International Civil Aviation Organization

Thirty-Sixth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/36)

Bangkok, Thailand, 24 to 26 November 2025

Agenda Item 3: **Performance Framework for Regional Air Navigation Planning and Implementation**

3.1: **AOP**

REPORT ON THE NINTH MEETING OF AOP SUBGROUP

(Presented by Chairperson of AOP/SG)

SUMMARY

This paper presents the outcomes of the Ninth Meeting of the APANPIRG Aerodrome Operations and Planning Subgroup (AOP/SG/9, Bangkok, Thailand, from 30 June to 04 July 2025) for review by APANPIRG/36.

Strategic Objectives:

- *A:* ***Safety*** *– Enhance global civil aviation safety*
- *B:* ***Air Navigation Capacity and Efficiency*** *— Increase the capacity and improve the efficiency of the global aviation system*
- *E:* ***Environmental Protection*** *— minimize the adverse environment effects of civil aviation activities.*

Action by the Meeting is in paragraph 3.

1. INTRODUCTION

1.1 The Ninth Meeting of the Aerodrome Operations and Planning Sub-Group (AOP/SG/9) was held in Bangkok, Thailand, from 30 June to 04 July 2025.

1.2 The Meeting was attended by 114 participants from 20 States, 1 Special Administration Region and 3 International Organizations.

1.3 A total of 34 Working Papers, 12 Information Papers and 4 Presentations covering 11 Agenda Items were considered by AOP/SG/9.

1.4 Based on the outcomes of discussions on various Agenda Items, the Meeting adopted 8 (Eight) Conclusions that were of a purely technical or operational nature. In addition, AOP/SG/9 formulated 2 (Two) Draft Conclusions for consideration by APANPIRG/36.

1.5 The full report of AOP/SG/9 is available at the following URL:

https://www.icao.int/APAC/meetingdocs?fid=554

1.6 **Appendices** used in this Working Paper carry the same **Appendix** numbers as those in the Report of AOP/SG/9 for easy reference.

2. DISCUSSION

2.1 Some important discussions of AOP/SG/9 are summarized in the ensuing paragraphs

Asia/Pacific Air Navigation Plans

2.2 AOP/SG/9 noted the structure of the Asia/Pacific Air Navigation Plans and procedures for their amendments. There were three Volumes of Asia/Pacific ANP which can be accessed at https://www.icao.int/APAC/Pages/APAC-eANP.aspx.

Amendment of ANP Volume I, Table AOP I-1 and ANP Volume II, Table AOP II-1

2.3 AOP/SG/9 noted that 355 out of 384 aerodromes used for international operations in Asia and Pacific Regions had been listed in Asia/Pacific Region ANP Volume I as of 25 June 2025 (286 in 2024).

2.4 AOP/SG/9 urged States to initiate and send proposals to the ICAO APAC Office for amendment to APAC ANP Volume I, Table AOP I-1 and ANP Volume II, Table AOP II-1, particularly by States/Administrations identified in **Appendix A1**.

Report on the Sixth Meeting of the Asia/Pacific Aerodrome Design and Operations Task Force (AP-ADO/TF/6)

2.5 AOP/SG/9 reviewed the Report of the Sixth Meeting of the Asia/Pacific Aerodrome Design and Operations Task Force (AP-ADO/TF/6, 18 - 21 February 2025, Langkawi, Malaysia). The full report of AP-ADO/TF/6 has been posted on the ICAO APAC Office website and can be accessed at: https://www.icao.int/APAC/meetingdocs?fid=587.

Outcomes of the Workshop on Transposition of Annex 14 SARPs into National Aerodrome Standards

2.6 The Workshop on Transposition of Annex 14 SARPs into National Aerodrome Standards was conducted on 17 February 2025 in Langkawi, Malaysia in conjunction with the AP-ADO/TF/6 Meeting.

2.7 AOP/SG/9 reviewed the key takeaways of the Workshop endorsed by AP-ADO/TF/6 and adopted the following Conclusion formulated by AP-ADO/TF/6:

Conclusion AOP/SG/9 - 1 (Draft Conclusion AP-ADO/TF/6 – 1): Workshop on Transposition of Annex 14 SARPs into National Aerodrome Standards

That, key takeaways of the Workshop on Transposition of Annex 14, Volume I, SARPs into National Aerodrome Standards be circulated to Asia/Pacific States/Administrations for information and published on the APAC Website at eDocuments Webpage.

2.8 ICAO APAC Office has circulated the State Letter Ref.: T 11/5.13.2 – AP118/25 (AGA) dated 16 September 2025 regarding the key takeaways of the Workshop, which is also available at APAC eDocuments Webpage under AGA Heading https://www.icao.int/APAC/apac-electronic-documents#tabs-2.

Clarification of Clause Interpretations in ICAO Annex 14 Volume I

2.9 AP-ADO/TF/6 discussed on *ICAO Annex 14 Volume I Clause 5.2.2.6* regarding "Form and Proportions of Numbers and Letters for Runway Designation Marking".

2.10 AP-ADO/TF/6 noted that the "Form and Proportions of Numbers and Letters for Runway Designation Marking" (Clause 5.2.2.6), which lacks clear guidance on gap dimensions for combinations of the number "1" with other numbers wider than 3.0 meters, as well as for combinations where the numbers are 3.0 meters or wider. AP-ADO/TF/6 suggested ICAO provide visual guidance for both cases and standardise the gap dimension to 2.2 meters for the second case.

2.11 AOP/SG/9 adopted the following Conclusion formulated by AP-ADO/TF/6:

Conclusion AOP/SG/9 – 2 (Draft Conclusion AP-ADO/TF/6 – 2): Clarification of Clause Interpretations in ICAO Annex 14 Volume I

That, AP-ADO/TF/6 – WP/08 be forwarded to ICAO Air Navigation Bureau for its review of specification 5.2.2.6 (Figure 5 -3) and consideration of the recommendation as proposed in the WP/08.

Tolerance in Aerodrome Physical Characteristics and Addressing Inconsistencies in ICAO Annex 14 Volume I

2.12 AP-ADO/TF/6 discussed Malaysia's proposal to address the acceptable tolerances in the visual aids of aerodromes (Markings, Runway and Taxiway Edge Lights and Wind Direction Indicator's Circular Band), with the goal of enhancing operational efficiency without compromising safety or performance standards, taking references from *ICAO Annex 14, Volume I SARPs*, FAA and UK CAA Standards. Key discussions and recommendations included:

(1) Markings: AP-ADO/TF/6 supported adopting a ±5% tolerance for runway and taxiway markings, referencing both the ICAO Aerodrome Design Manual Part 4 in comparison with FAA guidelines.

(2) Aeronautical Ground Lights:

- Runway Edge Lights: Proposal for reviewing the permissible tolerance for runway edge light spacing to enhance operational safety taking into consideration of ICAO SARPs, with additional analysis based on the requirements outlined in CAA UK CAP168 Licensing of Aerodromes and FAA 150/5340-30J on Design and Installation Details for Airport Visual Aids. This analysis provided a comparative perspective on spacing and installation criteria for runway edge lights, for improving safety, particularly under low-visibility conditions.

- Taxiway Edge Lights: Similar to runway edge lights, it was recommended to conduct the further study on taxiway edge light spacing. FAA Advisory Circular 150/5340-30J specified the spacing for taxiway edge lights, which is determined based on the taxiway configuration to ensure better compliance with international standards.

(3) Wind Direction Indicator's Circular Band: Malaysia suggested a ±5% tolerance for the circular band of wind direction indicators to maintain consistency and minimize disruptions caused by construction or maintenance activities.

2.13 AOP/SG/9 adopted the following Conclusion formulated by AP-ADO/TF/6:

Conclusion AOP/SG/9 – 3 (Draft Conclusion AP-ADO/TF/6 – 3): Tolerance on marking of wind direction indicator's circular band, and runway and taxiway edge lights

That, AP-ADO/TF/6 – WP/09 be forwarded to ICAO Air Navigation Bureau for its review and consideration of the tolerance in the design and implementation of the marking of wind direction indicator's circular band, and runway and taxiway edge lights.

Potential Misinterpretation on the Terms "Defined Runway and Taxiway Pavement Edges to the Near Side of Sign"

2.14 AP-ADO/TF/6 discussed the potential misinterpretation of the term "from the defined runway and taxiway pavement edges to the near side of sign" in *ICAO Annex 14 Volume I, Table 5-5*. The ambiguity in defining the reference point for sign placement has led to inconsistencies among airport designers, aerodrome operators, and regulatory bodies, potentially affecting safety and compliance.

2.15 To address this, AP-ADO/TF/6 proposed ICAO to provide clearer guidance, including graphical illustrations, to ensure uniform understanding and compliance across airports. AOP/SG/9 adopted the following Conclusion formulated by AP-ADO/TF/6:

Conclusion AOP/SG/9 – 4 (Draft Conclusion AP-ADO/TF/6 – 4): Provision of Graphical Illustrations for the Placement of Signs in ICAO Design Manual (Doc 9157), Part 4 Visual Aids

That, AP-ADO/TF/6 – WP/10 be forwarded to ICAO Air Navigation Bureau for inclusion of the Graphical illustrations of the placement of the signs in ICAO Design Manual (Doc 9157), Part 4 Visual Aids.

Review Options of Standardizing the Approach Lighting Circuit Design against the Switch Over Time Requirements to Ensure the Operational Requirements are met with respect to Precision Approach CAT II/III Operations

2.16 AP-ADO/TF/6 discussed the existing switch over time requirements for the approach lighting system for precision approach CAT II/III as per *Annex 14, Volume I, Table 8-1*. The present concern of dividing the approach lighting system into two parts, as inner approach (first 300 m) and outer approach (from 300 – 900 m), while the interleaving circuits for the inner/outer approach areas combined control the entire section. Hence, separate switchover times for the inner and outer approach was not practically possible was fundamentally agreed by the Task Force Meeting.

2.17 AOP/SG/9 adopted the following Conclusion formulated by AP-ADO/TF/6:

Conclusion AOP/SG/9 – 5 (Draft Conclusion AP-ADO/TF/6 – 5): Review of Switch-over time requirements for Outer Part (from 300 – 900 m) of the CAT II/III Approach Lighting System

That, AP-ADO/TF/6 – WP/13 be forwarded to ICAO Air Navigation Bureau for review of switch-over time requirements for outer part (from 300 – 900 m) of the CAT II/III Approach Lighting System by Visual Aids Working Group.

2.18 ICAO APAC has sent an IOM Ref.: T 11/5.13.2 – AP-AGA0050/25 dated 15 September 2025, along with the AP-ADO/TF/6 – **WP/08, WP/09, WP/10** & **WP/13** to the Air Navigation Bureau for further deliberation at the ADOP Visual Aids Working Group.

Guidance Material on the Transposition of Annex 14 SARPs

2.19 AOP/SG/9 reviewed the 'Draft Guidance on Transposition of ICAO Annex 14 SARPs into National Standards' developed by AP-ADO/TF. The guidance document was structured into 7 Chapters and 1 Appendix covering general information, proposals for new SARPs, industry engagement, adoption of SARPs, regulatory development, and notification procedures. It was developed for reference to APAC States, and they could adapt it with proper customization if they have yet to develop one for them.

2.20 AOP/SG/9 adopted the following Conclusion formulated by AP-ADO/TF/6:

Conclusion AOP/SG/9 – 6 (Draft Conclusion AP-ADO/TF/6 – 6): Guidance on Transposition of Annex 14 SARPs into National Standards

That,

*a) the Guidance Material on Transposition of Annex 14 SARPs into National Standards (**Appendix A2** to the Report of AOP/SG/9) be adopted and published on the ICAO APAC website; and*

b) APAC States and industry be invited to provide feedback after its publication on ICAO APAC Website.

2.21 ICAO APAC Office has circulated the State Letter Ref.: T 11/5.13.2 – AP119/25 (AGA) dated 16 September 2025 regarding the 'Guidance on Transposition of Annex 14 SARPs into National Standards' which is also available at APAC eDocuments Webpage under AGA Heading https://www.icao.int/APAC/apac-electronic-documents#tabs-2.

2.22 AOP/SG/9 noted that the AP-ADO/TF/6 had agreed to develop the regional guidance documents on the following areas:

a) Measurable conspicuity standards for runway and taxiway markings to provide aerodrome operators and regulators with clear, objective criteria for evaluating marking effectiveness (Malaysia to lead the task with the support from India, Thailand, Vietnam and ACI);

b) Assessment and mitigation of glare and glint from solar panels installed at or in the vicinity of the aerodrome (Malaysia to lead the task with the support from India, Philippines and Sri Lanka);

c) Interrelationship between *ICAO Annex 10 Volume I, ICAO Annex 14 Volume I and Aerodrome Design Manual (DOC. 9157) Part 6* for visual and non-visual aids installation on runway and taxiway strips and RESA (Nepal to lead the task with the support from Fiji, India and China); and

d) Circumstances/situations where the phrase "as far as practicable and/or wherever practicable" would be needed for flexibility of the implementation of SARPs based on experiences and best practices of APAC States from different geographical regions (Nepal to lead the task with the support from Australia, Malaysia, Wellington International Airport (New Zealand) and Pakistan).

Report on the Seventh Meeting of Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG/7)

2.23 AOP/SG/9 reviewed the Report of the Seventh Meeting of the Asia/Pacific Aerodrome Assistance Working Group (AP-AA/WG/7, Bangkok, Thailand, from 27 to 30 May 2025). The full report of the Meeting has been posted on the ICAO APAC Office website and can be accessed at https://www.icao.int/APAC/meetingdocs?fid=573.

Runway Surface Condition Reporting – Adoption of Technology

2.24 AP-AA/WG/7 noted the regulatory challenges faced by New Zealand in adopting technology solutions to assist in the assessment of runway surface conditions as part of the GRF implementation.

2.25 Although technology solutions could provide an equal of better safety performance outcome in certain complex operational or environmental conditions, the definition of a "WET runway" currently, by inference, indicates that such runway condition assessments must be based upon "visual" observation which might not be able to be achieved practically or effectively in a timely manner for rain related events. Allowing States to consider technology solutions as an acceptable alternative means of compliance would assist in enhancing safety and providing greater opportunity for the adoption of GRF. AOP/SG/9 endorsed the following Draft Conclusion formulated by AP-AA/WG/7 for consideration by APANPIRG/36:

<table>
<tr><td colspan="3">Draft Conclusion AOP/SG/9 – 7 (Draft Conclusion AP-AA/WG/7 – 1) : Runway Surface Condition Assessment – Adoption of Technology</td></tr>
<tr><td colspan="2">What: Restricting assessment of runway surface conditions to visual means only, especially for DRY or WET conditions restricts the introduction of technology and automation to assist airport operators to meet the performance and safety outcomes desired. ICAO is requested to facilitate States to consider the use of technology and automation methods as an alternative acceptable means of compliance, to assist aerodrome operators in the assessment of runway surface conditions.</td><td>Expected impact:
☒ Political / Global
☐ Inter-regional
☒ Economic
☐ Environmental
☒ Ops/Technical</td></tr>
<tr><td colspan="2">Why: Technology and automation can equally meet the performance and safety outcomes desired in assessing runway surface conditions for reporting in global reporting format</td><td>Follow-up: ☐Required from States</td></tr>
<tr><td colspan="2">When: 26-Nov-25</td><td>Status: Draft to be adopted by PIRG</td></tr>
<tr><td colspan="3">Who: ☐Sub groups ☐APAC States ☐ICAO APAC RO ☒ICAO HQ ☐Other: XXXX</td></tr>
</table>

2.26 It was also discussed that the use of technology and automation methods as an alternative acceptable means of compliance for the assessment of runway surface conditions could possibly be mentioned in 'ICAO Circular 355 - Assessment, Measurement and Reporting of Runway Surface Conditions'.

Guideline for Runway Classification

2.27 AOP/SG/9 reviewed the guidelines developed by AP-AA/WG for the classification of runways using *Annex 14, Volume I*, other relevant Annexes and manuals. While *Annex 14, Volume I* defined non-instrument and instrument runways, the definitions being vague and interpreted differently by States — some classifying runways based on installed equipment, others on actual operational use. This inconsistency might lead to varied applications of aerodrome standards, affecting runway design elements such as runway strip dimensions, Obstacle Limitation Surfaces (OLS), and visual aids. It might impact other Annexes, including *Annex 4 (Charts), Annex 6 (Aircraft Operations), Annex 10 (Aeronautical Telecommunications) and Annex 19 (Safety Management).*

2.28 The standardised guidelines would promote global harmonisation, enhance safety, and ensure consistent application of *Annex 14 Volume I* provisions. AOP/SG/9 adopted the following Conclusion formulated by AP-AA/WG/7:

Conclusion AOP/SG/9 – 8 (Draft Conclusion AP-AA/WG/7 – 2): Guideline for Runway Classification

That, the Guideline for Runway Classification provided in ***Appendix B*** *to the AOP/SG/9 Report be circulated to States/Administrations and published on the ICAO APAC eDocuments Webpage under AGA Heading.*

2.29 ICAO APAC Office has circulated the State Letter Ref.: T 11/5.13.2 – AP120/25 (AGA) dated 16 September 2025 regarding the 'Guideline for Runway Classification', which is also available at APAC eDocuments Webpage under AGA Heading https://www.icao.int/APAC/apac-electronic-documents#tabs-2.

2.30 AOP/SG/9 noted that the AP-AA/WG/7 had agreed to develop the regional guidance on the following areas, which are also included in the AP-AA/WG Task List:

a) Rescue & Fire Fighting Requirements for Small Airports (Aerodrome Category 1 and 2 for RFF) (Fiji to lead the task with the support from US, New Zealand (Wellington Airport), Solomon Islands and Philippines).

Report on the Seventh Meeting of the Asia/Pacific Wildlife Hazard Management Working Group (AP-WHM/WG/7)

2.31 AOP/SG/9 reviewed the Report of the Seventh Meeting of the Asia/Pacific Wildlife Hazard Management Working Group (AP-WHM/WG/7) held in Pokhara, Nepal from 7 to 9 May 2025. The full report of AP-WHM/WG/7 provided on ICAO APAC Office website at: https://www.icao.int/APAC/meetingdocs?fid=592.

Outcomes of the ICAO Asia/Pacific Wildlife Hazard Management Workshop

2.32 ICAO Asia/Pacific Wildlife Hazard Management (WHM) Workshop was conducted on 5 – 6 May 2025 in Pokaha, Nepal. AOP/SG/9 reviewed the key takeaways of the workshop endorsed by AP-WHM/WG/7 and adopted the following Conclusion formulated by AP-WHM/WG/7:

Conclusion AOP/SG/9 – 9 (Draft Conclusion AP-WHM/WG/7 – 1): ICAO Asia/Pacific Wildlife Hazard Management Workshop

That, key takeaways of the ICAO Asia/Pacific Wildlife Hazard Management Workshop be circulated to Asia/Pacific States/Administrations for information and consideration and published on the ICAO APAC Website eDocuments Webpage.

2.33 ICAO APAC Office has circulated the State Letter Ref.: T 11/5.13.2 – AP121/25 (AGA) dated 16 September 2025 regarding the key takeaways of the Workshop, which is also available at APAC eDocuments Webpage under AGA Heading https://www.icao.int/APAC/apac-electronic-documents#tabs-2.

Wildlife Strike – A Safety Concern

2.34 AOP/SG/9 noted that India, Indonesia, Nepal and the Philippines have identified wildlife Strike as one of the National High-Risk Category of Occurrences (N-HRCs) in their respective National Aviation Safety Plan (NASP) due to the significant risk posed by the presence of wildlife in and around the aerodromes.

2.35 AOP/SG/9 also noted that the ICAO Bird Strike Information System (IBIS) wildlife strike analysis report for the year 2016-2021 indicates a significant increase in the wildlife strike reports in the APAC region as compared to the report received in the year 2008-2015.

2.36 Based on the analysis of the wildlife strike data of Asia and Pacific States, wildlife strikes may be included as other Regional HRCs (R-HRCs) in the Asia-Pacific Regional Aviation Safety Plan, so that a risk-based approach could be adopted in managing safety at the regional-level through collaboration between regional aviation stakeholders in a coordinated manner.

2.37 AOP/SG/9 endorsed the following Draft Conclusion formulated by AP-WHM/WG/7 for consideration by APANPIRG/36 and coordination with RASG-APAC:

Draft Conclusion AOP/SG/9 – 10 (Draft Conclusion AP-WHM/WG/7 – 2): Acknowledgement of Wildlife Strike as One of the High-Risk Category of Occurrences (HRCs) for Asia and Pacific Regions	
What: Acknowledging that wildlife strike is a widespread concern affecting States in the Asia Pacific Region, and some States in Asia Pacific Region have already identified Wildlife Strike as one of the National High-Risk Category of Occurrences (N-HRCs) in their National Aviation Safety Plan (NASP): a) Wildlife Strikes should be considered to identify as one of the Regional HRCs (R-HRCs) in the Asia-Pacific Regional Aviation Safety Plan; and b) take up the concern of wildlife strike to the appropriate forum of ICAO for seeking additional Safety Enhancement Initiatives as mitigation measures for all APAC States/Administrations.	Expected impact: ☒ Political / Global ☐ Inter-regional ☐ Economic ☐ Environmental ☒ Ops/Technical

Why: For harmonised application and enhancing safety at or in the vicinity of aerodromes.	Follow-up: ☒Required from States
When: 26-Nov-25	Status: Draft to be adopted by PIRG
Who: ☒ Sub groups ☒ APAC States ☒ ICAO APAC RO ☒ ICAO HQ ☐ Other: XXXX	

Certification of Aerodromes in the Asia/Pacific Region

Status on Certification of Aerodromes in Asia Pacific States

2.38 AOP/SG/9 noted that out of **384** aerodromes used for international operations in Asia and Pacific Regions **353** aerodromes have been certified as of 27 June 2025 corresponding to **91.93 %** progress.

2.39 There are still **31** aerodromes used for international operations which are yet to be certified by **12 States** in different Sub Regions of Asia/Pacific Region as shown in **Table 1** below:

Aerodromes	**North Asia (5 States & 2 SARs)**	**South East Asia (11 States)**	**South Asia (8 States)**	**Pacific (15 States & 8 OTs)**
States with Int'l Aerodromes yet to be certified (number and percentage of aerodromes yet to be certified) **[12 States, 31 Aerodromes, 8.07%]**	1) China (3, 3%)	1) Brunei Darussalam (1, **100%**), 2) Lao PDR (3, **75%**) 3) Malaysia (1, **5%**) 4) Thailand (1, **10%**), 5) Timor-Leste (1, **50%**)	1) Afghanistan (4, **100%**) 2) India (**9, 21%**)	1) Kiribati (2, **100%**) 2) Micronesia (Federal States of) (4, **100%**), 3) Nauru (1, **100%**), 4) Tuvalu (1, **100%**)

Table 1 – 31 Aerodromes used for international operations and yet to be certified by 12 States in Asia/Pacific Region

2.40 The list of aerodromes used for international operations in Asia/Pacific Region which are yet to be certified is in **Appendix C**.

Publication of the Status of Certification of Aerodromes in AIP

2.41 States/Administrations that have yet to publish the status of certification of aerodromes in AIP AD 1.5 are provided in **Table 2**.

States	North Asia (5 States & 2 SARs)	South East Asia (11 States)	South Asia (8 States)	Pacific (15 States & 8 OTs)
AD 1.5 missing in AIP	--	1) Brunei Darussalam	1) Afghanistan	1) Kiribati 2) Nauru 3) Tuvalu 4) Marshall Is. 5) Micronesia (Federated States of) 6) Palau
Total (8 States)	**0 State**	**1 States**	**1 State**	**6 States / OTs**

Table 2 – Status of AIP AD 1.5 in Sub Regions of Asia/Pacific Region

ICAO Universal Safety Oversight Audit Programme (USOAP) and AGA Findings

ICAO USOAP CMA results in AGA Area

2.42 AOP/SG/9 noted that the APAC Average AGA EI score was **62.16 %** (60.73% in June 2024) compared to Global Average of **64.20 %** as of June 2025.

2.43 AOP/SG/9 also noted the following results:

1) 18 APAC States having their EI in AGA area less than 60%;
2) 4 APAC States having their EI in AGA area more than 60% to less than 75%; and
3) 17 States have their EI in AGA area more than or equal to 75%.

2.44 **22** States (24 States in 2024) with EI less than 75% would require more resources and efforts to enhance their EI and meet the 75% EI target as set forth in the ICAO Global Aviation Safety Plan (GASP) 2023-2025 (Doc 10004).

Runway Safety and Runway Safety Team

2.45 AOP/SG/9 noted that out of **384** aerodromes used for international operations in Asia/Pacific Region, only **208** aerodromes established the RST (**Appendix D**).

Enhanced Global Reporting Format (GRF) for Assessing and Reporting Runway Surface Conditions

2.46 AOP/SG/9 noted that **18** States/Administrations from Asia and Pacific Regions (13 States/Administrations in 2024) published procedures for assessment and reporting of runway condition in AIP as of June 2025 and encouraged States/Administrations that had yet to implement the methodology for assessment and reporting of runway condition to implement GRF at the earliest possible opportunity and publish the procedures for assessment and reporting of runway condition report in AIP under “AD 1.2, 2 Snow plan”.

Status of Air Navigation Deficiencies in AOP Field

2.47 AOP/SG/9 reviewed the list of Air Navigation Deficiencies in the AOP field endorsed by APANPIRG/35.

2.48 **8** States (**Brunei Darussalam, Fiji, Lao PDR, Nauru, Nepal, Philippines, Samoa** and **Thailand)** provided updates on their Air Navigation Deficiencies in the AOP field.

Resolution of Air Navigation Deficiency in Certification of Aerodromes used for International Operations

2.49 The following Deficiencies have been resolved in 2025:

a) Thailand certified Surat Thani International Airport (VTSB) and issued the Aerodrome Certificate on 18 December 2024.

b) Malaysia certified Labuan Airport on 1 March 2025; and

c) Philippines provided the permanent aerodrome certificate to Diosdado Macapagal International Airport on 22 January 2025.

2.50 The following new deficiency has been identified for Fiji:

a) RWY/02 CAT I Approach Lighting System (HIALS) at Nadi International Airport does not meet Annex 14, Volume I requirements.

2.51 The updated list of the Air Navigation Deficiencies in the AOP field, including newly identified deficiency will be presented to this Meeting separately in WP/14.

APANPIRG AOP Sub-Group TOR & Task List

2.52 The AOP/SG/9 reviewed and updated the AOP/SG Work Programme and Task List presented by the Secretariat and placed at **Appendix E**.

2.53 AOP/SG/9 also discussed several other Working Papers and Information Papers presented by States and International Organizations. All materials of AOP/SG/9 are available at: https://www.icao.int/APAC/meetingdocs?fid=554.

3. ACTION BY THE MEETING

3.1 The Meeting is invited to:

a) discuss and adopt the Draft Conclusions formulated by AOP/SG/9:

i) **Draft Conclusion AOP/SG/9 – 7:** Runway Surface Condition Assessment – Adoption of Technology (paragraph 2.25 refers);

ii) **Draft Conclusion AOP/SG/9 – 10:** Acknowledgement of Wildlife Strike as one of the High-Risk Category of Occurrences (HRCs) for Asia and Pacific Regions (paragraph 2.37 refers);

b) note the Conclusions adopted by AOP/SG/9:

i) ***Conclusion AOP/SG/9 - 1:*** *Workshop on Transposition of Annex 14 SARPs into National Aerodrome Standards (paragraph 2.7 refers);*

ii) ***Conclusion AOP/SG/9 – 2:*** *Clarification of Clause Interpretations in ICAO Annex 14 Volume I (paragraph 2.11 refers);*

iii) ***Conclusion AOP/SG/9 – 3:*** *Tolerance on marking of wind direction indicator's circular band, and runway and taxiway edge lights (paragraph 2.13 refers);*

iv) ***Conclusion AOP/SG/9 – 4:*** *Provision of Graphical Illustrations for the Placement of Signs in ICAO Design Manual (Doc 9157), Part 4 Visual Aids (paragraph 2.15 refers);*

v) ***Conclusion AOP/SG/9 – 5:*** *Review of Switch-over time requirements for Outer Part (from 300 – 900 m) of the CAT II/III Approach Lighting System (paragraph 2.17 refers);*

vi) ***Conclusion AOP/SG/9 – 6:*** *Guidance on Transposition of Annex 14 SARPs into National Standards (paragraph 2.20 refers);*

vii) ***Conclusion AOP/SG/9 – 8:*** *Guideline for Runway Classification (paragraph 2.28 refers);*

viii) ***Conclusion AOP/SG/9 – 9:*** *ICAO Asia/Pacific Wildlife Hazard Management Workshop (paragraph 2.32 refers).*

c) discuss any other relevant matters as appropriate.

— — — — — — — —

Aerodromes to be listed in Asia Pacific Air Navigation Plan [Updated on 27 June 2025]

S. No	Sub-region	State / Admin	ICAO Code	Name of City	Name of Aerodrome	Type	APAC ANP
1	SA	Afghanistan	OAHR	Herat	Herat Intl	UNK	0
2	SA	Afghanistan	OAMS	Mazar-e-Sharif	Mazar-e-Sharif	UNK	0
3	NA	China	RCYU	Hualien	Hualien	UNK	0
4	NA	China	RCMQ	Taichung	Cingcyuangang	UNK	0
5	NA	China	RCNN	Tainan	Tainan	UNK	0
6	SA	India	VICG	Chandigarh		UNK	0
7	SA	India	VOGO	Goa	Dabolim	UNK	0
8	SA	India	VEGK	Gorakhpur	Mahayogi Gorakhnath	UNK	0
9	SA	India	VIDX	Hindan	Hindon	UNK	0
10	SA	India	VOHY	Hyderabad	Hyderabad International Airport	UNK	0
11	SA	India	VIJO	Jodhpur	Jodhpur	UNK	0
12	SA	India	VEIM		Imphal Airport	UNK	0
13	SA	India	VOGA		Manohar International Airport, MOPA, GOA	UNK	0
14	SA	India	VOPB	Port Blair	Veer Savarkar Intl	UNK	0
15	SA	India	VAPO	Pune	Jagadguru Sant Tukaram Maharaj	UNK	0
16	SA	India	VISR	Srinagar	Srinagar	UNK	0
17	SA	India	VOTP		Tirupati Airport	UNK	0
18	SA	India	VOVZ	Visakhapatan		UNK	0
19	NA	Japan	RJAH	Hyakuri		UNK	0
20	NA	Japan	RJNK	Komatsu		UNK	0
21	NA	Japan	RJOS	Tokushima		UNK	0
22	NA	Japan	RJOH	Yonago	Miho	UNK	0
23	PAC	Micronesia	PTSA	Kosrae I.	Kosrae	UNK	0
24	NA	Mongolia	ZMCD	Dornod	Choibalsan	UNK	0
25	PAC	N. Mariana Is.	PGWT	Tinian I.	West Tinian Tinian Intl	UNK	0
26	PAC	Solomon Islands	AGGM	Munda		UNK	0

S. No	Sub-region	State / Admin	ICAO Code	Name of City	Name of Aerodrome	Type	APAC ANP
27	PAC	Vanuatu	NVVW	Tanna	Tanna	**UNK**	0
28	SEA	Viet Nam	VVDL	Da Lat	Lien Khuong	**UNK**	**0**

Australia: Need to finalize the Table AOP II -1, APAC ANP V-II.

US

(1) Tinian I./West Tinian [PGWT] for N. Mariana Is. should be added in Table AOP I – 1 of APAC ANP V - I and Table AOP II – 1 of APAC ANP V - II.

INTERNATIONAL CIVIL AVIATION ORGANIZATION

GUIDANCE ON TRANSPOSITION OF ANNEX 14 ICAO SARPS

VERSION 1.0 – JULY 2025

Introductory Notes

This document was developed by the ICAO Asia/Pacific Aerodrome Design and Operations Task Force for reference by States in the APAC Regions to provide guidance on the transposition Annex 14 SARPs, including new SARPs and amendments thereto into national standards. When referring to this generic document, States are expected to customize the content in accordance with the States' legislations, regulations, and circumstances.

Table of Contents

Foreword:

The purpose of this document is to provide APAC States guidance on the transposition of Annex 14 SARPs into national regulatory requirements in order to maximise the safety performance of aerodrome operations given the limited human, financial and other resources available, on the basis of safety risks, and as per the State Safety Programme of the State concerned.

1 General

1.1 Introduction

1.1.1 Standards and Recommended Practices (SARPs) are technical specifications adopted by the Council of ICAO in accordance with Article 37 of the Convention on International Civil Aviation, also known as the Chicago Convention, in order to achieve "the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation".

1.1.2 SARPs are published by ICAO in the form of Annexes to The Chicago Convention. SARPs do not have the same legal binding force as the Convention itself because Annexes are not international treaties. Moreover, Article 37 of the Convention stipulates that each Contracting State "undertake to collaborate in securing the highest possible degree of uniformity", not to "comply with". Each Contracting State may notify the ICAO Council of differences between SARPs and its own regulations and practices. Those differences are published in the form of Supplements to Annexes.

1.1.3 A Standard is defined by ICAO as "any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention".

1.1.4 A Recommended Practice is defined by ICAO as "any specification for physical characteristics, configuration, matériel, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interest of safety, regularity or efficiency of international air navigation and to which Contracting States will endeavour to conform in accordance with the Convention.

1.2 Abbreviations

AGA	=	Aerodrome and Ground Aids
AIS	=	Aeronautical Information Services
APAC	=	The Asia and Pacific Regions of ICAO
CAA/DCA	=	Civil Aviation Authority/Department of Civil Aviation
CC	=	Compliance Checklist
CMA	=	Continuous Monitoring Approach
DGCA	=	Director General Department of Civil Aviation
EFOD	=	Electronic Filling of Differences
NPRM	=	Notice of Proposed Rule Making
OLF	=	Online Framework
QS	=	Quality and Standards Division
SARPs	=	Standards and Recommended Practices
USOAP	=	Universal Safety Oversight Audit Programme

2 Proposal for New or Amendment of ICAO SARPs

2.1 Introduction

2.1.1 ICAO establishes Standards and Recommended Practices (SARPs) to ensure the safety, security, efficiency, and environmental sustainability of international civil aviation.

2.1.2 The adoption of new SARPs or amendments to existing SARPs is crucial for maintaining global aviation safety and regulatory harmonization.

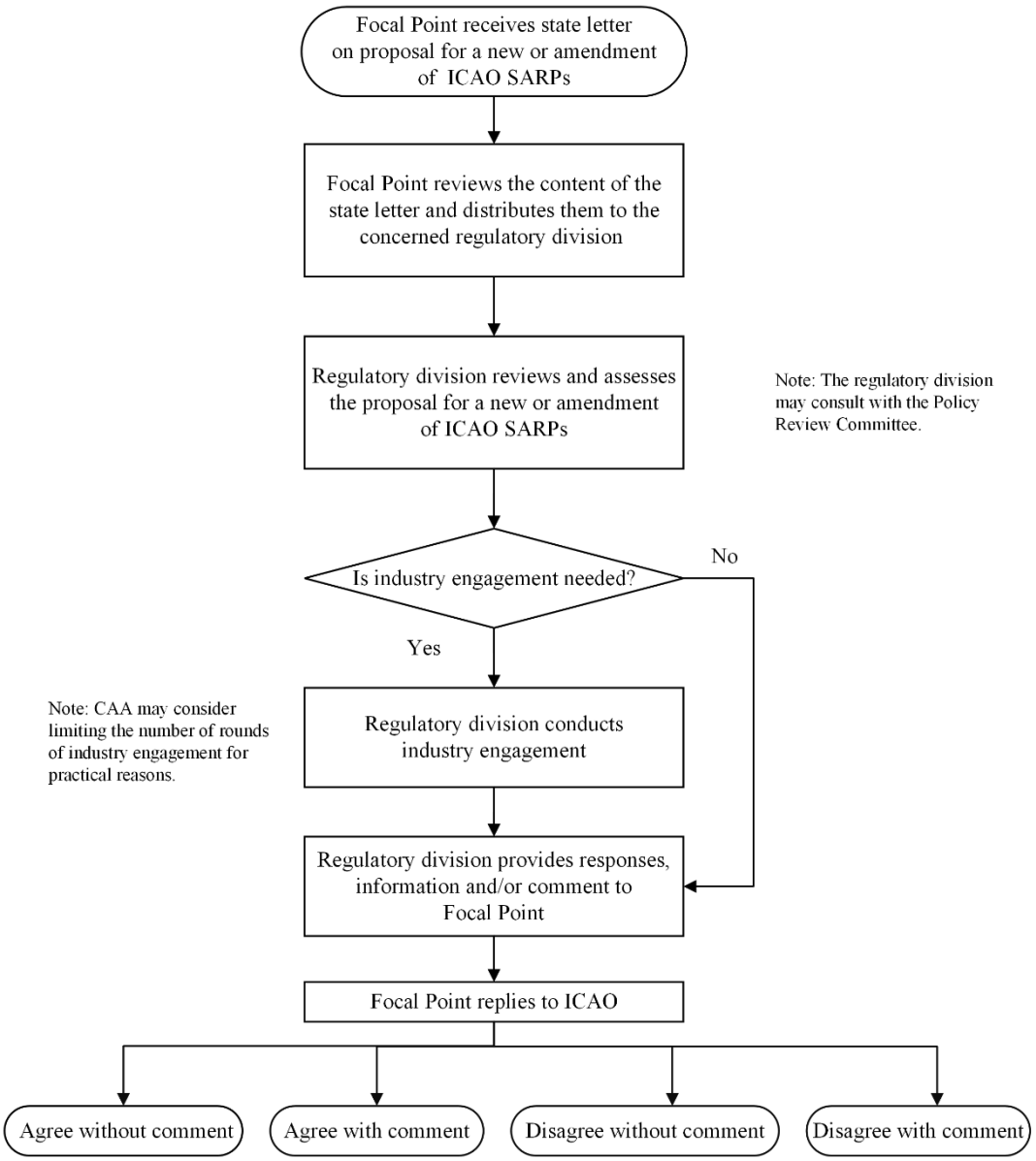
2.1.3 This document aims to provide guidance to States and relevant stakeholders on the process of adopting new SARPs or amending existing ones, ensuring effective implementation and compliance.

2.1.4 This procedure enables CAA/DCA to review the proposals for any new SARPs or an amendment to existing ICAO SARPs.

2.1.5 If the proposal for a new or amendment of ICAO SARPs is in the opinion of the regulatory division to be routine in nature, then the regulatory division with the concurrence of Policy Review Committee can decide to adopt those ICAO SARPs without the need for further industry engagement to eliminate unnecessary delay in the process.

2.1.6 States should establish a procedure to consider a new or amendment of ICAO SARPs, stipulating the parties involved and the roles and responsibilities of each of these parties in the procedure. The following flow chart provided in section 2.2 is an example of such a procedure for reference.

2.2 Example Flow Chart for the Proposal for a New or Amendment of ICAO SARPs



3 Industry Engagement

3.1 Purpose

3.1.1 Industry engagement, i.e. engagement with service providers such as aerodrome operators, air navigation service providers, and air operators, is one of the key regulatory tools employed to improve transparency, efficiency, and effectiveness of regulation and improved accountability arrangements.

3.1.2 Industry engagement should be initiated as early as possible so that both States and its stakeholders could assess the feasibility, safety, and air navigation efficiency benefits, of adopting new SARPs or amending existing ones based on emerging safety, security, operational, or environmental considerations.

3.2 Guiding Principles for Industry Engagement

3.2.1 Genuine industry engagement involves actively seeking the opinions of the affected groups. Ideally, it is a two-way flow of information. However, in some cases it may need to be a one-stage process such as an urgent change to preserve the desired safety objective. One-way information flow may also be appropriate as part of a continuing dialogue. Prior to the industry engagement, the proposal for draft amendment of SARPs should be provided to them and subsequently an engagement session should be arranged.

3.2.2 Conducting an industry engagement to introduce any new or amendment of existing ICAO SARPs should take into consideration the following items:

a) Preliminary Assessment
- Identification: States and its stakeholders should identify the need for adopting new SARPs or amending existing ones.
- Impact Analysis: Conduct a comprehensive impact assessment to evaluate the potential effects of proposed SARPs on national regulations, infrastructure, operations, and resources.

b) Capacity Building
- Needs Assessment: Evaluate the capacity and capability of relevant stakeholders to comply with and implement new SARPs or amendments.
- Training Programs: Develop and provide training and capacity-building initiatives to enhance awareness, understanding, and proficiency in implementing the new requirements or changes to existing practice.
- Technical Assistance: Collaborate with ICAO, regional organizations, and industry partners to facilitate capacity building efforts and provide technical assistance where needed.

c) Implementation Plan
- Development: Develop a detailed implementation plan with clear timelines, responsibilities, and milestones for adopting and implementing new SARPs or amendments in consultation with stakeholders.
- Monitoring Mechanism: Establish mechanisms for monitoring compliance and assessing the effectiveness of implementation measures.

- Audits and Reviews: Conduct regular audits, inspections, and reviews to ensure ongoing compliance with adopted SARPs and identify areas for improvement.

4 Adoption of a New or Amendment of ICAO SARPs

4.1 Introduction

4.1.1 Following the review process, this procedure enables the State to systematically evaluate the adoption of any new or amendment of existing ICAO SARPs. The promulgation of regulations to address, at a minimum, national requirements emanating from the primary aviation legislation, for standardized operational procedures, products, services, equipment, and infrastructures in conformity with the Annexes to the Convention on International Civil Aviation.

Note: *After their review processes, Member States may elect to adopt Recommended Practices in their aviation legislation as if they were Standards.*

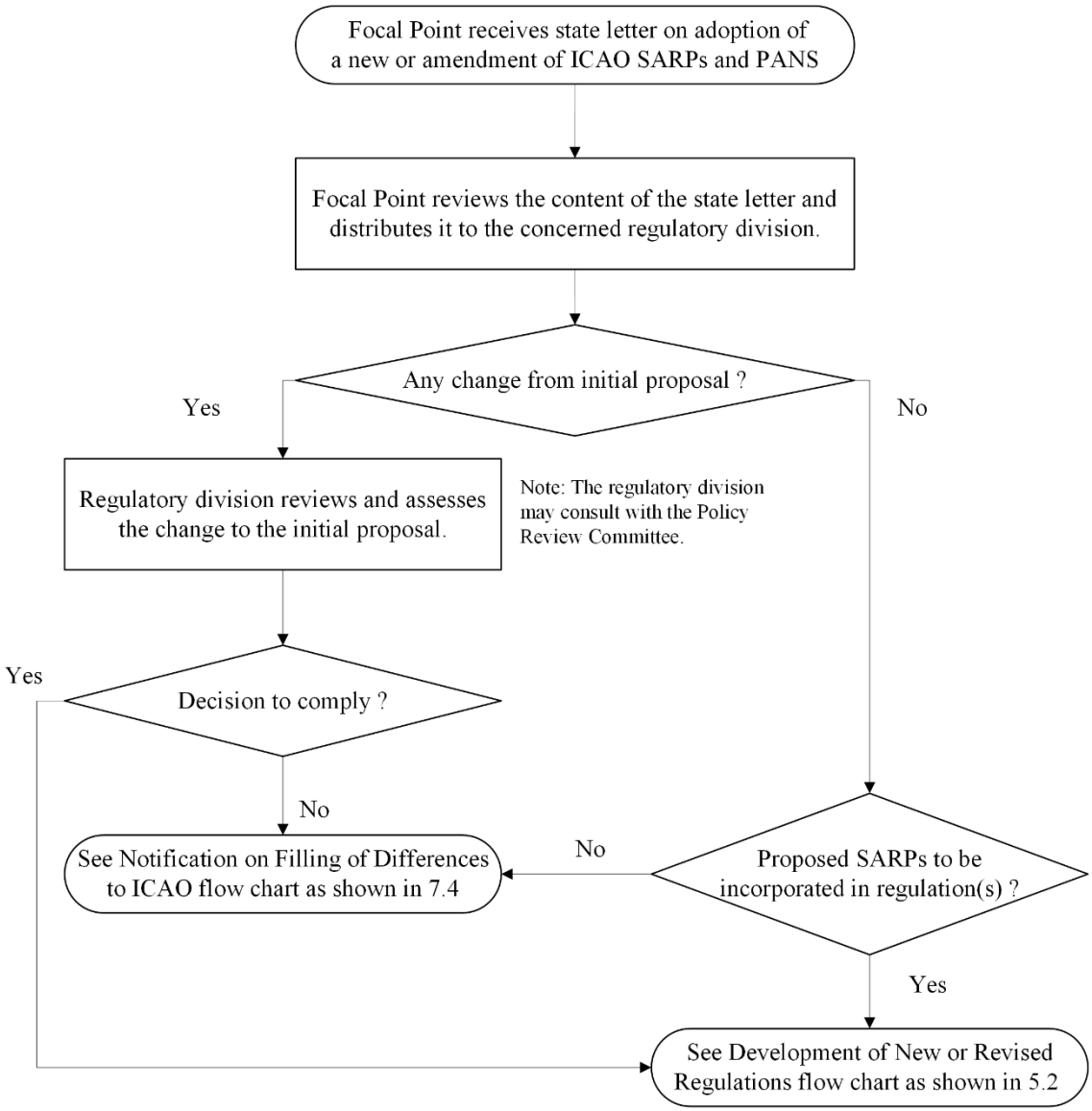
4.1.2 The State operating regulations should therefore conform with the Annexes to the Chicago Convention. Annexes contain SARPs which have been agreed upon by Member States. SARPs are designed to provide the minimum necessary and desirable requirements to be met by all Member States, regardless of the size and complexity of their civil aviation activity.

4.1.3 A procedure should be developed and implemented to ensure the timely amendment of the specific operating regulations, as necessary, in order to keep pace with the amendments to the Annexes to the Convention and ensure that the regulations are issued at the appropriate level. It also ensures that the overall legislation is consistent and, in particular, that regulations are repealed when replaced by new ones.

4.1.4 Appendix A is a collection of sample procedures on adoption of Annex 14 recommendation as National Standards, alternative acceptable means of compliance to SARPs, and regulatory guidance to aerodrome operators on Aeronautical Studies.

4.1.5 A sample process for the adoption of a new or amendment of ICAO SARPs is depicted in the flow chart shown in 4.2.

4.2 Example Flow Chart for the Adoption of a New or Amendment of ICAO SARPs



5 Development and Amendment of Regulations

5.1 Procedure for Development of a New Regulation or Amendment of the Existing One

5.1.1 The Document Owner from the respective regulatory divisions should draft the document and obtain approval from their respective Head of Division and then Head of QS Division before submitting the approved draft for legal vetting as applicable.

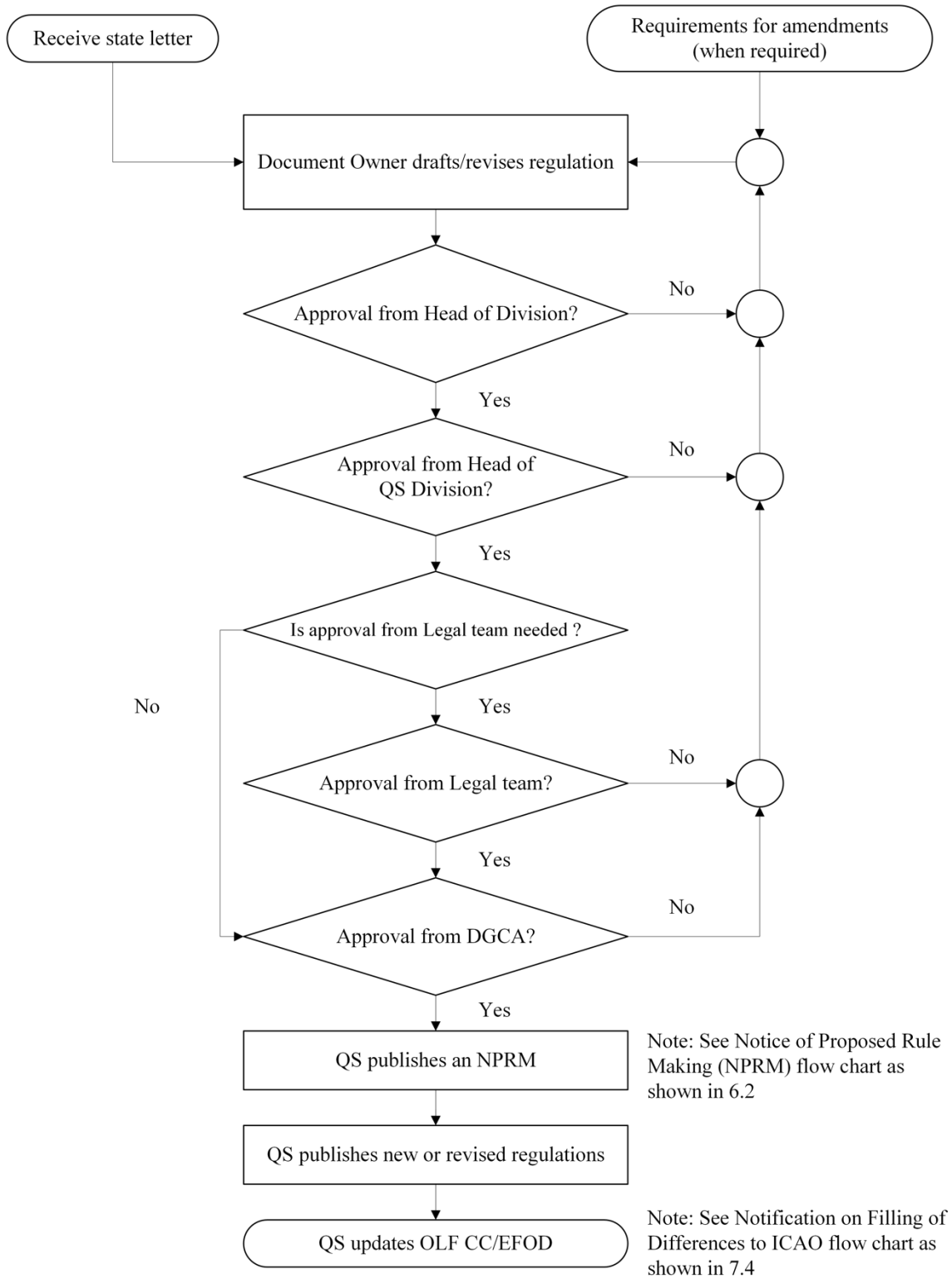
5.1.2 The QS Division will be supplied with the intended new or revision drafts in advance (at least two months) of the planned effective date.

5.1.3 After vetting by the legal team and upon the approval of the DGCA, QS Division should publish an NPRM.

5.1.4 A sample process for the development of new or revised regulations is depicted in the flow chart shown in 5.2.

5.1.5 Publishing of an NPRM for new or amended regulations as applicable should be in accordance with Chapter 6.

5.2 Example Flow Chart for Development of New or Revised Regulations



6 Notice of Proposed Rule Making (NPRM)

6.1 NPRM Process

6.1.1 An NPRM should be issued whenever a new issue or revision of a regulation is to be published. The draft regulation should be published, preferably online, for consultation as a "Notice of Proposed Rule Making" at least 3 months before the planned effective date of the new regulation.

6.1.2 The purpose of the NPRM is to consult with commercial, industrial, consumer, and other relevant bodies and organisations when developing or implementing new standards. It must contain the proposed changes to the standards in the new or revised regulations and the reason for such change.

6.1.3 The NPRM should contain an NPRM Response Form for the commercial, industrial, consumer, and other relevant bodies and organisations to provide feedback to CAA/DCA regarding the new standards. The NPRM Response Form can be submitted to CAA/DCA via the following methods:

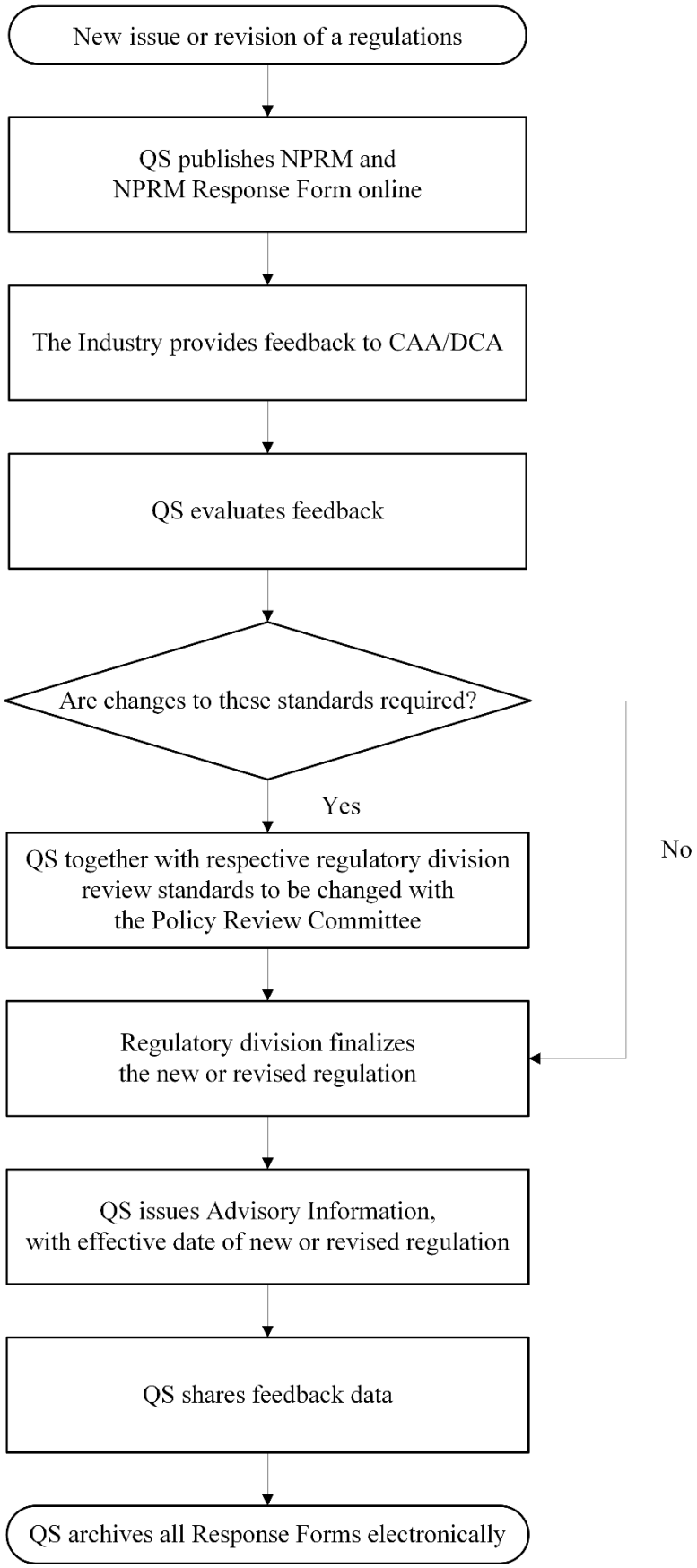
- Online Forms (preferred method);
- Email; or
- Mail to CAA/DCA office.

6.1.4 The NPRM Response Form should have a cut-off date giving the operators reasonable time to assess the feasibility of the proposed ruling, e.g. 30 to 90 days prior to the effective date of the new standards, depending on the complexity of the proposal. After the cut-off date, the CAA/DCA will evaluate all the feedback received. A Policy Review Committee should be convened to review and determine if changes to these standards are required. The Policy Review Committee should for example consist of the head of CAA/DCA and relevant section chiefs, e.g. chiefs of aerodrome standards, quality, and legal.

6.1.5 After the review by the Policy Review Committee the CAA/DCA should issue a notification to stakeholders to confirm the Standards that will be applied (or changes to the initial proposed standards if any) and share details of the feedback received with the industry. This notice should clearly once again state the effective date of the new standards.

6.1.6 All NPRM Response Forms received by CAA/DCA should be archived electronically.

6.2 Example Flow Chart for NPRM Process



6.3 Sample of an NPRM

Civil Aviation Authority / Department of Civil Aviation **Notice of Proposed Rule Making (NPRM)**	

Notice No: CAN *<No.>/<Year>*	**Issuing Office:** Civil Aviation Authority / Department of Civil Aviation Address
Issue Date: *<DD/MM/YYYY>*	
Effective Date: *<DD/MM/YYYY>* **Expiry Date:** *<DD/MM/YYYY>*	
Related Reg: *<Regulation No.>*	
Status: *<New Issue or etc.>*	

NOTICE OF PROPOSED RULE MAKING

1 Text

1.1 Text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text

1.2 Text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text

2 Text

2.1 Text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text text

(………………………………)

DGCA NAME

Director General Department of Civil Aviation

for Civil Aviation Authority / Department of Civil Aviation

<Date>

NPRM RESPONSE FORM

PLEASE COMPLETE AND SUBMIT YOUR RESPONSE BY *<DD/MM/YYYY>* AND RETURN IT BY THE FOLLOWING MEANS:

ONLINE *(preferred method)*:

Submit Online form: *<Form's hyperlink>*

or

Email attached form to *<Email address>*

MAIL to CAA/DCA Corporate Office Address:

ATTN: Quality and Standards Division,
Civil Aviation Authority / Department of Civil Aviation,
Address

DETAILS OF RESPONDER

Name:									
Organisation:									
Address:									
Phone Number:									
Involvement in the aviation industry (tick below):									
Commercial air transport carriers		General Aviation		Ground handling services		Approved Training Organisations		Air Traffic Control Services	
Maintenance Organisations		Flying Clubs		Aerodrome Operator					
Others (specify below) *									
*Details									

Would you like a response to your comments? Yes ☐ No ☐

NPRM RESPONSE FORM (cont.)

3 Comments

3.1 After reading the Directive/Notice/Circular, are there specific issues that you wish to see addressed?
Please indicate by specifying the relevant Directive/Notice/Circular reference number, any change to that Directive/Notice/Circular you believe will add value to drafts, and a short explanation of your reason for proposing the change.

Directive/Notice/Circular Number	Reference	Proposed Changes	Explanation

Additional Comments

Thank you.

Your responses are very much appreciated by the CAA/DCA as it demonstrates a combined effort in ensuring the interests of the aviation community and consumers are met without compromising safety and the relevant standards of the aviation industry.

7 Notification on Filing of Differences to ICAO

7.1 Introduction

7.1.1 This chapter recommends a process for the identification and filing of differences to ICAO Annex.

7.2 Standards and Recommended Practices (SARPS)

7.2.1 The uniform application by the Contracting States of the specifications contained in the international standards is recognised as necessary for the safety and efficiency of international air navigation.

7.2.2 Knowledge of any differences between the national regulations and those established by an international standard is essential to the safety and security of civil aviation, and the regularity or efficiency of international air navigation. In the event of non-compliance with an international standard, the State has an obligation to notify the ICAO of any differences.

7.2.3 Knowledge of differences from ICAO Recommended Practices may also be important for the safety of air navigation and, although the Chicago Convention does not impose any obligation with regard thereto, the States may notify such differences in addition to those relating to international standards.

7.3 Importance of Notifying Differences

7.3.1 The primary purpose of reporting differences is to promote safety, regularity, and efficiency of air navigation by ensuring that governmental and other agencies, including operators, concerned with international civil aviation are aware of all national rules and practices in so far as they differ from those prescribed in SARPs. Therefore, the lack of information on differences or non-compliance with SARPs creates uncertainty and jeopardises the safety and efficiency of air navigation.

7.3.2 State’s decision to depart from an ICAO Standards, in the cases foreseen by Article 38 of the Chicago Convention, is an important decision with potential safety and efficiency consequences.

7.3.3 Promptly and accurately notifying differences helps management and subject matter experts closely monitor national regulations, in particular in how they compare to SARPs.

7.3.4 Dissemination of differences enhances transparency of safety information, consequently, facilitates State’s decisions to accept or not accept other State’s aircraft and operators, and complements USOAP continuous monitoring activities, safety ramp checks data, and other safety information at the disposal.

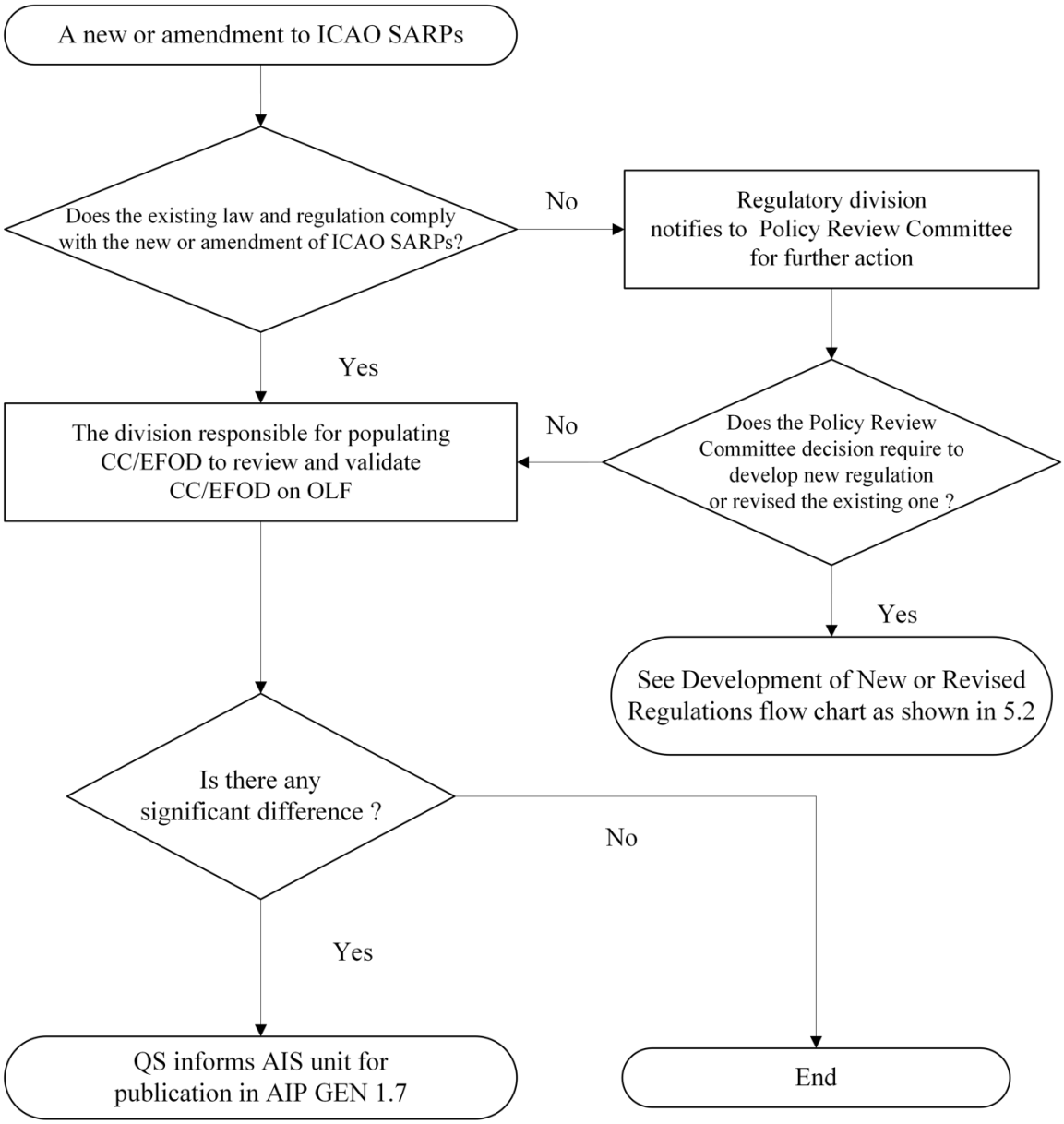
7.3.5 Incorrect notification of differences potentially misleads the international community, may cause safety issues, and result in undesirable operational situations, such as the grounding of aircraft.

7.3.6 The absence of notification of differences casts doubts as to the situation in the State, with potentially negative consequences in terms of recognition of certificates, and licenses, ramp inspections, and ultimately traffic rights.

7.3.7 The notification of differences is an important tenet of the Chicago Convention and contributes to ensuring the safe and orderly growth of international civil aviation around the world. It should therefore not be viewed as a penalty, but rather as a useful process in the best interest of all.

7.3.8 The Regulatory Division responsible for the individual Annexes should ensure all SARPs have been correctly and fully transposed into the appropriate national regulations. Any differences should be brought to the attention of Policy Review Committee for deliberation and further action. The division responsible for populating CC/EFOD concerning the respective Annexes should then review the transposition before validating it in the USOAP CMA OLF. Any significant differences should be notified to AIS for publication in AIP GEN 1.7.

7.4 Example Flow Chart for the Notification on Filing of Differences to ICAO



Appendix A: Guidance on the Adoption of ICAO Annex 14 Recommendations as National Standards

A. States should adopt ICAO Annex 14 Recommended Practices as national standards based on potential benefits in enhancing aerodrome safety.

B. The potential safety benefits should be determined based on safety risk assessments in consideration of:
   a) Traffic density of the aerodrome;
   b) Physical design of the aerodrome;
   c) Climate under which the aerodrome operates;
   d) Terrain around the aerodrome; and
   e) Other relevant factors, such as ecological/environmental aspects etc.

C. States should also consult with relevant stakeholders in the adoption of Annex 14 Recommendations. The consultation should cover:
   a) Feasibility of the implementation of the Recommendation;
   b) Cost of implementation, including initial investments and ongoing operating and maintenance costs;
   c) Potential safety benefits in implementing the Recommendation concerned; and
   d) A feasible and mutually accepted implementation timeframe.

D. If the State(s) decided that the adoption of the Annex 14 Recommendation has a potential safety benefit; however, its implementation may create a significant cost burden to the aerodrome operator, State(s) should consider:
   a) Developing a long-term policy and programme to support aerodrome operators in the implementation phase (e.g. US FAA Airport Improvement Programme https://www.faa.gov/airports/aip); or
   b) The use of alternative acceptable means of compliance if the Recommendation is considered impracticable after study and consultation.

A-1: Examples of Process of Adopting Annex 14 Recommendations as National Standards

Example 1 – Courtesy of Thailand

A. The Standards Development Division of the Aerodrome Standards Department (AGA) evaluates the content in the Annex 14 Standards and Recommended Practices (SARPs) in terms of its differences from/compliance with the existing laws and regulations and identifies all the regulatory changes required and understands their implications.

B. The Standards Development Division (AD) initiates the draft regulation and plans on "what to be in the draft".

C. AD requests assistance from the Legal Department (LEG) in "how to draft". LEG examines the request based on legal principles, existing regulatory measures, and prospective implications.
Note: *A draft team may be formed consisting of legal officers, Standards Development Division officers of the Concerned Department, and the subject matter experts from within or outside CAAT.*

D. AGA publishes the draft regulation on the CAAT's website and notifies the aerodrome operators and stakeholders for feedback and suggestion on the draft requirements.

E. AGA together with LEG conducts a Stakeholder Engagement Meeting for further discussion and comments on the draft requirements.
Note: *Stakeholder engagement can be organised by holding a face-to-face meeting, a focus group meeting or posting draft regulation in CAAT website etc.*

F. AD reviews the comments, feedback, and suggestions received. The appropriate comments, feedback, and suggestions will be incorporated in the final draft and submitted to the Director General through LEG for approval.
Note: *The regulation, when signed, will enter into force on the date specified in the Regulation. The amendment will repeal, replace, or modify the existing regulation to the extent indicated in the amendment regulation.*

G. LEG will disseminate a signed regulation by posting on CAAT's website except some regulations which have extensive impacts on people will be sent to the Government Gazette office in order to publish in the Government Gazette before posting on CAAT's website.

H. A signed regulation will also be disseminated to all concerned departments across CAAT through internal circulars and e-mail. In some cases, copies of regulation will be sent directly to the aerodrome operators as well as the relevant stakeholders by mail from the LEG or be distributed through a specific channel or method created by the concerned department in order to ensure their awareness and action required.

I. The Requirement of the Civil Aviation Authority of Thailand on Aerodrome Standards was published in the government gazette for promulgation.

J. The Standards Development Division published the Requirement of the Civil Aviation Authority of Thailand on Aerodrome Standards on the CAAT's website and notified the aerodrome operators on the new regulation and action required from the aerodrome operators.

Example 2 – Courtesy of Australia

A. Background on Legislative structure

a. Australia aligns its rules with International Civil Aviation organization (ICAO) standards and recommended practices.

b. Two types of laws govern aviation safety in Australia:
   i. Primary legislation, and
   ii. Delegated legislation.

c. In practice, Australia's aviation safety law operates within a 3-tier system consisting of:
   i. **Acts:** Civil Aviation Act 1988 and Airspace Act 2007
   ii. **Regulations:** Civil Aviation Regulations 1988, Civil Aviation Safety Regulations 1998 and Airspace Regulations 2007
   iii. **Legislated instruments:** Including Manuals of Standards, Civil Aviation Orders and other legislative instruments.

d. CASA also publishes guidance on delegated legislation.

e. **Primary legislation** refers to laws passed by Parliament and includes the Act which empowers the regulation. Amendments to these Acts require several approvals from Cabinet, Houses of Parliament and assent from the Governor-General.

f. **Regulations** refers to regulatory controls over civil aviation safety. They set out the required safety standards.

g. **Legislated instruments** include technical details and requirements to compliment the regulations. Manuals of Standards are commonly used for this purpose. Other legislated instruments may modify an instrument, such as the case for a specific approval or permission.

B. Process of Adopting Annex 14 Standards and Recommended Practices

a. CASA adheres to Australian Government recommended practices and guides, including the Regulator Performance Guide recently published by the Department of Prime Minister and Cabinet.

b. The following is the general overview of the process:
   i. Initiation and planning
   ii. Consultation
   iii. Legal drafting
   iv. Legislative approval.

c. **Initiation and planning:** The trigger for a regulatory change may derive from various sources. CASA considers and will assesses proposals before a project team is established under the leadership of a senior manager. The project team then conducts research, including in relation to lessons learned from previous rule change activities, and carries the proposal forward through the whole process.

d. **Consultation:** For any change that is not minor or machinery in nature, CASA works cooperatively with the aviation community to maintain and enhance aviation safety.

e. **Legal drafting:** The Office of Parliamentary Counsel (OPC) is a separate Australian Government agency that is responsible for drafting CASA regulations. CASA gives instructions to OPC on what to draft, once the policy is settled (and including after

any consultation as discussed above). OPC ensures the legislation meets the government's standards for drafting Australian legislation and is legally effective.

f. **Legislative approval:** The formal process to make a regulation, after it is drafted, includes:
   i. CASA executive approval of the regulation and its associated explanatory materials (the 'regulation package')
   ii. approval of the regulation package by CASA's portfolio department (the Department of Infrastructure, Transport, Regional Development and Communications)
   iii. our Minister signs the regulation, indicating approval
   iv. the regulation package is considered by the Australian Government Executive Council, at which the Governor-General signs the regulation to make it law
   v. the department registers the regulation on the Federal Register of Legislation where it is published, at which point the law can enter into force
   vi. we notify our staff and industry the regulations have been made
   vii. the department tables the regulations in parliament where they are subject to a disallowance period
   viii. if a Regulatory Impact Statement exists, it is also included in the package for scrutiny in parliament.

g. **Implementation:** Effective regulatory change depends on both CASA and the affected sectors of industry being ready for the new rules. CASA considers implementation requirements early in the regulatory change process to ensure that enough time is available to achieve CASA and industry readiness, but also that stakeholders are appropriately consulted about what is needed to achieve readiness.

h. A critical part of implementing regulatory change is an appropriate transitional arrangement, to facilitate a smooth move from the current to the new rules. Whilst CASA always make safety considerations in rule changes paramount, it is required to take into account ways to minimise burden both on industry and CASA. In some cases, CASA may provide additional time to meet certain new requirements.

C. Project closeout and review

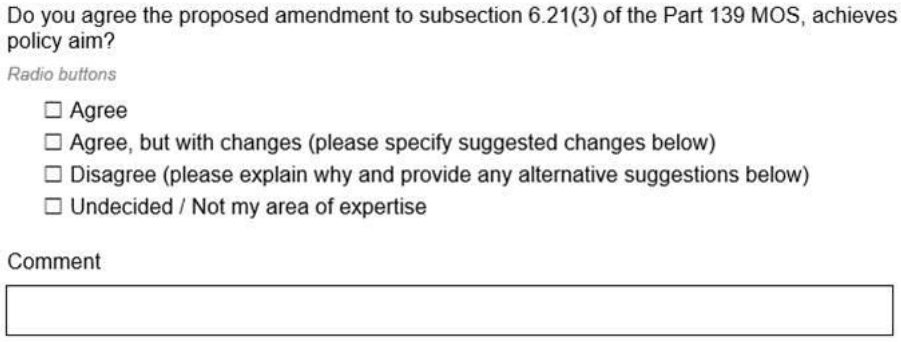
a. CASA then reviews the entire process from the initial planning to the implementation of regulations. This allows it to make any improvements in the future.

D. Example of consultation process

a. CASA publishes its consultations through its website. A list of current and closed consultations can be accessed here: Civil Aviation Safety Authority - Consultation Hub.

b. Through the hub, stakeholders can comment on current (active) consultations by completing an online form related to the change proposal. If the online form is not suitable for use by the recipient, a word document of consultation details is provided and can be completed and submitted to a joint email address as an alternative.

c. Below is a typical example of the type of questions that CASA asks during its consultations. In this case, a change was proposed to a clause within the Part 139 rules for aerodrome operators which concerned objects within the runway strip:



d. Via their response, CASA can confirm if the stakeholder:
   i. Is fully supportive of the change,
   ii. Is supportive of the change in principle but would like a modification to the proposal, or
   iii. Is completely against the proposed change, or
   iv. Is not affected by the change via a 'non-applicability' or is undecided.

e. There is also a free text field provided so CASA can capture additional information from the respondent.

f. Stakeholders are also required to provide details of their organisation type so that they can be profiled against their industry demographic. For example, an aerodrome operator, a supporting technical consultant, an air traffic control service provider, an airline etc.

g. After the consultation period has closed, CASA then analyses the responses before publishing a summary of consultation. Consultation summaries are provided as publicly available report(s) which highlights the key themes evident from the feedback provided, and to what degree the proposed change is supported or not. It may contain actual responses to the questions raised. Respondents however also have the option to keep their responses fully confidential if they choose.

h. CASA will then finalise the policy for the proposed change, provide instructions for legislated drafts and will then facilitate the required approval(s) of the finalised legislation.

E. Publication of revised regulations or legislation

a. Australian federal legislation is published on an official website, administered by the Attorney General's department. This example relates to the Civil Aviation Safety Regulations: Federal Register of Legislation - Civil Aviation Safety Regulations 1998

b. Other subsidiary legislation, such as Manuals of Standards, are also accessible via the same site.

c. Amendments to published legislation are typically accompanied by an explanatory statement and other supporting information.

d. Further changes to legislation may occur following a Post Implementation Review or when otherwise required to amend the legislation. Further changes will follow the consultation process outlined above.

A-2: Examples of Alternative Acceptable Means of Compliance

A. Aerodrome operators may propose an alternative acceptable means of compliance to National Aerodrome Standards that have been adopted/transposed from ICAO Annex 14 Recommendation(s) to achieve an equivalent level of safety based on outcomes of the safety risk assessment/aeronautical study.

- Example 1 on Standard 5.4.3.17 on location of runway exit sign. Courtesy of Incheon airport (download here)
- Example 2 on Recommendation 3.2.1 on provision of runway shoulders. Courtesy of Bangalore Airport (download here)
- Example 3 on Recommendation 3.2.1 on provision of runway shoulders. Courtesy of Malaysia (download here)

A-3: Examples of Regulatory Guidance to Aerodrome Operators on Aeronautical Studies

- Example 1 Courtesy of DGCA India (download here)

Runway Classification Guidance

Definitions:	
Non-Instrument Runway	A runway intended for the operation of aircraft using visual approach procedures or an instrument approach procedure to a point beyond which the approach may continue in visual meteorological conditions.
Instrument Runway:	
Non-Precision Approach Runway	Non-precision approach runway. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type A and a visibility not less than 1000 m.
Precision Approach Runway CAT I	Precision approach runway, category I. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) not lower than 60 m (200 ft) and either a visibility not less than 800 m or a runway visual range not less than 550 m.
Precision Approach Runway CAT II	Precision approach runway, category II. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 300 m.
Precision Approach Runway CAT III	Precision approach runway, category III. A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 30 m (100 ft), or no decision height and a runway visual range less than 300 m, or no runway visual range limitations.
Take-Off Runway	A runway intended for take-off only.
Remark:	
Normal letter	Standards
Italic letter	*Recommendations*
Light shaded cell	Reference from Annexes

Non-Instrument (VMC)

			1	Ref.	2	Ref.	3	Ref.	4	Ref.
Physical characteristics	Runway	Minimum distance between parallel runways (subject to ATS Surveillance System Criteria conditions specified in the Paragraph 6.7.3.2 and Table 6-1 of PANS-ATM (Doc 4444) and the PANS-OPS (Doc 8168), Volume I)	120 m	*An 14, V.I, Rec 3.1.11*	150 m	*An 14, V.I, Rec 3.1.11*	210 m	*An 14, V.I, Rec 3.1.11*	210 m	*An 14, V.I, Rec 3.1.11*
		Longitudinal Slope	*≤2% (Along no portion the longitudinal slope shall exceed 2 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤2% (Along no portion the longitudinal slope shall exceed 2 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤1% (Along no portion the longitudinal slope shall exceed 1.5 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤1% (Along no portion the longitudinal slope shall exceed 1.25 % except that for the first and last quarter of the length of the runway shall not exceed 0.8 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*
		Longitudinal slopes changes	≤2%	*An 14, V.I, Rec 3.1.15*	≤2%	*An 14, V.I, Rec 3.1.15*	≤1.5%	*An 14, V.I, Rec 3.4.8*	≤1.5%	*An 14, V.I, Rec 3.1.15*
		Distance between Longitudinal slope changes	*The value calculated as per An 14, V.I, Rec 3.1.18 (a) or 45 m whichever is greater*							*An 14, V.I, Rec 3.1.18*
		Transverse Slope (if practicable, be cambered except where a single crossfall from high to low in the direction of the wind most frequently associated with rain)	*should ideally be: — 1.5 per cent where the code letter is C, D, E or F; — 2 per cent where the code letter is A or B; but in any event should not exceed 1.5 per cent or 2 per cent, as applicable, nor be less than 1 per cent except at runway or taxiway intersections where flatter slopes may be necessary. For a cambered surface the transverse slope on each side of the centre line should be symmetrical & substantially the same throughout the length of a runway except at an intersection with another runway or a taxiway.*							*An 14, V.I, Rec 3.1.19 & 3.1.20*
	Runway strips	Length of runway strips	30 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2
		Width of runway strips where ever practicable (on each side of runway centre line and extended centre line)	*30 m*	*An 14, V.I, Rec 3.4.5*	*40 m*	*An 14, V.I, Rec 3.4.5*	*75 m*	*An 14, V.I, Rec 3.4.5*	*75 m*	*An 14, V.I, Rec 3.4.5*
		Grading of runway strips	*30 m*	*An 14, V.I, Rec 3.4.9*	*40 m*	*An 14, V.I, Rec 3.4.9*	*75 m*	*An 14, V.I, Rec 3.4.9*	*75 m*	*An 14, V.I, Rec 3.4.9*
		Strength of runway strips (areas to be prepared to minimize hazards from differences in load bearing capacity)	*30 m*	*An 14, V.I, Rec 3.4.18*	*40 m*	*An 14, V.I, Rec 3.4.18*	*75 m*	*An 14, V.I, Rec 3.4.18*	*75 m*	*An 14, V.I, Rec 3.4.18*
	Runway end safety areas	Dimension (Length)	*30 m*	*An 14, V.I, Rec 3.5.4*	*30 m*	*An 14, V.I, Rec 3.5.4*	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4
		Dimension (Width)	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6
		Slope	*An 14, V.I, Rec 3.5.9: no part of the runway end safety area penetrates the approach or take-off climb surface. An 14, V.I, Rec 3.5.10: longitudinal slopes should not exceed a downward slope of 5 per cent (slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided). An 14, V.I, Rec 3.5.11: transverse slopes should not exceed an upward or downward slope of 5 per cent (Transitions between differing slopes should be as gradual as practicable).*							
		Grading and strength of runway end safety area,	*A runway end safety area should provide a cleared and graded area, should be so prepared or constructed as required in An 14, V.I, 9.2.33 to 9.2.35.*							
	Clearways	Width of clearways (on each side of the extended centre line of the runway, to a distance of at least)	*15 m*	*An 14, V.I, Rec 3.6.3*	*20 m*	*An 14, V.I, Rec 3.6.3*	*37.5 m*	*An 14, V.I, Rec 3.6.3*	*37.5 m*	*An 14, V.I, Rec 3.6.3*
	Radio Altimeter Operating Area									
	Distance between taxiway centre line and runway centre line (metres)		*An 14 V.I Rec 3.9.7 &Table 3-1*							
	Holding bays, runway-holding positions, intermediate holding positions and road-holding positions. (Distance may be decreased or increased as per subpara a & b of table 3-2 of An 14)		30 m	An 14, V.I, 3.12.6 & Table 3-2	40 m	An 14, V.I, 3.12.6 & Table 3-2	75 m	An 14, V.I, 3.12.6 & Table 3-2	75 m	An 14, V.I, 3.12.6 & Table 3-2
Obstacle Limitation Surfaces (Refer Table 4-1 for Dimensions and slopes of Obstacle Limitation Surfaces — Approach runways and Table 4-2 for Runway Meant for Take-Off [Applicable until **20 November 2030**])	Conical Surface		Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1
	Inner Horizontal Surface		Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1
	Inner Approach Surface		-		-		-		-	
	Approach Surface		Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1
	Transitional Surface		Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1	Yes	An 14, V.I, 4.2.1
	Inner Transitional Surface		-		-		-		-	
	Balked Landing Surface		-		-		-		-	
	Take-Off Climb Surface (for Take-off Runway)		Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22
Marking	Runway designation marking		Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1
	Runway centre line marking		Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1
	Threshold marking		-		-		Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1
	Aiming point marking (Location and dimension as per table 5-1 of An 14)		-		-		*Yes*	*An 14, V.I, Rec 5.2.5.2*	*Yes*	*An 14, V.I, Rec 5.2.5.2*
	Touchdown zone marking		-		-		*Yes*	*An 14, V.I, Rec 5.2.6.2*	*Yes*	*An 14, V.I, Rec 5.2.6.2*
	Runway side stripe marking		Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1
	Displaced Threshold Marking (Arrow Marking)		(1) Permanently displaced, arrows conforming to Figure 5-4 (B) on the portion of the runway before the displaced threshold. (2) Temporarily displaced from the normal position, shall be marked as shown in Figure 5-4 (A) or 5-4 (B). (3) All markings prior to the displaced threshold shall be obscured except the runway centre line marking, which shall be converted to arrows.							An 14, V.I, 5.2.4.9 & 5.2.4.10
Lights	Approach lighting systems (Refer Attachment A Para 11.2 for Installation tolerance and Para 11.3 for Clearance of obstacles)	Simple approach lighting system (420 m, can be reduced as per Rec 5.3.4.5 of An 14 Vol I)					*Yes for use at night, except when the runway is used only in conditions of good visibility and sufficient guidance is provided by other visual aids.*	*An 14, V.I, Rec 5.3.4.1 A*	*Yes for use at night, except when the runway is used only in conditions of good visibility and sufficient guidance is provided by other visual aids.*	*An 14, V.I, Rec 5.3.4.1 A*
		Precision approach category I lighting system								
		Precision approach category II and III lighting system								
	Runway threshold identification lights	Normal runway								
		Displacement threshold (Permanently or temporarily)	*Yes, Where additional threshold conspicuity is necessary*							*An 14, V.I, Rec 5.3.8.1 (b)*
	Runway edge lights		Night	An 14, V.I, 5.3.9.1	Night	An 14, V.I, 5.3.9.1	Night	An 14, V.I, 5.3.9.1	Night	An 14, V.I, 5.3.9.1
	Runway threshold lights		Yes, If runway has edge lights	An 14, V.I, 5.3.10.1	Yes, If runway has edge lights	An 14, V.I, 5.3.10.1	Yes, If runway has edge lights	An 14, V.I, 5.3.10.1	Yes, If runway has edge lights	An 14, V.I, 5.3.10.1
	Wing bar lights	Normal runway								

Non-Precision Approach (visibility ≥ 1000 m)

Item	1	Ref.	2	Ref.	3	Ref.	4	Ref.
Runway – Minimum distance between parallel runways	*1 035 m for independent parallel approaches (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))*							*An 14, V.I, Rec, 3.1.12*
	915 m for dependent parallel approaches (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))							
	760 m for segregated parallel operations (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))							
Longitudinal Slope	*≤2% (Along no portion the longitudinal slope shall exceed 2 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤2% (Along no portion the longitudinal slope shall exceed 2 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤1% (Along no portion the longitudinal slope shall exceed 1.5 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤1% (Along no portion the longitudinal slope shall exceed 1.25 % except that for the first and last quarter of the length of the runway shall not exceed 0.8 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*
Longitudinal slopes changes	≤2%	*An 14, V.I, Rec 3.1.15*	≤2%	*An 14, V.I, Rec 3.1.15*	≤1.5%	*An 14, V.I, Rec 3.1.15*	≤1.5%	*An 14, V.I, Rec 3.1.15*
Distance between Longitudinal slope changes	*The value calculated as per An 14, V.I, Rec 3.1.18 (a) or 45 m whichever is greater*							*An 14, V.I, Rec 3.1.18*
Transverse Slope	*should ideally be: — 1.5 per cent where the code letter is C, D, E or F; — 2 per cent where the code letter is A or B; but in any event should not exceed 1.5 per cent or 2 per cent, as applicable, nor be less than 1 per cent except at runway or taxiway intersections where flatter slopes may be necessary. For a cambered surface the transverse slope on each side of the centre line should be symmetrical & substantially the same throughout the length of a runway except at an intersection with another runway or a taxiway.*							*An 14, V.I, Rec 3.1.19 & 3.1.20*
Length of runway strips	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2
Width of runway strips	*70 m*	*An 14, V.I, Rec 3.4.4*	*70 m*	*An 14, V.I, Rec 3.4.4*	*140 m*	*An 14, V.I, Rec 3.4.4*	*140 m*	*An 14, V.I, Rec 3.4.4*
Grading of runway strips	*40 m*	*An 14, V.I, Rec 3.4.8*	*40 m*	*An 14, V.I, Rec 3.4.8*	*75 m*	*An 14, V.I, Rec 3.4.8*	*75 m*	*An 14, V.I, Rec 3.4.8*
Strength of runway strips	*40 m*	*An 14, V.I, Rec 3.4.17*	*40 m*	*An 14, V.I, Rec 3.4.17*	*75 m*	*An 14, V.I, Rec 3.4.17*	*75 m*	*An 14, V.I, Rec 3.4.17*
Runway end safety areas – Dimension (Length)	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4
Dimension (Width)	At least twice that of the associated runway, *wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6	At least twice that of the associated runway, *wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6	At least twice that of the associated runway, *wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6	At least twice that of the associated runway, *wherever practicable, be equal to that of the graded portion of the associated runway strip.*	An 14, V.I, 3.5.5 & Rec 3.5.6
Slope	*An 14, V.I, Rec 3.5.9: no part of the runway end safety area penetrates the approach or take-off climb surface. An 14, V.I, Rec 3.5.10: longitudinal slopes should not exceed a downward slope of 5 per cent (slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided). An 14, V.I, Rec 3.5.11: transverse slopes should not exceed an upward or downward slope of 5 per cent (Transitions between differing slopes should be as gradual as practicable).*							
Grading and strength of runway end safety area	*A runway end safety area should provide a cleared and graded area, should be so prepared or constructed as required in An 14, V.I, 9.2.33 to 9.2.35.*							
Width of clearways	*75 m*	*An 14, V.I, Rec 3.6.3*	*75 m*	*An 14, V.I, Rec 3.6.3*	*75 m*	*An 14, V.I, Rec 3.6.3*	*75 m*	*An 14, V.I, Rec 3.6.3*
Radio Altimeter Operating Area								
Distance between taxiway centre line and runway centre line (metres)	*An 14 V.I, Rec 3.9.7 & Table 3-1*							
Holding bays, runway-holding positions...	40 m	An 14, V.I, 3.12.6 & Table 3-2	40 m	An 14, V.I, 3.12.6 & Table 3-2	75 m	An 14, V.I, 3.12.6 & Table 3-2	75 m	An 14, V.I, 3.12.6 & Table 3-2
Conical Surface	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7
Inner Horizontal Surface	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7
Inner Approach Surface	-		-		-			
Approach Surface	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7
Transitional Surface	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7	Yes	An 14, V.I, 4.2.7
Inner Transitional Surface	-		-		-			
Balked Landing Surface	-		-		-			
Take-Off Climb Surface (for Take-off Runway)	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22
Runway designation marking	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1
Runway centre line marking	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1
Threshold marking	Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1
Aiming point marking	*Yes*	*An 14, V.I, Rec 5.2.5.2*	Yes	An 14, V.I, 5.2.5.1	Yes	An 14, V.I, 5.2.5.1	Yes	An 14, V.I, 5.2.5.1
Touchdown zone marking	-		-		*Yes*	*An 14, V.I, Rec 5.2.6.2*	*Yes*	*An 14, V.I, Rec 5.2.6.2*
Runway side stripe marking	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain	An 14, V.I, 5.2.7.1
Displaced Threshold Marking (Arrow Marking)	(1) Permanently displaced, arrows conforming to Figure 5-4 (B) on the portion of the runway before the displaced threshold. (2) Temporarily displaced from the normal position, shall be marked as shown in Figure 5-4 (A) or 5-4 (B). (3) All markings prior to the displaced threshold shall be obscured except the runway centre line marking, which shall be converted to arrows.							An 14, V.I, 5.2.4.9 & 5.2.4.10
Simple approach lighting system	Yes, Where physically practicable except when the runway is used only in conditions of good visibility or sufficient guidance is provided by other visual aids	An 14, V.I, 5.3.4.1 B	Yes, Where physically practicable except when the runway is used only in conditions of good visibility or sufficient guidance is provided by other visual aids	An 14, V.I, 5.3.4.1 B	Yes, Where physically practicable except when the runway is used only in conditions of good visibility or sufficient guidance is provided by other visual aids	An 14, V.I, 5.3.4.1 B	Yes, Where physically practicable except when the runway is used only in conditions of good visibility or sufficient guidance is provided by other visual aids	An 14, V.I, 5.3.4.1 B
Precision approach category I lighting system								
Precision approach category II and III lighting system								
Runway threshold identification lights – Normal runway	*Yes, When additional threshold conspicuity is necessary or where it is not practicable to provide other approach lighting aids*							*An 14, V.I, Rec 5.3.8.1 (a)*
Displacement threshold (Permanently or temporarily)	*Yes, Where additional threshold conspicuity is necessary*							*An 14, V.I, Rec 5.3.8.1 (b)*
Runway edge lights	Night	An 14, V.I, 5.3.9.1	Night	An 14, V.I, 5.3.9.1	Night	An 14, V.I, 5.3.9.1	Night	An 14, V.I, 5.3.9.1
Runway threshold lights	Yes, If runway has edge lights	An 14, V.I, 5.3.10.1	Yes, If runway has edge lights	An 14, V.I, 5.3.10.1	Yes, If runway has edge lights	An 14, V.I, 5.3.10.1	Yes, If runway has edge lights	An 14, V.I, 5.3.10.1
Wing bar lights – Normal runway								

Precision Approach – CAT I (Decision height ≥ 60 m and Visibility ≥ 800 m or RVR ≥ 550m)

Item	1	Ref.	2	Ref.	3	Ref.	4	Ref.
Runway – Minimum distance between parallel runways	*1 035 m for independent parallel approaches (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))*							*An 14, V.I, Rec 3.1.12*
	915 m for dependent parallel approaches (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))							
	760 m for segregated parallel operations (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))							
Longitudinal Slope	*≤2% (Along no portion the longitudinal slope shall exceed 2 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤2% (Along no portion the longitudinal slope shall exceed 2 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤1% (Along no portion the longitudinal slope shall exceed 1.5 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤1% (Along no portion the longitudinal slope shall exceed 1.25 % except that for the first and last quarter of the length of the runway shall not exceed 0.8 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*
Longitudinal slopes changes	≤2%	*An 14, V.I, Rec 3.1.15*	≤2%	*An 14, V.I, Rec 3.1.15*	≤1.5%	*An 14, V.I, Rec 3.1.15*	≤1.5%	*An 14, V.I, Rec 3.1.15*
Distance between Longitudinal slope changes	*The value calculated as per An 14, V.I, Rec 3.1.18 (a) or 45 m whichever is greater*							*An 14, V.I, Rec 3.1.18*
Transverse Slope	*should ideally be: — 1.5 per cent where the code letter is C, D, E or F; — 2 per cent where the code letter is A or B; but in any event should not exceed 1.5 per cent or 2 per cent, as applicable, nor be less than 1 per cent except at runway or taxiway intersections where flatter slopes may be necessary. For a cambered surface the transverse slope on each side of the centre line should be symmetrical & substantially the same throughout the length of a runway except at an intersection with another runway or a taxiway.*							*An 14, V.I, Rec 3.1.19 & 3.1.20*
Length of runway strips	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2
Width of runway strips	70 m (where ever practicable)	An 14, V.I, 3.4.3	70 m (where ever practicable)	An 14, V.I, 3.4.3	140 m (where ever practicable)	An 14, V.I, 3.4.3	140 m (where ever practicable)	An 14, V.I, 3.4.3
Grading of runway strips	*40 m*	*An 14, V.I, Rec 3.4.8*	*40 m*	*An 14, V.I, Rec 3.4.8*	*75 m*	*An 14, V.I, Rec 3.4.8*	*75 m*	*An 14, V.I, Rec 3.4.8*
Strength of runway strips	*40 m*	*An 14, V.I, Rec 3.4.17*	*40 m*	*An 14, V.I, Rec 3.4.17*	*75 m*	*An 14, V.I, Rec 3.4.17*	*75 m*	*An 14, V.I, Rec 3.4.17*
Runway end safety areas – Dimension (Length)	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4
Dimension (Width)	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip*	An 14, V.I, 3.5.5 & Rec 3.5.6	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip*	An 14, V.I, 3.5.5 & Rec 3.5.6	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip*	An 14, V.I, 3.5.5 & Rec 3.5.6	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip*	An 14, V.I, 3.5.5 & Rec 3.5.6
Slope	*An 14, V.I, Rec 3.5.9: no part of the runway end safety area penetrates the approach or take-off climb surface. An 14, V.I, Rec 3.5.10: longitudinal slopes should not exceed a downward slope of 5 per cent (slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided). An 14, V.I, Rec 3.5.11: transverse slopes should not exceed an upward or downward slope of 5 per cent (Transitions between differing slopes should be as gradual as practicable).*							
Grading and strength of runway end safety area	*A runway end safety area should provide a cleared and graded area, should be so prepared or constructed as required in An 14, V.I, 9.2.33 to 9.2.35.* (spans CAT I and CAT II or III)							
Width of clearways	*75 m*	*An 14, V.I, Rec 3.6.3*	*75 m*	*An 14, V.I, Rec 3.6.3*	*75 m*	*An 14, V.I, Rec 3.6.3*	*75 m*	*An 14, V.I, Rec 3.6.3*
Radio Altimeter Operating Area	*Rec : 3.8 - Length : at least 300 m before the threshold , Width : 60 m on each side of the extended centre line of the runway, except that, when special circumstances so warrant, the distance may be reduced to no less than 30 m if an aeronautical study indicates that such reduction would not affect the safety of operations of aircraft. Longitudinal slope changes : should be avoided or kept to a minimum. Where slope changes cannot be avoided, the slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided. The rate of change between two consecutive slopes should not exceed 2 percent per 30 m.* (spans CAT I and CAT II or III)							
Distance between taxiway centre line and runway centre line (metres)	*An 14 V.I Rec 3.9.7 & Table 3-1*							
Holding bays, runway-holding positions...	60 m	An 14, V.I, 3.12.6 & Table 3-2	60 m	An 14, V.I, 3.12.6 & Table 3-2	90 m	An 14, V.I, 3.12.6 & Table 3-2	90 m	An 14, V.I, 3.12.6 & Table 3-2
Conical Surface	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13
Inner Horizontal Surface	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13
Inner Approach Surface	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*
Approach Surface	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13
Transitional Surface	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13	Yes	An 14, V.I, 4.2.13
Inner Transitional Surface	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*
Balked Landing Surface	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*	*Yes*	*An 14, V.I, Rec 4.2.14*
Take-Off Climb Surface (for Take-off Runway)	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22
Runway designation marking	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1
Runway centre line marking	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1
Threshold marking	Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1
Aiming point marking	*Yes*	*An 14, V.I, Rec 5.2.5.2*	Yes	An 14, V.I, 5.2.5.1	Yes	An 14, V.I, 5.2.5.1	Yes	An 14, V.I, 5.2.5.1
Touchdown zone marking	-		Yes	An 14, V.I, 5.2.6.1	Yes	An 14, V.I, 5.2.6.1	Yes	An 14, V.I, 5.2.6.1
Runway side stripe marking	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain, *otherwise recommended.*	An 14, V.I, 5.2.7.1 & *Rec 5.2.7.2*	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain, *otherwise recommended.*	An 14, V.I, 5.2.7.1 & *Rec 5.2.7.2*	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain, *otherwise recommended.*	An 14, V.I, 5.2.7.1 & *Rec 5.2.7.2*	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain, *otherwise recommended.*	An 14, V.I, 5.2.7.1 & *Rec 5.2.7.2*
Displaced Threshold Marking (Arrow Marking)	*(1) Permanently displaced, arrows conforming to Figure 5-4 (B) on the portion of the runway before the displaced threshold. (2) Temporarily displaced from the normal position, shall be marked as shown in Figure 5-4 (A) or 5-4 (B). (3) All markings prior to the displaced threshold shall be obscured except the runway centre line marking, which shall be converted to arrows.* (spans CAT I and CAT II or III)							
Simple approach lighting system								
Precision approach category I lighting system	Yes, Where physically practicable	An 14, V.I, 5.3.4.1 C	Yes, Where physically practicable	An 14, V.I, 5.3.4.1 C	Yes, Where physically practicable	An 14, V.I, 5.3.4.1 C	Yes, Where physically practicable	An 14, V.I, 5.3.4.1 C
Precision approach category II and III lighting system								
Runway threshold identification lights – Normal runway								
Displacement threshold (Permanently or temporarily)	*Yes, Where additional threshold conspicuity is necessary* (spans CAT I and CAT II or III)							
Runway edge lights	Day/Night	An 14, V.I, 5.3.9.1	Day/Night	An 14, V.I, 5.3.9.1	Day/Night	An 14, V.I, 5.3.9.1	Day/Night	An 14, V.I, 5.3.9.1
Runway threshold lights	Yes	An 14, V.I, 5.3.10.1	Yes	An 14, V.I, 5.3.10.1	Yes	An 14, V.I, 5.3.10.1	Yes	An 14, V.I, 5.3.10.1
Wing bar lights – Normal runway	*Yes, When additional conspicuity is considered desirable*	*An 14, V.I, Rec 5.3.10.6*	*Yes, When additional conspicuity is considered desirable*	*An 14, V.I, Rec 5.3.10.6*	*Yes, When additional conspicuity is considered desirable*	*An 14, V.I, Rec 5.3.10.6*	*Yes, When additional conspicuity is considered desirable*	*An 14, V.I, Rec 5.3.10.6*

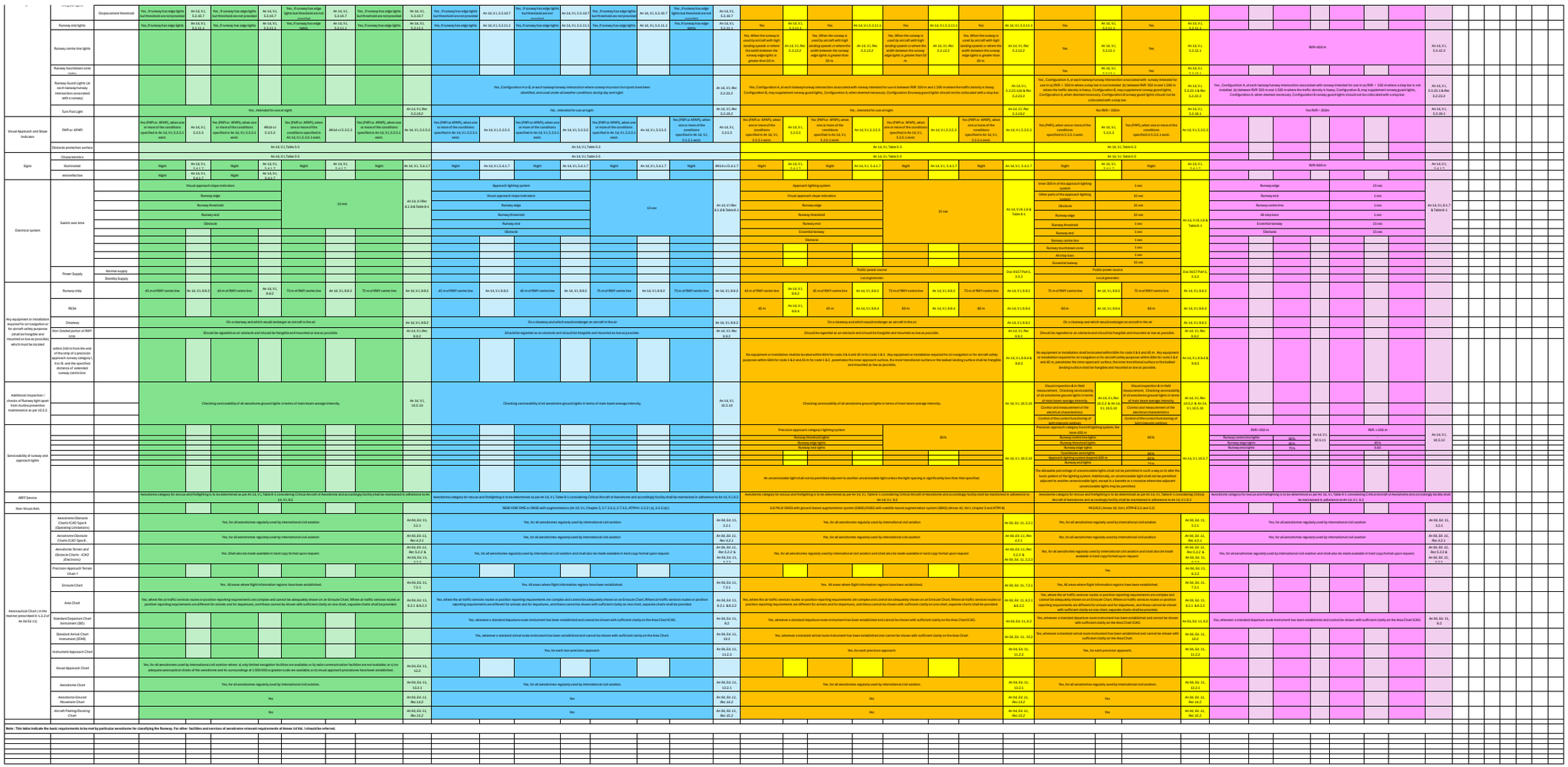
Precision Approach – CAT II or III (CAT II 30 m≤DH<60 m, RVR≥300 m , CAT III 0m≤DH<30m, 0 m≤RVR<300 m)

Item	3	Ref.	4	Ref.
Runway – Minimum distance between parallel runways	*1 035 m for independent parallel approaches (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))*			*An 14, V.I, Rec, 3.1.12*
	915 m for dependent parallel approaches (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))			
	760 m for segregated parallel operations (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))			
Longitudinal Slope	*≤1% (Along no portion the longitudinal slope shall exceed 1.5 % except that for the first and last quarter of the length of the a precision approach runway category II or III shall not exceed 0.8 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*	*≤1% (Along no portion the longitudinal slope shall exceed 1.25 % except that for the first and last quarter of the length of the runway shall not exceed 0.8 %)*	*An 14, V.I, Rec 3.1.13 & 3.1.14*
Longitudinal slopes changes	≤1.5%	*An 14, V.I, Rec 3.1.15*	≤1.5%	*An 14, V.I, Rec 3.1.15*
Distance between Longitudinal slope changes	*The value calculated as per An 14, V.I, Rec 3.1.18 (a) or 45 m whichever is greater*			*An 14, V.I, Rec 3.1.18*
Transverse Slope	*should ideally be: — 1.5 per cent where the code letter is C, D, E or F; — 2 per cent where the code letter is A or B; but in any event should not exceed 1.5 per cent or 2 per cent, as applicable, nor be less than 1 per cent except at runway or taxiway intersections where flatter slopes may be necessary. For a cambered surface the transverse slope on each side of the centre line should be symmetrical & substantially the same throughout the length of a runway except at an intersection with another runway or a taxiway.*			*An 14, V.I, Rec 3.1.19 & 3.1.20*
Length of runway strips	60 m	An 14, V.I, 3.4.2	60 m	An 14, V.I, 3.4.2
Width of runway strips	140 m (where ever practicable)	*An 14, V.I, 3.4.3*	140 m (where ever practicable)	*An 14, V.I, 3.4.3*
Grading of runway strips	*75 m*	*An 14, V.I, Rec 3.4.8*	*75 m*	*An 14, V.I, Rec 3.4.8*
Strength of runway strips	*75 m*	*An 14, V.I, Rec 3.4.17*	*75 m*	*An 14, V.I, Rec 3.4.17*
Runway end safety areas – Dimension (Length)	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4	At least 90m (If an arresting system is installed, the length may be reduced), *As far as practicable at least 240 m*	An 14, V.I, 3.5.3 & Rec 3.5.4
Dimension (Width)	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip*	An 14, V.I, 3.5.5 & Rec 3.5.6	*At least twice that of the associated runway, wherever practicable, be equal to that of the graded portion of the associated runway strip*	An 14, V.I, 3.5.5 & Rec 3.5.6
Slope	*An 14, V.I, Rec 3.5.9: no part of the runway end safety area penetrates the approach or take-off climb surface. An 14, V.I, Rec 3.5.10: longitudinal slopes should not exceed a downward slope of 5 per cent (slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided). An 14, V.I, Rec 3.5.11: transverse slopes should not exceed an upward or downward slope of 5 per cent (Transitions between differing slopes should be as gradual as practicable).*			
Grading and strength of runway end safety area	(see CAT I)			
Width of clearways	*75 m*	*An 14, V.I, Rec 3.6.3*	*75 m*	*An 14, V.I, Rec 3.6.3*
Radio Altimeter Operating Area	(see CAT I)			
Distance between taxiway centre line and runway centre line (metres)	*An 14 V.I Rec 3.9.7 & Table 3-1*			
Holding bays, runway-holding positions...	90 m	An 14, V.I, 3.12.6 & Table 3-2	90 m	An 14, V.I, 3.12.6 & Table 3-2
Conical Surface	Yes	An 14, V.I, 4.2.15	Yes	An 14, V.I, 4.2.15
Inner Horizontal Surface	Yes	An 14, V.I, 4.2.15	Yes	An 14, V.I, 4.2.15
Inner Approach Surface	Yes	An 14, V.I, 4.2.15	Yes	An 14, V.I, 4.2.15
Approach Surface	Yes	An 14, V.I, 4.2.15	Yes	An 14, V.I, 4.2.15
Transitional Surface	Yes	An 14, V.I, 4.2.15	Yes	An 14, V.I, 4.2.15
Inner Transitional Surface	Yes	An 14, V.I, 4.2.15	Yes	An 14, V.I, 4.2.15
Balked Landing Surface	Yes	An 14, V.I, 4.2.15	Yes	An 14, V.I, 4.2.15
Take-Off Climb Surface (for Take-off Runway)	Yes	An 14, V.I, 4.2.22	Yes	An 14, V.I, 4.2.22
Runway designation marking	Yes	An 14, V.I, 5.2.2.1	Yes	An 14, V.I, 5.2.2.1
Runway centre line marking	Yes	An 14, V.I, 5.2.3.1	Yes	An 14, V.I, 5.2.3.1
Threshold marking	Yes	An 14, V.I, 5.2.4.1	Yes	An 14, V.I, 5.2.4.1
Aiming point marking	Yes	An 14, V.I, 5.2.5.1	Yes	An 14, V.I, 5.2.5.1
Touchdown zone marking	Yes	An 14, V.I, 5.2.6.1	Yes	An 14, V.I, 5.2.6.1
Runway side stripe marking	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain, *otherwise recommended.*	An 14, V.I, 5.2.7.1 & *Rec 5.2.7.2*	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain, *otherwise recommended.*	An 14, V.I, 5.2.7.1 & *Rec 5.2.7.2*
Displaced Threshold Marking (Arrow Marking)	(see CAT I)			An 14, V.I, 5.2.4.9 & 5.2.4.10
Simple approach lighting system				
Precision approach category I lighting system	Yes, Wherever possible	An 14, V.I, 5.3.4.22	Yes, Wherever possible	An 14, V.I, 5.3.4.22
Precision approach category II and III lighting system	Yes	An 14, V.I, 5.3.4.22 to 5.3.4.39	Yes	An 14, V.I, 5.3.4.22 to 5.3.4.39
Runway threshold identification lights – Normal runway				
Displacement threshold (Permanently or temporarily)	(see CAT I)			*An 14, V.I, Rec 5.3.8.1 (b)*
Runway edge lights	Day/Night	An 14, V.I, 5.3.9.1	Day/Night	An 14, V.I, 5.3.9.1
Runway threshold lights	Yes	An 14, V.I, 5.3.10.1	Yes	An 14, V.I, 5.3.10.1
Wing bar lights – Normal runway	*Yes, When additional conspicuity is considered desirable.*	*An 14, V.I, Rec 5.3.10.6*	*Yes, When additional conspicuity is considered desirable.*	*An 14, V.I, Rec 5.3.10.6*

Take-Off Runway

Item	1	Ref.	2	Ref.	3	Ref.	4	Ref.
Runway – Minimum distance between parallel runways	*760 m for independent parallel departures (may be reduced as per the condition specified in An 14, V.I, Rec, 3.1.12 sub para (b))*							*An 14, V.I, Rec, 3.1.12*
Runway end safety areas – Slope	*An 14, V.I, Rec 3.5.9: no part of the runway end safety area penetrates the approach or take-off climb surface. An 14, V.I, Rec 3.5.10 : longitudinal slopes should not exceed a downward slope of 5 per cent (slope changes should be as gradual as practicable and abrupt changes or sudden reversals of slopes avoided). An 14, V.I, Rec 3.5.11 : transverse slopes should not exceed an upward or downward slope of 5 per cent (Transitions between differing slopes should be as gradual as practicable).*							
Holding bays, runway-holding positions...	30 m	An 14, V.I, 3.12.6 & Table 3-2	40 m	An 14, V.I, 3.12.6 & Table 3-2	75 m	An 14, V.I, 3.12.6 & Table 3-2	75 m	An 14, V.I, 3.12.6 & Table 3-2
Runway side stripe marking	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain.	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain.	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain.	An 14, V.I, 5.2.7.1	Yes, Where there is a lack of contrast between the runway edges and the shoulders or the surrounding terrain.	An 14, V.I, 5.2.7.1
Runway edge lights	*Yes, VR<800 m @day*							*An 14, V.I, Rec 5.3.9.2*

(All other Take-Off Runway cells are blank.)



Aerodromes in APAC Region used for International Operations and yet to be certified

S. No	Sub-region	State / Admin	ICAO Code	Name of City	Name of Aerodrome
1	SA	Afghanistan	OAHR	Herat	Herat Intl
2	SA	Afghanistan	OAKB	Kabul	Kabul Intl
3	SA	Afghanistan	OAKN	Kandahar	Kandahar Intl
4	SA	Afghanistan	OAMS	Mazar-e-Sharif	Mazar-e-Sharif
5	SEA	Brunei	WBSB	Brunei	Brunei Intl
6	NA	China	RCYU	Hualien	Hualien
7	NA	China	RCMQ	Taichung	Cingcyuangang
8	NA	China	RCNN	Tainan	Tainan
9	SA	India	VICG	Chandigarh	Shaheed Bhagat Singh Intl
10	SA	India	VOGO	Goa	Dabolim
11	SA	India	VEGK	GORAKHPUR	Mahayogi Gorakhnath
12	SA	India	VIDX	HINDAN	Hindon
13	SA	India	VIJO	JODHPUR	Jodhpur
14	SA	India	VOPB	Port Blair	Veer Savarkar Intl
15	SA	India	VAPO	Pune	Jagadguru Sant Tukaram Maharaj
16	SA	India	VISR	Srinagar	Srinagar
17	SA	India	VOVZ	VISAKHAPATAN	Visakhapatnam Intl
18	PAC	Kiribati	PLCH	Kiritimati	Christmas I.
19	PAC	Kiribati	NGTA	Tarawa	Bonriki Intl
20	SEA	Lao PDR	VLLB	Luangprabang	Luangprabang Intl
21	SEA	Lao PDR	VLSK	Kaisonphimvihan	Savannakhet Intl
22	SEA	Lao PDR	VLPS	Pakse	Pakse Intl
23	SEA	Malaysia	WMKD	Kuantan	Haji Ahmad Shah
24	PAC	Micronesia	PTPN	Pohnpei I.	Pohnpei Intl
25	PAC	Micronesia	PTKK	Weno I.	FM Chuuk Intl
26	PAC	Micronesia	PTYA	Yap I.	Yap Intl
27	PAC	Micronesia	PTSA	Kosrae I.	Kosrae
28	PAC	Nauru	ANYN	Nauru I.	Nauru intl
29	SEA	Thailand	VTSG	Krabi	
30	SEA	Timor Leste	WPDB	Suai	Commander-in-Chief of the FALINTIL – Kay Rala Xanana Gusmão Intl
31	PAC	Tuvalu	NGFU	Funafuti	Funafuti Intl

Airports with temporary aerodrome certificates

S. No	Sub-region	State / Admin	ICAO Code	Name of City	Name of Aerodrome
1	SEA	Philippines	RPVK	Kalibo, Aklan	Kalibo Intl*
2	SEA	Philippines	RPVP	Puerto Princesa City	Puerto Princesa Intl*
3	SEA	Philippines	RPSP	Panglao	Bohol-Panglao Intl*

* Airports granted with temporary aerodrome certificates

Status of RST Establishment based on ICAO RST Survey and State's Response to ICAO APAC SL Ref.: T 11/5.13.2 – AP111/24 (AGA) on 3 September 2024

States	Established	% Established	No info or Not Established	Total
Afghanistan	0	0%	4	4
American Samoa	0	0%	1	1
Australia	4	14%	24	28
Bangladesh	0	0%	3	3
Bhutan	1	50%	1	2
Brunei	0	0%	1	1
Cambodia	0	0%	3	3
China	88	95%	5	93
Cook Islands	0	0%	2	2
DPR Korea	0	0%	2	2
Fiji	1	50%	1	2
French Polynesia	0	0%	1	1
Guam	0	0%	1	1
Hong Kong, China	1	100%	0	1
India	20	47%	23	43
Indonesia	23	70%	10	33
Japan	0	0%	38	38
Kiribati	0	0%	2	2
Lao PDR	0	0%	4	4
Macao, China	1	100%	0	1
Malaysia	18	95%	1	19
Maldives	1	20%	4	5
Marshall Islands	0	0%	1	1
Micronesia	0	0%	4	4
Mongolia	1	33%	2	3
Myanmar	3	100%	0	3
Nauru	0	0%	1	1
Nepal	3	100%	0	3
New Caledonia	0	0%	1	1
New Zealand	3	43%	4	7
Niue	0	0%	1	1
N. Mariana Is.	0	0%	3	3
Pakistan	9	90%	1	10
Palau	0	0%	1	1

Papua New Guinea	0	0%	1	1
Philippines	9	100%	0	9
Rep. of Korea	8	100%	0	8
Samoa	0	0%	2	2
Sinagpore	2	100%	0	2
Solomon Islands	0	0%	2	2
Sri Lanka	1	25%	3	4
Thailand	10	100%	0	10
Timor Leste	0	0%	2	2
Tonga	0	0%	2	2
Tuvalu	0	0%	1	1
Vanuatu	0	0%	3	3
Viet Nam	1	10%	9	10
Wallis et Futuma	0	0%	1	1
Total	**208**	**54.17%**	**176**	**384**

AOP/SG WORK PROGRAMME AND TASK LIST
[Updated by AOP/SG/~~8~~ 9]

The priorities assigned in the list have the following connotation:
High = Tasks of a high priority on which work should be expedited;
Medium = Tasks of medium priority on which work should be under taken as soon as possible but not to the detriment of the High tasks; and
Low = Tasks of medium priority on which work should be undertaken as time and resources permit but not to the detriment of High and Medium priority tasks.

TOR = Terms of Reference of the AOP Sub-Group

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/1 (14 – 16 June 2017):								
AOP/SG/1/1	APANPIRG 18 Conclusion 18/62 APANPIRG 21 Conclusion 21/54	Safety	AOP Air Navigation Deficiencies Assist States to establish action plans with fixed target dates for resolution of safety related deficiencies	High	1) Monitor resolution of AOP air navigation deficiencies *Please refer to the Task AOP/SG/2/2*	AOP/SG	December 2021	*Moved to Task* AOP/SG/2/2 **[COMPLETED]**
AOP/SG/1/2	APANPIRG 27 TOR of AOP/SG	Safety, Capacity & Efficiency	Assist in and monitor the implementation of Airport Collaborative Decision Making (A-CDM) at aerodromes used for international operations in APAC Region through APA-CDM/TF.	High	Monitor the status of implementation of A-CDM at aerodromes used for international operations	AOP/SG and APA-CDM/TF	Nov. 2021	AOP/SG/5-WP/05: - Dissolution of the Task Force and remaining works will be taken care by other APANPIRG Contributory body (ATFM/SG) **[COMPLETED]**

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/1/3	APANPIRG 27	Safety	Develop regional guidelines on aerodrome operations personnel competency (AOPC) requirements through AOPC Working Group	Medium	Develop regional guidance material	AOP/SG and AOPC SWG	May 2019	Refer to AOP/SG/4 WP/08 **[COMPLETED]**
AOP/SG/1/4	APANPIRG 27/34	Safety	Monitor States provide updated information about airport´s Obstacle Limitation Surface (OLS) in AIP	High	Monitor OLS of airports through AP-ADO/TF	States, AOP/SG	Continuous	Ongoing
					(Please refer to the Task AOP/SG/2/3)			
AOP/SG/2 (27 - 29 June 2018):								
AOP/SG/2/1	APANPIRG/18 Conclusion 18/1 APANPIRG Conclusion 21/2 RAN meeting –Asia/PAC/3, rec 4/6	Safety	Wildlife strike hazard reduction programme	High	Establish Wildlife Hazard Management Working Group (WHM WG)	AOP/SG, ICAO APAC Office AP-WHM/WG	Continuous	Established AP-WHM/WG. **[COMPLETED]** AOP/SG/6 – WP/07: – Draft Conclusion AP–WHM/WG/4–1: State Action Plan for Establishment and Implementation of WHMP - Generic Template (Appendix D to AOP/SG/6 Report) Ongoing

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
								– Developed Asia Pacific Regional Guidance on Development and Implementation of Wildlife Hazard Management Programme (Appendix E to AOP/SG/6 Report) **[COMPLETED]**
AOP/SG/2/2	Beijing Declaration 2018 APANPIRG APAC ANP, Doc 9673, Volume I		1) Assist States in implementation of ICAO aerodrome certification requirement and resolution of air navigation deficiencies;	High	Establish an Asia/Pacific Aerodrome Assistance Working Group (AP-AA WG) Monitor resolution of AOP air navigation deficiencies	AOP/SG; ICAO APAC Office AP-AA/WG	31 October 2018 Continuous	Established AP-AA/WG. **[COMPLETED]** Ongoing

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/2/3	TOR of AOP/SG Asia Pacific Air Navigation Plan		(1) Review and monitor provisions of facilities, installations and services at international aerodromes: - visual aids; - rescue and firefighting services and emergency planning; - measurement and reporting by States of the surface condition and unevenness on runway; - preventive maintenance programme; - runway safety programme. (2) Review and monitor the content of the Table AOP I - 1 and, where necessary, after coordination with users and operators, and introduce the respective	High	Establish Asia/Pacific Aerodrome Design and Operation Task Force (AP-ADO/TF) Tasks to be carried out by AP-ADO/TF	AOP/SG; ICAO APAC Office AP-ADO/TF	31 October 2018 Continuous Continuous	Established AP-ADO/TF. **[COMPLETED]** Ongoing Ongoing WP/07 – APAC ANP
AOP/SG/3 (24 - 26 June 2019):								
AOP/SG/3/1	55th DGCA Action Item 55/42	Safety	Certification of aerodromes used for international operations by 2020 (Beijing Declaration's Commitment)	High	Monitor the progress of certification and report to DGCA through APANPIRG	AOP/SG through AP-AA/WG	Continuous	Ongoing AOP/SG/9-WP/11: – 353 out of 384 certified – 91.93%

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/4 (10 – 13 November 2020):								
AOP/SG/4/1	Draft Conclusion AOP/SG/4-10	Safety	States/Administrations to develop and implement GRF Implementation Action Plan	High	Monitor the GRF Implementation Action Plan developed by States/Administrations	States AOP/SG	Continuous	Ongoing AOP/SG/9 – WP/24: GRF – 18 States published procedures for assessment and reporting runway conditions in AIP

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/4/2	AOP/SG/4 Report on WP/12	Safety	States to arrange necessary resources to recruit, train and retain qualified and experienced technical staff to effectively perform safety oversight of aerodromes to enhance USOAP Effective Implementation score to at least 75% in AGA area by 2024	High	Provide technical assistance to States with limited resources and low AGA EI	States AP-AA/WG	Continuous	Aerodrome Assistance Go-Team Methodology AOP/SG/9-IP/04
AOP/SG/4/3	AOP/SG/4 Report on WP/11	Safety	Assist States in certification of aerodromes used for international operations	High	Provide technical assistance to States with aerodromes yet to be certified through Aerodrome Assistance Go-Team and other appropriate methods as agreed with the States concerned	AP-AA/WG assisted by ACI	~~By 2025~~ Continuous	Aerodrome Assistance Go-Team Methodology Ongoing Under ICAO APAC CAT Mission and COSCAP-Programme
AOP/SG/5 (29 June – 2 July 2021):								
AOP/SG/5/1		Safety, Capacity & Efficiency, ENV	Aerodromes Seminar	Medium	Asia/Pacific Aerodromes Seminar (duration 2 – 3 Days) hosted by States/Industries Theme topic of the Seminar to be proposed by the host in consultation with	States/ Industries (Supported by the Secretariat)	December 2022	Organized Aerodrome Seminar on Airport Master Planning on 29 – 30 June 2023 **[COMPLETED]**

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/6 (27 – 30 June 2022):								
AOP/SG/6/1	Task AP-ADO/TF/3/2	Safety	GRF Seminar	Medium	Organise a GRF Webinar	On behalf of AP-ADO/TF by China (Lead), ACI & ICAO	Q3, 2022	Organized GRF Webinar on 29 Sep. 2022 **[COMPLETED]**
AOP/SG/7 (3 – 6 July 2023):								
AOP/SG/7/1	Task of AP-ADO/TF/4	Safety	Workshop on Aerodrome Pavement Design and Evaluation including ICAO ACR-PCR Method in Reporting Pavement Strength for Asia and Pacific Regions	High	Organize a Workshop on Aerodrome Pavement Design and Evaluation including ACR-PCR Method in Reporting Pavement Strength for Asia and Pacific Regions	Secretariat with FAA support	Q1, 2024	Three days workshop, tentatively the week of 5-9 February 2024. **[COMPLETED]**
AOP/SG/7/2	AOP/SG/7-WP/12	Safety	Strength assessment and classification for grass and unpaved runway	Medium	Assign the task to AP-ADO/TF	AP-ADO/TF	~~2025~~ 2026	Ongoing
AOP/SG/7/3	AOP/SG/7-WP/12	Safety	WP on UAS operations at existing Airports	Medium	Present a WP to share the experiences of Pakistan on UAS operations at existing Airports	Pakistan	~~AOP/SG/9~~ AOP/SG/10	

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/8 (15 - 19 July 2024):								
AOP/SG/8/1	Task 5/3 of AP-ADO/TF	Safety	Organize workshops for States and aerodrome operators to share experience in AGA audit area of USOAP CMA especially on alternative means of compliance with AGA related SARPs as advocated for in DGCA/58/DP3/01	High		Pakistan (Lead), Australia, China, India, Secretariat	In conjunction with AOP/SG/9 in July 2025	IP/09 – Maldives IP/12 – Pakistan **[COMPLETED]**
AOP/SG/9 (30 June - 04 July 2025):								
AOP/SG/9/1	Annex 14, Volume I requirement	Safety	Transition from ACN/PCN to ACR/PCR methodology for determination of aerodrome pavement strength	High	Organize workshop on aerodrome pavement design and evaluation incorporating ACR/PCR	ICAO in collaboration with US FAA	February 2026	
AOP/SG/9/2	CNS SG/29 and SWIM TF/10, ATM/SG?12	Capacity and Efficiency	Contribution to the APAC Common SWIM Aeronautical Information services related to AOP field through the APAC Common SWIM Aeronautical Information Services Ad Hoc Group	High	Participate in APAC Common SWIM Aeronautical Information Services Ad Hoc Group Meetings to contribute for finalization of the APAC Common SWIM Aeronautical Information services related to AOP field	India, Japan, Malaysia, Singapore and Thailand	Commence in August 2025 (Ongoing)	

Task No.	Ref	Associated ICAO Strategic Objective	Task	Priority	Action Proposed	Action by	Target Date	Status
AOP/SG/9/3	AP-AA/WG/7	Safety	Workshop on Civil/Military Cooperation in Aerodrome Operations/Certification	High	1) Sharing States Experience, Guidance Materials 2) Organize Workshop	Australia, India (Lead), Malaysia	2026	
AOP/SG/9/4	AOP/SG/9	Safety	Workshop on RODA		Workshop in Conjunction with AP-AA/WG/8 inviting AD Operators, IATA, Airlines, IFALPA (TBC)	AP-AA/WG and Secretariat	AP-AA/WG/8	

****

NOTES ON THE AMENDMENT OF ABOVE TABLE TO ENDORSE AS AOP/SG WORK PROGRAMME

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

~~Text to be deleted is shown with a line through it.~~ — text to be deleted

New text to be inserted is highlighted with grey shading. — new text to be inserted

~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading. — new text to replace existing text

—END—