System Overview

The OptiLux SD system is a complete optics inspection and validation system. It offers unparalleled control of optical surface quality by providing the highest level of measurement repeatability and accuracy. It is quantum leaps ahead of all existing, subjective, manual processes. The system's automatically generated Pass/Fail reports are detailed and certify the level of each of your optic component’s quality standard.

RedLux created the OptiLux SD with one mission in mind: To help you remove an archaic and unreliable part of your production process and replace it with a 21st century alternative…ultimately saving you money.

- Highly repeatable and reproducible results
- Objective evaluation
- Easy-to-use software
- Pass/fail reporting
- Standards applied:
  - MIL-PRF-13830B
  - ISO 10110-7 (Visibility based specification)

Sensor head is insensitive to external lighting conditions

Comprehensive range of loading solutions:
- Versatile and easily changed
- Minimise part handling
- Accomodates components of various sizes and shapes
- Holds components up to 25kg

Software User Interface

The OptiLux SD is driven with our propriotary software. It is easy to use and requires minimal training.

- Automated Pass/Fail report
- Immediate output of Pass/Fail status
- Measurement setup wizard
- Lists of all detected scratches and digs
- Navigational buttons to drive sensor head
- Repeatable results that remove subjectivity
Crystran Ltd, is located in Poole, England. It manufactures and supplies high quality optical components, including; windows, lenses, prisms, and specialist optics. Many of Crystran’s products are high value, such as its Zinc Selenide (ZnSe) components.

Zinc Selenide (ZnSe) is a costly material used in infrared components such as thermal imaging windows and lenses. Polishing ZnSe to a high cosmetic finish can be troublesome as it is a soft material; even cleaning the polished surface can result in sleeks or fine scratches. Given its high refractive index, the visibility of these sleeks can easily exceed a specified scratch-dig figure as defined by the industry-standard ‘MIL13830B’. Additionally, Crystran found the assessment of such sleeks against commercially available scratch-dig comparator plates to be difficult, especially given the range of different materials Crystran supplies and the highly subjective nature of the inspection methods traditionally adopted.

In 2015, Crystran decided to work with RedLux Ltd in the development of a fully-automated metrology instrument to objectively assess any flat optic against the complete criteria defined in MIL13830 (including all the Scratch-Dig accumulation rules). Not only would this save unnecessary re-work and material handling, this would also enable Crystran to finally provide traceable measurement reports against all specified criteria – an industry first!

The Solution

Designed to encompass all of Crystran’s requirements, as well as those from other industry leaders, the OptiLux SD was born. By removing the human error factor during the inspection process, not only has the OptiLux SD permitted Crystran to avoid many of the costly manufacturing pitfalls previously experienced, but the automatically generated, objective Pass/Fail reports now corroborate the high quality that their components meet.

“For high value components such as Zinc Selenide plates, the OptiLux SD Inspection System has undoubtedly had a measurable and significant impact on reducing our production costs, while simultaneously providing our customers with the quality assurance they have since come to rely upon” Mark Middleton, Managing Director at Crystran.