# Strength of Pavement

# A Webinar on Transition from PCN to PCR

## 15 May 2024

## PARTICIPATION

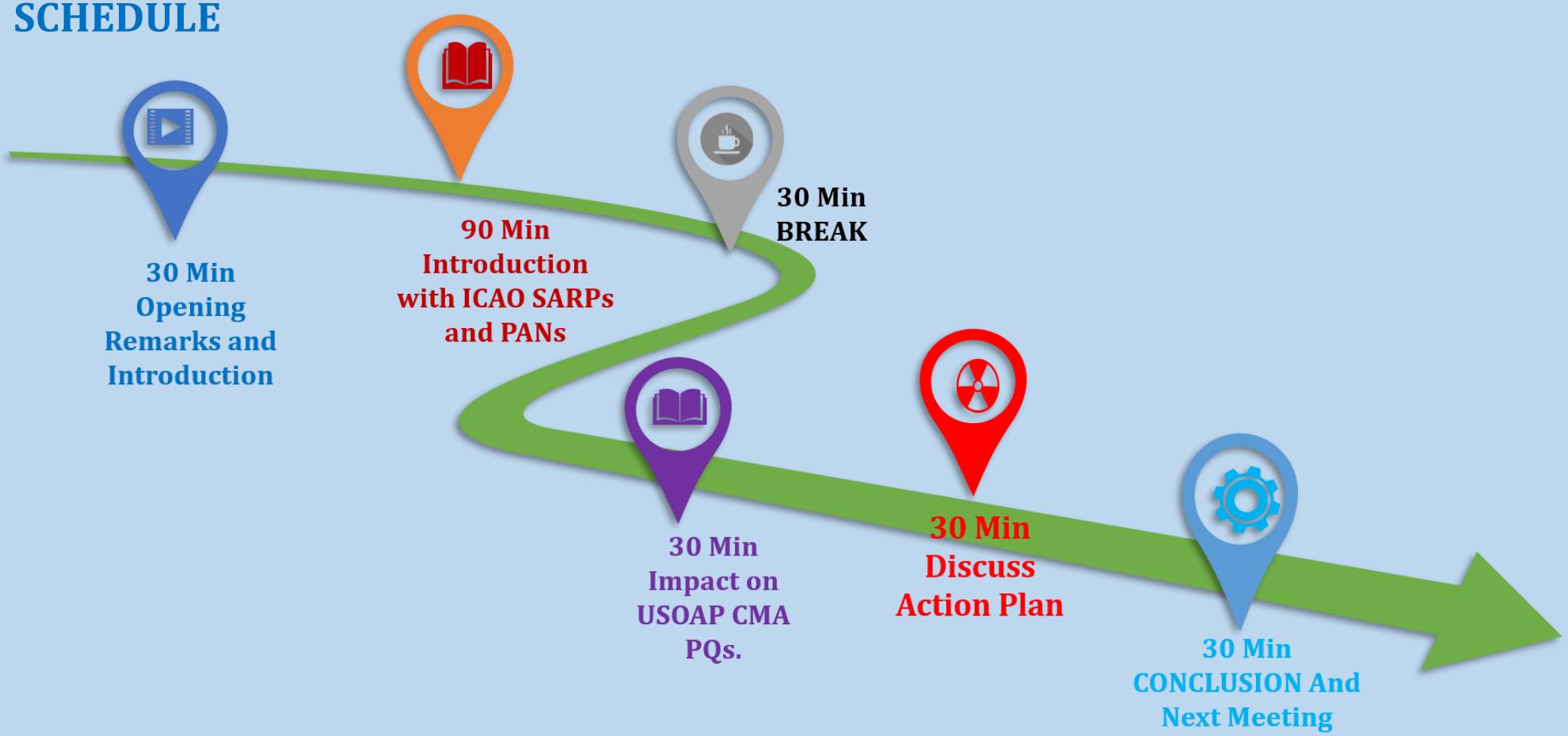
COSCAP-SEA MEMBER STATES

- Brunei Darussalam,
- Cambodia,
- Indonesia,
- Lao PDR,
- Malaysia,
- Myanmar,
- Papua New Guinea,
- Philippines,
- Singapore,
- Thailand,
- Timor Leste
- Viet Nam

## AUDIENCE:

- CAAs
- Aerodromes
- AIS/AIMs

## SCHEDULE


30 Min
Opening
Remarks and
Introduction
90 Min
Introduction
with ICAO SARPs
and PANs
30 Min
BREAK
30 Min
Impact on
USOAP CMA
PQs.
30 Min
Discuss
Action Plan
30 Min
CONCLUSION And
Next Meeting

## OBJECTIVES:

To review:

- ICAO State Letter on the subject,
- Various implementation milestones,
- Provisions as amended in ICAO Annex 14 Vol-I,
- Provisions in ICAO Annex 15 and Annex 4.
- Provisions in Airport Design Manual Part 3
- Impact on USOAP-CMA AGA PQs (2020)
- Transition Plan (Applicability date 28th Nov 2024)

*This is not a technical session

## ACR/PCR Development Timeline

- Finalized by the Airport Pavement Expert Group (APEG) in 2018,
  - ✓ Adoption by Aerodrome Design and Operations Panel (ADOP) in March 2018.
  - ✓ Adoption by Air Navigation Commission (ANC) in June 2019.
  - ✓ ICAO Council adoption (Amendment 15 to Annex 14) in March 2020.
    *(ICAO STATE LETTER: Ref.: AN 4/1.2.28-20/35 3 April 2020)*

- The ACR-PCR method has been effective since July 2020:
  - ✓ Aircraft manufacturers start publishing their ACRs.
  - ✓ User training (for CAAs, airports, aircraft manufacturers, etc.) is available.
  - ✓ CAAs should be implementing the new ICAO standard into the national regulations.
  - ✓ Airports can start publishing PCRs.

- The ACR/PCR method will be fully applicable in November 2024:

## ICAO STATE LETTER: Ref.: AN 4/1.2.28-20/35 3 April 2020

Subject: Adoption of Amendment 15 to Annex 14, Volume I.

Amendment 15 arises from the recommendations by:

- the third meeting of the Aerodrome Design and Operations Panel (ADOP/3) and
- the eighth meeting of the PANS-Aerodromes Study Group (PASG/8).

## ICAO STATE LETTER: Ref.: AN 4/1.2.28-20/35 3 April 2020

Subject: Adoption of Amendment 15 to Annex 14, Volume I (related to)

- Revised definition of precision approach runway category III;
- Airport master plan;
- Aeroplanes equipped with folding wing tips;
- **Reporting of pavement strength;**
- Reporting of works in progress on movement areas;
- Width of clearways;
- Standardized taxiway nomenclature;
- Runway guard lights; no-entry bars;
- Minimum sizes of signs;
- Autonomous aircraft detection system;
- Procedures on management of wildlife,

## ICAO STATE LETTER: Ref.: AN 4/1.2.28-20/35 3 April 2020

Subject: Adoption of Amendment 15 to Annex 14, Volume I.

- Adopted / approved 9 March 2020
- Circulated 3 April 2020

**Others**:

- ✓ Effective 20 July 2020
- ✓ Difference: 3. October 2020
- ✓ Applicable 5 November 2020
- ✓ Applicable 3 November 2022 (Master Plan)

## Pavement Rating:

- ✓ Difference by 28 October 2024
- ✓ Applicable by 28 November 2024

## ICAO STATE LETTER: Ref.: AN 4/1.2.28-20/35 3 April 2020

Adoption of Amendment 15 to Annex 14, Volume I

**Action required on Pavement Rating:**

- Notify any disapproval before 20 July 2020;
- Notify any differences and compliance before 28 October 2024 ;
- Use of the Electronic Filing of Differences (EFOD) System for notification of differences and compliance.

## ICAO STATE LETTER: Ref.: AN 4/1.2.28-20/35 3 April 2020

**Implementation Task List:-**Steps for a State to implement the Amendment 15 to Annex 14, Volume I:

- Transpose the new ICAO provisions into national regulations as per procedure,
- Establish a national implementation plan for the new ICAO provisions,
- Conducting of a gap analysis between the new ICAO provisions and national framework,
- Drafting of the necessary modification(s) to the national regulations,
- Official adoption of the national regulations,
- Modification of the oversight framework according to the new national regulations,
- Filing of State differences with ICAO, if needed,
- Publication of significant differences in the AIP,
- Implementation of the new national regulations by aerodrome operators. and
- Oversight by the State on the implementation of regulations.

## NEW ICAO METHODOLOGY FOR DETERMINING AND REPORTING THE STRENGTH OF PAVEMENTS (ACR-PCR)

## IMPLEMENTATION ACTION PLAN MATRIX

| PCR-ID | ACTION | RESPONSIBLE ENTITY | TARGET DATE | REMARKS |
|---|---|---|---|---|
| PCR 1 | Designate a focal point to coordinate activities at the national level. | CAA | | |
| PCR 2 | Identify stakeholder focal points (Aerodrome operators, AIS provider). | AD and AIS | | |
| PCR 3 | Establish a work team for the implementation of the ACR-PCR Method, (personnel from identified stakeholders) | CAA | | |
| PCR 4 | Identify regulations, and procedures (viz: overload operations) to be developed/ amended. | CAA and AD | | |
| PCR 5 | Develop and promulgate regulations, incorporating Amendment 15 of Annex 14 Vol. 1, adopted in March/2020 and effective on November 28, 2024 (ACR/PCR). | CAA | | |
| PCR 6 | Develop and publish guidance material regarding PCR calculation and others. | CAA | | |
| PCR 7 | Conduct training for CAA/AD staff. | CAA | | |
| PCR 8 | To develop an implementation schedule by each AD (perform evaluations of the movement area pavements). | CAA, AD. | | |
| PCR 9 | Preparation/ amendment to Charts | AD and AIS | | |
| PCR 10 | Deadline to send information to the Aeronautical Information Services so that publications can be prepared (AIRAC) | All | | |
| PCR 11 | Date of effective application of the new methodology to report the strength of the pavements in the movement area. | All | Nov 28, 2024 | |

## ICAO SUPPORTING DOCUMENTS

| DOCUMENT TITLE | TYPE | PUBLICATION |
|---|---|---|
| Doc 9157, Aerodrome Design Manual -1<br>Runways | Updated | November 2020 |
| Doc 9157, Aerodrome Design Manual -2<br>Taxiways, Aprons, and Holding Bays | Updated | November 2020 |
| Doc 9157, Aerodrome Design Manual -3<br>Pavements | Updated | November 2020 |
| Doc 9157, Aerodrome Design Manual -4<br>Visual Aids | Updated | November 2020 |
| Doc 9184, Aerodrome Planning Manual -1<br>Master Planning | Rewritten | November 2021<br>Available version 2023 |

# ICAO ANNEX 14 VOLUME -1
## Chapter 2. Section 2.6

# ICAO ANNEX 14 VOLUME -1 Chapter 2. Section 2.6

| ACN/PCN | ACR/PCR |
|---|---|
| 2.6.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification number-pavement classification number (ACN-PCN) method by reporting all of the following information:<br><br>a) pavement classification number (PCN);<br><br>b) pavement type for ACN-PCN determination.<br><br>c) subgrade strength category.<br><br>d) maximum allowable tire pressure category or maximum allowable tire pressure value; and<br><br>e) evaluation method.<br><br>Note. — If necessary, PCNs may be published to an accuracy of one-tenth of a whole number. | 2.6.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification rating-pavement classification rating (ACR-PCR) method by reporting all of the following information:<br><br>a) pavement classification rating (PCR) and numerical value.<br><br>b) pavement type for ACR-PCR determination.<br><br>c) subgrade strength category.<br><br>d) maximum allowable tire pressure category or maximum allowable tire pressure value; and<br><br>e) evaluation method.<br><br>Note. — Guidance on reporting and publishing of PCRs is contained in the Aerodrome Design Manual (Doc 9157, Part 3). |
| 2.6.4 The ACN of an aircraft shall be determined in accordance with the standard procedures associated with the ACN-PCN method.<br><br>Note.— The standard procedures for determining the ACN of an aircraft are given in the Aerodrome Design Manual (Doc 9157), Part 3. For convenience, several aircraft types currently in use have been evaluated on rigid and flexible pavements founded on the four subgrade categories in 2.6.6 b) below and the results tabulated in that manual. | 2.6.4 The ACR of an aircraft shall be determined in accordance with the standard procedures associated with the ACR-PCR method.<br><br>Note.— The standard procedures for determining the ACR of an aircraft are given in the Aerodrome Design Manual (Doc 9157), Part 3. For convenience, dedicated software is available on the ICAO website for computing any aircraft ACR at any mass on rigid and flexible pavements for the four standard subgrade strength categories detailed in 2.6.6 b) below |

## ICAO ANNEX 14 VOLUME -1 Chapter 2. Section 2.6

2.6.6 Information on pavement type determination, subgrade strength category, maximum allowable tire pressure category and evaluation method shall be reported using the following codes:

| ACN/PCN | | ACR/PCR | |
|---|---|---|---|
| a, Pavement type determination: | Code | a, Pavement type determination: | Code |
| Rigid pavement<br>Flexible pavement | R<br>F | Rigid pavement<br>Flexible pavement | R<br>F |
| c, Maximum allowable tire pressure category: | Code | c, Maximum allowable tire pressure category: | Code |
| **Unlimited**: no pressure limit<br>**High:** pressure limited to 1.75 MPa<br>**Medium**: pressure limited to 1.25 MPa<br>**Low**: pressure limited to 0.50 MPa | W<br>X<br>Y<br>Z | **Unlimited**: no pressure limit<br>**High**: pressure limited to 1.75 MPa<br>**Medium**: pressure limited to 1.25 MPa<br>**Low**: pressure limited to 0.50 MPa | W<br>X<br>Y<br>Z |
| d, Evaluation method: | Code | d, Evaluation method: | Code |
| **Technical evaluation**: representing a specific study of the pavement characteristics and application of pavement behavior technology. | T | **Technical evaluation**: representing a specific study of the pavement characteristics and application of pavement behavior technology. | T |
| **Using aircraft experience:** representing a knowledge of the specific type and mass of aircraft satisfactorily being supported under regular use. | U | **Using aircraft experience:** representing a knowledge of the specific type and mass of aircraft satisfactorily being supported under regular use. | U |

## ICAO ANNEX 14 VOLUME -1 Chapter 2. Section 2.6

2.6.6 Information on pavement type determination, subgrade strength category, maximum allowable tire pressure category and evaluation method shall be reported using the following codes:

| ACN/PCN | ACR/PCR | CODE |
|---|---|---|
| **b, Subgrade strength category:** | | |
| **High strength**: characterized by K = 150 MN/m3 and representing all K values above 120 MN/m3 for rigid pavements, and by CBR = 15 and representing all CBR values above 13 for flexible pavements. | **High strength**: characterized by E = 200 MPa and representing all E values equal to or above 150 MPa, for rigid and flexible pavements | **A** |
| **Medium strength**: characterized by K = 80 MN/m3 and representing a range in K of 60 to 120 MN/m3 for rigid pavements, and by CBR = 10 and representing a range in CBR of 8 to 13 for flexible pavements. | **Medium strength**: characterized by E = 120 MPa and representing a range in E values equal to or above 100 MPa and strictly less than 150 MPa, for rigid and flexible pavements. | **B** |
| **Low strength**: characterized by K = 40 MN/m3 and representing a range in K of 25 to 60 MN/m3 for rigid pavements, and by CBR = 6 and representing a range in CBR of 4 to 8 for flexible pavements. | **Low strength**: characterized by E = 80 MPa and representing a range in E values equal to or above 60 MPa and strictly less than 100 MPa, for rigid and flexible pavements. | **C** |
| **Ultra-low strength**: characterized by K = 20 MN/m3 and representing all K values below 25 MN/m3 for rigid pavements, and by CBR = 3 and representing all CBR values below 4 for flexible pavements. | **Ultra-low strength**: characterized by E = 50 MPa and representing all E values strictly less than 60 MPa, for rigid and flexible pavements. | **D** |

## Doc 9981- PANS-AERODROMES ( 3rd Edition 2020)

( *Reference: Chapter 4 Aerodrome Compatibility/ 4.2 Impact Of Aeroplane Characteristics on Aerodrome Infrastructure / Section 11. Pavement Design (Applicable As Of 28 November 2024*)

***11.2*** As of 28 November 2024,

- the increased mass and/or gear load of the aeroplanes may require additional pavement support.
- existing pavements and their maintenance may not be adequate
- this is due to differences in wheel loading, tire pressure, and undercarriage design.
- bridge, tunnel and culvert load-bearing capacities may require operational procedures.

## Doc 9981- PANS-AERODROMES ( 3rd Edition 2020)

*( Reference: Chapter 4 Aerodrome Compatibility/ 4.2 Impact Of Aeroplane Characteristics on Aerodrome Infrastructure / Section 11. Pavement Design (Applicable As Of 28 November 2024)*

*POTENTIAL SOLUTIONS*

*11.3* As of 28 November 2024, potential solutions can be developed by applying the following measures, alone or in combination with other measures.

a) restrictions on aeroplanes with higher ACRs on specific taxiways, runway bridges or aprons; or

*b)* adoption of adequate pavement maintenance programmes.

## Aerodrome Design Manual, Part 3 — Pavements (Doc 9157- 2022)

- Closely associated with Annex 14 — Aerodromes, Volume I — Aerodrome Design and Operations.
- Manual rewritten, major evolutions from the second edition (1983):

  - ✓ Information on the ACR-PCR method for reporting pavement bearing strength;
  - ✓ Regulation of overload operations in accordance with ACR-PCR method;
  - ✓ Material on the evaluation of pavements;
  - ✓ Evaluation of pavements provided by France, UK and US, would change with ACR-PCR in 2024;
  - ✓ New landing gear designation and aircraft characteristics affecting pavement bearing strength;
  - ✓ User information for the ICAO-ACR computer programme; and
  - ✓ Details on the damage model for flexible ACR.

## ICAO Doc 9774 (Manual on Certification of Aerodromes)

**5.2.6 Aerodrome standards:** These general tasks and responsibilities of DOAS may include the following:

- reviewing ICAO State letters, preparing responses and taking action thereon;
- develop/ review the national standards/ practices on aerodrome design, operation, maintenance, and engineering specifications;
- developing /issuing orders, rules, advisory circulars and guidance material
- advising the aerodrome inspectors, as required, on aerodrome standards and practices.

## ICAO Doc 9774 (Manual on Certification of Aerodromes)

**3C.5 Notification of changes to the aerodrome manual:**

- An aerodrome operator must notify the CAA, as soon as practicable, of any changes that the operator wishes to make to the aerodrome manual.

**3D.7.3 Notification of changes to the aerodrome facilities, equipment and level of service planned in advance.**

- An aerodrome operator shall notify AIS and the CAA, in writing, at least ..... days before effecting any change to the aerodrome facility or equipment or the level of service at the aerodrome that has been planned in advance and which is likely to affect the accuracy of the information contained in any AIS publication.

## ICAO Annex 15- Aeronautical Information Services.

### 5.2 Aeronautical information in a standardized presentation

5.2.1 Aeronautical information provided in a standardized presentation shall include the aeronautical information publication (AIP), AIP Amendments, AIP Supplements, AIC, NOTAM and aeronautical charts.

*Note 1.— Detailed specifications about AIP, AIP Amendments, AIP Supplements, AIC and NOTAM are contained in the PANS-AIM (Doc 10066) Appendix 2 (AD2.24)*

## ICAO Annex 15- Aeronautical Information Services.

6.2 Aeronautical information regulation and control (AIRAC)

6.2.1 Information concerning establishment, withdrawal, or significant changes upon a series of common effective dates at intervals of 28 days, shall be distributed under the regulated system (AIRAC), :

| | |
|---|---|
| ➢ limits (horizontal and vertical), regulations and procedures applicable to airspace: | ➢ runways and stopways; |
| ➢ operational details of radio navigation, communication, and surveillance facilities; | ➢ taxiways and aprons; |
| ➢ ATS procedures on holding, approach, arrival, departure, and noise abatement procedures; | ➢ aerodrome ground operating procedures (including low visibility procedures); |
| ➢ transition levels, transition altitudes and minimum sector altitudes; | ➢ approach and runway lighting; and |
| ➢ meteorological facilities (including broadcasts) and procedures; | ➢ aerodrome operating minima if published by a State |

## Doc 8126 Aeronautical Information Services Manual

3.5.1.2 AIRAC is a system established by Annex 15 — Aeronautical Information Services and based on common effective dates to ensure that changes to aeronautical information are made in a consistent manner by States around the world.

As a result, States are working with globally agreed timelines when it comes to making aeronautical information available, allowing all further actors in the data chain to perform their obligations in a timely manner.

Table III-3-1. Schedule of AIRAC effective dates, 2020-2029

| *2020* | *2021* | *2022* | *2023* | *2024* |
|---|---|---|---|---|
| 2020-01-02 | 2021-01-28 | 2022-01-27 | 2023-01-26 | 2024-01-25 |
| 2020-01-30 | 2021-02-25 | 2022-02-24 | 2023-02-23 | 2024-02-22 |
| 2020-02-27 | 2021-03-25 | 2022-03-24 | 2023-03-23 | 2024-03-21 |
| 2020-03-26 | 2021-04-22 | 2022-04-21 | 2023-04-20 | 2024-04-18 |
| 2020-04-23 | 2021-05-20 | 2022-05-19 | 2023-05-18 | 2024-05-16 |
| 2020-05-21 | 2021-06-17 | 2022-06-16 | 2023-06-15 | 2024-06-13 |
| 2020-06-18 | 2021-07-15 | 2022-07-14 | 2023-07-13 | 2024-07-11 |
| 2020-07-16 | 2021-08-12 | 2022-08-11 | 2023-08-10 | 2024-08-08 |
| 2020-08-13 | 2021-09-09 | 2022-09-08 | 2023-09-07 | 2024-09-05 |
| 2020-09-10 | 2021-10-07 | 2022-10-06 | 2023-10-05 | 2024-10-03 |
| 2020-10-08 | 2021-11-04 | 2022-11-03 | 2023-11-02 | 2024-10-31 |
| 2020-11-05 | 2021-12-02 | 2022-12-01 | 2023-11-30 | 2024-11-28 |
| 2020-12-03 | 2021-12-30 | 2022-12-29 | 2023-12-28 | 2024-12-26 |
| 2020-12-31 | | | | |

## Doc 8126 Aeronautical Information Services Manual

### 3.5.3 Regulated system

3.5.3.1 Annex 15, Chapter 6 calls for the use of a regulated system designed to ensure that:

- Chapter 6, section 6.2 information is issued as AIP Amendments or AIP Supplements.
- Must be identified by the acronym “AIRAC”
- For usual change, reach the recipient at least 28 days before effective date
- For major changes, 56 days in advance;

## Annex 4

**5.2 Aeronautical information in a standardized presentation**
5.2.5 Aeronautical charts

5.2.5.1 The aeronautical charts listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:

- Aerodrome/Heliport Chart — ICAO;
- Aerodrome Ground Movement Chart — ICAO;
- Aircraft Parking/Docking Chart — ICAO;

**Annex 4**

5.2.5.1 The aeronautical charts listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:

Aerodrome/Heliport Chart — ICAO;

*13.6.1 This chart shall show:*

*d) all runways including those under construction with designation number, length and width to the nearest metre, bearing strength, displaced thresholds, stopways, clearways, runway directions to the nearest degree magnetic, type of surface and runway markings.*

*Note. — Bearing strengths may be shown in tabular form on the face or verso of the chart.*

**Annex 4**

5.2.5.1 The aeronautical charts listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:

Aerodrome Ground Movement Chart — ICAO;

*14.6.1 This chart shall show in a similar manner all the information on the Aerodrome/Heliport Chart — ICAO relevant to the area depicted, including:*

*d) taxiways with designations, width to the nearest metre, bearing strength or aircraft type restrictions where applicable, lighting, markings (including runway-holding positions and, where established, intermediate holding positions), stop bars, and other visual guidance and control aids.*

*Note.— Additional information regarding hot spots may be shown in tabular form on the face or verso of the chart.*

**Annex 4**

5.2.5.1 The aeronautical charts listed below shall, when available for designated international aerodromes/heliports, form part of the AIP, or be provided separately to recipients of the AIP:

Aircraft Parking/Docking Chart — ICAO;

*15.6 Aerodrome data*

*This chart shall show in a similar manner all the information on the Aerodrome/Heliport Chart — ICAO and the Aerodrome*

*Ground Movement Chart — ICAO relevant to the area depicted, including:*

*b) aprons with aircraft stands, bearing strengths or aircraft type restrictions, lighting, marking and other visual guidance and control aids, where applicable, including location and type of visual docking guidance systems;*

# Amendment 15 to Annex 14, Volume I and USOAP CMA AGA-Protocol Question 2020

## Amendment 15 to Annex 14, Volume I. and USOAP CMA

- Existing protocol questions may need amendment or new protocol questions may be required.
- This may be assessed during the next amendment cycle of the protocol questions.
- However, let's discuss the actions with respect to existing PPQs and PQs.

## Amendment 15 to Annex 14, Volume I. and USOAP CMA

| PQ No. | Protocol Question | Guidance for Review of Evidences | ICAO References | PPQ | CE |
|---|---|---|---|---|---|
| 8.003 | Has the State implemented procedures for the amendment of its specific regulations, taking into consideration ICAO provisions and their amendments? | 1) Review documented evidence of effective implementation of procedures for the amendment of the regulations.<br>2) Verify that regulations are amended in a timely manner whenever an Annex 14 amendment is received.<br>3) Verify the action taken by the State after receipt of the last amendments of Annex 14. | CC Art. 37 GM Doc 9734 Part A, C3 | Yes | CE-2 |

## Amendment 15 to Annex 14, Volume I. and USOAP CMA

| PQ No. | Protocol Question | Guidance for Review of Evidences | ICAO References | PPQ | CE |
|---|---|---|---|---|---|
| 8.015 | Has the State implemented procedures for identifying and notifying differences, if any, to ICAO? | 1) Review documented evidence of effective implementation of existing procedures.<br>2) Review CC/EFOD for Annex 14, Volume I and Volume II, as applicable | CC Arts. 37 & 38 GM Doc 9734 Part A, C3 | yes | CE-2 |
| 8.039 | Does the aerodrome regulatory authority have sufficient human resources (including an appropriate mix of technical disciplines given the size and scope of all the aerodrome operations in the State) to carry out its functions and mandate? | 3) Review ability to carry out all safety oversightrelated tasks, including:<br>a) reviewing and revising regulations,<br>b) training technical staff,<br>c) developing guidance material, | GM Doc 9734 Part A, C3 Doc 9774 5.4 | Yes | CE-3 |

## Amendment 15 to Annex 14, Volume I. and USOAP CMA

| PQ No. | Protocol Question | Guidance for Review of Evidences | ICAO References | PPQ | CE |
|---|---|---|---|---|---|
| 8.051 | Has the aerodrome regulatory authority developed a formal training programme detailing the type of training to be provided to aerodrome regulatory and inspectorate staff? | 3) Verify specialized training for:<br>d) Assessment of physical characteristics and electrical systems | STD A19 GM Doc 9734 Part A, C3 Doc 9774 5.5 | Yes | CE-4 |
| 8.063 | Does the State issue and maintain up-todate publications, including guidance material, to ensure that aerodrome operators are aware of the State regulations and supporting requirements which have to be met for the granting and retention of an aerodrome certificate? | 1) Review availability of sufficient information (e.g. booklet, pamphlet, circular, and websites) to a prospective aerodrome operator about the regulations and associated material for obtaining an aerodrome certificate and corresponding specifications. 2) Review process for issuing and keeping published documents up to date. 3) Review list of published documentation to confirm their relevance, currency and coverage of most of the AGA specialist disciplines. | STD A19 App. 1, 5.2 GM Doc 9734 Part A, C3 | | CE-5 |

## Amendment 15 to Annex 14, Volume I. and USOAP CMA

| PQ No. | Protocol Question | Guidance for Review of Evidences | ICAO References | PPQ | CE |
|---|---|---|---|---|---|
| 8.083 | Has the State established a process for the certification of aerodromes? | Review aerodrome certification process to verify inclusion of the following elements:<br>c) Evaluation of the aerodrome manual submitted by the applicant.<br>d) Evaluation of the competence and experience of the aerodrome staff.<br>e) Assessment of aerodrome physical characteristics, facilities and equipment.<br>h) Publication of certified status of an aerodrome and the required details in the AIP. | Art. 15 STD A14 Vol. I, 1.4.3 & 1.4.4 PANS Doc 9981 (AGA) 2.1.2.2, 2.1.2.3 & Att. B to C2 GM Doc 9774 3B.3.2 & 4.2 | Yes | CE-5 |
| 8.111 | Does the State ensure that aerodrome operators develop and submit an aerodrome manual to the appropriate State authority for approval/acceptance prior to certification? | 2) Review samples of approved/accepted aerodrome manual, specifically for particulars of:<br><br>b) The aerodrome information to be reported to the AIS:<br>i) General information<br>ii) Aerodrome dimensions and related information | STD A14 Vol. I, 1.4.4 PANS Doc 9981 (AGA) 2.2.1 GM Doc 9774 3.2 & 3B.2 | Yes | CE-6 |

## Amendment 15 to Annex 14, Volume I. and USOAP CMA

| PQ No. | Protocol Question | Guidance for Review of Evidences | ICAO References | PPQ | CE |
|---|---|---|---|---|---|
| 8.115 | Does the State ensure that: a) aerodrome manuals are reviewed periodically; b) the information contained in the manual remain correct; and c) up-to-date copies of approved aerodrome manuals are kept by the aerodrome regulatory authority? | 1) Evaluate mechanisms to ensure periodic review.<br>2) Check availability of up-to-date copies of approved aerodrome manuals kept by the aerodrome regulatory authority.<br>3) Review evidence to confirm effective implementation. | STD A14 Vol. I, 1.4.4 PANS Doc 9981 (AGA) 2.2.3 GM Doc 9774 3.2, 3C.4 & App. 1, 5.3 | | CE-7 |
| 8.133 | Has the State established coordination between aerodromes/heliports and AIS to ensure up-to-date information of aerodrome safety-related conditions? | 2) Verify in the AIP the availability of information on the status of certification of aerodromes and aerodrome conditions, and the operational status of associated facilities, services and navigation aids | STD A14 Vol. I, 2.13 Vol. II, 2.6 | | CE-6 |
| 8.134 | Has the State promulgated regulatory requirements relating to aerodrome data? | Verify regulations, including the following areas. specified in Annex 14 Vol. I:<br><br>6) Strength of pavements | STD & RP A14 Vol. I, C2 | | CE-2 |

## Amendment 15 to Annex 14, Volume I. and USOAP CMA

| PQ No. | Protocol Question | Guidance for Review of Evidences | ICAO References | PPQ | CE |
|---|---|---|---|---|---|
| 8.137 | Does the State ensure that aerodrome operators comply with the requirements for the determination and reporting of pavement bearing strengths? | Review documented evidence of published documents (e.g. AIP) which confirm effective compliance with the requirements. | STD A14 Vol. I, 2.6.1 to 2.6.6 & 2.6.8 | | CE-6 |
| 8.139 | Has the State promulgated regulations and associated industry guidance material to determine the bearing strength of a pavement and regulate the use of a pavement by an aircraft with an aircraft classification number (ACN) higher than the reported pavement classification number (PCN)? | 1) Verify regulations. 2) Confirm associated industry guidance material to enable effective implementation | STD A14 Vol. I, 2.6.1 RP A14 Vol. I, 2.6.7 GM A14 Vol. 1, Att. A, Section ~~20~~ 19 | | CE-2 |

## NEW ICAO METHODOLOGY FOR DETERMINING AND REPORTING THE STRENGTH OF PAVEMENTS (ACR-PCR)

## IMPLEMENTATION ACTION PLAN MATRIX

| PCR-ID | ACTION | RESPONSIBLE ENTITY | TARGET DATE | REMARKS |
|---|---|---|---|---|
| PCR 1 | Designate a focal point to coordinate activities at the national level. | CAA | | |
| PCR 2 | Identify stakeholder focal points (Aerodrome operators, AIS provider). | AD and AIS | | |
| PCR 3 | Establish a work team for the implementation of the ACR-PCR Method, (personnel from identified stakeholders) | CAA | | |
| PCR 4 | Identify regulations, and procedures (viz: overload operations) to be developed/ amended. | CAA and AD | | |
| PCR 5 | Develop and promulgate regulations, incorporating Amendment 15 of Annex 14 Vol. 1, adopted in March/2020 and effective on November 28, 2024 (ACR/PCR). | CAA | | |
| PCR 6 | Develop and publish guidance material regarding PCR calculation and others. | CAA | | |
| PCR 7 | Conduct training for CAA/AD staff. | CAA | | |
| PCR 8 | To develop an implementation schedule by each AD (perform evaluations of the movement area pavements). | CAA, AD. | | |
| PCR 9 | Preparation/ amendment to Charts | AD and AIS | | |
| PCR 10 | Deadline to send information to the Aeronautical Information Services so that publications can be prepared (AIRAC) | All | | |
| PCR 11 | Date of effective application of the new methodology to report the strength of the pavements in the movement area. | All | Nov 28, 2024 | |

## Knowledge resource:

- ICAO Aerodrome Pavement Workshop, (Bangkok, Thailand, 07 to 09 February 2024) (past event)
  https://www.icao.int/APAC/Meetings/Pages/2024-Workshop-on-Aerodrome-Pavement.aspx

- ICAO Airport Pavement Strength Rating (APSR EN) ITP/AGA/109/APSR/055EN (e-learning)
  https://igat.icao.int/ated/TrainingCatalogue/Course/5802

- ACI: Certificate in Airport Pavement Fundamentals (e-learning)
  https://olc.aero/course/certificate-in-airport-pavement-fundamentals/

- ICAO TV ( watch the recording of the training)
  https://www.icao.tv/videos/introducing-the-latest-pavement-strength-rating-courses

*THANK YOU FOR YOUR ATTENTION*

- *Will circulate the PPT and the Matrix.*
- *Anything that we can discuss?*
- *Do we need to plan another follow-up meeting?*