MALMS™ Mobile

Airfield Lighting Photometric Test System

Advantages

MALMS™ Mobile measures airfield lighting performance against the criteria for beam intensity and orientation defined in ICAO Annex 14 and FAA AC 150/5345-46. MALMS™ Mobile is therefore suitable to confirm compliance with National and International Standards. It also provides information to identify problems, develop maintenance strategies and produce work schedules and maintenance reports. MALMS™ Mobile is widely recognised as the best photometric measurement system available. A policy of continual development is designed to ensure that this leading position is maintained. The following advantages identify the key factors that make this possible:

1. Accuracy: MALMS™ Mobile is designed to ensure accuracy tested in USA, UK and Europe by independent test laboratories.
2. Easy to use: MALMS™ can be used by a single operator; no specialist training required
3. Rapid measurement: MALMS™ Mobile can survey at speeds in excess of 50mph i.e. 9000 foot runway centreline or edge (inset or elevated) of 220 lights takes less than 5 minutes to measure
4. Vehicle independent: MALMS™ Mobile can be used with any vehicle without modification because it is trailer mounted
5. Robust: MALMS™ is rugged, designed for the harsh airfield environment and can be set-up without the need for tools that could become FOD
6. Reliability: With many systems in use around the world, the system has demonstrated its reliability
7. Fault tolerant: MALMS™ is designed to prevent operator errors with many automatic monitoring and quality checks to ensure data integrity
8. Global support: MALMS™ has inbuilt diagnostics, dedicated support function plus global agency network to provide effective customer support

How:

MALMS™ is built onto a specially designed trailer that can be easily set up and used by a single operator who requires no special training or computer literacy. MALMS™ can be attached to any airport vehicle with a standard 2 inch (50mm) ball trailer hitch. Set up and configuration to measure a wide range of fixtures from inset taxiway to elevated runway edge fixtures is extremely easy and quick, and requires no tools - so removing the possibility of leaving tools on the airfield. It employs an intuitive touch screen data logger, thereby enabling its use by all staff - even those with little computer skills - and minimizing training requirements.

The test is performed by driving the MALMS™ photometric sensors over the lights. Because airport runway access time often limited, photometric measurement runs need to be completed as quickly as possible. MALMS™ will operate when towed at speeds up to 50 mph, without any reduction in accuracy. When this capability is combined with the system's ease of set up, the result is that a typical measurement run, including system set up and moving away from the runway after measurement, can be completed in less than 5 minutes. As a result the system can be used safely, even at the busiest airports.

Extremely accurate measurements of the key criteria of average beam intensity, elevation and orientation are achieved because MALMS™ incorporates a number of key features that significantly reduce the main sources of measurement error. The sensor array's configuration and size has been optimized to provide accurate measurement, even when driving is not perfect.

MALMS™ Office Data Analysis System, which is normally run on a PC located in the maintenance office, provides for the data storage, extensive analysis and reporting of the results of the photometric testing undertaken by MALMS™ Mobile or MALMS™ Static. Users can access the database of results, and view the measurements in a variety of formats.
This enables them to review overall lighting performance, assess individual fitting performance, differentiate between beam intensity and orientation problems and then produce priority repair and general maintenance reports.

More specifically the system provides;

- Course Bar Chart Report: defines the performance of each individual fixture on the latest (or other user defined) survey date. As well as a visual indication of overall performance, this identifies, for airfield staff, where substandard fixtures are located.
- Maintenance Repair Report: List of fixtures 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 serviceability standard, 70% of FAA serviceability standard) and thus fixtures listed on the Maintenance Repair Report would be classed as priority repairs.
- Alignment Report: List of fixtures that have been consistently out of alignment since a user defined date.
- Serviceability Bar Chart Report: Will show the serviceability levels of each runway service tested in accordance with the international and national standards for a CAT I or II/III runway.
- Isocandela Diagrams: Show beam orientation and beam intensity, either for all fixtures or those listed on the repair report. This information can be used to differentiate between different types of fault (such as low light output and poor alignment) and hence define maintenance requirements. Isocandela Diagrams for both sides of an individual light unit on two consecutive dates can be displayed alongside each other to show the difference between the two photometric tests. This provides a visual indication of changes in fixture performance and effectiveness of planned work activity.
- Location History Chart: Bar chart showing average intensity for one or both sides of user specified fixture over time. This provides visual indication of trends in individual fixture performance.

MALMS™ MOBILE Specifications

Trailer: Designed to mount sensor array in the required positions for measurement of both inset fixtures (with / without toe-in) and elevated fixtures (optional).

Light Sensor Array: Facilitate the measurement of both sides of inset and elevated fixtures in a single run using the nine photopic light sensors and single a colour sensor.

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

Power Supply: The sensor network is powered from a dedicated intelligent power supply unit.

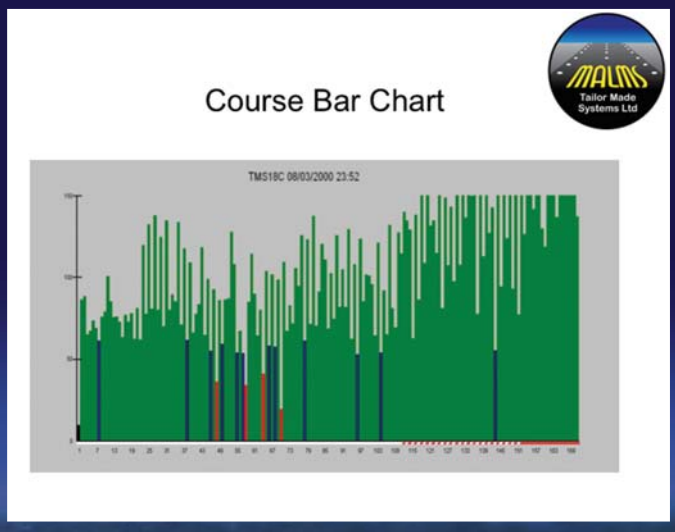
GPS receiver: GPS (Global Positioning System) receiver determines vehicle position to determine which runway lighting section is being measured and also records the location of each fixture.

Distance Transducer / DR Positioning system: The Distance Transducer / DR Positioning system is mounted on the wheel of the trailer and measures distance travelled to a resolution of 100mm and combined with GPS data from the DR Positioning system is used to calculate position and validate the course driven.

Sensor network: A high speed communications network connects the sensors to the data logger.

Data logger: PC compatible system for data collection and analysis incorporating touch screen which enables the operator to select the lighting section to be monitored, control data collection and the analysis / transfer of data to the office PC.

Internal diagnostics: Advanced diagnostic routines enable remote support from TMS.



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