



ICAO

*International Civil Aviation Organization*The Seventh Meeting of the Asia/Pacific
Aerodrome Assistance Working Group (AP-AA/WG/7)*Bangkok, Thailand, 27 to 30 May 2025***Agenda Item 9: Any Other Business****GUIDELINE FOR RUNWAY CLASSIFICATION**

(Presented by Thailand)

SUMMARY

This paper provides a guideline for a classification of runways based on aerodrome reference code and type of runway (non-instrument runway, instrument approach runway: non-precision, and precision categories CAT I, II, III). The paper examined the technical and operational requirements that are required to be met by each type of runway with regards to physical characteristics, visual aids, and navigation systems as specified in ICAO Annexes and associated ICAO design manuals.

1. INTRODUCTION

1.1 Runway classification is critical for ensuring the safety and efficiency of aerodrome operations. Runways are categorized into two primary types: non-instrument runways and instrument approach runways. Instrument approach runways are further classified into non-precision and precision categories (CAT I, II, III).

1.2 Annex 14 – Aerodromes

- Specifies physical characteristics of runways, including runway strip width, runway end safety areas (RESA), and obstacle-free zones.
- Provides standards for lighting systems such as runway lights and approach lights.

1.3 Annex 10 – Radio Navigation Aids

- Details navigation systems required for instrument runways:
 - ILS, VOR/DME, NDB, GNSS.
 - Accuracy and integrity requirements for each precision category.

1.4 Annex 4 – Aeronautical Charts

- Requires depiction of runway classifications and navigation aids on aerodrome and approach charts.

- 1.5 Annex 6 – Operation of Aircraft
- Specifies operational procedures for non-instrument and instrument runways.
 - Requires detailed operational data for precision approaches (e.g., decision heights and visibility minima).
- 1.6 Annex 19 – Safety Management
- Requires risk assessments for runway operations and the establishment of Safety Performance Indicators (SPIs).

2. **DISCUSSION**

2.1 The classification of runways directly affects airport infrastructure design, navigation system requirements, and operational procedures. Non-instrument runways, while simpler in design, are limited to VMC and VFR operations. Instrument approach runways, on the other hand, require significant investment in navigation aids and safety infrastructure to support IMC and IFR operations.

2.2 The increasing adoption of Performance-Based Navigation (PBN) emphasizes the need for GNSS systems, especially for non-precision approach runways. Additionally, the transition to higher precision categories (CAT II/III) requires advanced lighting systems, wider runway strips, and robust maintenance procedures.

2.3 The paper examined the technical and operational requirements that are required to be met by each type of runway with regards to physical characteristics, visual aids, and navigation systems as specified in ICAO Annexes and associated ICAO design manuals and provided in **Appendix A** for ease of reference as a consolidated guideline.

3. **ACTION BY THE MEETING**

- 3.1 The Meeting is invited to:
- a) note the information contained in this paper;
 - b) discuss any other relevant matters as appropriate.

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