



MALMS™ Transverse

Airfield Lighting Photometric Test System

Advantages

MALMS™ Transverse is an accessory to MALMS™ Mobile that is designed to measure inset and elevated threshold, runway end, stop bar and approach lighting up to 1.5m above ground level.

ICAO Annex 14 section 10.4.7 states "The system of preventive maintenance employed for a precision approach runway category I, II or III shall have as its objective that, during any period of category I, II or III operations, all approach and runway lights are serviceable." It then details the minimum percentage of lights that must be serviceable for each service type including:

- Approach Lighting;
- Runway threshold lights;
- Runway end lights.

Traditional photometric testing methods for these lights are time consuming with the result that threshold, runway end, stop bar light and low level approach lighting are rarely tested, rendering them potentially non-compliant and therefore unsafe.

MALMS™ Transverse measures lighting performance against the criteria for beam intensity and orientation defined in ICAO Annex 14 and FAA AC 150/5345-46. MALMS™ Transverse is therefore suitable to monitor compliance with National and International Standards. It also provides information to help identify problems, develop maintenance strategies, produce work schedules and maintenance reports.

1. MALMS™ Transverse reduces photometric measurement time.
2. MALMS™ Transverse is easy to use: Single operator, no specialist training required
3. MALMS™ Transverse is vehicle independent as it is mounted on a MALMS™ Mobile trailer



4. MALMS™ Transverse is field upgradeable: MALMS™ Transverse can be retrofitted to existing windows based MALMS™ Mobile photometric systems (DOS Datalogger systems are upgradeable to Windows)
5. MALMS™ Transverse has a rugged design for the harsh airfield environment and can be set-up without the need for tools that could become FOD (foreign object debris).
6. MALMS™ Transverse is fault tolerant: Designed to prevent operator errors with many automatic monitoring and quality checks to ensure data integrity
7. MALMS™ Transverse has inbuilt diagnostics: MALMS™ Transverse incorporates efficient fault finding tools to minimise unplanned maintenance

How:

MALMS™ Transverse is permanently fitted to the frame of the MALMS trailer.

The test is performed by driving the MALMS™ Trailer with MALMS™ Transverse photometric sensors parallel to the lights to be tested with the MALMS™ Transverse array at a distance of 4.5 meters from the lights.

Test results are immediately available on the MALMS™ Datalogger thereby enabling the user to review overall lighting performance, assess individual light performance, differentiate between beam intensity and orientation problems and then generate priority repair and general maintenance reports:

- Course Summary Chart: Provides a graphical summary (for senior management or Regulatory Authority) of the performance achieved by a defined section of airfield lighting over a defined period (typically 3 months).



- **Course Detail Chart:** defines the performance of each individual light on the latest (or other user defined) survey date. As well as a visual indication of overall performance, this identifies where unserviceable lights are located.
- **Isocandela Diagrams:** Show beam orientation and beam intensity, either for all lights or those listed on the repair report. This information can be used to differentiate between different types of faults (such as low light output and poor alignment) and help define maintenance requirements. Isocandela Diagrams for both sides on two dates can be displayed alongside each other to show the difference between the two. This provides a visual indication of changes in light performance and effectiveness of planned work activity.
- **Location History Chart:** Bar chart showing average intensity for one or both sides of user specified light over time. This provides visual indication of trends in individual light performance.
- **Repair Report:** List of lights that, on the last survey run, were below a user defined standard. Normally the standard would be set in line with the failure level defined by the Regulatory Authority (i.e. 50% of ICAO Standard, 70% of FAA standard) and thus lights listed on the Repair Report would be classed as priority repairs.
- **Maintenance Report:** List of lights that, on the last survey run, were below a user defined standard. Normally the standard would be set to ensure that required maintenance, i.e. cleaning, re-lamping, etc. is undertaken before performance falls below the failure level defined by the Regulatory Authority.
- **Alignment Report:** List of lights that have been consistently out of alignment since a user defined date.

MALMS™ Transverse Specifications

Trailer Bracket: Designed to mount sensor array in the required positions for measurement of both inset and elevated lights. Protective wheel mechanism prevents damage to light array when 'off-pavement'.

Light Sensor Array: Facilitates the measurement of lights comprising multiple Light Sensors (12 off) and a Colour Sensor.

Position Sensor Array: Sensor positioned to determine the location of each light during data collection and hence which data is used in the calculation of Average Beam Intensity.

GPS receiver: GPS (Global Positioning System) receiver determines vehicle position to determine which runway lighting section is being measured and also records the location of each light.

Sensor network: A high speed communications network connects the sensors that support internal diagnostic routines enabling remote support from TMS.



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