Transmittance spectrum for Supergel #04

Figure 3: Standard deviation (noise) of the Transmittance values (%) taken with FR-pOrtable TM (black) for colour filter #4.

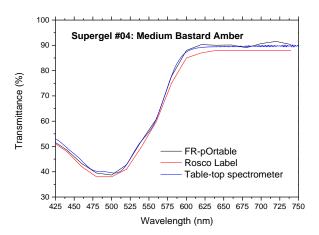In fig.3 the standard deviation of the noise in transmittance measurements vs. wavelength is plotted. This value could be considered as the sensitivity value in transmittance measurements.

Conclusions: A demonstration of FR-pOrtable's performance on transmittance measurements of colour filters was shown.

[1] http://us.rosco.com/en/product/supergel