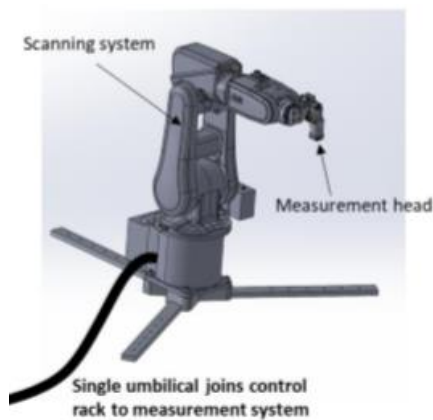




Target Reflectivity Measurement System for large objects and hazardous environments

F4E and [ASE Optics Europe](#) have developed an innovative optical prototype system dedicated to the measurement of the backscattered reflectivity of objects which are too large or dangerous to be used in traditional BRDF measurement instrumentation. Promising applications in optical characterization are now considered.



The technology

Developed for the characterization of the reflectivity of the ITER plasma facing components, the technology is based on a bistatic probe mounted on a scanning system designed to rotate around a 100mm circle and cover all orientations in a step-and-hold measurement technology. Its final objective is to measure the reflectivity of components which can't be analyzed in traditional bidirectional reflectance distribution function (BRDF) measurement instrumentation and with a high dynamic range. An experimental probe has been designed in order to test all the optical functionalities of the detection system.

Measuring reflectivity of large objects in harsh environments

This solution offers the possibility to measure reflectivity of extremely large objects with 100dB dynamic range at a wavelength of 800nm and 86dB dynamic range at 1550nm. Current instrument's performance show the characterization within an hour (of 2000 data points taken at even solid angles every 2°, over an eighth of a sphere, over a range of normal to 80°) and the data acquired can allow predictive models of the characterisation capacity of light-based measurement systems on specific component parts of surface finish to be developed.

Back-reflectivity characterisation for large or complex objects

This scanning and measuring system can be used for back-reflectivity measurements of large components in aerospace, energy, industry or automotive. The TARMS enables the data to be acquired once the full component construction process and hence all surface-reflectivity modifications, have been completed.

Collaboration opportunities

The technology package is available for adaptation to new use cases and environments. It is also possible to offer an optical inspection service based on this solution for those who will need a reliable partner in their product development or monitoring operations.

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