



# AOP18 — Runway Status Lights (RWSL)

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Runway Status Lights (RWSL) system is an automatic independent system based on aerodrome surveillance data that can be used on airports to increase safety by preventing runway incursions. The RWSL will provide an independent system that uses A-SMGCS surveillance data to dynamically switch on and off additional and dedicated airfield lights on RWY and on the runway entry TWY.

It will directly inform the flight crews / vehicle drivers about the instantaneous runway usage. Runway status lights switched “on” is an indication that the runway is unsafe for entering (for line-up or crossing) or for taking-off.

The new airfield lights, can be composed of:

- Runway Entrance Lights (REL): sets of red lights illuminating runway entrances when it is not safe to enter or cross the runway;
- Take-off Hold Lights (THL): sets of red lights illuminating along the axis of a runway in front of a departing aircraft when it is unsafe to take-off from that runway due to an obstacle (vehicle or aircraft) already occupying or entering the runway ahead;
- Runway Intersection Lights (RIL): sets of red lights illuminating along the axis of a runway near the intersection with another runway (crossing runways only) when it is not safe to go through the intersection. Note that no validation could be performed on the operational requirements related to crossing runways (RIL) within associated SESAR R&D project.

The system is meant to be compatible with airport operations and independent of ATC clearances, even if TWR will have access to the status of the REL and THL, with no change in their operating methods, except in case of flight crew request or failure of the system.

The purpose of the RWSL system is to act as a safety net for flight crew and vehicle drivers, thus reducing the number of runway incursions without interfering with normal runway operations.

It is recommended to implement RWSL at medium to highly utilized airports with complex runway and taxiway lay-out.

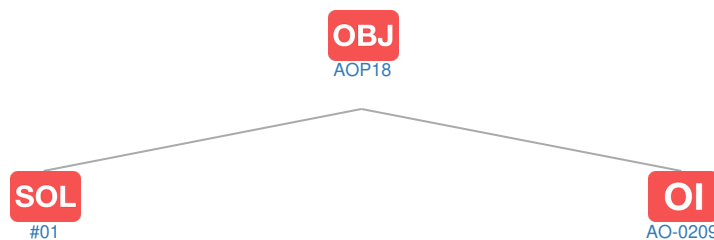
*NOTE: In ICAO Annex 14, Volume I, RWSL is designated under the term “Autonomous Runway Incursion Warning System (ARIWS).*

*NOTE FOR MILITARY AUTHORITIES: It is the responsibility of each military authority to review this Objective IN ITS ENTIRETY and address each of the SLoAs that the military authority considers RELEVANT for itself. This has to be done on top and above of the review of "MIL" SLoAs which identify actions EXCLUSIVE to military authorities.*

<b>Edition</b>	2022
<b>Stakeholders</b>	Regulator / Air Navigation Service Provider / Airport Operator / Airspace Users / International Organisations and Regional Bodies
<b>Type</b>	SESAR
<b>Scope</b>	Local/Airport
<b>Status</b>	Active

## Context

### Related Elements




## Applicability Area(s) and Timescales

**Applicability Area:** (Subject to local need)






Timescales	From	By	Applicable to
IOC used for Analytics functioning only - not for implementation planning	31-05-2019	-	Applicability Area
FOC used for Analytics functioning only - not for implementation planning	-	01-01-2030	Applicability Area

## Links to ATM Master Plan Level 2

### Operational Improvement Steps

Code	Title	IOC	FOC	Related Elements
<a href="#">AO-0209</a>	<a href="#">Enhanced Runway Usage Awareness</a>	29-04-2021	29-04-2026	     

### Links to SESAR Solutions

Code	Title	Program	Related Elements
<a href="#">#01</a>	<a href="#">RunWay Status Lights</a>	SESAR1	    

### Links to PCP ATM Sub-Functionalities

Code	Title	Related Elements
No record found		

 ICAO Block Modules: No associated data

## References

#### Applicable legislation

ICAO Annex 14 (Aerodromes), Volume I

#### Applicable ICAO Annexes and other references

None

#### Deployment Programme 2022

-

#### Operating Environments

Airport

## Expected Performance Benefits

<b>Safety</b>	Less severe and less frequent runway incursions due to an increase of runway usage awareness through accurate and timely indication of runway occupancy.
<b>Capacity</b>	-
<b>Operational efficiency</b>	More efficient control of surface traffic.
<b>Cost efficiency</b>	-
<b>Environment</b>	-
<b>Security</b>	-

## Stakeholder Lines of Action

Code	Title	From	By	Related Enablers
REG01	Promulgate the procedures for use of RWSL			EN
ASP01	Install RWSL management tool			EN
ASP02	Upgrade TWR CWP to interface with RWSL management tool			EN
ASP03	Develop and implement procedures for the use of RWSL			EN
ASP04	Develop safety assessment of the changes imposed by RWSL			
ASP05	Train all relevant staff in the use of RWSL			
APO01	Upgrade Airfield Ground Lighting system to provide the Runway Status Lights			EN
APO02	Install RWSL management tool			EN
APO03	Develop and implement procedures for the use of RWSL			EN
APO04	Develop safety assessment of the changes imposed by RWSL			
APO05	Train all relevant staff in the use of RWSL			
USE01	Develop the procedures for use of RWSL			EN
USE02	Train all relevant staff in the use of RWSL			
INT01	Develop the standards for operational use of RWSL			EN
INT02	Develop the standards for RWSL design and approval			EN
INT03	Develop standard interfaces and information exchanges of RWSL Management Tool			EN

## Supporting Material

Title	Related SLoAs
EASA - EASA deliverable of SLoA INT02. -	APO01, APO02, ASP01, ASP02
EUROCAE - EUROCAE deliverable of SLoA INT03 -	APO02, ASP01, ASP02
EUROCONTROL - SPEC-171 - EUROCONTROL Specification for Advanced-Surface Movement Guidance and Control System (A-SMGCS) Services - Edition 2.0 / 04/2020 <a href="https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services">https://www.eurocontrol.int/publication/eurocontrol-specification-smgcs-services</a>	APO03, ASP02, ASP03, INT01
EUROCONTROL - Safety Assessment of Runway Status Lights (RWSL) available upon request (nm.airports@eurocontrol.int) -	APO04, ASP04
ICAO - Annex 11 - Air Traffic Services <a href="https://store.icao.int/">https://store.icao.int/</a>	REG01
ICAO - Annex 14 - Aerodromes, Volume I and II <a href="https://store.icao.int/">https://store.icao.int/</a>	APO01, APO02, APO03, APO04, APO05, ASP01, ASP02, ASP04, INT02, INT03, REG01
ICAO - Deliverable of SLoA INT01, ICAO PANS ATM Amendment on RWSL. -	APO03, APO04, APO05, ASP03, ASP04, ASP05, USE01, USE02
SJU - SESAR Solution 01: Data Pack for Runway status lights <a href="https://www.sesarju.eu/sesar-solutions/runway-status-lights">https://www.sesarju.eu/sesar-solutions/runway-status-lights</a>	APO01, APO02, APO03, APO04, APO05, ASP01, ASP02, ASP03, ASP04, ASP05, INT01, INT02, INT03, REG01, USE01, USE02

## Consultation & Approval

<b>Working Arrangement in charge</b>	Airport Operations Team (AOT)
<b>Outline description approved in</b>	-
<b>Latest objective review at expert level</b>	-
<b>Commitment Decision Body</b>	Provisional Council (PC)
<b>Objective approved/endorsed in</b>	05/2019
<b>Latest change to objective approved/endorsed in</b>	-