inter airport FOCUS CONFERENCE

inter airport europe 25TH EDITION

ICAO Standardization Activities in the Aerodrome Domain

Hatem Oueslati
Regional Officer, Aerodromes and Ground Aids
ICAO EUR/NAT Regional Office

Content

ICAO’s Mission and Activities

A UN specialized agency for civil aviation

- Established 1944
- Headquarters in Montréal, QC, Canada
- 7 Regional offices
- 193 Contracting States
- Chicago Convention
- 19 Annexes, containing in particular Standards and Recommended Practices (SARPs)
- Global policies, plans, procedures and guidance material
- Regional plans & procedures

ICAO's Mission and Activities

Vision

Achieve the sustainable growth of the global civil aviation system

Mission

To serve as the global forum of States for international civil aviation

ICAO Strategic Objectives

ICAO’s main types of activities

1. Global standardization

2. Audit & monitoring (safety oversight & AVSEC oversight)

3. Capacity Development and Implementation Support (including training)

The ICAO EUR/NAT Regional Office ("Paris Office")

- **Overview:**

- **56 States** across Europe, Central Asia and North Africa, with diverse situations, needs, and priorities
- Complex **geopolitical environment** presenting unique challenges
- Serving **2 merged PIRGs/RASGs** for the ICAO EUR & NAT Regions
- Navigating numerous **coordination channels** for effective collaboration, including with ACAO, AFCAC, EASA,EC, ECAC, EUROCONTROL and IAC

- **Our Approach:**

We follow a **collaborative, State-centric, risk-based, and result-oriented approach** to:

- Address **priority** needs and enhance **benefits** for States
- Optimize **effectiveness** and **efficiency**
- Promote **synergies** and minimize **duplication of efforts**

Ground Handling - A significant and critical part of the aviation industry

- Aircraft turnarounds are being carried out under significant space and time constraints
- Apron areas are often the most congested and busiest areas of an airport
- 75% of all GH operations are outsourced to third party handlers
- GH operations on aprons have become increasingly complex
- Ground damage rate: about 5 per 10 000 movements
- Direct and indirect costs of damage to aircraft :billions USD per annum

Ground Handling - Some of the challenges

- Ensuring operational safety

- Addressing :
  - the growth of air traffic and the proliferation of third-party GH companies
  - the varying types of interfaces between GH companies, air operators & aerodrome operators
  - the fact that GH is generally subject to limited regulation/safety oversight by aviation authorities

Ground Handling - Recent developments at ICAO level

Principles:

- **A phased approach to global standardization** through the development of guidance material, SARPs and procedures
- **A close cooperation with States and industry** to develop a flexible and balanced approach for the oversight of ground handling, taking into account views from, and impact on different stakeholders
- **2015**: ICAO established a GH Task Force (GHTF) under the Aerodrome Design and Operations Panel (ADOP) to support the development of provisions in a phased manner
- **2019**: ICAO issued the *Manual on Ground Handling* (DOC 10121) – developed in close cooperation with States and industry representatives

Global Guidance - ICAO DOC 10121

- Addresses concerns related to the level and extent of damage to aircraft during ground handling and the rate of safety occurrences to aircraft, passengers and airport workers

- Provides guidance and examples of industry good practices

- Key content:

  - Chapter 1. Introduction
  - Chapter 2. Guidance to States
  - Chapter 3. Guidance to Aircraft Operators
  - Chapter 4. Guidance to Ground Handling Service Provider (GHSP)
  - Chapter 5. Guidance to Aerodrome Operators
  - Chapter 6. Operational Procedures
  - Appendices

Ground Handling - Survey Results

- In January 2023, the GH Task Force conducted a survey on Ground Handling.
- 88 % of States have identified ground handling as a contributing factor to aviation safety risk.
- Day-to-day safety monitoring of GH activities are conducted by both the aircraft and aerodrome operators in 66 % of the States.
- No uniform approach was found in the regulatory oversight of ground handling activities by States.
- States require ICAO provisions to facilitate the regulatory oversight of ground handling.
- Good response in respect of ICAO Doc 10121, but additional SARPs are required.
- Set up of requirements for GH related data collection and other awareness activities were pointed out.

Ground Handling - ICAO Standardization Activities

- Phase 1: Amendment to **Annex 14 Vol I** containing minimum provisions on new definition, apron design and management related to GH, impact assessment and oversight requirements for the GH sector. **Applicability date of 26 November 2026** for the provisions related to ground handling.

- Phase 2: Detailed amendment proposals to **Annexes 14 Vol I, 6, 9** & a new chapter on GH in PANS-Aerodromes (Doc 9981) released through the **ICAO State Letter AN 4/1.1.60-25/79** dated 12 August 2025. **Applicability date of 23 November 2028** for provisions related to ground handling.

Ground Handling - Highlights on amendments to Annex 14, Vol. 1

These amendments will help ensure :

- The inclusion of GH safety-related aspects in design criteria for aprons
- Standardization of terminology
- GH safety when maneuvering the aircraft onto and off the stand & the safety of personnel operating around the aircraft
- The protection of aircraft, infrastructure, those on board and working around it from the unintended movement of an aircraft
- A balanced approach in implementing provisions related to GH in a phased manner, including the flexibility to decide on regulatory/oversight requirements for GH

Obstacle Limitation Surfaces (OLS) - ICAO Standardization Activities

- OLS provide a holistic safeguarding of the airspace against obstacles
- Current OLS: over conservative, limit more areas from being developed, one dimension may not fit all runways due to variability of operations
- Applicability date of the new Chapter 4 - ICAO Annex 14 Volume I: **21 November 2030**
- Efficient way of ensuring a good balance between aviation and land use needs without compromising aviation safety.

Principales applied in developing the new OLS concept

- Need for limiting surfaces which are necessary for safe operations to the runway, supplemented by additional surfaces that are tied to the flight procedures/ operations at the aerodrome.
- Protecting the necessary or required airspace
- Adequacy and proportionality of the dimensions
- Flexibility to adapt the surfaces
- Reviewing the dimensions and applicability of existing OLS
- Enhancing and supplementing existing OLS
- Introducing the Aeroplane Design Group (ADG)

Introducing Obstacle Free Surfaces (OFS) and Evaluation Surfaces (OES)

- Establishment of obstacle limitation surfaces (OLS) which comprise the obstacle free surface (**OFS**) and the obstacle evaluation surface (**OES**)
- Transposing the new provisions into national regulations may require between 1 to 2 years
- Industry may need 1 to 2 years to implement the surfaces and to acquire additional resources for the conduct of aeronautical studies.
- New Airport Services Manual, Part 6 — Control of Obstacles (Doc 9137) expected by end of 2025.

Pavement Rating System - ICAO Standardization Activities

New ACR/PCR method: What is it about?

- In 2020, ICAO adopted with Amendment 15 to its Annex 14, Volume I ‘‘Aerodromes — Aerodrome Design and Operations’’, a new method for expressing and calculating the bearing strength of a pavement, called the **ACR-PCR**.
- A transition period of 4 years has been set by ICAO. The new method became applicable on 28 November 2024 replacing the current Aircraft Classification Number – Pavement Classification Number (**ACN–PCN**) method.
- ICAO Annex 14 Volume I specifies that the bearing strength of a pavement intended for aircraft of a mass greater than 5700 kg shall be made available using the aircraft classification rating — pavement classification rating (ACR-PCR) method.

ACR/PCR Method - Key Changes

- In practical terms, the ACR-PCR method will lead to:
  - New ACR values (calculated and published by aircraft manufacturers) computed based on the combined result of aircraft wheel loads, tire pressures and landing gear geometry
  - New PCR values (calculated and published by airports)
  - Reporting format (one number and a series of four letters) is unchanged
  - A procedure for PCR determination is provided by ICAO
  - The PCR is computed based on the accumulated pavement damage produced by entire traffic mix (CDF Concept)
  - Subgrade are now characterized by the elastic modulus E for both flexible and rigid pavements (unified characterization)

ACR/PCR Method - Key Changes

- Unchanged general approach (comparison of ACR and PCR)
- A new approach for overload operations (i.e. when ACR > PCR)
- “ICAO allowance” is increased to 10% of the PCR for both flexible and rigid pavements
- Overloads in excess of 10% may be allowed if justified through a technical analysis of the impact on pavement damage, consistent with the PCR philosophy
- However, there is no ability to convert between ACN and ACR, and even less between PCN and PCR

ACR/PCR Method - Benefits

• The ACR-PCR system overcomes the deficiencies of the ACN-PCN system and allows consistency between pavement design and pavement rating systems.

•The new system enables an optimized usage (in terms of allowable aircraft weights and frequencies) of existing and future pavements, without excessive conservatism.

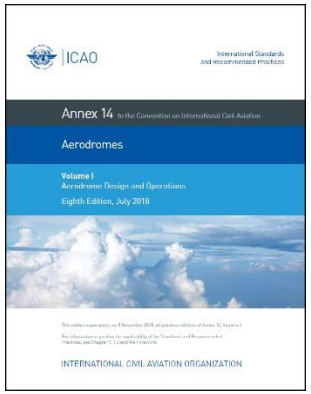
• For aircraft operators, it should lead to fewer pavement-induced weight restrictions.

• For airport operators, it provides a consistent damage-based approach:
- ❑ optimize the use of their pavements;
- ❑ assess the impact of overload operations; and
- ❑ improve pavement life predictions.

• For aircraft manufacturers, it will allow them to optimize landing gear geometry (both leg geometry and overall geometry) of their future products.

ACR/PCR Method - Reference Documents

- The ACR-PCR method is fully documented in ICAO documents:
  - Annex 14 including Amendment 15 (method overview, definitions and PCR reporting format)

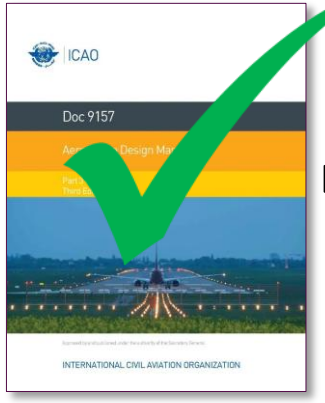


https://store.icao.int/en/aerodrome-design-manual-part-3-pavements-doc-9157-part-3

  - Aerodrome design manual doc 9157 part 3, 3rd edition (implementation details)

2nd Edition
(1983)

3rd Edition
(2022)



NEW!

ACR/PCR Method: ICAO Implementation Support

GLOBAL AVIATION TRAINING

Overview of Airport Pavement Strength Rating

Airport Pavement Strength Rating

ICAO EUR/NAT Regional Workshop on Pavement Rating System

Tbilisi, Georgia, 11 to 12 November 2025

In collaboration with Airbus and at the invitation of the United Airports of Georgia.

Some Key Messages

1. Implement effective means to promote safety
2. Continuously work on strengthening safety culture and aviation security culture, with a focus on reporting culture
3. Implement means to strengthen aviation personnel competencies
4. Support collaborative safety risk management, especially to address interfaces in a timely and effective manner
5. Enhance information- and experience- sharing - at local, national, regional and global levels

inter airport FOCUS CONFERENCE

inter airport europe 25TH EDITION