New ICAO Runway Safety Provisions

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Flight Plan

- Assembly Resolution on Runway Safety
- Overview of ICAO Documentation
- New ICAO Provisions
- Ongoing Work at ICAO

Assembly Resolution A37-6

- Urges States to take measures to enhance runway safety
  - Runway excursion
  - Runway incursion
  - Other occurrences related to runway safety
- Establishment of runway safety programmes using a multidisciplinary approach
  - Regulators
  - Aircraft operators
  - ANSP
  - Aerodrome operators
  - Aircraft manufacturers

Overview of ICAO Documentation

- Annexes 2, 6, 8, 11, 13, 14, 15, 19
- PANS-ATM (Doc 4444); PANS-OPS (Doc 8168); PANS-Aerodromes (Doc 9981)
- Guidance material in ICAO manuals and circulars, such as
  - Manual on the Prevention of Runway Incursions (Doc 9870)
  - Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual (Doc 9830)
  - Manual on Simultaneous Operations on Parallel or Near-Parallel Instrument Runways (SOIR) (Doc 9643)
  - Aerodrome Design Manual, Part 4, Visual Aids (Doc 9157)
  - Circular 329 Runway Surface Condition Assessment, Measurement and Reporting
  - Safety Management Manual (SMM) (Doc 9859)
  - …

Overview of ICAO Documentation (cont'd)

- Runway Safety Team Handbook 2nd Edition
- Runway Excursion Risk Reduction Toolkit (ICAO/IATA)
- ICAO Runway Safety Toolkit (ICAO / Embry-Riddle Aeronautical University)
- Runway Safety Go-Team Methodology
- Runway Incursion Severity Classification (RISC) (ICAO / FAA)

New ICAO Provisions

- RESA and arresting systems
- Taxiway design
- Visual aids, including autonomous runway incursion warning systems (ARIWS)
- Global Reporting Format (GRF) for assessing and reporting runway surface conditions

RESA and arresting systems

- Strengthened requirement for the provision of RESA
  - all types of runways are required to be provided with RESA, including non-instrument runways with code numbers 1 and 2
- The introduction of arresting systems in relation to the provision of RESA offers additional mitigating measures to address aircraft overruns
  - the length of a RESA may be reduced where an arresting system is installed, subject to acceptance by the State
- Requirement for publishing RESA and arresting system information in the AIP

Taxiway Design

- New taxiway design guidance for minimizing potential for runway incursions
  - limit the number of runway crossings
  - provide pilots with enhanced unobstructed view of the entire runway
  - correct taxiways identified as hot spots

Visual Aids

- Enhanced taxiway centre line markings and mandatory instruction markings
- Mandatory requirement, as of 26 November 2026, for increased conspicuity of runway-holding positions
- Autonomous runway incursion warning systems (ARIWS)


16 - 34
16 - 34

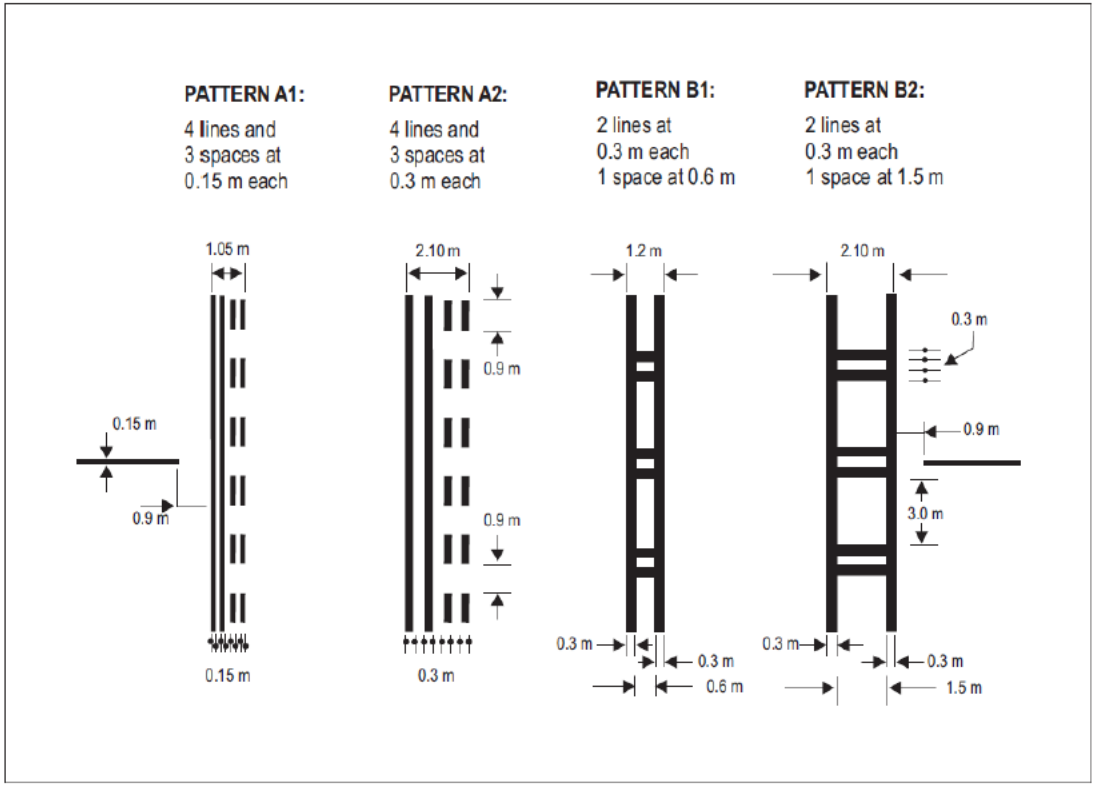


Figure 5-8. Runway-holding position markings

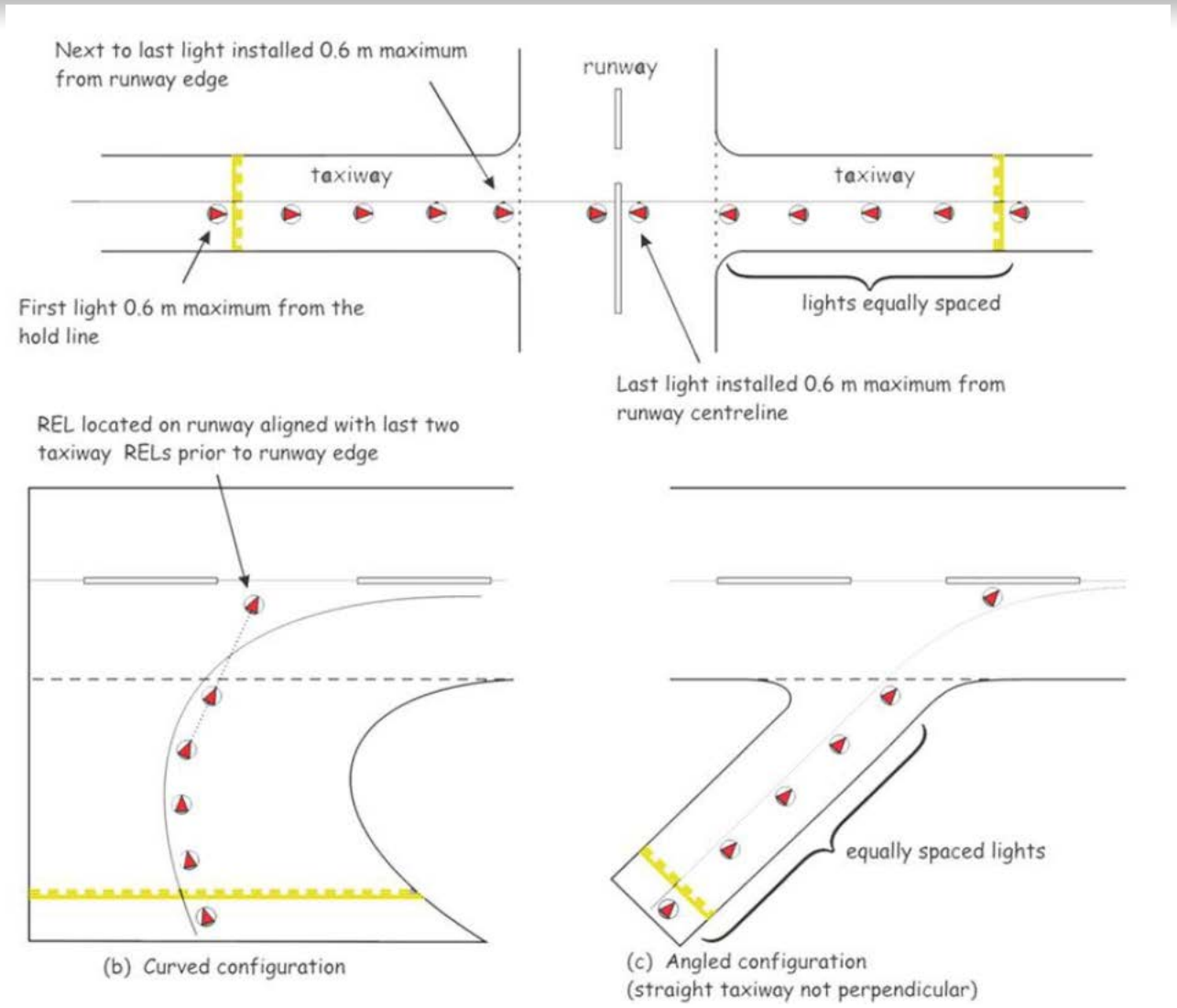
Note.— Patterns A1 and B1 are no longer valid after 2026.

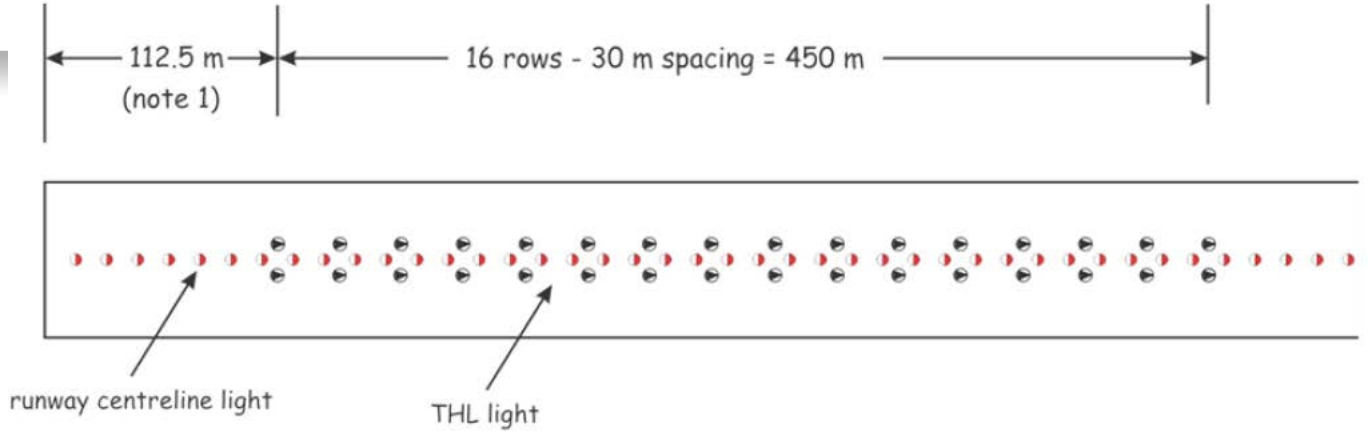
Autonomous runway incursion warning system (ARIWS)

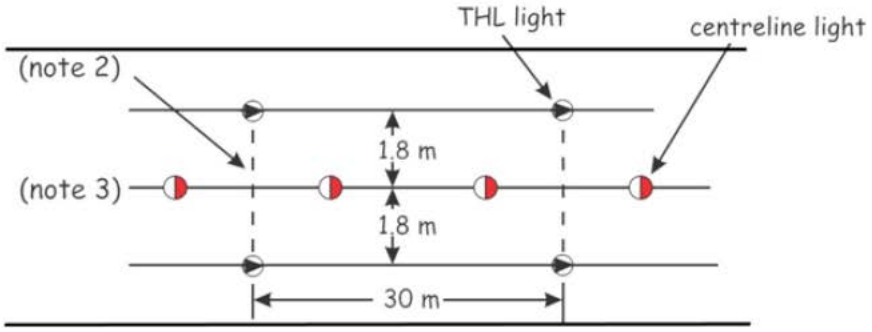
- Not mandatory
- If installed, it shall be compliant with the location and characteristics provisions in Annex 14, Volume I
- Standardized visual aids – runway status lights (RWSL)
- Procedures in PANS-ATM (Doc 4444) for flight crew and vehicle drivers in the event of an ARIWS warning

5.3.30 Runway status lights

Introductory Note.— Runway status lights (RWSL) is a type of autonomous runway incursion warning system (ARIWS). The two basic visual components of RWSL are runway entrance lights (RELs) and take-off hold lights (THLs). Either may be installed by itself, but the two components are designed to be complementary to each other.


Next to last light installed 0.6 m maximum from runway edge
runway
taxiway
taxiway
First light 0.6 m maximum from the hold line
lights equally spaced
Last light installed 0.6 m maximum from runway centreline
REL located on runway aligned with last two taxiway RELs prior to runway edge
equally spaced lights
(b) Curved configuration
(c) Angled configuration
(straight taxiway not perpendicular)





Notes:

(1) 7 1/2 centreline light spacings.

(2) Preferably the THL is positioned such that a line formed by two THL lights will be near the mid-point between two centreline lights.

(3) If the runway centreline lights are offset from the physical centreline, the THL lights are similarly offset to maintain the 1.8 m dimension.


14L
14L


RWY AHEAD

Global reporting format for runway surface conditions

- A globally-harmonized methodology for runway surface condition assessment and reporting
- Covers several Annexes, two PANS and some guidance materials.
- Aimed at reducing runway excursions
- Applicable on 5 November 2020

Global reporting format for runway surface conditions

- Annex 14, Volume I
  - requires the aerodrome operator undertake an *in-situ* assessment of the runway surface conditions
  - Using Runway Condition Assessment Matrix (RCAM) and runway condition code (RWYCC, ranging from 0 to 6)

Global reporting format for runway surface conditions

- PANS-Aerodromes
  - contains procedures on the assignment of the RWYCC in accordance with the RCAM
- Annex 8
  - contains provisions requiring aircraft manufacturers to use the matrix to determine what data to provide to aeroplane operators and how to calculate the aeroplane performance for specific surface conditions

Global reporting format for runway surface conditions

- Annex 6
  - Flight crew, using the matrix information supplied by the airport and the associated manufacturer-provided performance data, to conduct performance calculation and to determine if the aircraft can safely land with the conditions present at the airport

Global reporting format for runway surface conditions

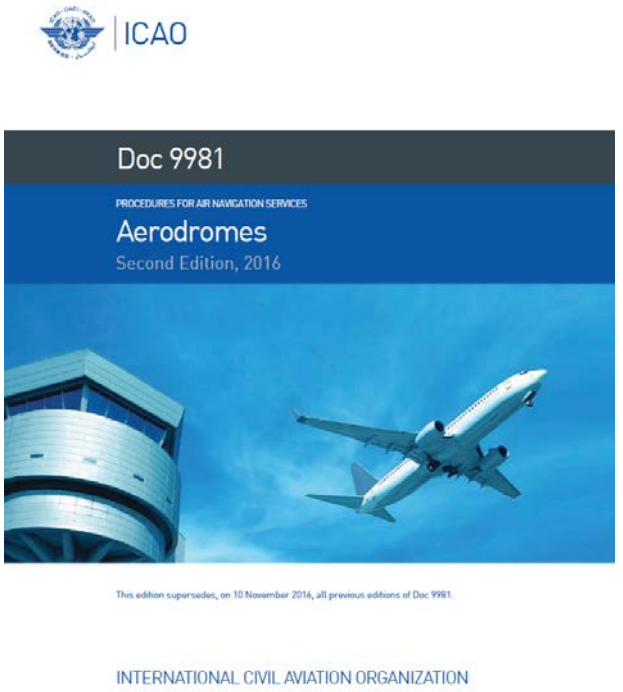
- Annex 15
  - Methodology to distribute the runway surface condition information through a revised SNOWTAM format
- Annex 3
  - the reporting of the state of the runway in the METAR/SPECI will no longer be required

Global reporting format for runway surface conditions

- PANS-ATM
  - Alignment and addition of air-ground radiotelephony phraseologies which correlate with the use of the associated terms proposed in Annex 14, Volume I and other documents

Ongoing Work at ICAO

- PANS-Aerodromes (Doc 9981)
  - Dedicated chapter on Runway Safety
  - Several other Chapters contributing to runway safety, in the areas of FOD control, inspection of the movement area and work in progress, etc..



Ongoing Work at ICAO (cont'd)

- More guidance on a training package for the implementation of GRF for assessing and reporting of runway surface conditions
- Planning on a global symposium on GRF in Q1 2019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Thank You