

# Argos Ingegneria



## About the Company

→ Airfield Ground Lights  
Photometry Systems



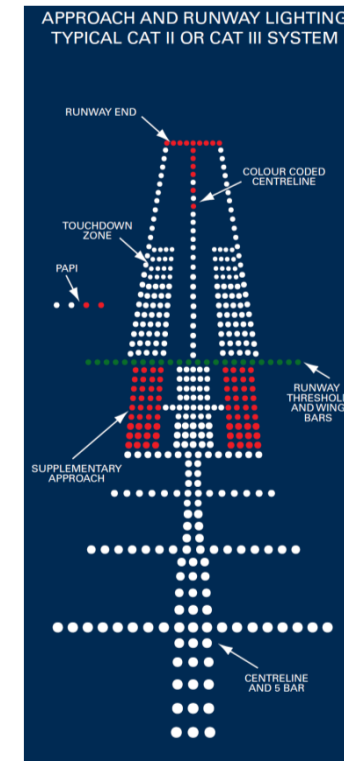
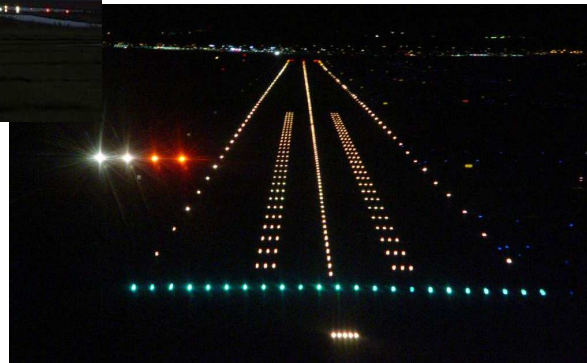
→ RADAR design



*For more information visit our website: [www.argosingegneria.com](http://www.argosingegneria.com)*

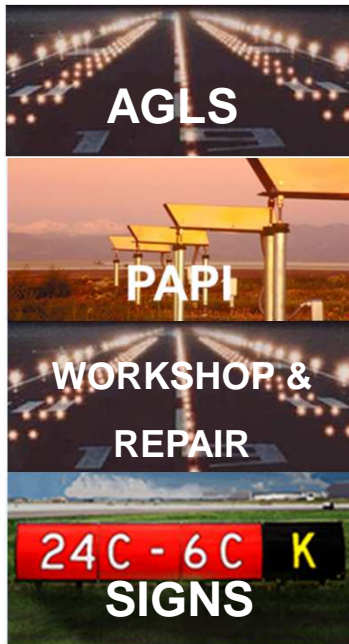
# Classification of the AGL measurements-1

Airfield Ground Lighting Systems (AGLS) are complex systems which may assume various configurations and are of crucial importance for the air navigation



A significant share of airport security relative to the operations in both nighttime and daytime under low visibility depends on the operational efficiency of AGL

## Classification of the AGL measurements-2



Runway, Taxi & Apron Lighting System

Precision Approach Path Indicators

Verification of the fixtures post-repair and/or  
before installation

Illuminated Vertical Signs


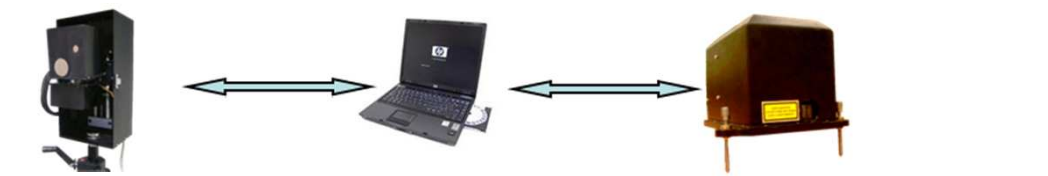
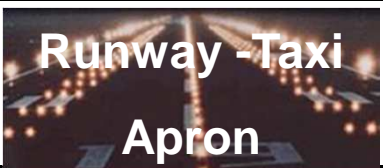
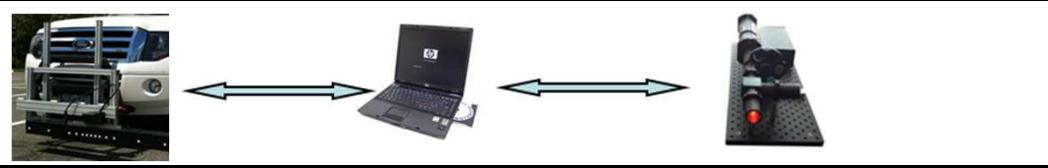
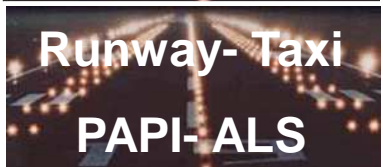
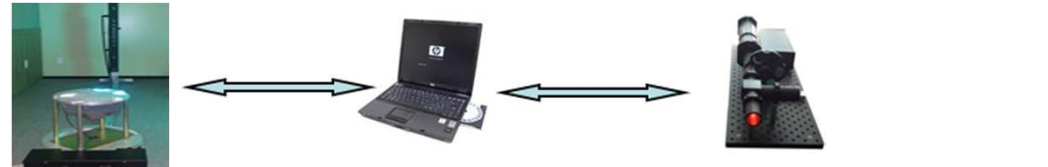
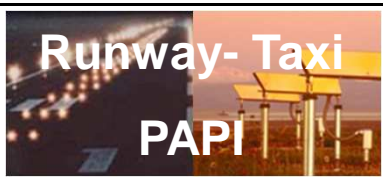
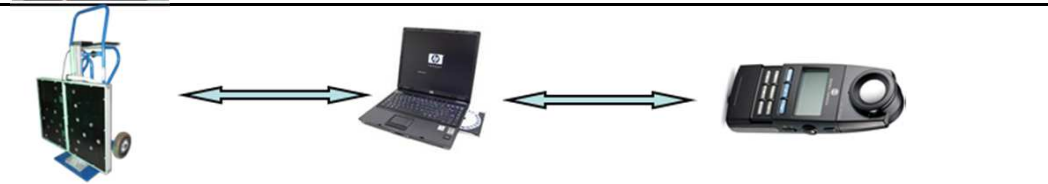


## Regulatory Framework – 1 – Italian CAA application (Ref. 0049122/DIRIGEN/ATA on August 1st 2008)

Frequency of periodical photometric measurements - AGL		
Annual	Half-year	Quarterly
<ul style="list-style-type: none"> <li>• <b>Non precision approach</b> runway</li> <li>• <b>Light</b> density airport traffic</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Non precision approach</b> runway</li> <li>• <b>Light</b> density airport traffic</li> <li>• High probability of adverse weather conditions</li> <li>• Intrusion of sand or dirt in case of wind</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cat I</b> precision approach runway</li> <li>• <b>Medium or High</b> density airport traffic</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Non precision approach</b> runway</li> <li>• <b>Medium or High</b> density airport traffic</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cat II</b> precision approach runway</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Cat I</b> precision approach runway</li> <li>• <b>Light</b> density airport traffic</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cat III</b> precision approach runway</li> </ul>

## Regulatory Framework – 2 – Italian CAA application (Ref. 0049122/DIRIGEN/ATA on August 1st 2008)

Frequency of periodical photometric measurements – PAPI	
Annual	Half-year
<ul style="list-style-type: none"> <li>• <b>Non precision approach</b> runway</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cat I</b> precision approach runway</li> <li>• <b>Light</b> density airport traffic</li> <li>• High probability of adverse weather conditions</li> <li>• Marine or polluted by dust environment</li> </ul>
<ul style="list-style-type: none"> <li>• <b>Cat I</b> precision approach runway</li> <li>• <b>Light</b> density airport traffic</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Cat I</b> precision approach runway</li> <li>• <b>Medium or High</b> density airport traffic</li> </ul>
	<ul style="list-style-type: none"> <li>• <b>Cat II</b> and <b>Cat III</b> precision approach runway</li> </ul>
	<ul style="list-style-type: none"> <li>• Any category runways with PAPI base on soft ground</li> </ul>

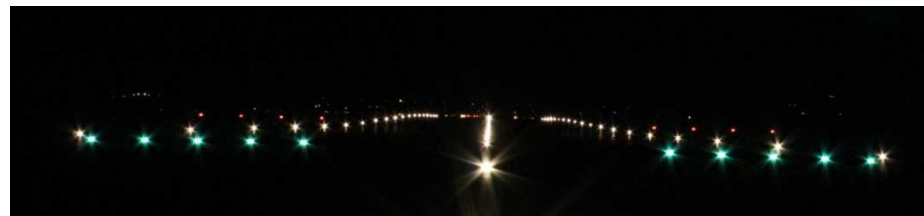
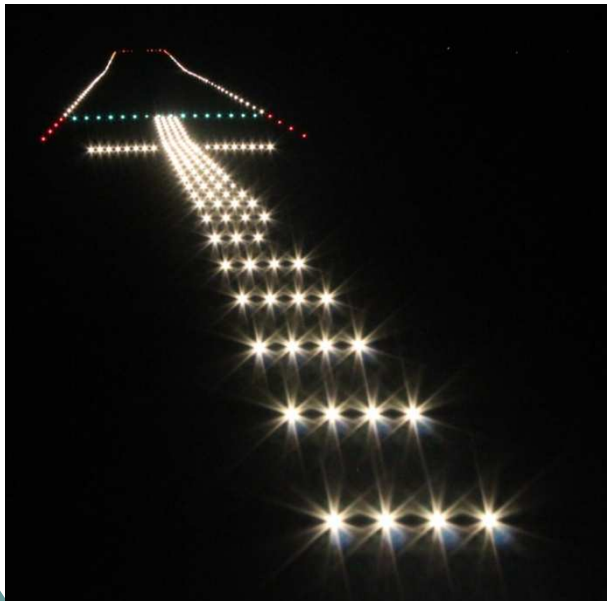
## ARGOS SMF FAMILY AGL MEASUREMENT SYSTEMS

Product	Lights	Systems & Calibration tools
SMF/PAPI	 <p style="text-align: center;">PAPI</p>	
SMF/M	 <p style="text-align: center;">Runway - Taxi Apron</p>	
SMF/L	 <p style="text-align: center;">Runway- Taxi PAPI- ALS</p>	
SMF/Fix	 <p style="text-align: center;">Runway- Taxi PAPI</p>	
SMF/SIGN	 <p style="text-align: center;">24C - 6C K Vertical Signs</p>	

## SMF/STATIC – New AGL Monitoring System

SMF/STATIC is a new AGL monitoring system based on real-time image acquisition and analysis able to:

- Real-time “On/Off” monitoring of AGL
- Real-time control of the photometric characteristics





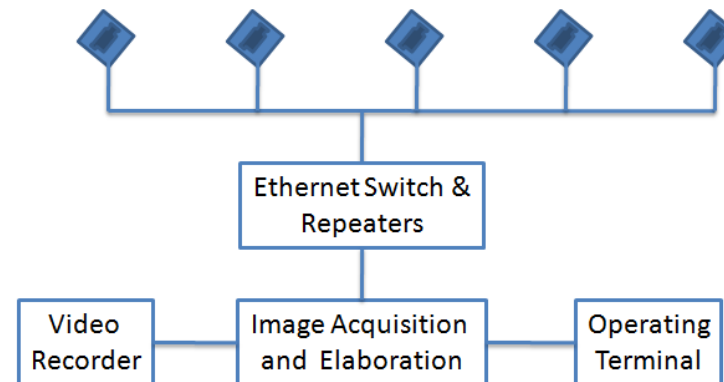
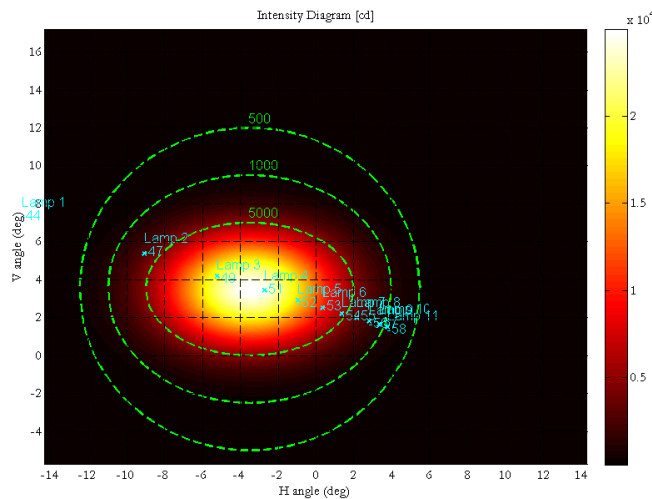
## SMF/STATIC – System Architecture

High sensitivity cameras are placed on suitable airfield locations.

The cameras are connected to a central server via dedicated Ethernet network.

Images are collected by a video recorder and real time elaborated by the server workstation.

In Operative Room, a dedicated Human Machine Interface displays the AGL real status for the Operator.



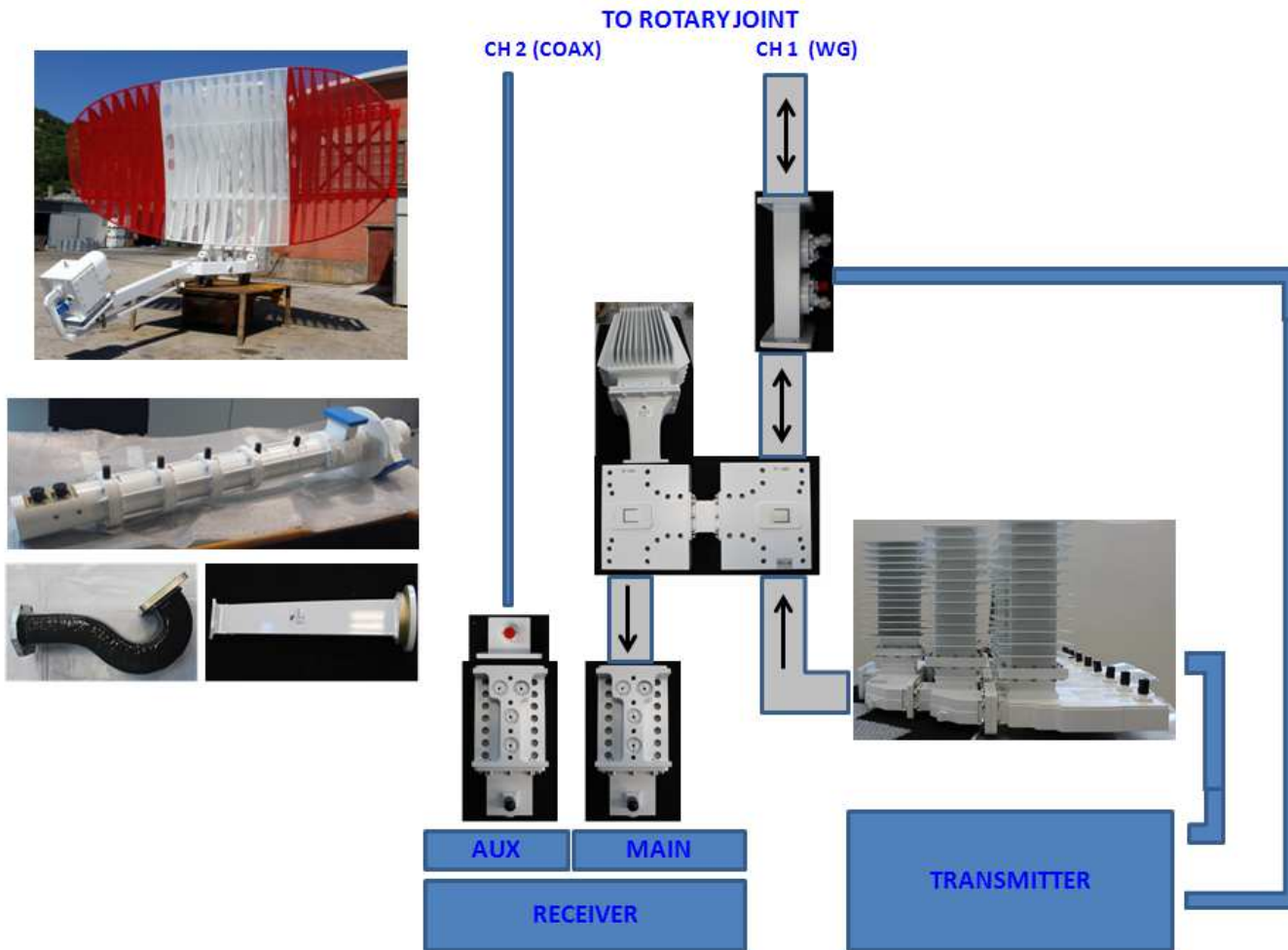
# Radar Design

- Antenna design and prototype
- RF Components: design and prototype
- RF Performance Certifications: BOF Methodology
- Upgrade of existing radar receiver section

## Antenna: Design and prototype



## RF Components: Design and prototype



# RF Performance Certifications: BOF Methodology (1)

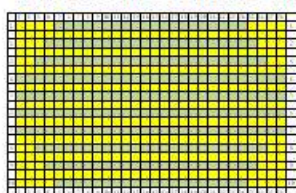
## Reflector Acceptance Test Tool



## Measurement Probe



## Reflector Surface Error Matrix



## Feed & Polarizer



Main  
Aux

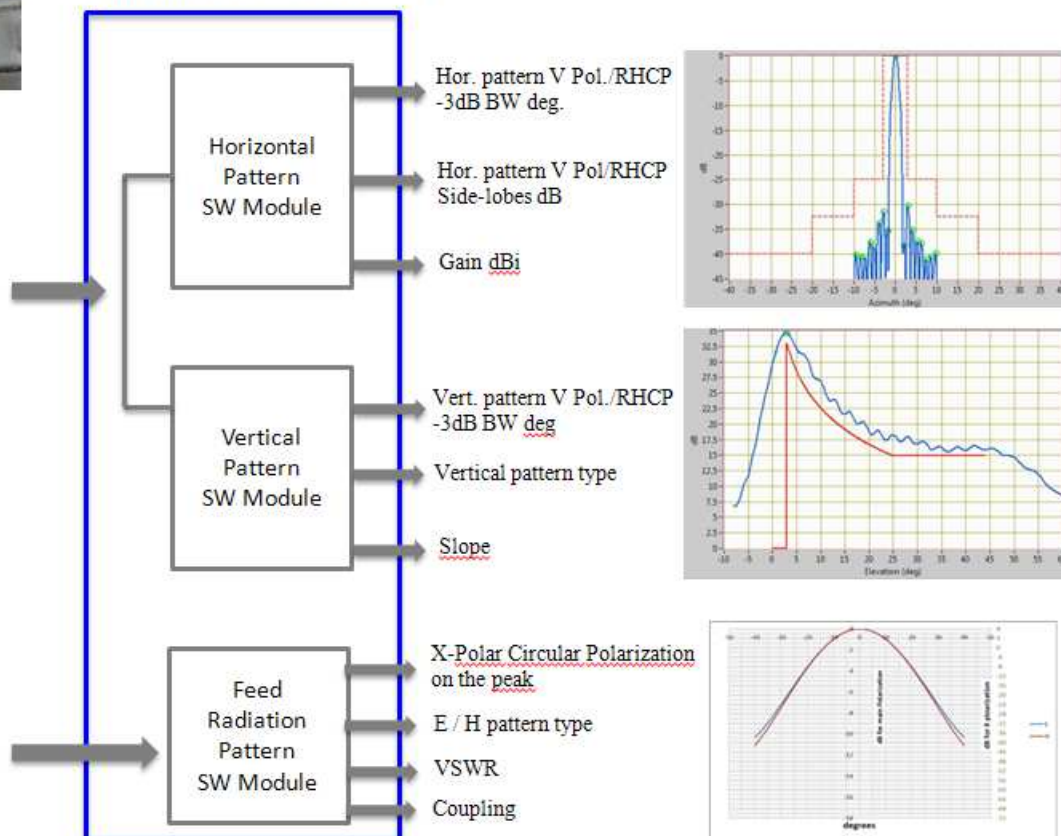


## Network Analyzer

	40	30	20	10	0	10	20	30	40
antenna pattern	12.8	11.75	6.4	-2.8	1.8	6.4	11.75	12.8	12.8
antenna gain dBi	14.5	13.0	8.3	4.2	3.0	8.3	13.0	14.5	14.5
antenna pattern H	1.77	1.82	2.15	2.24	2.24	2.15	1.82	1.77	1.77
antenna pattern V	1.77	1.82	2.15	2.24	2.24	2.15	1.82	1.77	1.77
Plane dB	1.77	1.82	2.15	2.24	2.24	2.15	1.82	1.77	1.77
Type dB	1.77	1.82	2.15	2.24	2.24	2.15	1.82	1.77	1.77

## Test Procedure

### Computer Based Performance Evaluation Processing



# Upgrade of existing radar receiver section

