



## Annex No. 4 – Technical specification

### Instrument name: Spectrophotometer

#### Intended use:

Device for measuring optical properties of samples with a maximum thickness of 3 cm. Intended primarily for use by students of Wood Engineering.

#### General instrument requirements:

- Dual-beam spectrophotometer
- Measurement geometry: diffuse illumination and 0° viewing angle, in accordance with ISO 2469
- Illumination source: pulsed xenon lamp filtered to D65
- Spectral analyzer: SPX analyzer with dual 256-diode array and holographic grating
- Minimum wavelength range: 360 nm to 700 nm
- Minimum reporting interval: 10 nm
- Minimum photometric range: 0 to 200%
- Minimum photometric resolution: 0.003%
- Repeatability: at least 20 readings on a white tile using dual flash (CIELAB) (1) – max. 0.02 CIELab\*
- Inter-instrument agreement: reflectance measurement (CIELAB) (1, 2 and 3) – 0.4 CIELab\* (maximum, without black tiles), 0.25 CIELab\* (average)
- Infrared sensor accuracy: minimum  $\pm 0.9$  °F /  $\pm 0.5$  °C
- Optics: 3-position automatic zoom lens
- Aperture detection
- Automatic UV control: automatic UV calibration for measurement of fluorescent samples with UV filters at minimum wavelengths of 395 nm, 420 nm, and 460 nm
- Remote measurement trigger button
- Sample positioning preview camera
- Vertical mounting configuration
- Operating conditions: temperature range: minimum 5 °C to 40 °C, relative humidity: minimum 5% to 85%, non-condensing

#### Technical design requirements:

- Power supply requirements: 230 V AC, 50/60 Hz, 80 VA
- Data interfaces: USB 2.0 / Ethernet / USB-C / HDMI

#### Accessories – description and technical specification:

- High-performance spectrophotometer ensuring evaluation of whiteness, brightness, opacity, diffuse reflectance factors, yellowness, and color in laboratory or production environments.