International Civil Aviation Organization

Eighth Meeting of the Aerodromes Operations and Planning Sub-Group (AOP/SG/8)

Bangkok, Thailand, 15 to 19 July 2024

Agenda Item 9: Any other business

- **State's update on Implementation of ACR-PCR Method of Reporting Aerodrome Pavement Bearing Strength**

IMPLEMENTATION ROADMAP AND CHALLENGES IN MALAYSIA'S TRANSITION FROM ACN-PCN TO ACR-PCR SYSTEM FOR AERODROME PAVEMENT BEARING STRENGTH

(Presented by Malaysia)

SUMMARY

This paper delineates Malaysia's strategic methodology for transitioning aerodrome pavement bearing strength from the ACN-PCN to the ACR-PCR system, as mandated by the International Civil Aviation Organization (ICAO). The discussion encompasses the comprehensive implementation roadmap and addresses the challenges encountered throughout this regulatory transition.

1. INTRODUCTION

1.1 The ICAO mandates that the bearing strength of aerodrome pavements must be determined and reported using a standardized method outlined in Annex 14 Volume I - Aerodrome Design and Operations. Currently, the predominant method for reporting pavement bearing strength known as ACN-PCN, is set to be replaced by a new system called ACR-PCR. This transition is scheduled to take effect by 28 November 2024.

2. DISCUSSION

2.1 In ensuring the successful implementation of the new ACR-PCR method across its portfolio of 22 airports managed by Malaysia Airports Holdings Berhad (MAHB), a structured migration plan has been devised in two phases. Phase I focuses on initial declarations using Aircraft Experience (U) data, facilitated by Subject-Matter Expert and internal committee members utilizing the ICAO-ACR software. This phase is projected to span approximately eleven months. Phase II, on the other hand, involves detailed Technical Evaluations (T) conducted by external parties and is anticipated to extend over a period of five years (2024-2028). This phased approach aims to methodically integrate the ACR-PCR reporting system, ensuring compliance with ICAO standards while managing the complexity and scope of the transition effectively.

Implementation Roadmap

2.2 The implementation roadmap involves a series of essential steps to ensure the successful migration to the ACR-PCR system:

Step 1	**Establishment of Task Force Team** A dedicated task force team comprising Subject-Matter Experts in pavement engineering, aerodrome regulatory compliance, and aviation safety was established to collaboratively plan, execute, and ensure effective decision-making throughout the migration process.
Step 2	**Training & Awareness** Representatives from the task force attended specialized training sessions conducted by ICAO and external parties, ensuring comprehensive understanding and uniform implementation through knowledge dissemination within the team.
Step 3	**Data Collection** Comprehensive data collection was conducted across all airports to accurately determine pavement strength parameters based on existing Aeronautical Information Publication (AIP).
Step 4	**Engagement with States** Collaborative sessions were conducted with state authorities to present collected data and seek validation prior to publication. CAA Malaysia under Air Navigation Services and Aerodrome Division played a pivotal role in the joint effort towards the successful migration process.
Step 5	**Workshop for updating of Data in AIP and other documents** Amendments to the AIP were meticulously planned and executed, ensuring the incorporation of updated data in readiness for official publication.
Step 6	**Identify the Scope, Process and Planning for Technical Evaluation** The Technical Evaluation scope of works include design assessment of pavement and on-site testing which requires involvement of pavement specialist and proper planning. Once technical assessment is completed, it will replace the data of pavement strength using aircraft experience.

Challenges

2.3 The migration from the ACN-PCN method to the ACR-PCR system in Malaysia involves several challenges. Among the challenges include:

- Adapting to new calculation methodologies and technical criteria under the ACR-PCR system may require significant training and adjustment for aerodrome operators.
- Ensuring for undergoing airport development project, declaration of ACR-PCR in place.
- Providing adequate training and capacity building programs in the migration process to enhance understanding and ensure consistent implementation.
- Ensuring comprehensive and accurate data collection across all airports to establish ACR-PCR parameters can be resource-intensive and time-consuming.

- Coordinating the implementation timeline and activities among various stakeholders, including with various airports personnel, regulatory authorities, and international organization, requires effective communication and collaboration.
- Assessing the financial impact especially of upgrading or modifying existing infrastructure and equipment to meet ACR-PCR requirements may present budgetary challenges for states.
- ICAO-ACR and FAARFIELD software have limitations in their data, which exclude certain types of aircraft and helicopters.
- Limitations exist in the Falling Weight Deflectometer (FWD) machinery supplied by local vendors for technical evaluations.

3. ACTION BY THE MEETING

3.1 The meeting is invited to note the information contained in this paper and encourage member States to collaborate by sharing and exchanging their experiences in implementing the ACR-PCR migration.

—END—