SMF/ESIL (Elevated SIngle Light)

Portable System for Approach lighting systems Photometric Measurement

DATABASE
The system DB stores information of Airports, fixture's models and parameters, GPS light position, measurement results, graphics tables, pictures and statistical data

REPORTING
The system provides a full and user configurable reporting capability such as:

- Isocandela Diagrams
- Maintenance and repair reports
- Lights performances bar charts
- ICAO/EASA/FAA compliance data tables

DOCUMENTATION
SMF/E system comes with Operating & Maintenance Manual, Manufacturing Test Data Reports and Calibration certificates

TRAINING
A complete training course will cover deployment, operations and maintenance topics, allowing the customer to reach the full control of the system

DIAGNOSTIC
SMF/E features an automatic self- diagnostic subsystem to continuously check the instrument components

TECHNICAL SUPPORT
Argos technical support assists customers during the whole system lifetime

EFFICIENCY
Hand portable system with fast deployment in the field. Rapid clearance of approach course when necessary

The **SMF/ESIL** is the most advanced instrument available for the photometric measurement of elevated Approach Lighting Systems (ALS), under ICAO/EASA/FAA recommendations.

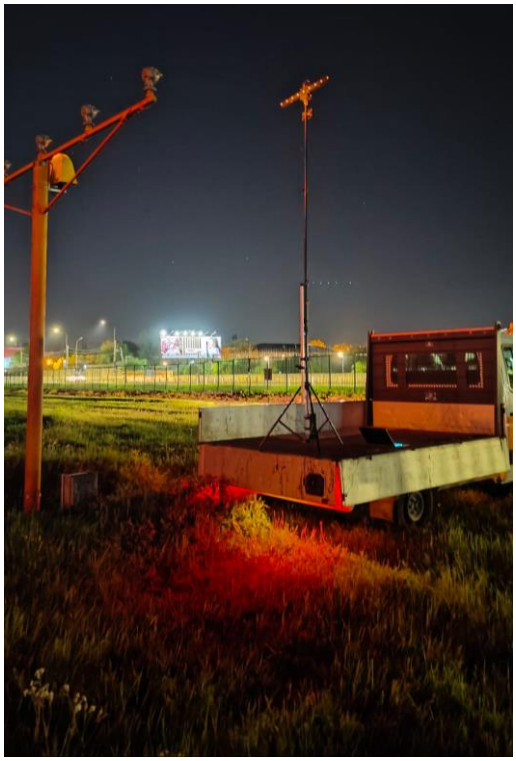
SMF/ESIL consists of an hand portable instrument based on a telescopic mast supporting a compact measuring equipment. The measuring equipment is able to detect the distance from the Light Under Test (LUT) to measure its intensity through a suitable photometer array, while an inertial sensor provides the horizontal reference to compute the elevation angle of the LUT beam.

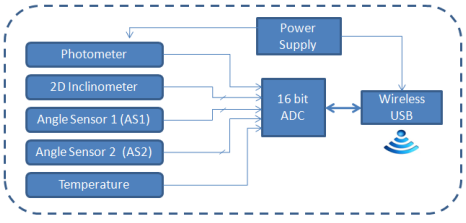
The measuring equipment integrates a GPS receiver for certification of LUT position and a Lithium battery operated power supply and communicates via a wireless or USB 3.0 link with the system tablet running data processing, presentation and recording software.

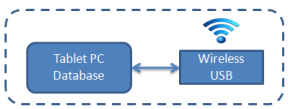
The ADC electronics of **SMF/ESIL** allow to collect a large number of samples for a precise data analysis as well as to build accurate high resolution ISOCANDELA diagrams.

The **SMF/ESIL** system database allows to save measurement data sets of several airports. A powerful report generator is able to provide PDF tables, graphics and data according to selections defined by the user.

- Light Measurement installed on pole at height up to 6 m from ground according to ICAO/ EASA/FAA recommendations
- Maximum, Average and Minimum light beam intensity, Elevation and Azimuth (TOE-IN) angles measurement
- Light Colour measurement according to CIE 1931 (ICAO Annex 14, 9th Ed. 2022)
- Printing of isocandela diagram
- LED lights measurement supported
- Accurate SBAS GPS/D-GPS based light identification
- Automatic user defined reporting of measurements (PDF)
- Measured data exportable for user purposes
- Due to light size and dimensions, installable on platform to reach elevated lights installed on higher that 5 m pole

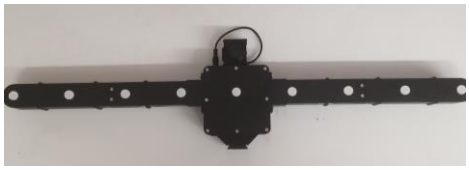






SMF/ESIL Components & Software

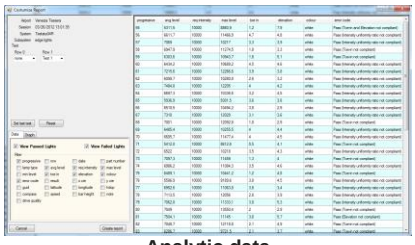
The measuring head of SMF/ESIL hosts 9 light intensity sensors, 1 CIE 1931 color sensor, 1 two axis position detection system, 1 light range detection sensor, 1 light height from the ground detection sensor, ADC electronics, data processor, power supply and Li-Po battery. Measurement head comes with its own carrying bag and Li-Po battery recharging system.



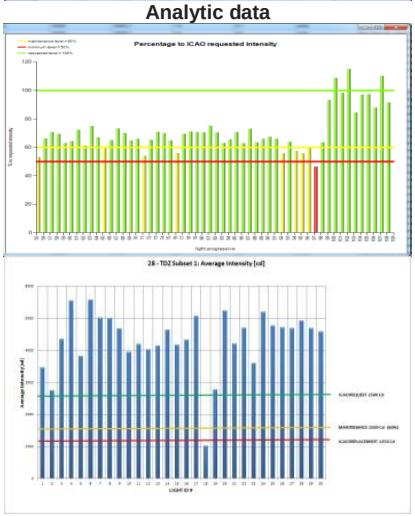
Operator tablet running the system software under MS Windows 10/11 operating systems, providing data processing and operator HMI.

Tablet may be moved to the office area to analyze data, prepare, print and send measurements reports.

Powerful system software to setup ALS database, execute measurements, save data, report measured data as per user defined tables or graphical presentation, export Excel files.

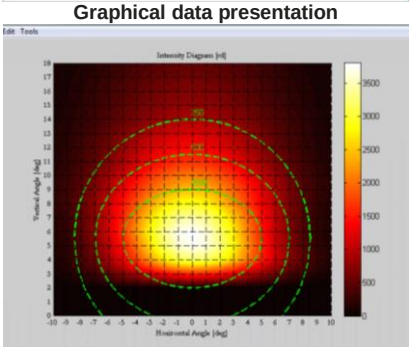


Analytic data



Graphical data presentation

Motorized battery operated professional type tripod for elevated lights measurement, with motor switch and carrying bag



ISOCANDELA diagrams

Main Technical Specifications

- Motorized telescopic aluminum mast extendable up to 7 m
- Light measurement time less than 1 minute
- Instrument positioning supported by System HMI
- Intensity and Elevation angle measurement
- Isocandela Diagram
- Color detection according to CIE 1931
- 8 hours of full operation through 6 Ah Li-Po battery
- Operating temperature: -20 to 55 °C
- Measuring Equipment Weight: < 8 Kg.
- Total accuracy error: < 5 %
- Total repeatability error: < 5%

SMF/ESIL is designed to operate over the most used configurations of Approach Lighting Systems such as:

- CAT I/II/III ALS as per ICAO/EASA and FAA recommendations
- MALSR: Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights
- MALSF: Medium-intensity Approach Lighting System with Sequenced Flashing lights
- SALS: Simple Approach Lighting System
- SSALS: Simplified Short Approach Lighting System
- SSALF: Simplified Short Approach Lighting System with Sequenced Flashing Lights
- ALSF-1: Approach Lighting System with Sequenced Flashing Lights configuration 1
- ALSF-2: Approach Lighting System with Sequenced Flashing Lights configuration 2