OPTICAL MEASUREMENTS
LIST OF AVAILABLE SERVICES

SPECTRAL MEASUREMENTS

_ Characterization of the behavior of various materials as a function of wavelength (glass, plastics, metals, mirrors, anti-reflection coatings, interferential filters, fabrics, lotions, etc.)
_ Direct or diffuse transmission
_ Specular reflection (at normal incidence or at an angle)
_ Diffuse reflection
_ Wavelengths in the ultraviolet, visible, and infrared spectra
_ Spectrofluorometry
_ Fiber spectral characteristics

EMISSION SPECTRUM OF LIGHT SOURCES

_ Characterization of a source's relative intensity as a function of wavelength
_ Incandescent sources (LED, fluorescent, laser, etc)
_ Wavelengths near the visible spectrum (350–1000 nm)

LUMINOUS INTENSITY AND ILLUMINANCE

_ Measurements of illuminance (lamps, LEDs, etc.)
_ Characterization of a source's luminous intensity based on an illuminance measurement taken at a given distance
_ Characterization of the angular distribution of the intensity of a light source
_ Possibility of photometric (based on human eye response) or radiometric measurements (power)

LUMINANCE AND CONTRAST

_ Measurement of luminance
_ Characterization of LED display panel contrast based on background luminance and display luminance measurements

COLORIMETRY

_ Quantification of the color of an object or surface by contact
_ Results expressed in Yxy or L*A*B* color systems
_ Possibility of differential measurements in relation to a benchmark
_ Characterization of the color of various objects (plastics, fabrics, paints, foods, etc.)
_ Characterization of color of a light source or a distant object (Yxy values only)

INTERFEROMETRY

Variety of possible measurements using (Zygo Mark GPI xps) an interferometer:

_ Planarity of surfaces (windows, mirrors, prisms)
_ Precision of convex or concave surfaces (lenses, mirrors)
_ Measurement of the vertical curve of an optical surface (lenses, mirrors)
_ Wavefront distortion transmitted by an optical element (windows, lenses)
_ Angle errors and quality of wavefront transmitted from corner cube
_ And more

WAVEFRONT MEASUREMENT

_ The Shack-Hartmann sensor maps the local slopes of the wavefront to be analyzed
_ Characterization of numerous parameters like beam divergence and aberrations such as astigmatism, coma, etc.

MTF (*MODULATION TRANSFER FUNCTION*) MEASUREMENT

_ The visible spectrum
_ Characterization of an optical system's effectiveness at resolving various levels of detail by measuring the contrast obtained at various spatial frequencies

PRECISION ANGLE MEASUREMENT

_ Measurement of the deviation between two optical surfaces using an autocollimator or goniometer
_ Characterization of the parallelism of a window or prism angle

PRECISION MEASUREMENT USING A MICROSCOPE

_ Various types of microscopes available depending on the required resolution: optical microscopes, electron microscopes (SEM), or atomic force microscopes (AFM)
_ Accurate measurements of component dimensions, images of particles measuring a few microns, surface roughness characterization, etc.

INSPECTION OF OPTICAL COMPONENTS

_ Diameter or dimensions
_ Thickness (center or edges)
_ Planarity or vertical curves, focal length
_ Surface quality (roughness, scratch & dig)
_ And more

SURFACE MEASUREMENTS

_ Interferometric microscope (LEXT)
_ DEKTAK surface profilometer

CHARACTERIZATION OF THIN FILMS

_ Tencor (stress measurements)
_ Ellipsometer

CHARACTERIZATION OF OPTICAL FIBERS

_ Spectral attenuation
_ Absorption
_ Fiber index profile measurements (EXFO NR9200)
_ Preform fiber index profile measurements (PK 2600)
_ Birefringence measurements
_ Cutoff wavelength
_ Characterization and modeling of photodarkening in active fibers

LASER BEAM PROFILING

_ Laser beam diagnostics using a CCD camera from ultraviolet to near infrared (i.e., 266–1300 nm) or a slit-scan pyroelectric detector from ultraviolet to far infrared (i.e. 190 nm – 100 µm)
_ CW or pulsed laser beam analysis: diameter ($1/e^2$ and 4s), divergence, quality factor (M^2 and BPP), astigmatism and asymmetry following the X/Y orthogonal axes
_ Measurement method compliant with ISO 11146-1:2005 in force

ALIGNMENT OF CUSTOM OPTICAL SYSTEMS

COMM-110003