



**G. S. I. Inc.**

*Manufacturer & Distributor of Aerospace Lighting*

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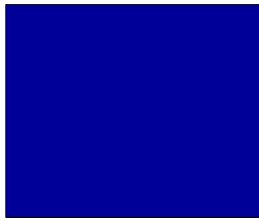
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## PAC SALES:

### Photometric Airfield Calibration System

*Dynamic Light Measurement of Airfield Lighting Systems Sales*



#### Prevention & Safety:

Air passenger services demand total safety. The speed and punctuality of flights make this means of transportation the most promising for the future. Increasing traffic is forcing the introduction of preventative management of electrical runway lights so that traffic will not be interrupted by faults, as required by the [Federal Aviation Administration \(FAA\)](#) and [International Civil Aviation Organization \(ICAO\)](#).

#### Preventative Maintenance:



The FAA has signed AC 150/5345-26A in April 2005. This maintenance specification calls for monthly photometric testing of runway lights. This comes from the 1999, ICAO VAP 13 - WP 35 recommendations for the need of regular inspection of Airfield Lighting Installations, at least twice a year with a certified device. This makes official the requirements for a preventative maintenance system for Airfield Lighting that meets the safety regulations of CAT I, II, & III runways.



The lighting of CAT I, II, & III runways has to be regularly monitored to ensure that it meets FAA and ICAO standards. In fact, it is particularly difficult to detect intensity defects in runway lights. A faulty centerline light, one with a luminous intensity below 2,500 candelas, is hard to perceive with the naked eye. An intensity defect such as this will be visible only at a certain altitude or in extreme weather conditions. PAC measures the luminous intensity of runway lights directly in candelas with a prevision of  $\pm 5\%$  on the values obtained.

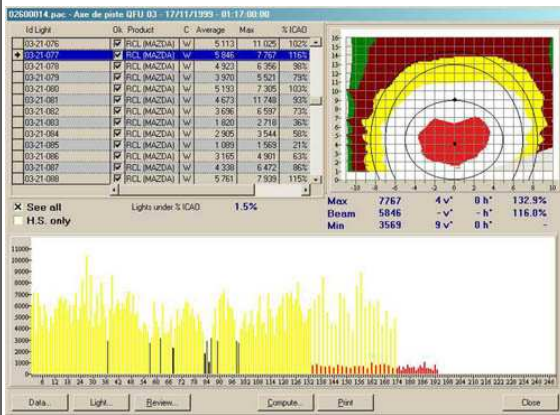
#### Runway Luminous Intensity:

Because the efficiency of an airport largely depends on the quality of its ground infrastructure, F. B. Technology; in cooperation with the French Air Navigation Technical Department attached to the French Civil Aviation Authority (S.T.N.A.); developed PAC, an on-ground monitoring system.

Three years of research were needed to develop this procedure, which analyzes and determines the quality of a light by comparison with the FAA and ICAO requirements. Apart from this check on compliance, the PAC System provides continuous assistance to the maintenance department of an airfield.



## Optimizing Maintenance Works & Inventory:



PAC is a rapid and reliable system for evaluating all inset lights for CAT I, II, & III runway lights. The test report provides the candela value of each light and identifies any defect requiring action to be taken. It also makes it possible to monitor lamp aging from previous tests, so that all the results for a runway or taxiway can be compared. This enables the maintenance department to plan its operations and manage its inventory of spare lamps and fixtures as efficiently as possible. If the light fixture is not defective, even though the system indicates low intensity, the known location of this light fixture makes decision making simpler and thus optimizes maintenance operations.

### Operation of the PAC System:



The system is installed on the front of a standard four-wheeled vehicle. Measurements are made in real time as the vehicle travels over the lights at a speed between 3 - 45 mph (5 - 80 km/h). The luminous intensity detected is fed to a data processing program, which stores and processes several thousands of values for each light.



This technique provides the maximum intensity of the main beam in candelas, an estimate of the mean intensity, as well as the color and evaluation settings of the lights. PAC can be used to evaluate any light source shining on its surface giving an illumination of more than 100 candelas. A supplementary system for checking runway edge lights is also available as an option.

*Join These Other Airfields That Use THE PAC SYSTEM  
To Insure Their Lights Meet Photometric Requirements*

☉ PAC Mobile System Users ☉	
Belgium	Brussels * Charleroi - Liège
China	Beijing - Guangzhou
Finland	Helsinki
France	Lyon St Exupery
Greece	Thessaloniki
Hong Kong	Check Lap Kok
Ireland	Dublin - Cork, Shannon
Italy	Albenga - Bologna Cuneo * Forli - Genova - Parma * Torino
Norway	Oslo Gardemoen
Portugal	Lisbon
Singapore	Changi
Sweden	Stockholm Arlanda
UK	Belfast - Cardiff - Luton
USA	Atlanta Hartsfield



**PAC SERVICE:**  
**Photometric Airfield Calibration Service**  
*Airfield Lighting Photometric Testing Service*

**Applications:**

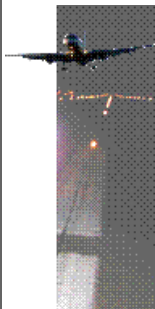
The FAA has signed the Maintenance of Airport Visual Facilities Advisory Circular (AC 150 5345-26A).

[www.faa.gov/arp/publications/acs/5340-26A.pdf](http://www.faa.gov/arp/publications/acs/5340-26A.pdf)

This AC requires photometric testing of the airfield lighting on a monthly basis.



To facilitate these needs, the Photometric Airfield Calibration (PAC) System is available to test runway lighting fixtures at the airfield. Quick, accurate, and reliable: the PAC System checks all inset and elevated runway edge lighting to insure that the fixtures are compliant with all CAT I, CAT II, and CAT III conditions. The PAC System was developed by F. B. Technology and the service is provided in the United States by G. S. I. Inc.

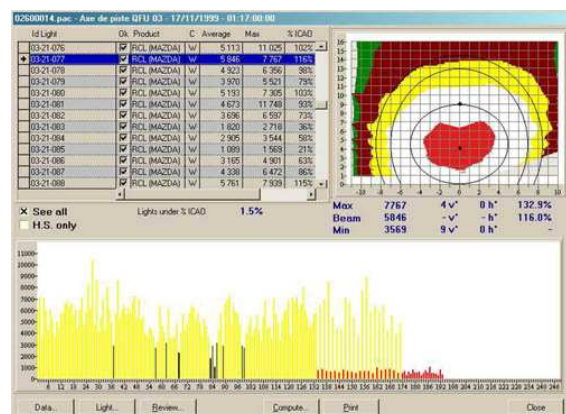


The PAC System can check your runways and taxiways at speeds up to 45 mph (80 km). Precision is reached when driving between 25 to 31 mph (40 to 50 km). Which means that at 25 mph (40 km), a 98,400 ft (3,000 m) runway is covered in 4 1/2 minutes. Precision is reached within ± 5% of laboratory measurements. Repeatability of measurements is also ± 5%. This allows the airfield minimal shut-down time.

Further, airfield personnel are not tied up with the testing and can be assigned to perform any maintenance required to bring the runway back to CAT I, CAT II, or CAT III standards.

Preceding the FAA AC 150 5345-26A (Third Edition issue in July 1999) for maintenance, ICAO issued a recommendation stating that airports with CAT I, CAT II, and CAT III lighting systems should be checked a minimum of twice a year, more if traffic warrants. This documentation also states that the testing is to be done quickly and accurately to minimize interference with the airport operation, while giving the maintenance technicians the most accurate data in which to work.

France	Lille - Marseille - Nantes - French Air Force Bases
Italy	Milan Malpensa - Bergamo
Sweden	Gothenburg
USA	San Francisco - Oakland



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## PAC LAB: Photometric Airfield Calibration Lab

### *Workshop Photometry Controller*

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#### **Control & Measure:**

PAC Lab is an associate product of PAC System (Photometric Airfield Calibration System). The PAC Lab system improves the maintenance work, making it more efficient and accurate, by providing the capability to control the light output of each fitting before installing them onsite. The system measures and controls all the Airfield Ground Lighting (AGL) inset and elevated lights. It is placed preferably inside a dark room and uses a central unit for monitoring the process. The light fittings are scanned vertically by a sensor array strip fixed on a dynamic bench that travels both upwards and downwards.

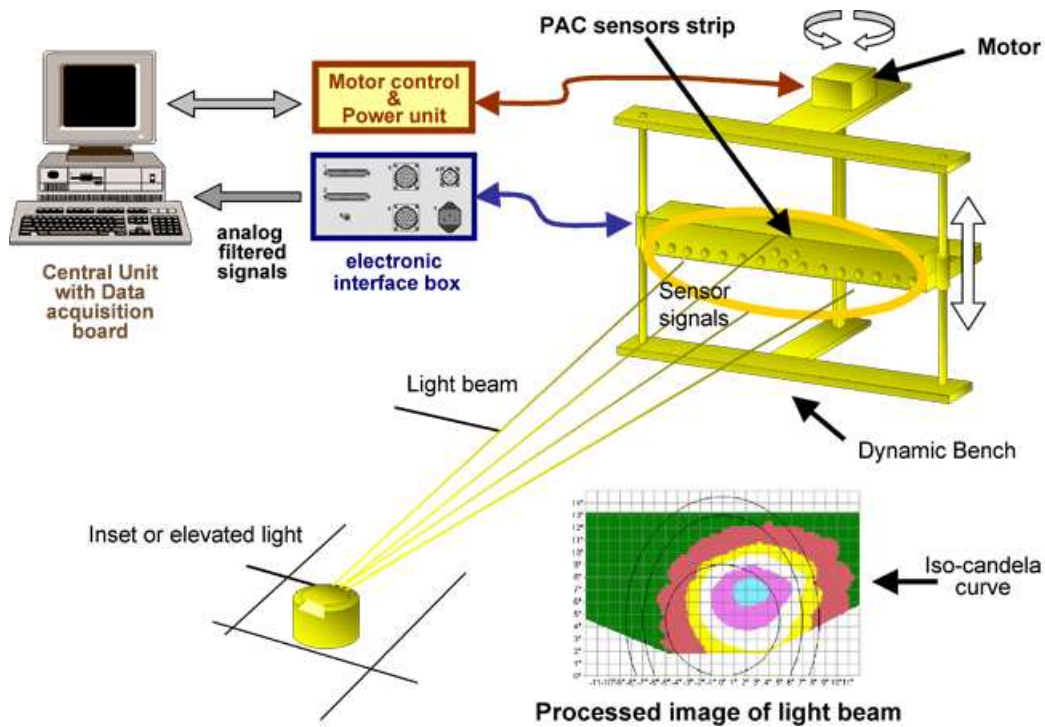


<b>☉ PAC Lab Workshop Photometry Controller ☉</b>	
Belgium	Charleroi - Liège
Greece	Thessaloniki
Hong-Kong	Chek Lap Kok

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#### **Features:**

- ☉ Measures all light fittings.
- ☉ The system is preferably installed in a dark room.
- ☉ Reliable, precise, and quick results in candela.
- ☉ Instant report edition.
- ☉ No adjustment prior to measurements.
- ☉ Dedicated functions to support AGL maintenance.
- ☉ Variable measurement speed.
  
- ☉ Users of PAC System can share the same sensor strip for both in-field and workshop measurements.



### Results:

- ❑ Maximum and minimum value in candela found in light beam.
- ❑ Average light intensity value in candela.
- ❑ Position of maximum and minimum points in  $V^\circ$  and  $H^\circ$ .
- ❑ Identified color of the light beam.
- ❑ Iso-candela diagram of the light beam providing ICAO grid points.
- ❑ Light identification number if database is provided.

Sold & Serviced in the United States & Canada by G. S. I. Inc.

Manufactured by:

**FB** TECHNOLOGY

F. B. Technology

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**Wade  
Publishing**