



ICAO

The Third Meeting of the Asia/Pacific Aerodrome
Assistance Working Group (AP-AA/WG/3)
Video Teleconference, 23 to 26 March 2021

Agenda Item 4: Runway Safety and GRF Implementation

**ENHANCED GLOBAL REPORTING FORMAT FOR ASSESSING AND REPORTING
RUNWAY SURFACE CONDITIONS (GRF), RUNWAY SAFETY TEAM (RST) AND
RUNWAY SAFETY GO-TEAM (RSGT)**

(Presented by the Secretariat)

SUMMARY

This paper presents ICAO provisions related to GRF, activities to enhance GRF awareness and understanding, relevant training courses and a template to assist States to develop an implementation action plan of GRF. This paper also puts emphasis on the importance of RST, which plays a crucial role in GRF implementation.

The Runway Safety Go-Team (RSGT) initiative has been providing assistance to States and airports in the area of runway safety. Its scope may be extended to cover GRF for States in need of on-site GRF assistance.

1. INTRODUCTION

1.1 The SARPs and PANS related to the enhanced Global Reporting Format for assessing and reporting runway surface conditions (GRF) was originally set to become applicable on 5 November 2020. To alleviate the burden on Member States during, and in the aftermath of, the COVID-19 pandemic, the Council, adopted amendments on the postponement of the applicability date, from 5 November 2020 to 4 November 2021, for provisions related to GRF as contained in Annexes and Procedures for Air Navigation Services (PANS).

1.2 ICAO Runway Safety Go-Team (RSGT) is aimed to provide assistance from ICAO and partner organisations of ICAO Runway Safety Programme (RSP) for the implementation of effective Runway Safety Teams (RSTs) to improve runway safety. The scope of RSGT may be extended to cover GRF for States in need of on-site GRF assistance.

2. DISCUSSION

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

2.1 The SARPs and PANS related to GRF was originally set to become applicable on 5 November 2020. However, to alleviate the burden on Member States during, and in the aftermath of, the COVID-19 pandemic, as promulgated in State Letter Ref. AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73 dated 30 July 2020 (**Attachment A**), the Council, at the eighth meeting of its 220th Session held on 19 June 2020,

adopted amendments on the postponement of the applicability date, from 5 November 2020 to 4 November 2021, for provisions related to GRF. The concerned Annexes and Procedures for Air Navigation Services (PANS) are:

- a) *Annex 3 – Meteorological Service for International Air Navigation;*
- b) *Annex 6 – Operation of Aircraft, Part I – International Commercial Air Transport – Aeroplanes and Part II – International General Aviation – Aeroplanes;*
- c) *Annex 8 – Airworthiness of Aircraft;*
- d) *Annex 14 – Aerodromes, Volume I – Aerodrome Design and Operations;*
- e) *Annex 15 – Aeronautical Information Services;*
- f) *Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM, Doc 4444);*
- g) *Procedures for Air Navigation Services – Aerodromes (PANS-Aerodromes, Doc 9881); and*
- h) *Procedures for Air Navigation Services – Aeronautical Information Management (PANS-AIM, Doc 10066).*

2.2 It was noted that such a postponement would also help ensure a uniform implementation of the GRF-related provisions on a global basis.

2.3 States have been requested to notify any disapproval of all or part of the Amendments to the Annexes by 30 September 2020. In addition, States are requested to inform ICAO HQ, with a copy to ICAO APAC Office, before 4 October 2021:

- a) any differences that will exist on 4 November 2021 between the national regulations or practices and the provisions of the aforementioned Annexes, as amended by all amendments up to and including the Amendments contained in **Attachment A**, and thereafter of any further differences that may arise; and
- b) the date or dates by which States will have complied with the provisions of the whole of the aforementioned Annexes, as amended by all amendments up to and including the Amendments contained in **Attachment A**.

2.4 States are also requested to implement the provisions in PANS-ATM, PANS-Aerodromes and PANS-AIM on 4 November 2021, and to publish in the AIPs a list of any significant differences which will exist on 4 November 2021 between the provisions of PANS-ATM, PANS-Aerodromes and PANS-AIM and the national regulations and practices.

GRF Seminars, Webinars and Workshops

2.5 The applicability of GRF-related SARPs and PANS will impact all major stakeholders in the aviation industry, such as Civil Aviation Authorities (CAAs), airport operators, airlines and air navigation service providers. In order to enhance awareness and understanding of GRF, ICAO APAC Office and COSCAP-SEA jointly organised a regional seminar on implementation of GRF on 27 – 28 June 2019, back-to-back with the Third Meeting of the Aerodromes Operations and Planning Sub-Group (AOP/SG/3, Bangkok, Thailand, 24 – 26 June 2019).

2.6 Further GRF activities were held in 2020 with details as follows. Information and replays of some of the activities are available in the respective links.

Date	Activity	Organised by	Link
28-29 January 2020	GRF Regional Workshop	ICAO EUR/NAT Office	Webpage
30 April 2020	GRF Workshop	COSCAP-SEA	Replay
21 May 2020	GRF Regional Webinar	ICAO APAC Office	Webpage
26 May 2020	GRF Webinar	ICAO Air Navigation Bureau	Replay; Q&A
28 May 2020	SNOWTAM Webinar	ICAO Air Navigation Bureau	Replay; Q&A
18 June 2020	GRF Regional Webinar	ICAO CAR/SAM Office	Webpage
22 July 2020	GRF Webinar	COSCAP-SA	Webpage
27 October 2020	GRF Regional Webinar	ICAO MID Office	Replay

2.7 In addition to above activities on GRF, Pacific Aviation Safety Office (PASO) also organised a GRF Webinar on 25 June 2020, which was attended by 35 participants from 8 Small Pacific Island States.

2.8 ICAO APAC Office is planning for further GRF activities in the third or fourth quarter of 2021, ahead of the applicability date of 4 November 2021. Details will be announced through State Letter as the time approaches.

GRF Training Courses

2.9 In addition to seminars, webinars and workshops, ICAO collaborated with industry partners and developed a number of GRF courses, tailored to meet the needs of various aviation professions. Details are summarised as follows.

Course	Target Audience	Delivery Mode	Link
ICAO-ACI GRF Online Course	Airport operations staff	Online	Webpage
ICAO-IATA GRF Online Course	Flight crew, airline operations staff and dispatchers	Online	Webpage
ACI GRF for Runway Surface Condition Assessment and Reporting	Airport personnel	Classroom / Virtual Classroom	Webpage
ICAO-IATA-CANSO Introduction to GRF for ANSPs, Air Traffic Controllers and AIS Staff	ANSPs, Air Traffic Controllers and AIS staff	Coming Soon, to be confirmed	--

2.10 In 2020, the three COSCAPs provided sponsored places for staff of member CAAs to attend ICAO-ACI GRF Online Course and ICAO-IATA GRF Online Course, so as to equip them with the necessary knowledge for the planning, coordinating and supporting of the implementation of GRF-related SARPs and PANS.

GRF Implementation Action Plan Template

2.11 In order to assist States in tracking the implementation progress of GRF-related provisions, based on a template developed by COSCAP-SEA earlier, ICAO APAC Office prepared a GRF Implementation Action Plan Template. The template is available in **Attachment B** and through this [link](#). Alternatively, it may be downloaded from ICAO APAC Website through *eDocuments* and AGA:

<https://www.icao.int/APAC/Pages/eDocs.aspx>

2.12 The template identified 15 action items and a number of action parties to facilitate States in their preparation for GRF implementation. Target dates for each action items have also been set, which States may take reference when determining their own implementation dates.

2.13 To maximize the benefits brought by the template, APANPIRG/31 adopted the following conclusion formulated by AOP/SG/4:

Conclusion APANPIRG/31/5 (AOP/SG/4–10): GRF Implementation Action Plan Template

That,

a) The GRF Implementation Action Plan Template contained in **Appendix B** to Report on Agenda Item 3.1 be uploaded to ICAO APAC Website for reference by States / Administrations; and

b) States / Administrations are requested to make reference to the GRF Implementation Action Plan Template and submit their own action plans to ICAO APAC Office by **28 February 2021**.

2.14 As of 2 March 2021, ICAO APAC Office has received GRF Implementation Action Plans from 14 States/Administrations, including Australia, Bhutan, DPR of Korea, Fiji, Hong Kong China, Japan, Macao China, Maldives, Myanmar, Nepal, Philippines, Republic of Korea, Singapore and the United States.

Runway Safety Team (RST)

2.15 An aerodrome operator shall establish a Runway Safety Team (RST) comprised of relevant organizations operating or providing services on the aerodrome.

2.16 The terms of reference and composition of the RST should be established and included in the aerodrome manual. Activities to be included in the terms of reference as well as the proposed composition of an RST are included in the Appendix to the Chapter 8 of Part II of PANS-Aerodromes (Doc 9981).

2.17 The primary role of the RST should be to develop a runway safety action plan. This action plan should, as a minimum, facilitate the identification of runway safety hazards and the conduct of runway safety risk assessments and recommend measures for hazard removal and mitigation of the residual risk.

2.18 Detailed information on the establishment of a RST is available in the ICAO RST Handbook which can be downloaded from:

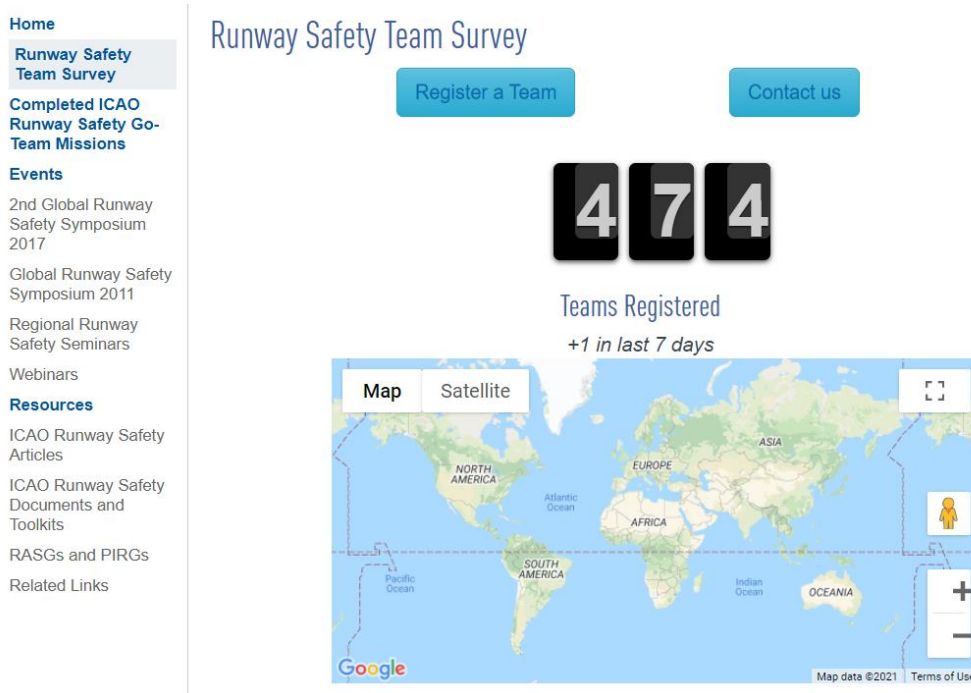
<https://www.icao.int/safety/RunwaySafety/Pages/Documents%20and%20Toolkits.aspx>.

2.19 As indicated in the GRF Implementation Action Plan Template (**Attachment B**), RST is a major player in the implementation of GRF, providing feedback to the CAA in such matters as development of national procedures and guidance material, provision of on-the-job training, arrangement of trials prior to implementation, as well as the implementation plan. As such, the establishment and effective running of RSTs will be crucial for States to fine-tune and carry out their GRF implementation action plan.

2.20 During COVID-19 pandemic, aerodromes face substantially different operational environment due to the sharp drop in the amount of air traffic movement. Runway safety may be impacted by a different operational environment, e.g. aircraft parked on runways and taxiways, increased wildlife presence, increase in towing activities associated with parked aircraft, and reduced headcount of operational personnel. An active and effective RST will be able to perform hazard identifications and safety risk assessments, so that runway safety risks may be mitigated in a timely manner.

2.21 ICAO has been maintaining a RST Survey to keep track of the establishment of RSTs at aerodromes used for international operations. The survey results and questionnaire are available at the following URL:

<https://www.icao.int/safety/RunwaySafety/Pages/Runway%20Safety%20Team%20Register.aspx>



ICAO RST Survey Website

2.22 As of 1 February 2021, out of 342 aerodromes used for international operations in Asia Pacific Regions, only 73 aerodromes have participated in ICAO RST Survey.

2.23 APANPIRG/31 adopted the following Conclusion:

Conclusion APANPIRG/31/6 (AOP/SG/4–11): Runway Safety Team

That, States/Administrations to urge operators of aerodromes used for international operations to:

- a) establish runway safety teams (RSTs) in accordance with PANS-Aerodromes (Doc 9981) and ICAO RST Handbook; and
- b) participate in the ICAO RST Survey to register their RSTs.

ICAO Runway Safety Go-Team (RSGT)

2.24 ICAO Runway Safety Go-Team (RSGT) assists States in developing a national runway safety programme. It also assists airports in establishing / improving the effectiveness of runway safety teams, as well as provides on-site technical assistance to all runway safety stakeholders. RSGT is a voluntary multi-disciplinary assistance visit to an airport performed by an ad-hoc group of experts from ICAO and RSP partner organisations; it is not an ICAO audit, validation, inspection nor certification.

2.25 Recognising the benefits the RSGT brings to States and runway safety stakeholders, the RASG-APAC at its 5th Meeting had taken a Decision, which is reproduced below:

Decision RASG-APAC 5/6 (2015)

That, ICAO APAC RO, with assistance from the COSCAP Chief Technical Advisors, coordinate the implementation of ICAO Runway Safety Go-Teams in the APAC region, and share relevant information on implementation with States/ Administrations and industry.

2.26 A RSGT will be established based on a recommendation from the Regional Aviation Safety Group (RASG), proposal by ICAO, or a request received from a State or airport to ICAO. RSP partner organisations will be informed of RSGT plans and invited to participate. The cost of participation by the ICAO members is normally covered by the inviting entity, while RSP partners will voluntarily contribute to the activity.

2.27 The duration of on-site activities is usually three days, which may include a runway safety workshop for runway safety stakeholders, airport visits, attendance in RST meeting and debriefing.

2.28 COSCAP-SEA arranged the first two RSGT missions in the APAC Region in March 2020 – to Manila, Philippines and Makassar, Indonesia. Recommendations were provided to the States and airports for enhancing runway safety. The two missions utilized the funding available under COSCAP-SEA and was therefore available free-of-charge to the two States.

2.29 With the upcoming applicability of GRF-related SARPs and PANS, the scope of RSGT may be extended to assist States and airports in the implementation of GRF. In such cases, the duration of RSGT on-site activities may be slightly extended to incorporate additional activities.

2.30 States in need of assistance in the areas of runway safety and GRF are urged to request for RSGT Assistance Missions through ICAO APAC Office and/or its corresponding COSCAP.

2020 Edition of USOAP CMA Protocol Questions

2.31 As announced in Electronic Bulletin 2021/3, the 2020 Edition of the Universal Safety Oversight Audit Programme (USOAP) Continuous Monitoring Approach (CMA) Protocol Questions (PQs) is now posted on the USOAP CMA online framework, under the heading “CMA Library”.

2.32 In association with Chapter 8 of Part II of PANS-Aerodromes and relevant guidance materials, there is a new PQ on whether a State ensures “that aerodrome operators comply with requirements related to runway safety, including the establishment of a runway safety team”. The new PQ is extracted as follows.

8.204	Does the State ensure that aerodrome operators comply with requirements related to runway safety, including the establishment of a runway safety team?	1) Evaluate mechanism to ensure effective implementation. 2) Review evidence of a systematic approach to runway safety and collision avoidance strategy, e.g. establishment of runway safety teams.	PANS Doc 9981 (AGA) Part II, C8 GM A14 Vol. I, Att. A, Section 21.3 Doc 9870 C3	Yes	CE-6
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USOAP CMA PQ – AGA 8.204

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) urge States to note the various GRF activities and arrange attendance of GRF training courses;
- b) urge States to submit GRF Implementation Action Plan to ICAO APAC Office if yet to do so, and provide periodic updates thereafter (**Conclusion APANPIRG/31/5** refers);
- c) urge States to take actions on RST establishment and participation in ICAO RST Survey (**Conclusion APANPIRG/31/6** refers);
- d) urge States in need of assistance in the areas of runway safety and GRF to request for Runway Safety Go-Team Missions through ICAO APAC Office and/or its corresponding COSCAP; and
- e) note the USOAP CMA PQ related to runway safety and RST.



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Ref.: AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13,
AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and
AN 2/33-20/73

30 July 2020

Subject: Changes to applicability dates of SARPs and PANS related to the enhanced global reporting format for assessing and reporting runway surface conditions (GRF) due to the COVID-19 pandemic.

Adoption of Amendments: 80 to Annex 3; 45 to Annex 6, Part I; 38 to Annex 6, Part II; 107 to Annex 8; 16 to Annex 14, Volume I; and 42 to Annex 15, and approval of Amendments: 10 to PANS-ATM; 4 to PANS-Aerodromes; and 2 to PANS-AIM:

Action required:

Annexes: a) Notify any disapproval before 30 September 2020;

b) Notify any differences and compliance before 4 October 2021;

c) Consider the use of the Electronic Filing of Differences (EFOD) System for notification of differences and compliance

PANS: a) Implementation of the amendment on 4 November 2021;

b) Publication of any differences as of 4 November 2021

Sir/Madam,

1. The Council, at the fourth meeting of its 219th Session held on 9 March 2020, when adopting the declaration related to the outbreak of the novel coronavirus (COVID-19), reaffirmed its commitment to closely monitor the situation and support Member States in their response measures, as appropriate, and its readiness to take further action as circumstances develop.

2. I have the honour to inform you that the Council, at the eighth meeting of its 220th Session held on 19 June 2020, reviewed a number of previously adopted amendments to Standards and Recommended Practices (SARPs) contained in several Annexes to the Convention on International Civil Aviation requiring Member States to take the necessary implementation actions (regulatory, training, etc.) before their applicability date of 5 November 2020. These actions will have to be undertaken by Member States, and other aviation industry stakeholders, while dealing with the COVID-19 crisis, the resultant contingency measures, or the aftermath of the crisis and the normalization phase.

3. To alleviate the burden on Member States during, and in the aftermath of, the COVID-19 pandemic, the Council, at the same meeting (220-8), adopted amendments on the postponement of the applicability date, from 5 November 2020 to 4 November 2021, for provisions related to an enhanced global reporting format for assessing and reporting runway surface conditions (GRF) as contained in the following Annexes:

- a) Annex 3 — *Meteorological Service for International Air Navigation*;
- b) Annex 6 — *Operation of Aircraft, Part I — International Commercial Air Transport — Aeroplanes* and Part II — *International General Aviation — Aeroplanes*;
- c) Annex 8 — *Airworthiness of Aircraft*;
- d) Annex 14 — *Aerodromes, Volume I — Aerodrome Design and Operations*; and
- e) Annex 15 — *Aeronautical Information Services*.

4. The Council also approved the postponement of the applicability date for the consequential GRF-related provisions contained in the Procedures for Air Navigation Services (PANS), which included amendments to the:

- a) *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444);
- b) *Procedures for Air Navigation Services — Aerodromes* (PANS-Aerodromes, Doc 9981); and
- c) *Procedures for Air Navigation Services — Aeronautical Information Management* (PANS-AIM, Doc 10066).

It was noted that such a postponement would also help ensure a uniform implementation of the GRF-related provisions on a global basis.

5. The Council acknowledged that, notwithstanding its decision not to postpone other amendments, some Member States may experience challenges in implementing those amendments and reiterated that States should file differences in accordance with standard procedure should they experience such challenges.

6. Copies of the amendments as indicated in paragraph 3 and the Resolutions of Adoption are available as attachments to the electronic version of this State letter on the ICAO-NET (<http://portal.icao.int>) where you can access all other relevant documentation.

7. When adopting the amendments, the Council prescribed 30 September 2020 as the date on which they will become effective, except for any part concerning which a majority of Contracting States have registered their disapproval before that date. In addition, the Council resolved that the amendments, to the extent they become effective, will become applicable on 4 November 2021.

8. The subjects are given in the amendments to the Foreword of the Annexes and PANS, a copy of which is in Attachment A.

9. In conformity with the Resolution of Adoption, may I request:
- a) that before 30 September 2020 you inform me if there is any part of the adopted Standards and Recommended Practices (SARPs) amendments in Amendments 80, 45, 38, 107, 16 and 42 concerning which your Government wishes to register disapproval, using the form in Attachment B for this purpose. Please note that only statements of disapproval need be registered and if you do not reply it will be assumed that you do not disapprove of the amendment;
 - b) that before 4 October 2021 you inform me of the following, using the Electronic Filing of Differences (EFOD) System or the form in Attachment C for this purpose:
 - 1) any differences that will exist on 4 November 2021 between the national regulations or practices of your Government and the provisions of the whole of Annexes 3; 6, Parts I and II; 8; 14, Volume I; and 15, as amended by all amendments up to and including Amendments 80, 45, 38, 107, 16 and 42, respectively, and thereafter of any further differences that may arise; and
 - 2) the date or dates by which your Government will have complied with the provisions of the whole of Annexes 3; 6, Parts I and II; 8; 14, Volume I; and 15 as amended by all amendments up to and including Amendments 80, 45, 38, 107, 16 and 42, respectively.
10. With reference to the request in paragraph 9 a) above, it should be noted that a registration of disapproval of Amendments 80, 45, 38, 107, 16 and 42 or any part of it in accordance with Article 90 of the Convention does not constitute a notification of differences under Article 38 of the Convention. To comply with the latter provision, a separate statement is necessary if any differences do exist, as requested in paragraph 9 b) 1). It is recalled in this respect that international Standards in Annexes have a conditional binding force, to the extent that the State or States concerned have not notified any difference thereto under Article 38 of the Convention.
11. With reference to the request in paragraph 9 b) above, it should be also noted that the ICAO Assembly, at its 39th Session (27 September to 6 October 2016), resolved that Member States should be encouraged to use the EFOD System when notifying differences (Resolution A39-22 refers). The EFOD System is currently available on the Universal Safety Oversight Audit Programme (USOAP) restricted website (<http://www.icao.int/usoap>) which is accessible by all Member States. You are invited to consider using this for notification of compliance and differences.
12. Guidance on the determination and reporting of differences is given in the Note on the Notification of Differences in Attachment D. Please note that a detailed repetition of previously notified differences, if they continue to apply, may be avoided by stating the current validity of such differences.
13. I would appreciate it if you would also send a copy of your notifications, referred to in paragraph 9 b) above, to the ICAO Regional Office accredited to your Government.
14. As soon as practicable after the amendments become effective, on 30 September 2020, replacement pages incorporating Amendments 80, 45, 38, 107, 16 and 42 to Annexes 3; 6, Parts I and II; 8; 14, Volume I; and 15, respectively, will be forwarded to you.

15. Your Government is also invited by the Council to implement the provisions of the PANS-ATM, PANS-Aerodromes and PANS-AIM. In this connection, I draw your attention to the decision taken by the Council, on 1 October 1973, to discontinue the publication of differences in Supplements to PANS documents and, instead, to request States to publish up-to-date lists of significant differences from PANS documents in their Aeronautical Information Publications (AIPs).

16. May I, therefore, invite your Government to publish in your AIP a list of any significant differences which will exist on 4 November 2021 between the provisions of the PANS-ATM, PANS-Aerodromes and PANS-AIM and your national regulations and practices.

Accept, Sir/Madam, the assurances of my highest consideration.

Fang Liu
Secretary General

Enclosures:

- A — Amendment to the Forewords of Annexes 3; 6, Parts I and II; 8; 14, Volume I; and 15
- B — Form on notification of disapproval of all or part of Amendments 80, 45, 38, 107, 16 and 42 to Annexes 3; 6, Parts I and II; 8; 14, Volume I; and 15, respectively
- C — Form on notification of compliance with or differences from Annexes 3; 6, Parts I and II; 8; 14, Volume I; and 15
- D — Note on the Notification of Differences
- E — Resolution of Adoption
- F — Notes on the presentation of the amendments to Annexes 3; 6, Parts I and II; 8; 14, Volume I; and 15, respectively
- G — Amendment to the Forewords of the PANS-ATM; PANS-Aerodromes and PANS-AIM
- H — Notes on the presentation of the amendments to the PANS-ATM; PANS-Aerodromes and PANS-AIM

ATTACHMENT A to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

AMENDMENT TO THE FOREWORD OF ANNEX 3

Add the following elements at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
80	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of Amendment 77-B: Amendment concerning the use of an enhanced global reporting format for assessing and reporting runway surface conditions.	19 June 2020 30 September 2020 4 November 2021

AMENDMENT TO THE FOREWORD OF ANNEX 6, PART I

Add the following elements at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
45	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of Amendment 40-C: Amendment concerning the use of an enhanced global reporting format for assessing and reporting runway surface conditions.	19 June 2020 30 September 2020 4 November 2021

AMENDMENT TO THE FOREWORD OF ANNEX 6, PART II

Add the following elements at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
38	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of Amendment 34-C: Amendment concerning the use of an enhanced global reporting format for assessing and reporting runway surface conditions.	19 June 2020 30 September 2020 4 November 2021

AMENDMENT TO THE FOREWORD OF ANNEX 8

Add the following elements at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
107	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of Amendment 105-B: Amendment concerning the use of an enhanced global reporting format for assessing and reporting runway surface conditions.	19 June 2020 30 September 2020 4 November 2021

AMENDMENT TO THE FOREWORD OF ANNEX 14, VOLUME I

Add the following elements at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
16	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of Amendment 13-B: Amendment concerning the use of an enhanced global reporting format for assessing and reporting runway surface conditions.	19 June 2020 30 September 2020 4 November 2021

AMENDMENT TO THE FOREWORD OF ANNEX 15

Add the following elements at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Adopted/Approved Effective Applicable</i>
42	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of Amendment 40 regarding the definition of SNOWTAM.	19 June 2020 30 September 2020 4 November 2021

ATTACHMENT B to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32,
AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

**NOTIFICATION OF DISAPPROVAL OF ALL OR PART OF
AMENDMENTS 80, 45, 38, 107, 16 and 42 TO ANNEXES 3;
6, PARTS I AND II; 8; 14, VOLUME I; AND 15, RESPECTIVELY**

To: The Secretary General
International Civil Aviation Organization
999 Robert-Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7

(State) _____ hereby wishes to disapprove the following parts of
Amendment _____ to Annex _____:

Signature _____

Date _____

NOTES

- 1) If you wish to disapprove all or part of Amendment ___ to Annex _____, please dispatch this notification of disapproval to reach ICAO Headquarters by 30 September 2020. If it has not been received by that date it will be assumed that you do not disapprove of the amendment. **If you approve of all parts of Amendment _____, it is not necessary to return this notification of disapproval.**
- 2) This notification should not be considered a notification of compliance with or differences from Annex _____. Separate notifications on this are necessary. (See Attachment C.)
- 3) Please use extra sheets as required.

ATTACHMENT C to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32,
AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

**NOTIFICATION OF COMPLIANCE WITH OR DIFFERENCES FROM
ANNEXES 3; 6, PARTS I AND II; 8; 14, VOLUME I; AND 15**

**(including all amendments up to and including
Amendments 80, 45, 38, 107, 16 and 42)**

To: The Secretary General
International Civil Aviation Organization
999 Robert-Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7

1. No differences will exist on _____ between the national regulations and/or practices of **(State)** _____ and the provisions of Annex ____, including all amendments up to and including Amendment ____.
2. The following differences will exist on _____ between the regulations and/or practices of **(State)** _____ and the provisions of Annex ____, including Amendment ____ (Please see Note 2) below.)

a) Annex Provision (Please give exact paragraph reference)	b) Details of Difference (Please describe the difference clearly and concisely)	c) Remarks (Please indicate reasons for the difference)
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(Please use extra sheets as required)

3. By the dates indicated below, **(State)** _____ will have complied with the provisions of Annex _____, including all amendments up to and including Amendment _____ for which differences have been notified in 2 above.

a) Annex Provision (Please give exact paragraph reference)	b) Date	c) Comments
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(Please use extra sheets as required)

Signature _____

Date _____

NOTES

- 1) If paragraph 1 above is applicable to your State, please complete paragraph 1 and return this form to ICAO Headquarters. If paragraph 2 is applicable to you, please complete paragraphs 2 and 3 and return the form to ICAO Headquarters.
- 2) A detailed repetition of previously notified differences, if they continue to apply, may be avoided by stating the current validity of such differences.
- 3) Guidance on the notification of differences is provided in the Note on the Notification of Differences and in the *Manual on Notification and Publication of Differences* (Doc 10055).
- 4) Please send a copy of this notification to the ICAO Regional Office accredited to your Government.

ATTACHMENT D to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

NOTE ON THE NOTIFICATION OF DIFFERENCES
(*Prepared and issued in accordance with instructions of the Council*)

1. *Introduction*

1.1 Article 38 of the Convention on International Civil Aviation (“Convention”) requires that a Contracting State notify ICAO any time it does not comply with a Standard in all respects, it does not bring its regulations or practices into full accord with any Standard, or it adopts regulations or practices differing in any particular respect from the Standard.

1.2 The Assembly and the Council, when reviewing the notification of differences by Contracting States in compliance with Article 38 of the Convention, have repeatedly noted that the timeliness and currency of such notifications is not entirely satisfactory. Therefore, this note is issued to reiterate the primary purpose of Article 38 of the Convention and to facilitate the determination and notification of differences.

1.3 The primary purpose of the notification of differences is to promote safety, regularity and efficiency in air navigation by ensuring that governmental and other agencies, including operators and service providers, concerned with international civil aviation are made aware of all national regulations and practices in so far as they differ from those prescribed in the Standards contained in Annexes to the Convention.

1.4 Contracting States are, therefore, requested to give particular attention to the notification of differences with respect to Standards in all Annexes, as described in paragraph 4 b) 1) of the Resolution of Adoption.

1.5 Although differences from Recommended Practices are not notifiable under Article 38 of the Convention, the Assembly has urged Contracting States to extend the above considerations to Recommended Practices contained in Annexes to the Convention, as well.

2. *Notification of differences from Standards and Recommended Practices (SARPs)*

2.1 Guidance to Contracting States in the notification of differences to Standards and Recommended Practices (SARPs) can only be given in very general terms. Contracting States are further reminded that compliance with SARPs generally extends beyond the issuance of national regulations and requires establishment of practical arrangements for implementation, such as the provision of facilities, personnel and equipment and effective enforcement mechanisms. Contracting States should take those elements into account when determining their compliance and differences. The following categories of differences are provided as a guide in determining whether a notifiable difference exists:

- a) *A Contracting State’s requirement is more exacting or exceeds a SARP (Category A)*. This category applies when the national regulation and practices are more demanding than the corresponding SARP, or impose an obligation within the scope of the Annex which is not covered by the SARP. This is of particular importance where a Contracting State requires a higher standard which affects the operation of aircraft of other Contracting States in and above its territory;

- b) *A Contracting State's requirement is different in character or the Contracting State has established other means of compliance (Category B)**. This category applies, in particular, when the national regulation and practices are different in character from the corresponding SARP, or when the national regulation and practices differ in principle, type or system from the corresponding SARP, without necessarily imposing an additional obligation; and
- c) *A Contracting State's requirement is less protective, partially implemented or not implemented (Category C)*. This category applies when the national regulation and practices are less protective than the corresponding SARP; when no national regulation has been promulgated to address the corresponding SARP, in whole or in part; or when the Contracting State has not brought its practices into full accord with the corresponding SARP.

These categories do not apply to Not Applicable SARP. Please see the paragraph below.

2.2 **Not Applicable SARP.** When a Contracting State deems a SARP concerning aircraft, operations, equipment, personnel, or air navigation facilities or services to be not applicable to the existing aviation activities of the State, notification of a difference is not required. For example, a Contracting State that is not a State of Design or Manufacture and that does not have any national regulations on the subject, would not be required to notify differences from Annex 8 provisions related to the design and construction of an aircraft.

2.3 **Differences from appendices, tables and figures.** The material comprising a SARP includes not only the SARP itself, but also the appendices, tables and figures associated with the SARP. Therefore, differences from appendices, tables and figures are notifiable under Article 38. In order to file a difference against an appendix, table or figure, States should file a difference against the SARP that makes reference to the appendix, table or figure.

2.4 **Differences from definitions.** Contracting States should notify differences from definitions. The definition of a term used in a SARP does not have independent status but is an essential part of each SARP in which the term is used. Therefore, a difference from the definition of the term may result in there being a difference from any SARP in which the term is used. To this end, Contracting States should take into consideration differences from definitions when determining compliance or differences to SARPs in which the terms are used.

2.5 The notification of differences should be not only to the latest amendment but to the whole Annex, including the amendment. In other words, Contracting States that have already notified differences are requested to provide regular updates of the differences previously notified until the difference no longer exists.

2.6 Further guidance on the identification and notification of differences, examples of well-defined differences and examples of model processes and procedures for management of the notification of differences can be found in the *Manual on Notification and Publication of Differences* (Doc 10055).

* The expression "different in character or other means of compliance" in b) would be applied to a national regulation and practice which achieve, by other means, the same objective as that of the corresponding SARPs or for other substantive reasons so cannot be classified under a) or c).

3. *Form of notification of differences*

3.1 Differences can be notified:

- a) by sending to ICAO Headquarters a form on notification of compliance or differences; or
- b) through the Electronic Filing of Differences (EFOD) System at www.icao.int/usoap.

3.2 When notifying differences, the following information should be provided:

- a) the number of the paragraph or subparagraph which contains the SARP to which the difference relates*;
- b) the reasons why the State does not comply with the SARP, or considers it necessary to adopt different regulations or practices;
- c) a clear and concise description of the difference; and
- d) intentions for future compliance and any date by which your Government plans to confirm compliance with and remove its difference from the SARP for which the difference has been notified.

3.3 The differences notified will be made available to other Contracting States, normally in the terms used by the Contracting State when making the notification. In the interest of making the information as useful as possible, Contracting States are requested to ensure that:

- a) statements be as clear and concise as possible and be confined to essential points;
- b) the provision of extracts from national regulations not be considered as sufficient to satisfy the obligation to notify differences; and
- c) general comments, unclear acronyms and references be avoided.

* This applies only when the notification is made under 3.1 a).

ATTACHMENT E to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

**AMENDMENTS TO INTERNATIONAL STANDARDS AND
RECOMMENDED PRACTICES**

**AMENDMENT 80 TO
ANNEX 3 — *METEOROLOGICAL SERVICE
FOR INTERNATIONAL AIR NAVIGATION***

**AMENDMENT 45 TO
ANNEX 6 — *OPERATION OF AIRCRAFT*
PART I — *INTERNATIONAL COMMERCIAL AIR TRANSPORT
— AEROPLANES***

**AMENDMENT 38 TO
ANNEX 6 — *OPERATION OF AIRCRAFT*
PART II — *INTERNATIONAL GENERAL AVIATION — AEROPLANES***

**AMENDMENT 107 TO
ANNEX 8 — *AIRWORTHINESS OF AIRCRAFT***

**AMENDMENT 16 TO
ANNEX 14 — *AERODROMES,
VOLUME I — AERODROME DESIGN AND OPERATIONS***

**AMENDMENT 42 TO
ANNEX 15 — *AERONAUTICAL INFORMATION SERVICES***

RESOLUTION OF ADOPTION

The Council

Acting in accordance with the Convention on International Civil Aviation, and particularly with the provisions of Articles 37, 54 and 90 thereof,

1. *Hereby adopts* on 19 June 2020 Amendment 80 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Meteorological Service for International Air Navigation* which for convenience is designated Annex 3 to the Convention; Amendment 45 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Operation of Aircraft, International Commercial Air Transport — Aeroplanes* which for convenience is designated

Annex 6, Part I to the Convention; Amendment 38 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Operation of Aircraft, International General Aviation — Aeroplanes* which for convenience is designated Annex 6, Part II to the Convention; Amendment 107 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Airworthiness of Aircraft* which for convenience is designated Annex 8 to the Convention; Amendment 16 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Aerodromes, Aerodrome Design and Operations* which for convenience is designated Annex 14, Volume I to the Convention; and Amendment 42 to the International Standards and Recommended Practices contained in the document entitled *International Standards and Recommended Practices, Aeronautical Information Services* which for convenience is designated Annex 15 to the Convention;

2. *Prescribes* 30 September 2020 as the date upon which the said amendments shall become effective, except for any part thereof in respect of which a majority of the Contracting States have registered their disapproval with the Council before that date;

3. *Resolves* that the said amendments or such parts thereof as have become effective shall become applicable on 4 November 2021;

4. *Requests the Secretary General:*

- a) to notify each Contracting State immediately of the above action and immediately after 30 September 2020 of those parts of the amendments which have become effective;
- b) to request each Contracting State:
 - 1) to notify the Organization (in accordance with the obligation imposed by Article 38 of the Convention) of the differences that will exist on 4 November 2021 between its national regulations or practices and the provisions of the Standards in the Annexes as hereby amended, such notification to be made before 4 October 2021, and thereafter to notify the Organization of any further differences that arise;
 - 2) to notify the Organization before 4 October 2021 of the date or dates by which it will have complied with the provisions of the Standards in the Annexes as hereby amended;
- c) to invite each Contracting State to notify additionally any differences between its own practices and those established by the Recommended Practices, following the procedure specified in subparagraph b) above with respect to differences from Standards.

ATTACHMENT F to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

**AMENDMENTS TO ANNEX 3; ANNEX 6, PARTS I AND II;
ANNEX 8; ANNEX 14 – VOLUME I; AND ANNEX 15**

NOTES ON THE PRESENTATION OF THE AMENDMENTS

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

**TEXT OF AMENDMENTS TO THE
INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION**

**TO ANNEX 3; ANNEX 6, PARTS I AND II;
ANNEX 8; ANNEX 14, VOLUME I; AND ANNEX 15**

**ANNEX 3 — METEOROLOGICAL SERVICE FOR
INTERNATIONAL AIR NAVIGATION**

...

5.5 Special aircraft observations

Special observations shall be made by all aircraft whenever the following conditions are encountered or observed:

...

- i) as of ~~5-4~~ November ~~2020-2021~~, runway braking action encountered is not as good as reported.

...

**APPENDIX 3. TECHNICAL SPECIFICATIONS RELATED TO
METEOROLOGICAL OBSERVATIONS AND REPORTS**

...

4. OBSERVING AND REPORTING OF METEOROLOGICAL ELEMENTS

...

4.8 Supplementary information

...

4.8.1.5 Recommendation.— *Until ~~4-3~~ November ~~2020-2021~~, in METAR and SPECI, the following information should be included in the supplementary information, in accordance with regional air navigation agreement:*

- a) *information on sea-surface temperature, and the state of the sea or the significant wave height from aeronautical meteorological stations established on offshore structures in support of helicopter operations; and*
- b) *information on the state of the runway provided by the appropriate airport authority.*

Note 1.— The state of the sea is specified in the Manual on Codes (WMO-No. 306), Volume I.1, Part A — Alphanumeric Codes, Code Table 3700.

Note 2.— The state of the runway is specified in the Manual on Codes (WMO-No. 306), Volume I.1, Part A — Alphanumeric Codes, Code Tables 0366, 0519, 0919 and 1079.

4.8.1.6 Recommendation.— *As of 5 November 2020–2021, in METAR and SPECI, information on sea-surface temperature, and the state of the sea or the significant wave height, from aeronautical meteorological stations established on offshore structures in support of helicopter operations should be included in the supplementary information, in accordance with regional air navigation agreement.*

Note.— The state of the sea is specified in the Manual on Codes (WMO-No. 306), Volume I.1, Part A — Alphanumeric Codes, Code Table 3700.

...

**Table A3-2. Template for METAR and SPECI
(applicable until 4 November 2020–2021)**

Key: M = inclusion mandatory, part of every message;
C = inclusion conditional, dependent on meteorological conditions or method of observation;
O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in METAR and SPECI are shown in Table A3-5 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the PANS-ABC (Doc 8400).

<i>Element as specified in Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>		<i>Examples</i>	
Identification of the type of report (M)	Type of report (M)	METAR, METAR COR, SPECI or SPECI COR		METAR METAR COR SPECI	
Location indicator (M)	ICAO location indicator (M)	nnnn		YUDO ¹	
Time of the observation (M)	Day and actual time of the observation in UTC (M)	nnnnnZ		221630Z	
Identification of an automated or missing report (C) ²	Automated or missing report identifier (C)	AUTO or NIL		AUTO NIL	
END OF METAR IF THE REPORT IS MISSING.					
Surface wind (M)	Wind direction (M)	nnn	VRB	24004MPS (24008KT)	VRB01MPS (VRB02KT)
	Wind speed (M)	[P]nn[n]		19006MPS (19012KT) 00000MPS (00000KT) 140P49MPS (140P99KT)	
	Significant speed variations (C) ³	G[P]nn[n]		12003G09MPS	

<i>Element as specified in Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>			<i>Examples</i>
	Units of measurement (M)	MPS (or KT)			(12006G18KT) 24008G14MPS (24016G28KT)
	Significant directional variations (C) ⁴	nnnVnnn	—		02005MPS 350V070 (02010KT 350V070)
Visibility (M)	Prevailing or minimum visibility (M) ⁵	nnnn	C A V O K	0350 7000 9999 0800 2000 1200NW 6000 2800E 6000 2800	CAVOK
	Minimum visibility and direction of the minimum visibility (C) ⁶	nnnn[N] or nnnn[NE] or nnnn[E] or nnnn[SE] or nnnn[S] or nnnn[SW] or nnnn[W] or nnnn[NW]			
Runway visual range (C) ⁷	Name of the element (M)	R			R32/0400 R12R/1700 R10/M0050 R14L/P2000
	Runway (M)	nn[L]/or nn[C]/or nn[R]/			R16L/0650 R16C/0500 R16R/0450 R17L/0450
	Runway visual range (M)	[P or M]nnnn			R12/1100U R26/0550N R20/0800D R12/0700
	Runway visual range past tendency (C) ⁸	U, D or N			
Present weather (C) ^{2,9}	Intensity or proximity of present weather (C) ¹⁰	– or +	—	VC	
	Characteristics and type of present weather (M) ¹¹	DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or FZUP ¹² or FC ¹³ or SHGR or SHGS or SHRA or SHSN or SHUP ¹² or TSGR or TSGS or TSRA or TSSN or TSUP ¹² or UP ¹²	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG or <i>///</i> ¹²	FG or PO or FC or DS or SS or TS or SH or BLSN or BLSA or BLDU or VA	RA HZ VCFC +TSRA FG VCCH +DZ VA VCTS –SN MIFG VCBLA +TSRASN –SNRA DZ FG +SHSN BLSN UP FZUP TSUP FZUP <i>///</i>
Cloud (M) ¹⁴	Cloud amount and height of cloud base or vertical visibility (M)	FEWnnn or SCTnnn or BKNnnn or OVCnnn or FEW ¹² or SCT ¹² or BKN ¹² or OVC ¹² or ¹² or ¹² or ¹² or ¹²	VVnnn or VV ¹²	NSC or NCD ¹²	FEW015 VV005 OVC030 VV ¹² NSC SCT010 OVC020 BKN ¹² ¹²
	Cloud type (C) ²	CB or TCU or ¹²	—		BKN009TCU NCD SCT008 BKN025CB BKN025 ¹² ¹²
Air and dew-point temperature (M)	Air and dew-point temperature (M)	[M]nn/[M]nn			17/10 02/M08 M01/M10

<i>Element as specified in Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>				<i>Examples</i>		
Pressure values (M)	Name of the element (M)	Q				Q0995		
	QNH (M)	nnnn				Q1009 Q1022 Q0987		
Supplementary information (C)	Recent weather (C) ^{2,9}	RERASN or REFZDZ or REFZRA or REDZ or RE[SH]RA or RE[SH]SN or RESG or RESHGR or RESHGS or REBLSN or RESS or REDS or RETSRA or RETSSN or RETSGR or RETSGS or RETS or REFC or REVA or REPL or REUP ¹² or REFZUP ¹² or RETSUP ¹² or RESHUP ¹²				REFZRA RETSRA		
	Wind shear (C) ²	WS Rnn[L] or WS Rnn[C] or WS Rnn[R] or WS ALL RWY				WS R03 WS ALL RWY WS R18C		
	Sea-surface temperature and state of the sea or significant wave height (C) ¹⁵	W [M]nn/Sn or W[M]nn/Hn[h][n]				W15/S2 W12/H75		
	State of the runway (C) ¹⁶	Runway designator (M)	R nn[L]/ or Rnn[C]/ or Rnn[R]/		R/SNOCLO	R99/421594 R/SNOCLO R14L/CLRD//		
Runway deposits (M)	n or /	CLRD//						
Extent of runway contamination (M)	n or /							
Depth of deposit (M)	nn or //							
Friction coefficient or braking action (M)	nn or //							
Trend forecast (O) ¹⁷	Change indicator (M) ¹⁸	NOSIG	BECMG or TEMPO			NOSIG	BECMG FEW020	
	Period of change (C) ²		FMnnnn and/or TLnnnn or ATnnnn			TEMPO 25018G25MPS (TEMPO 25036G50KT)		
	Wind (C) ²		nnn[P]nn[n][G[P]nn[n]]MPS (or nnn[P]nn[G[P]nn]KT)			BECMG FM1030 TL1130 CAVOK	BECMG TL1700 0800 FG	
	Prevailing visibility (C) ²		nnnn			C A V O K	BECMG AT1800 9000 NSW	
	Weather phenomenon: intensity (C) ¹⁰		- or +	—	N S W		BECMG FM1900 0500 +SNRA	
	Weather phenomenon: characteristics and type (C) ^{2,9,11}		DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or SHGR or SHGS or SHRA or SHSN or TSGR or TSGS or TSRA or TSSN	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or FC or TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG			BECMG FM1100 SN TEMPO FM1130 BLSN	
	Cloud amount and height of cloud base or vertical visibility (C) ^{2,14}		FEWnnn or SCTnnn or BKNnnn or OVCnnn	VVnnn or VV///	N S C		TEMPO FM0330 TL0430 FZRA TEMPO TL1200 0600 BECMG AT1200 8000 NSW NSC	BECMG AT1130 OVC010
	Cloud type (C) ^{2,14}		CB or TCU	—			TEMPO TL1530 +SHRA BKN012CB	

Notes.—

1. Fictitious location.
2. To be included whenever applicable.
3. To be included in accordance with 4.1.5.2 c).
4. To be included in accordance with 4.1.5.2 b) 1).
5. To be included in accordance with 4.2.4.4 b).
6. To be included in accordance with 4.2.4.4 a).
7. To be included if visibility or runway visual range < 1 500 m; for up to a maximum of four runways in accordance with 4.3.6.5 b).
8. To be included in accordance with 4.3.6.6.
9. One or more, up to a maximum of three groups, in accordance with 4.4.2.9 a), 4.8.1.1 and Appendix 5, 2.2.4.1.
10. To be included whenever applicable; no qualifier for *moderate* intensity in accordance with 4.4.2.8.
11. Precipitation types listed under 4.4.2.3 a) may be combined in accordance with 4.4.2.9 c) and Appendix 5, 2.2.4.1. Only moderate or heavy precipitation to be indicated in trend forecasts in accordance with Appendix 5, 2.2.4.1.
12. For automated reports only.
13. Heavy used to indicate tornado or waterspout; moderate (no qualifier) to indicate funnel cloud not reaching the ground.
14. Up to four cloud layers in accordance with 4.5.4.3 e).
15. To be included in accordance with 4.8.1.5 a).
16. To be included in accordance with 4.8.1.5 b) until 4-3 November 2020-2021.
17. To be included in accordance with Chapter 6, 6.3.2.
18. Number of change indicators to be kept to a minimum in accordance with Appendix 5, 2.2.1, normally not exceeding three groups.

**Table A3-2. Template for METAR and SPECI
(applicable as of 5-4 November 2020-2021)**

Key: M = inclusion mandatory, part of every message;
 C = inclusion conditional, dependent on meteorological conditions or method of observation;
 O = inclusion optional.

Note 1.— The ranges and resolutions for the numerical elements included in METAR and SPECI are shown in Table A3-5 of this appendix.

Note 2.— The explanations for the abbreviations can be found in the PANS-ABC (Doc 8400).

<i>Element as specified in Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>		<i>Examples</i>	
Identification of the type of report (M)	Type of report (M)	METAR, METAR COR, SPECI or SPECI COR		METAR METAR COR SPECI	
Location indicator (M)	ICAO location indicator (M)	nnnn		YUDO ¹	
Time of the observation (M)	Day and actual time of the observation in UTC (M)	nnnnnZ		221630Z	
Identification of an automated or missing report (C) ²	Automated or missing report identifier (C)	AUTO or NIL		AUTO NIL	
END OF METAR IF THE REPORT IS MISSING.					
Surface wind (M)	Wind direction (M)	Nnn or III ¹²	VRB	24004MPS ///10MPS (24008KT)	VRB01MPS (VRB02KT)
	Wind speed (M)	[P]nn[n] or III ²		19006MPS (19012KT) 00000MPS (00000KT) 140P49MPS (140P99KT)	240//KT ///KT
	Significant speed variations (C) ³	G[P]nn[n]		12003G09MPS	

<i>Element as specified in Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>			<i>Examples</i>
	Units of measurement (M)	MPS (or KT)			(12006G18KT) 24008G14MPS (24016G28KT)
	Significant directional variations (C) ⁴	nnnVnnn	—		02005MPS 350V070 (02010KT 350V070)
Visibility (M)	Prevailing or minimum visibility (M) ⁵	Nnnn or IIII ¹²			C A V O K 0350 IIII CAVOK 7000 9999 0800 2000 1200NW 6000 2800E 6000 2800
	Minimum visibility and direction of the minimum visibility (C) ⁶	nnnn[N] or nnnn[NE] or nnnn[E] or nnnn[SE] or nnnn[S] or nnnn[SW] or nnnn[W] or nnnn[NW]			
Runway visual range (C) ⁷	Name of the element (M)	R			R32/0400
	Runway (M)	nn[L]/or nn[C]/or nn[R]/			R12R/1700 R10/M0050 R14L/P2000
	Runway visual range (M)	[P or M]nnnn or IIII ¹²			R16L/0650 R16C/0500 R16L/III R10/III R16R/0450 R17L/0450
	Runway visual range past tendency (C) ⁸	U, D or N			R12/1100U R26/0550N R20/0800D R12/0700
Present weather (C) ^{2,9}	Intensity or proximity of present weather (C) ¹⁰	– or +	—	VC	
	Characteristics and type of present weather (M) ¹¹	DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or FZUP ¹² or FC ¹³ or SHGR or SHGS or SHRA or SHSN or SHUP ¹² or TSGR or TSGS or TSRA or TSSN or TSUP ¹² or UP ¹²	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or MIFG or PRFG or // ¹²	FG or PO or FC or DS or SS or TS or SH or BLSN or BLSA or BLDU or VA	RA HZ VCFG +TSRA FG VCSH +DZ VA VCTS –SN MIFG VCBSA +TSRASN –SNRA DZ FG +SHSN BLSN UP FZUP TSUP FZUP //
Cloud (M) ¹⁴	Cloud amount and height of cloud base or vertical visibility (M)	FEWnnn or SCTnnn or BKNnnn or OVCnnn or FEW/III ¹² or SCT/III ¹² or BKN/III ¹² or OVC/III ¹² or //nnn ¹² or //III ¹²	VVnnn or VV/III ¹²	NSC or NCD ¹²	FEW015 VV005 OVC030 VV/III NSC SCT010 OVC020 BKN/III //015

Element as specified in Chapter 4	Detailed content	Template(s)				Examples
	Cloud type (C) ²	CB or TCU or /// ¹²	—			BKN009TCU NCD SCT008 BKN025CB BKN025/// /////CB //////// BKN///TCU
Air and dew-point temperature (M)	Air and dew-point temperature (M)	[M]nn/[M]nn or ///[M]nn ¹² or [M]nn/// ¹² or ///// ¹²				17/10 ///10 17/// 02/M08 M01/M10
Pressure values (M)	Name of the element (M)	Q				Q0995 Q1009 Q1022 Q/// Q0987
	QNH (M)	Nnnn or /// ¹²				
Supplementary information (C)	Recent weather (C) ^{2, 9}	RERASN or REFZDZ or REFZRA or REDZ or RE[SH]RA or RE[SH]SN or RESG or RESHGR or RESHGS or REBLSN or RESS or REDS or RETSRA or RETSSN or RETSGR or RETSGS or RETS or REFC or REVA or REPL or REUP ¹² or REFZUP ¹² or RETSUP ¹² or RESHUP ¹² or RE// ¹²				REFZRA RETSRA
	Wind shear (C) ²	WS Rnn[L] or WS Rnn[C] or WS Rnn[R] or WS ALL RWY				WS R03 WS ALL RWY WS R18C
	Sea-surface temperature and state of the sea or significant wave height (C) ¹⁵	W[M]nn/Sn or W//Sn or W[M]nn/S/ or W[M]nn/Hn[n][n] or W//Hn[n][n] or W[M]nn/H///				W15/S2 W12/H75 W///S3 WM01/S/ W///H104 W17/H/// W///H/// W///S/
Trend forecast (O) ¹⁶	Change indicator (M) ¹⁷	NOSIG	BECMG or TEMPO			NOSIG BECMG FEW020
	Period of change (C) ²		FMnnnn and/or TLnnnn or ATnnnn			TEMPO 25018G25MPS (TEMPO 25036G50KT)
	Wind (C) ²		nnn[P]nn[n][G[P]nn[n]]MPS (or nnn[P]nn[G[P]nn]KT)			BECMG FM1030 TL1130 CAVOK BECMG TL1700 0800 FG
	Prevailing visibility (C) ²		nnnn			BECMG AT1800 9000 NSW
	Weather phenomenon: intensity (C) ¹⁰		- or +	—	N S W	BECMG FM1900 0500 +SNRA
	Weather phenomenon: characteristics and type (C) ^{2, 9, 11}		DZ or RA or SN or SG or PL or DS or SS or FZDZ or FZRA or SHGR or SHGS or SHRA or SHSN or TSGR or TSGS or TSRA or TSSN	FG or BR or SA or DU or HZ or FU or VA or SQ or PO or FC or TS or BCFG or BLDU or BLSA or BLSN or DRDU or DRSA or DRSN or FZFG or PRFG	N S W	BECMG FM1100 SN TEMPO FM1130 BLSN TEMPO FM0330 TL0430 FZRA TEMPO TL1200 0600 BECMG AT1200 8000 NSW NSC BECMG AT1130 OVC010 TEMPO TL1530 +SHRA BKN012CB
	Cloud amount and height of cloud base or vertical visibility (C) ^{2, 14}		FEWnnn or SCTnnn or BKNnnn or OVCnnn	VVnnn or VV///	N S C	

<i>Element as specified in Chapter 4</i>	<i>Detailed content</i>	<i>Template(s)</i>				<i>Examples</i>
	Cloud type (C) ^{2,14}		CB or TCU	—		

Notes.—

1. Fictitious location.
2. To be included whenever applicable.
3. To be included in accordance with 4.1.5.2 c).
4. To be included in accordance with 4.1.5.2 b) 1).
5. To be included in accordance with 4.2.4.4 b).
6. To be included in accordance with 4.2.4.4 a).
7. To be included if visibility or runway visual range < 1 500 m; for up to a maximum of four runways in accordance with 4.3.6.5 b).
8. To be included in accordance with 4.3.6.6.
9. One or more, up to a maximum of three groups, in accordance with 4.4.2.9 a), 4.8.1.1 and Appendix 5, 2.2.4.1.
10. To be included whenever applicable; no qualifier for *moderate* intensity in accordance with 4.4.2.8.
11. Precipitation types listed under 4.4.2.3 a) may be combined in accordance with 4.4.2.9 c) and Appendix 5, 2.2.4.1. Only moderate or heavy precipitation to be indicated in trend forecasts in accordance with Appendix 5, 2.2.4.1.
12. When a meteorological element is temporarily missing, or its value considered temporarily as incorrect, it is replaced by “/” for each digit of the abbreviation of the text message and indicated as missing for its IWXXM version.
13. Heavy used to indicate tornado or waterspout; moderate (no qualifier) to indicate funnel cloud not reaching the ground.
14. Up to four cloud layers in accordance with 4.5.4.3 e).
15. To be included in accordance with 4.8.1.5 a).
16. To be included in accordance with Chapter 6, 6.3.2.
17. Number of change indicators to be kept to a minimum in accordance with Appendix 5, 2.2.1, normally not exceeding three

...

Table A3-5. Ranges and resolutions for the numerical elements included in METAR and SPECI

<i>Element as specified in Chapter 4</i>		<i>Range</i>	<i>Resolution</i>	
Runway:	(no units)	01 – 36	1	
Wind direction:	°true	000 – 360	10	
Wind speed:	MPS	00 – 99*	1	
	KT	00 – 199*	1	
Visibility:	M	0000 – 0750	50	
	M	0800 – 4 900	100	
	M	5 000 – 9 000	1 000	
	M	10 000 –	0 (fixed value: 9 999)	
Runway visual range:	M	0000 – 0375	25	
	M	0400 – 0750	50	
	M	0800 – 2 000	100	
Vertical visibility:	30's M (100's FT)	000 – 020	1	
Clouds: height of cloud base:	30's M (100's FT)	000 – 100	1	
Air temperature; Dew-point temperature:	°C	–80 – +60	1	
QNH:	hPa	0850 – 1 100	1	
Sea-surface temperature:	°C	–10 – +40	1	
State of the sea:	(no units)	0 – 9	1	
Significant wave height:	M	0 – 999	0.1	
State of the runway <i>[Until 4-3 November 2020-2021]</i>	Runway designator:	(no units)	01 – 36; 88; 99	1
	Runway deposits:	(no units)	0 – 9	1
	Extent of runway contamination:	(no units)	1; 2; 5; 9	—

F-10

<i>Element as specified in Chapter 4</i>		<i>Range</i>	<i>Resolution</i>
	Depth of deposit: (no units)	00 – 90; 92 – 99	1
	Friction coefficient/braking action: (no units)	00 – 95; 99	1
<p>* There is no aeronautical requirement to report surface wind speeds of 50 m/s (100 kt) or more; however, provision has been made for reporting wind speeds up to 99 m/s (199 kt) for non-aeronautical purposes, as necessary.</p>			

ANNEX 6 — OPERATION OF AIRCRAFT
PART I — INTERNATIONAL COMMERCIAL AIR TRANSPORT
— AEROPLANES

...

CHAPTER 1. DEFINITIONS

...

Contaminated runway.^{††} A runway is contaminated when a significant portion of the runway surface area (whether in isolated areas or not) within the length and width being used is covered by one or more of the substances listed in the runway surface condition descriptors.

Note.— Further information on runway surface condition descriptors can be found in the Annex 14, Volume I — *Definitions*.

...

Dry runway.^{††} A runway is considered dry if its surface is free of visible moisture and not contaminated within the area intended to be used.

...

Wet runway.^{††} The runway surface is covered by any visible dampness or water up to and including 3 mm deep within the intended area of use.

...

CHAPTER 4. FLIGHT OPERATIONS

...

4.4.2.1 As of 5 4 November 2020 2021, the pilot-in-command shall report the runway braking action special air-report (AIREP) when the runway braking action encountered is not as good as reported.

Note.— The procedures for making special air-reports regarding runway braking action are contained in the PANS-ATM (Doc 4444), Chapter 4 and Appendix 1.

...

^{††} Applicable as of 5 4 November 2020 2021.

4.4.11 Aeroplane operating procedures for landing performance
(As of ~~5-4~~ November ~~2020-2021~~)

An approach to land shall not be continued below 300 m (1 000 ft) above aerodrome elevation unless the pilot-in-command is satisfied that, with the runway surface condition information available, the aeroplane performance information indicates that a safe landing can be made.

Note 1.— The procedures used by aerodromes to assess and report runway surface conditions are contained in the PANS-Aerodromes (Doc 9981) and those for using runway surface condition information on board aircraft are in the Aeroplane Performance Manual (Doc 10064).

Note 2.— Guidance on development of aeroplane performance information is contained in the Aeroplane Performance Manual (Doc 10064).

...

**CHAPTER 5. AEROPLANE PERFORMANCE
OPERATING LIMITATIONS**

...

5.2.6 Until ~~4-3~~ November ~~2020-2021~~, in applying the Standards of this chapter, account shall be taken of all factors that significantly affect the performance of the aeroplane, including but not limited to: the mass of the aeroplane, the operating procedures, the pressure-altitude appropriate to the elevation of the aerodrome, the ambient temperature, the wind, the runway slope, and surface conditions of the runway i.e., presence of snow, slush, water, and/or ice for landplanes, water surface condition for seaplanes. Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

5.2.6 As of ~~5-4~~ November ~~2020-2021~~, in applying the Standards of this chapter, account shall be taken of all factors that significantly affect the performance of the aeroplane, including but not limited to: the mass of the aeroplane, the operating procedures, the pressure-altitude appropriate to the elevation of the aerodrome, the runway slope, the ambient temperature, the wind, and surface conditions of the runway at the expected time of use, i.e. presence of snow, slush, water, and/or ice for landplanes, water surface condition for seaplanes. Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

Note.— Guidelines for using runway surface condition information on board aircraft in accordance with 4.4.11 are contained in the Aeroplane Performance Manual (Doc 10064).

...

5.2.11 *Landing.* The aeroplane shall, at the aerodrome of intended landing and at any alternate aerodrome, after clearing all obstacles in the approach path by a safe margin, be able to land, with assurance that it can come to a stop or, for a seaplane, to a satisfactorily low speed, within the landing distance available. Allowance shall be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.

Note.— As of 5-4 November 2020-2021, guidelines on appropriate margins for the “at time of landing” distance assessment is contained in the Aeroplane Performance Manual (Doc 10064).

**ANNEX 6 — OPERATION OF AIRCRAFT
PART II — INTERNATIONAL GENERAL AVIATION
— AEROPLANES**

...

SECTION 2

GENERAL AVIATION OPERATIONS

...

CHAPTER 2.2 FLIGHT OPERATIONS

2.2.4 In-flight procedures

2.2.4.2 Weather reporting by pilots
(Applicable until 4-3 November 2020-2021)

Recommendation.— *When weather conditions likely to affect the safety of other aircraft are encountered, they should be reported as soon as possible.*

Note.— *The procedures for making meteorological observations on board aircraft in flight and for recording and reporting them are contained in Annex 3, the PANS-ATM (Doc 4444) and the appropriate Regional Supplementary Procedures (Doc 7030).*

2.2.4.2 Meteorological and operational observations by pilots
(Applicable as of 5-4 November 2020-2021)

2.2.4.2.1 **Recommendation.**— *When meteorological conditions likely to affect the safety of other aircraft are encountered, they should be reported as soon as possible.*

Note.— *The procedures for making meteorological observations on board aircraft in flight and for recording and reporting them are contained in Annex 3, the PANS-ATM (Doc 4444) and the appropriate Regional Supplementary Procedures (Doc 7030).*

2.2.4.2.2 **Recommendation.**— *The pilot-in-command should report runway braking action when the runway braking action encountered is not as good as reported.*

Note.— *The procedures for making special air-reports regarding runway braking action are contained in the PANS-ATM (Doc 4444), Chapter 4, and Appendix 1.*

...

2.2.4.4 Flight crew members at duty stations*

* In 2020-2021, paragraph 2.2.4.4 will be renumbered as 2.2.4.5.

2.2.4.4.1 *Take-off and landing.* All flight crew members required to be on flight deck duty shall be at their stations.

2.2.4.4.2 *En route.* All flight crew members required to be on flight deck duty shall remain at their stations except when their absence is necessary for the performance of duties in connection with the operation of the aeroplane or for physiological needs.

2.2.4.4.3 *Seat belts.* All flight crew members shall keep their seat belts fastened when at their stations.

2.2.4.4.4 *Safety harness.* When safety harnesses are provided, any flight crew member occupying a pilot's seat shall keep the safety harness fastened during the take-off and landing phases; all other flight crew members shall keep their safety harnesses fastened during the take-off and landing phases unless the shoulder straps interfere with the performance of their duties, in which case the shoulder straps may be unfastened but the seat belt must remain fastened.

Note.— Safety harness includes shoulder strap(s) and a seat belt which may be used independently.

2.2.4.4 Aeroplane operating procedures for landing performance (As of ~~5-4~~ November ~~2020-2021~~)

Recommendation.— *An approach to land should not be continued below 300 m (1 000 ft) above aerodrome elevation unless the pilot-in-command is satisfied that, with the runway surface condition information available, the aeroplane performance information indicates that a safe landing can be made.*

Note 1.— The procedures for using runway surface condition information on board aircraft are contained in the PANS-Aerodromes (Doc 9981) and in the performance section of the aeroplane flight manual; and for aeroplanes certificated in accordance with Annex 8, Part IIIB, in the Aeroplane Performance Manual (Doc 10064).

Note 2.— Guidance on development of aeroplane performance information for aeroplanes certificated in accordance with Annex 8, Part IIIB is contained in the Aeroplane Performance Manual (Doc 10064).

...

2.2.4.5 Use of oxygen[†]

...

[†] In ~~2020-2021~~, paragraphs 2.2.4.5 to 2.2.4.8 will be renumbered as 2.2.4.6 to 2.2.4.9.

SECTION 3

LARGE AND TURBOJET AEROPLANES

...

3.4.4.5 Aeroplane operating procedures for landing performance
(As of ~~5-4~~ November ~~2020-2021~~)

An approach to land shall not be continued below 300 m (1 000 ft) above aerodrome elevation unless the pilot-in-command is satisfied that, with the runway surface condition information available, the aeroplane performance information indicates that a safe landing can be made.

Note 1.— The procedures for using runway surface condition information on board aircraft are contained in the PANS-Aerodromes (Doc 9981) and in the performance section of the aeroplane flight manual; for aeroplanes certificated in accordance with Annex 8, Part IIIB, in the Aeroplane Performance Manual (Doc 10064).

Note 2.— Guidance on development of aeroplane performance information for aeroplanes certificated in accordance with Annex 8, Part IIIB is contained in the Aeroplane Performance Manual (Doc 10064).

...

**CHAPTER 3.5 AEROPLANE PERFORMANCE
OPERATING LIMITATIONS**

...

**3.5.2 Applicable to aeroplanes certificated in accordance with
Parts IIIA and IIIB of Annex 8**

...

3.5.2.5 Until ~~4-3~~ November ~~2020-2021~~, in applying the Standards of this chapter, account shall be taken of all factors that significantly affect the performance of the aeroplane (such as: mass, operating procedures, the pressure altitude appropriate to the elevation of the aerodrome, temperature, wind, runway gradient and condition of runway, i.e. presence of slush, water and/or ice, for landplanes, water surface condition for seaplanes). Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

3.5.2.5 As of ~~5-4~~ November ~~2020-2021~~, in applying the Standards of this chapter, account shall be taken of all factors that significantly affect the performance of the aeroplane (such as: mass, operating procedures, the pressure altitude appropriate to the elevation of the aerodrome, runway slope, the ambient temperature, wind, and surface conditions of the runway at the expected time of use, i.e. presence of slush, water and/or ice, for landplanes, water surface condition for seaplanes). Such factors shall be taken into account directly as operational parameters or indirectly by means of allowances or margins, which may be provided in the scheduling of performance data or in the comprehensive and detailed code of performance in accordance with which the aeroplane is being operated.

Note.— As of 5-4 November 2020-2021, guidelines for using runway surface condition information on board aircraft in accordance with 2.2.4.4 are contained in the PANS-Aerodromes (Doc 9981) and in the Aeroplane Performance Manual (Doc 10064).

...

3.5.2.7 *Take-off.* The aeroplane shall be able, in the event of a critical engine failing at any point in the take-off, either to discontinue the take-off and stop within either the accelerate-stop distance available or the runway available, or to continue the take-off and clear all obstacles along the flight path by an adequate margin until the aeroplane is in a position to comply with 3.5.2.8.

Note.— Until 4-3 November 2020-2021, “An adequate margin” referred to in this provision is illustrated by the appropriate examples included in Attachment B to Annex 6, Part I.

Note.— As of 5-4 November 2020-2021, “An adequate margin” referred to in this provision is illustrated by the appropriate examples included in the Aeroplane Performance Manual (Doc 10064).

...

3.5.2.9 *Landing.* The aeroplane shall, at the aerodrome of intended landing and at any alternate aerodrome, after clearing all obstacles in the approach path by a safe margin, be able to land, with assurance that it can come to a stop or, for a seaplane, to a satisfactorily low speed, within the landing distance available. Allowance shall be made for expected variations in the approach and landing techniques, if such allowance has not been made in the scheduling of performance data.

Note.— As of 5-4 November 2020-2021, guidance on appropriate margins for the “at time of landing assessment” are contained in the Aeroplane Performance Manual (Doc 10064).

ANNEX 8 — AIRWORTHINESS OF AIRCRAFT

...

PART IIIB. AEROPLANES OVER 5 700 KG FOR WHICH APPLICATION FOR CERTIFICATION WAS SUBMITTED ON OR AFTER 2 MARCH 2004

...

CHAPTER 2. FLIGHT

2.2 Performance

2.2.1 Until 4-3 November 2020-2021, sufficient data on the performance of the aeroplane shall be determined and scheduled in the flight manual to provide operators with the necessary information for the purpose of determining the total mass of the aeroplane on the basis of the values, peculiar to the proposed flight, of the relevant operational parameters, in order that the flight may be made with reasonable assurance that a safe minimum performance for that flight will be achieved.

2.2.1 As of 5-4 November 2020-2021, sufficient data on the performance of the aeroplane shall be determined and furnished in the flight manual to provide operators with the necessary information for the purpose of determining the maximum total mass of the aeroplane at the time of take-off that would allow the flight to be made with reasonable assurance that a safe minimum performance for that flight will be achieved considering the values of the operational parameter peculiar to the proposed flight.

2.2.2 Until 4-3 November 2020-2021, achieving the performance scheduled for the aeroplane shall take into consideration human performance and in particular shall not require exceptional skill or alertness on the part of the flight crew.

2.2.2 As of 5-4 November 2020-2021, achieving the performance furnished in the flight manual for the aeroplane shall take into consideration human performance and in particular shall not require exceptional skill or alertness on the part of the flight crew.

Note.— Guidance material on human performance can be found in the Human Factors Training Manual (Doc 9683).

2.2.3 Until 4-3 November 2020-2021, the scheduled performance of the aeroplane shall be consistent with compliance with 1.3.1 and with the operation in logical combinations of those of the aeroplane's systems and equipment, the operation of which may affect performance.

2.2.3 As of 5-4 November 2020-2021, the performance data in the flight manual of the aeroplane shall be consistent with compliance with 1.3.1 and with the operation in logical combinations of those of the aeroplane's systems and equipment, the operation of which may affect performance.

2.2.4 Minimum performance

2.2.4.1 Until ~~4-3~~ November ~~2020-2021~~, at the maximum masses scheduled (see 2.2.7) for take-off and for landing as functions of the aerodrome elevation or pressure-altitude either in the standard atmosphere or in specified still air atmospheric conditions, and, for seaplanes, in specified conditions of smooth water, the aeroplane shall be capable of accomplishing the minimum performances specified in 2.2.5 and 2.2.6, respectively, not considering obstacles, or runway or water run length.

2.2.4.1 As of ~~5-4~~ November ~~2020-2021~~, for aeroplanes for which application for certification was submitted before 2 March 2019, at the maximum masses scheduled for take-off and for landing permitted by the performance data in the flight manual (see 2.2.7.2) as functions of the aerodrome elevation or pressure-altitude either in the standard atmosphere or in specified still air atmospheric conditions, and, for seaplanes, in specified conditions of smooth water, the aeroplane shall be capable of accomplishing the minimum performances specified in 2.2.5 and 2.2.6, respectively, not considering obstacles, or runway or water run length.

Note.— This Standard permits the maximum take-off mass and maximum landing mass to be scheduled in the flight manual against, for example:

- aerodrome elevation, or
- pressure-altitude at aerodrome level, or
- pressure-altitude and atmospheric temperature at aerodrome level,

so as to be readily usable when applying the national code on aeroplane performance operating limitations.

2.2.4.2 As of ~~5-4~~ November ~~2020-2021~~, for aeroplanes for which application for certification was submitted on or after 2 March 2019, at the maximum masses scheduled for take-off and for landing permitted by the performance data in the flight manual (see 2.2.7.3) as functions of the aerodrome elevation or pressure-altitude either in the standard atmosphere or in specified still air atmospheric conditions, and, for seaplanes, in specified conditions of smooth water, the aeroplane shall be capable of accomplishing the minimum performances specified in 2.2.5 and 2.2.6, respectively, not considering obstacles, or runway or water run length.

2.2.5 Take-off

- a) The aeroplane shall be capable of taking off assuming the critical engine to fail (see 2.2.7), the remaining engine(s) being operated within their take-off power or thrust limitations.
- b) After the end of the period during which the take-off power or thrust may be used, the aeroplane shall be capable of continuing to climb, with the critical engine inoperative and the remaining engine(s) operated within their maximum continuous power or thrust limitations, up to a height that it can maintain and at which it can continue safe flight and landing.
- c) Until ~~4-3~~ November ~~2020-2021~~, the minimum performance at all stages of take-off and climb shall be sufficient to ensure that under conditions of operation departing slightly from the idealized conditions for which data is scheduled (see 2.2.7), the departure from the scheduled values is not disproportionate.

- c) As of 5-4 November 2020-2021, the minimum performance at all stages of take-off and climb shall be sufficient to ensure that under conditions of operation departing slightly from the idealized conditions for which data is furnished (see 2.2.7), the departure from the furnished values is not disproportionate.

...

2.2.7 Scheduling of performance

Until 4-3 November 2020-2021, performance data shall be determined and scheduled in the flight manual so that its application by means of the operating rules to which the aeroplane is to be operated in accordance with 5.2 of Annex 6, Part I, will provide a safe relationship between the performance of the aeroplane and the aerodromes and routes on which it is capable of being operated. Performance data shall be determined and scheduled for the following stages for the ranges of mass, altitude or pressure-altitude, wind velocity, gradient of the take-off and landing surface for landplanes; water surface conditions, density of water and strength of current for seaplanes; and for any other operational variables for which the aeroplane is to be certificated.

...

2.2.7 Performance data

2.2.7.1 As of 5-4 November 2020-2021, the following stages are considered, as applicable:

- a) *Take-off*. The take-off performance data shall include the accelerate-stop distance and the take-off path.
- b) *Accelerate-stop distance*. The accelerate-stop distance shall be the distance required to accelerate and stop, or, for a seaplane to accelerate and come to a satisfactorily low speed, assuming the critical engine to fail suddenly at a point not nearer to the start of the take-off than that assumed when determining the take-off path (see 2.2.7.1 c)). Additionally, for landplanes, the distance shall be based on operations with all the wheel brake assemblies at the fully worn limit of their allowable wear range.

...

2.2.7.2 As of 5-4 November 2020-2021, for aeroplanes for which application for certification was submitted before 2 March 2019, performance data shall be determined and furnished in the flight manual so that its application by means of the operating rules to which the aeroplane is to be operated in accordance with 5.2 of Annex 6, Part I, will provide a safe relationship between the performance of the aeroplane and the aerodromes and routes on which it is capable of being operated. Performance data shall be determined and furnished for the stages in 2.2.7.1 a) to e) for the ranges of mass, altitude or pressure-altitude, wind velocity, gradient of the take-off and landing surface for landplanes; water surface conditions, density of water and strength of current for seaplanes; and for any other operational variables for which the aeroplane is to be certificated.

2.2.7.3 As of 5-4 November 2020-2021, for aeroplanes for which application for certification was submitted on or after 2 March 2019, performance data shall be determined and furnished in the flight manual. Such performance data shall be so that its application by means of the operating rules to which the aeroplane is to be operated in accordance with 5.2 of Annex 6, Part I, will provide a safe relationship between the performance of the aeroplane and the aerodromes and routes on which it is capable of being operated. Performance data shall be determined and furnished for the stages in 2.2.7.1 a) to f) for the ranges of mass, pressure-altitude, ambient temperature, wind velocity, and for any other operational

variables for which the aeroplane is to be certificated. Additionally, the take-off performance data and the at time of landing performance data shall include the effect of the gradient and conditions (dry, wet or contaminated) of the take-off or landing surface as appropriate for landplanes, and water surface conditions, density of water and strength of current for seaplanes. The at time of take-off landing performance data need only to be determined with standard day temperature and level, dry landing surfaces for landplanes, but shall include the effect of water surface conditions, density of water, and strength of current for seaplanes.

ANNEX 14 — AERODROMES
VOLUME I — AERODROME DESIGN AND OPERATIONS

...

CHAPTER 1. GENERAL

1.1 Definitions

...

Runway. A defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

Runway condition assessment matrix (RCAM). [‡] A matrix allowing the assessment of the runway condition code, using associated procedures, from a set of observed runway surface condition(s) and pilot report of braking action.

Runway condition code (RWYCC). [‡] A number describing the runway surface condition to be used in the runway condition report.

Note.— The purpose of the runway condition code is to permit an operational aeroplane performance calculation by the flight crew. Procedures for the determination of the runway condition code are described in the PANS-Aerodromes (Doc 9981).

Runway condition report (RCR). [‡] A comprehensive standardized report relating to runway surface condition(s) and its effect on the aeroplane landing and take-off performance.

...

Runway surface condition(s). [‡] A description of the condition(s) of the runway surface used in the runway condition report which establishes the basis for the determination of the runway condition code for aeroplane performance purposes.

Note 1.— The runway surface conditions used in the runway condition report establish the performance requirements between the aerodrome operator, aeroplane manufacturer and aeroplane operator.

Note 2.— Aircraft de-icing chemicals and other contaminants are also reported but are not included in the list of runway surface condition descriptors because their effect on runway surface friction characteristics and the runway condition code cannot be evaluated in a standardized manner.

Note 3.— Procedures on determining runway surface conditions are available in the PANS-Aerodromes (Doc 9981).

[‡] Applicable as of 5-4 November 2020-2021.

...

Signal area. An area on an aerodrome used for the display of ground signals.

Slush. † Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8.

Note.— Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.

Snow (on the ground). †

- a) *Dry snow.* Snow which can be blown if loose or, if compacted by hand, will fall apart again upon release; specific gravity: up to but not including 0.35.
- b) *Wet snow.* Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.
- c) *Compacted snow.* Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.

Station declination. An alignment variation between the zero degree radial of a VOR and true north, determined at the time the VOR station is calibrated.

...

CHAPTER 2. AERODROME DATA

...

2.9 Condition of the movement area and related facilities

...

2.9.2 The condition of the movement area and the operational status of related facilities shall be monitored, and reports on matters of operational significance affecting aircraft and aerodrome operations shall be provided in order to take appropriate action, particularly in respect of the following:

- a) construction or maintenance work;
- b) rough or broken surfaces on a runway, a taxiway or an apron;
- c) snow, slush, ice, or frost on a runway, a taxiway or an apron; [*applicable until 4-3 November 2020-2021*]
- c) water, snow, slush, ice, or frost on a runway, a taxiway or an apron; [*applicable as of 5-4 November 2020-2021*]

† Applicable until 4-3 November 2020-2021.

- d) water on a runway, a taxiway or an apron; [*applicable until 4-3 November 2020-2021*]
- e) anti-icing or de-icing liquid chemicals or other contaminants on a runway, taxiway or apron;
- f) snow banks or drifts adjacent to a runway, a taxiway or an apron;
- g) other temporary hazards, including parked aircraft;
- h) failure or irregular operation of part or all of the aerodrome visual aids; and
- i) failure of the normal or secondary power supply.

Note 1.— Until 4-3 November 2020-2021, other contaminants may include mud, dust, sand, volcanic ash, oil and rubber. Annex 6, Part I — International Commercial Air Transport — Aeroplanes, Attachment C provides guidance on the description of runway surface conditions. Additional guidance is included in the Airport Services Manual (Doc 9137), Part 2.

Note 2.— Until 4-3 November 2020-2021, particular attention would have to be given to the simultaneous presence of snow, slush, ice, wet ice, snow on ice with anti-icing or de-icing liquid chemicals.

Note 3.— Until 4-3 November 2020-2021, see 2.9.11 for a list of winter contaminants to be reported.

Note 1.— As of 5-4 November 2020-2021, other contaminants may include mud, dust, sand, volcanic ash, oil and rubber. Procedures for monitoring and reporting the conditions of the movement area are included in the PANS-Aerodromes (Doc 9981).

Note 2.— As of 5-4 November 2020-2021, the Aeroplane Performance Manual (Doc 10064) provides guidance on aircraft performance calculation requirements regarding the description of runway surface conditions in 2.9.2 c), e) and f).

Note 3.— As of 5-4 November 2020-2021, origin and evolution of data, assessment process and the procedures are prescribed in the PANS-Aerodromes (Doc 9981). These procedures are intended to fulfil the requirements to achieve the desired level of safety for aeroplane operations prescribed by Annex 6 and Annex 8 and to provide the information fulfilling the syntax requirements for dissemination specified in Annex 15, the PANS-ATM (Doc 4444) and the PANS-AIM (Doc 10066).

2.9.3 Until 4-3 November 2020-2021, to facilitate compliance with 2.9.1 and 2.9.2, inspections of the movement area shall be carried out each day at least once where the code number is 1 or 2 and at least twice where the code number is 3 or 4.

Note.— Guidance on carrying out daily inspections of the movement area is given in the Airport Services Manual (Doc 9137), Part 8 and in the Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476).

2.9.3 As of 5-4 November 2020-2021, to facilitate compliance with 2.9.1 and 2.9.2, the following inspections shall be carried out each day:

- a) for the movement area, at least once where the aerodrome reference code number is 1 or 2 and at least twice where the aerodrome reference code number is 3 or 4; and
- b) for the runway(s), inspections in addition to a) whenever the runway surface conditions may have changed significantly due to meteorological conditions.

Note 1.— Procedures on carrying out daily inspections of the movement area are given in the PANS-Aerodromes (Doc 9981). Further guidance is available in the Airport Services Manual (Doc 9137), Part 8, in the Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476) and in the Advanced Surface Movement Guidance and Control Systems (A-SMGCS) Manual (Doc 9830).

Note 2.— The PANS-Aerodromes (Doc 9981) contains clarifications on the scope of a significant change in the runway surface conditions.

2.9.4 Recommendation.— *Until 4-3 November 2020-2021, personnel assessing and reporting runway surface conditions required in 2.9.2 and 2.9.8 should be trained and competent to meet criteria set by the State.*

Note.— Guidance on criteria is included in the Airport Services Manual (Doc 9137), Part 8, Chapter 7.

2.9.4 As of 5-4 November 2020-2021, personnel assessing and reporting runway surface conditions required in 2.9.2 and 2.9.5 shall be trained and competent to perform their duties.

Note 1.— Guidance on training of personnel is given in Attachment A, Section 6 [applicable as of 5-4 November 2020-2021].

Note 2.— Information on training for personnel assessing and reporting runway surface conditions is available in the PANS-Aerodromes (Doc 9981).

Water on a runway [applicable until 4-3 November 2020-2021]

2.9.5 Recommendation.— *Whenever water is present on a runway, a description of the runway surface conditions should be made available using the following terms:*

DAMP — the surface shows a change of colour due to moisture.

WET — the surface is soaked but there is no standing water.

STANDING WATER — for aeroplane performance purposes, a runway where more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by water more than 3 mm deep.

2.9.6 Information that a runway or portion thereof may be slippery when wet shall be made available.

Note.— The determination that a runway or portion thereof may be slippery when wet is not based solely on the friction measurement obtained using a continuous friction measuring device. Supplementary tools to undertake this assessment are described in the Airport Services Manual (Doc 9137), Part 2.

2.9.7 Notification shall be given to aerodrome users when the friction level of a paved runway or portion thereof is less than that specified by the State in accordance with 10.2.3.

Note.— Guidance on conducting a runway surface friction characteristics evaluation programme that includes determining and expressing the minimum friction level is provided in Attachment A, Section 7.

Snow, slush, ice or frost on a runway [applicable until 4³ November 2020-2021]

Note 1.— The intent of these specifications is to satisfy the SNOWTAM and NOTAM promulgation requirements contained in Annex 15 and the PANS-AIM (Doc 10066).

Note 2.— Runway surface condition sensors may be used to detect and continuously display current or predicted information on surface conditions such as the presence of moisture, or imminent formation of ice on pavements.

2.9.8 Whenever an operational runway is contaminated by snow, slush, ice or frost, the runway surface condition shall be assessed and reported.

Note.— Guidance on assessment of snow- and ice-covered paved surfaces is provided in Attachment A, Section 6.

2.9.9 **Recommendation.**— *Runway surface friction measurements made on a runway that is contaminated by slush, wet snow or wet ice should not be reported unless the reliability of the measurement relevant to its operational use can be assured.*

Note.— Contaminant drag on the equipment's measuring wheel, amongst other factors, may cause readings obtained in these conditions to be unreliable.

2.9.10 **Recommendation.**— *When friction measurements are taken as part of the assessment, the performance of the friction measuring device on compacted snow- or ice-covered surfaces should meet the standard and correlation criteria set or agreed by the State.*

Note.— Guidance on criteria for, and correlation between, friction measuring devices is included in the Airport Services Manual (Doc 9137), Part 2.

2.9.11 **Recommendation.**— *Whenever snow, slush, ice or frost is present and reported, the description of the runway surface condition should use the following terms:*

*DRY SNOW;
WET SNOW;
COMPACTED SNOW;
WET COMPACTED SNOW;
SLUSH;
ICE;
WET ICE;
FROST;
DRY SNOW ON ICE;
WET SNOW ON ICE;
CHEMICALLY TREATED;
SANDED*

and should include, where applicable, the assessment of contaminant depth.

2.9.12 **Recommendation.**— *Whenever dry snow, wet snow or slush is present on a runway, an assessment of the mean depth over each third of the runway should be made to an accuracy of approximately 2 cm for dry snow, 1 cm for wet snow and 0.3 cm for slush.*

***Runway surface condition(s) for use in the runway condition report
[applicable as of 5-4 November 2020-2021]***

Introductory Note.— The philosophy of the runway condition report is that the aerodrome operator assesses the runway surface conditions whenever water, snow, slush, ice or frost are present on an operational runway. From this assessment, a runway condition code (RWYCC) and a description of the runway surface are reported which can be used by the flight crew for aeroplane performance calculations. This report, based on the type, depth and coverage of contaminants, is the best assessment of the runway surface condition by the aerodrome operator; however, all other pertinent information may be taken into consideration. See Attachment A, Section 6, for further details. The PANS-Aerodromes (Doc 9981) contains procedures on the use of the runway condition report and assignment of the RWYCC in accordance with the runway condition assessment matrix (RCAM).

2.9.5 The runway surface condition shall be assessed and reported through a runway condition code (RWYCC) and a description using the following terms:

COMPACTED SNOW
 DRY
 DRY SNOW
 DRY SNOW ON TOP OF COMPACTED SNOW
 DRY SNOW ON TOP OF ICE
 FROST
 ICE
 SLUSH
 STANDING WATER
 WATER ON TOP OF COMPACTED SNOW
 WET
 WET ICE
 WET SNOW
 WET SNOW ON TOP OF COMPACTED SNOW
 WET SNOW ON TOP OF ICE
 CHEMICALLY TREATED
 LOOSE SAND

Note 1.— The runway surface conditions are those conditions for which, by means of the methods described in the PANS-Aerodromes (Doc 9981), the flight crew can derive appropriate aeroplane performance.

Note 2.— The conditions, either singly or in combination with other observations, are criteria for which the effect on aeroplane performance is sufficiently deterministic to allow assignment of a specific runway condition code.

Note 3.— The terms CHEMICALLY TREATED and LOOSE SAND do not appear in the aeroplane performance section but are used in the situational awareness section of the runway condition report.

2.9.6 Whenever an operational runway is contaminated, an assessment of the contaminant depth and coverage over each third of the runway shall be made and reported.

Note.— Procedures on depth and coverage reporting are found in the PANS-Aerodromes (Doc 9981).

2.9.7 When friction measurements are used as part of the overall runway surface assessment on compacted snow- or ice-covered surfaces, the friction measuring device shall meet the standard set or agreed by the State.

2.9.8 **Recommendation.**— *Friction measurements made on runway surface conditions with contaminants other than compacted snow and ice should not be reported.*

Note.— *Friction measurements on loose contaminants such as snow and slush, in particular, are unreliable due to drag effects on the measurement wheel.*

2.9.9 Information that a runway or portion thereof is slippery wet shall be made available.

Note 1.— *The surface friction characteristics of a runway or a portion thereof can be degraded due to rubber deposits, surface polishing, poor drainage or other factors. The determination that a runway or portion thereof is slippery wet stems from various methods used solely or in combination. These methods may be functional friction measurements, using a continuous friction measuring device, that fall below a minimum standard as defined by the State, observations by aerodrome maintenance personnel, repeated reports by pilots and aircraft operators based on flight crew experience, or through analysis of aeroplane stopping performance that indicates a substandard surface. Supplementary tools to undertake this assessment are described in the PANS-Aerodromes (Doc 9981).*

Note 2.— *See 2.9.1 and 2.13 concerning the provision of information to, and coordination between, appropriate authorities.*

2.9.10 Notification shall be given to relevant aerodrome users when the friction level of a paved runway or portion thereof is less than the minimum friction level specified by the State in accordance with 10.2.3.

Note 1.— *Guidance on determining and expressing the minimum friction level is provided in Assessment, Measurement and Reporting of Runway Surface Conditions (Cir 329).*

Note 2.— *Procedures on conducting a runway surface friction characteristics evaluation programme are provided in the PANS-Aerodromes (Doc 9981).*

Note 3.— *Information to be promulgated in a NOTAM includes specifying which portion of the runway is below the minimum friction level and its location on the runway.*

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CHAPTER 10. AERODROME MAINTENANCE

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10.2 Pavements

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10.2.2 The surface of a runway shall be maintained in a condition such as to prevent formation of harmful irregularities.

Note.— *See Attachment A, Section 5.*

10.2.3 A paved runway shall be maintained in a condition so as to provide surface friction characteristics at or above the minimum friction level specified by the State.

Note.— Until 4-3 November 2020-2021, the Airport Services Manual (Doc 9137), Part 2, contains further information on this subject.

Note.— As of 5-4 November 2020-2021, Assessment, Measurement and Reporting of Runway Surface Conditions (Cir 329) contains further information on this subject.

10.2.4 Runway surface friction characteristics for maintenance purposes shall be periodically measured with a continuous friction measuring device using self-wetting features and documented. The frequency of these measurements shall be sufficient to determine the trend of the surface friction characteristics of the runway.

Note 1.— Until 4-3 November 2020-2021, guidance on evaluating the friction characteristics of a runway is provided in Attachment A, Section 7. Additional guidance is included in the Airport Services Manual (Doc 9137), Part 2.

Note 1.— As of 5-4 November 2020-2021, guidance on evaluating the runway surface friction characteristics is provided in Assessment, Measurement and Reporting of Runway Surface Conditions (Cir 329).

Note 2.— Until 4-3 November 2020-2021, the objective of 10.2.3, 10.2.4, 10.2.7 and 10.2.8 is to ensure that the surface friction characteristics for the entire runway remain at or above a minimum friction level specified by the State.

Note 2.— As of 5-4 November 2020-2021, the objective of 10.2.3 to 10.2.7 and 10.2.9 is to ensure that the surface friction characteristics for the entire runway remain at or above a minimum friction level specified by the State.

Note 3.— Until 4-3 November 2020-2021, guidance for the determination of the required frequency is provided in Attachment A, Section 7 and in the Airport Services Manual (Doc 9137), Part 2, Appendix 5.

10.2.5 As of 5-4 November 2020-2021, when runway surface friction measurements are made for maintenance purposes using a self-wetting continuous friction measuring device, the performance of the device shall meet the standard set or agreed by the State.

10.2.6 As of 5-4 November 2020-2021, personnel measuring runway surface friction required in 10.2.5 shall be trained to fulfil their duties.

10.2.7 Corrective maintenance action shall be taken to prevent the runway surface friction characteristics for either the entire runway or a portion thereof from falling below a minimum friction level specified by the State.

Note.— A portion of runway in the order of 100 m long may be considered significant for maintenance or reporting action.

10.2.8 **Recommendation.**— Until 4-3 November 2020-2021, when there is reason to believe that the drainage characteristics of a runway, or portions thereof, are poor due to slopes or depressions, then

the runway surface friction characteristics should be assessed under natural or simulated conditions that are representative of local rain, and corrective maintenance action should be taken as necessary.

10.2.8 Recommendation.— *As of 5-4 November 2020-2021, the runway surface should be visually assessed, as necessary, under natural or simulated rain conditions for ponding or poor drainage and where required, corrective maintenance action taken.*

...

10.3 Removal of contaminants

10.3.1 Snow, slush, ice, standing water, mud, dust, sand, oil, rubber deposits and other contaminants shall be removed from the surface of runways in use as rapidly and completely as possible to minimize accumulation.

Note.— *Until 4-3 November 2020-2021, the above requirement does not imply that winter operations on compacted snow and ice are prohibited. Guidance on snow removal and ice control and removal of other contaminants is given in the Aerodrome Services Manual (Doc 9137), Parts 2 and 9.*

Note.— *As of 5-4 November 2020-2021, the above requirement does not imply that winter operations on compacted snow and ice are prohibited. Information on snow removal and ice control and removal of other contaminants is given in the PANS-Aerodromes (Doc 9981).*

...

10.3.4 **Recommendation.**— *Whenever the clearance of snow, slush, ice, etc., from the various parts of the movement area cannot be carried out simultaneously, the order of priority after the runway(s) in use should be set in consultation with the affected parties such as rescue and firefighting service and documented in a snow plan.*

Note 1.— *See PANS-AIM (Doc 10066), Appendix 2, Part 3, AD 1.2.2 for information to be promulgated in an AIP concerning a snow plan. The Aeronautical Information Services Manual (Doc 8126) contains guidance on the description of a snow plan including general policy concerning operational priorities established for the clearance of movement areas.*

Note 2.— *Until 4-3 November 2020-2021, the Airport Services Manual (Doc 9137), Part 8, Chapter 6, specifies that an aerodrome snow plan clearly defines, inter alia, the priority of surfaces to be cleared.*

10.3.5 **Recommendation.**— *Chemicals to remove or to prevent the formation of ice and frost on aerodrome pavements should be used when conditions indicate their use could be effective. Caution should be exercised in the application of the chemicals so as not to create a more slippery condition.*

Note.— *Until 4-3 November 2020-2021, guidance on the use of chemicals for aerodrome pavements is given in the Airport Services Manual (Doc 9137), Part 2.*

Note.— *As of 5-4 November 2020-2021, information on the use of chemicals for aerodrome pavements is given in the PANS-Aerodromes (Doc 9981).*

10.3.6 Chemicals which may have harmful effects on aircraft or pavements, or chemicals which may have toxic effects on the aerodrome environment, shall not be used.

...

**ATTACHMENT A. GUIDANCE MATERIAL
SUPPLEMENTARY TO ANNEX 14, VOLUME I**

...

**6. Assessing the surface friction characteristics of snow-,
slush-, ice- and frost-covered paved surfaces**

Applicable until 4-3 November 2020-2021

6.1 There is an operational need for reliable and uniform information concerning the surface condition of contaminated runways. Contaminant type, distribution and for loose contaminants, depth are assessed for each third of the runway. An indication of surface friction characteristics is helpful in conducting runway condition assessment. It can be obtained by friction measuring devices; however, there is no international consensus on the ability to correlate the results obtained by such equipment directly with aircraft performance. However, for contaminants such as slush, wet snow and wet ice, contaminant drag on the equipment's measuring wheel, amongst other factors, may cause readings obtained in these conditions to be unreliable.

6.2 Any friction measuring device intended predict aircraft braking performance according to an agreed local or national procedure should be shown to correlate such performance in a manner acceptable to the State. Information on the practice of one State providing correlation directly with aircraft braking performance can be found in Appendix A of *Assessment, Measurement and Reporting of Runway Surface Conditions* (ICAO Cir 329).

...

6. Runway condition report for reporting runway surface condition

Applicable 5-4 November 2020-2021

6.1 On a global level, movement areas are exposed to a multitude of climatic conditions and consequently a significant difference in the condition to be reported. The runway condition report (RCR) describes a basic methodology applicable for all these climatic variations and is structured in such a way that States can adjust them to the climatic conditions applicable for that State or region.

6.2 The concept of the RCR is premised on:

- a) an agreed set of criteria used in a consistent manner for runway surface condition assessment, aeroplane (performance) certification and operational performance calculation;
- b) a unique runway condition code (RWYCC) linking the agreed set of criteria with the aircraft landing and take-off performance table, and related to the braking action experienced and eventually reported by flight crews;
- c) reporting of contaminant type and depth that is relevant to take-off performance;

- d) a standardized common terminology and phraseology for the description of runway surface conditions that can be used by aerodrome operator inspection personnel, air traffic controllers, aircraft operators and flight crew; and
- e) globally-harmonized procedures for the establishment of the RWYCC with a built-in flexibility to allow for local variations to match the specific weather, infrastructure and other particular conditions.

...

7. Determination of surface friction characteristics for construction and maintenance purposes

Applicable until 4³ November ~~2020~~ 2021

Note.— The guidance in this section involves the functional measurement of friction-related aspects related to runway construction and maintenance. Excluded from this section is the operational, as opposed to functional, measurement of friction for contaminated runways. However, the devices used for functional measurement could also be used for operational measurement, but in the latter case, the figures given in Airport Services Manual (Doc 9137), Part 2, Table 3-1 are not relevant.

7.1 The surface friction characteristics of a paved runway should be:

- a) assessed to verify the surface friction characteristics of new or resurfaced paved runways (Chapter 3, 3.1.25); and
- b) assessed periodically in order to determine the slipperiness of paved runways (Chapter 10, 10.2.4).

7.2 The condition of a runway pavement is generally assessed under dry conditions using a self-wetting continuous friction measuring device. Evaluation tests of runway surface friction characteristics are made on clean surfaces of the runway when first constructed or after resurfacing.

...

ANNEX 15 — AERONAUTICAL INFORMATION SERVICES

...

CHAPTER 1. GENERAL

...

1.1 Definitions

...

SNOWTAM.[†] A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

SNOWTAM.^{††} A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.

† Applicable until ~~4~~ 3 November ~~2020~~ 2021.
†† Applicable as of ~~5~~ 4 November ~~2020~~ 2021.

ATTACHMENT G to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

**AMENDMENT TO THE FOREWORD OF THE
PANS-ATM (DOC 4444), SIXTEENTH EDITION**

Add the following at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Approved Applicable</i>
10	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of Amendment 7-B: Amendment concerning the use of an enhanced global reporting format for assessing and reporting runway surface conditions.	19 June 2020 4 November 2021

**AMENDMENT TO THE FOREWORD OF THE
PANS-AERODROMES (DOC 9981), THIRD EDITION**

Add the following at the end of Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Approved Applicable</i>
4	Eighth Meeting of the 220th Session of the ICAO Council	<p>Postponement of the applicability date of Amendment 1 concerning the use of an enhanced global reporting format for assessing and reporting runway surface condition, excluding the editorial amendments concerning the structure of the document.</p> <p>Postponement of the applicability date of Amendment 2 consequential to changes to the SNOWTAM format as provided in the PANS-AIM (Doc 10066).</p>	19 June 2020 4 November 2021

**AMENDMENT TO THE FOREWORD OF THE FIRST EDITION
OF THE PANS-AIM (DOC 10066)**

Insert the following in Table A:

<i>Amendment</i>	<i>Source(s)</i>	<i>Subject</i>	<i>Approved Applicable</i>
2	Eighth Meeting of the 220th Session of the ICAO Council	Postponement of the applicability date of the amendment to the First Edition regarding SNOWTAM format.	19 June 2020 4 November 2021

ATTACHMENT H to State letter AN 10/1.1, AN 11/1.3.33, AN 11/6.3.32, AN 3/5.13, AN 4/1.2.29, AN 2/2.7, AN 13/2.1, AN 4/27 and AN 2/33-20/73

**AMENDMENTS TO THE
PANS-ATM (DOC 4444); PANS-AERODROMES (DOC 9981);
AND PANS-AIM (DOC 10066)**

NOTES ON THE PRESENTATION OF THE AMENDMENTS

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

**TEXT OF AMENDMENTS TO THE
INTERNATIONAL STANDARDS
AND RECOMMENDED PRACTICES
TO THE CONVENTION ON INTERNATIONAL CIVIL AVIATION
TO THE PANS-ATM (DOC 4444), PANS-AERODROMES (DOC 9981)
AND PANS-AIM (DOC 10066)**

***PROCEDURES FOR AIR NAVIGATION SERVICES —
AIR TRAFFIC MANAGEMENT (PANS-ATM, DOC 4444)***

...

Chapter 1

DEFINITIONS

...

Situation display. An electronic display depicting the position and movement of aircraft and other information as required.

Slush.[†] Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8.

Note.— *Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.*

Snow (on the ground).[†]

- a) *Dry snow.* Snow which can be blown if loose or, if compacted by hand, will fall apart upon release; specific gravity: up to but not including 0.35.
- b) *Wet snow.* Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.
- c) *Compacted snow.* Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.

Special VFR flight. A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

...

4.12 REPORTING OF OPERATIONAL AND

[†] Applicable until 4-3 November 2020-2021.

METEOROLOGICAL INFORMATION

...

4.12.3 Contents of special air-reports

4.12.3.1 Special air-reports shall be made by all aircraft whenever the following conditions are encountered or observed:

- a) moderate or severe turbulence; or
- b) moderate or severe icing; or
- c) severe mountain wave; or
- d) thunderstorms, without hail that are obscured, embedded, widespread or in squall lines; or
- e) thunderstorms, with hail that are obscured, embedded, widespread or in squall lines; or
- f) heavy duststorm or heavy sandstorm; or
- g) volcanic ash cloud; or
- h) pre-eruption volcanic activity or a volcanic eruption; or
- i) As of 5-4 November 2020 2021, runway braking action encountered is not as good as reported.

Note.— Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

...

4.12.7 Forwarding of braking action information

(Applicable as of 5-4 November 2020 2021)

When receiving special air-reports by voice communications concerning braking action encountered that is not as good as that reported, air traffic service units shall forward them without delay to the appropriate aerodrome operator.

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Chapter 7

PROCEDURES FOR AERODROME CONTROL SERVICE

...

7.5 ESSENTIAL INFORMATION ON AERODROME CONDITIONS

...

7.5.2 Essential information on aerodrome conditions shall include information relating to the following:

- a) construction or maintenance work on, or immediately adjacent to the movement area;
- b) rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;
- c) snow, slush or ice on a runway, a taxiway or an apron [*applicable until 4³ November 2020-2021*];
- c) water, snow, slush, ice or frost on a runway, a taxiway or an apron [*applicable as of 5⁴ November 2020 2021*];
- d) water on a runway, a taxiway or an apron [*applicable until 4³ November 2020-2021*];
- d) anti-icing or de-icing liquid chemicals or other contaminant on a runway, taxiway or apron [*applicable as of 5⁴ November 2020 2021*];
- e) snow banks or drifts adjacent to a runway, a taxiway or an apron;
- f) other temporary hazards, including parked aircraft and birds on the ground or in the air;
- g) failure or irregular operation of part or all of the aerodrome lighting system;
- h) any other pertinent information.

Note.— Up-to-date information on the conditions on aprons may not always be available to the aerodrome control tower. The responsibility of the aerodrome control tower in relation to aprons is, with respect to the provisions of 7.5.1 and 7.5.2, limited to the transmission to aircraft of the information which is provided to it by the authority responsible for the aprons.

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Chapter 11

AIR TRAFFIC SERVICES MESSAGES

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11.4.3.4 MESSAGES CONTAINING INFORMATION ON AERODROME CONDITIONS

Note.— Provisions regarding the issuance of information on aerodrome conditions are contained in Chapter 7, 7.5.

11.4.3.4.1 Whenever information is provided on aerodrome conditions, this shall be done in a clear and concise manner so as to facilitate appreciation by the pilot of the situation described. It shall be issued whenever deemed necessary by the controller on duty in the interest of safety, or when requested by an aircraft. If the information is provided on the initiative of the controller, it shall be transmitted to each aircraft concerned in sufficient time to enable the pilot to make proper use of the information.

11.4.3.4.2 Until ~~4-3~~ November ~~2020-2021~~, information that water is present on a runway shall be transmitted to each aircraft concerned, on the initiative of the controller, using the following terms:

DAMP — the surface shows a change of colour due to moisture.

WET — the surface is soaked but there is no standing water.

STANDING WATER — for aeroplane performance purposes, a runway where more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by water more than 3 mm deep.

11.4.3.4.2 As of ~~5-4~~ November ~~2020~~ ~~2021~~, whenever information is provided concerning runway surface conditions that may adversely affect aircraft braking action, the following terms shall be used, as necessary:

COMPACTED SNOW

DRY

DRY SNOW

DRY SNOW ON TOP OF COMPACTED SNOW

DRY SNOW ON TOP OF ICE

FROST

ICE

SLUSH

STANDING WATER

WATER ON TOP OF COMPACTED SNOW

WET

WET ICE

WET SNOW

WET SNOW ON TOP OF COMPACTED SNOW

WET SNOW ON TOP OF ICE

11.4.3.4.3 As of 5-4 November 2020 2021, appropriate ATS units shall have available for transmission to aircraft, upon request, the Runway Condition Report information. This shall be passed to aircraft in the order of the direction of landing or take-off.

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Chapter 12

PHRASEOLOGIES

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12.3 ATC PHRASEOLOGIES

12.3.1 General

CIRCUMSTANCES

Phraseologies

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12.3.1.11 AERODROME INFORMATION
(APPLICABLE UNTIL
4-3 November 2020-2021)

- | |
|--|
| <p>a) [(location)] RUNWAY SURFACE CONDITION RUNWAY (number) (condition);</p> <p>b) [(location)] RUNWAY SURFACE CONDITION RUNWAY (number) NOT CURRENT;</p> <p>c) LANDING SURFACE (condition);</p> <p>d) CAUTION CONSTRUCTION WORK (location);</p> <p>e) CAUTION (specify reasons) RIGHT (or LEFT), (or BOTH SIDES) OF RUNWAY [number];</p> <p>f) CAUTION WORK IN PROGRESS (or OBSTRUCTION) (position and any necessary advice);</p> <p>g) RUNWAY REPORT AT (observation time) RUNWAY (number) (type of precipitant) UP TO (depth of deposit) MILLIMETRES. ESTIMATED SURFACE FRICTION GOOD (or MEDIUM TO GOOD, or MEDIUM, or MEDIUM TO POOR, or POOR);</p> |
|--|

12.3.1.11 AERODROME INFORMATION
(APPLICABLE AS OF
5-4 NOVEMBER 2020 2021)

Note 1.— See 11.4.3.4.4 for requirements for passing RCR to pilots.

Note 2.— This information is provided for runway thirds or the full runway, as applicable.

- h) BRAKING ACTION REPORTED BY (*aircraft type*) AT (*time*) GOOD (*or* MEDIUM to GOOD, *or* MEDIUM, *or* MEDIUM to POOR, *or* POOR);
 - i) RUNWAY (*or* TAXIWAY) (*number*) WET [*or* STANDING WATER, *or* SNOW REMOVED (*length and width as applicable*), *or* TREATED, *or* COVERED WITH PATCHES OF DRY SNOW (*or* WET SNOW, *or* COMPACTED SNOW, *or* SLUSH, *or* FROZEN SLUSH, *or* ICE, *or* WET ICE, *or* ICE UNDERNEATH, *or* ICE AND SNOW, *or* SNOWDRIFTS, *or* FROZEN RUTS AND RIDGES)];
 - j) TOWER OBSERVES (*weather information*);
 - k) PILOT REPORTS (*weather information*).
-
- a) [(*location*)] RUNWAY (*number*) SURFACE CONDITION [CODE (*three digit number*)] followed as necessary by:
 - 1) ISSUED AT (*date and time UTC*);
 - 2) DRY, *or* WET ICE, *or* WATER ON TOP OF COMPACTED SNOW, *or* DRY SNOW, *or* DRY SNOW ON TOP OF ICE, *or* WET SNOW ON TOP OF ICE, *or* ICE, *or* SLUSH, *or* STANDING WATER, *or* COMPACTED SNOW, *or* WET SNOW, *or* DRY SNOW ON TOP OF COMPACTED SNOW, *or* WET SNOW ON TOP OF COMPACTED SNOW, *or* WET, *or* FROST;
 - 3) DEPTH ((*depth of deposit*) MILLIMETRES *or* NOT REPORTED);

- 4) COVERAGE ((number) PER CENT or NOT REPORTED);
- 5) ESTIMATED SURFACE FRICTION (GOOD, or GOOD TO MEDIUM, or MEDIUM, or MEDIUM TO POOR, or POOR, or LESS THAN POOR);
- 6) AVAILABLE WIDTH (number) METRES;
- 7) LENGTH REDUCED TO (number) METRES;
- 8) DRIFTING SNOW;
- 9) LOOSE SAND;
- 10) CHEMICALLY TREATED;
- 11) SNOWBANK (number) METRES [LEFT, or RIGHT, or LEFT AND RIGHT] [OF or FROM] CENTRELINE;
- 12) TAXIWAY (identification of taxiway) SNOWBANK (number) METRES [LEFT, or RIGHT, or LEFT AND RIGHT] [OF or FROM] CENTRELINE;
- 13) ADJACENT SNOWBANKS;
- 14) TAXIWAY (identification of taxiway) POOR;
- 15) APRON (identification of apron) POOR;
- 16) Plain language remarks;
- b) [(location)] RUNWAY SURFACE CONDITION RUNWAY (number) NOT CURRENT;
- c) LANDING SURFACE (condition);
- d) CAUTION CONSTRUCTION WORK (location);
- e) CAUTION (specify reasons) RIGHT (or LEFT), (or BOTH SIDES) OF RUNWAY [(number)];
- f) CAUTION WORK IN PROGRESS (or OBSTRUCTION) (position and any necessary advice);

- g) BRAKING ACTION REPORTED BY (*aircraft type*) AT (*time*) GOOD (*or* GOOD TO MEDIUM, *or* MEDIUM, *or* MEDIUM TO POOR, *or* POOR);
- h) TAXIWAY (*identification of taxiway*) WET [*or* STANDING WATER, *or* SNOW REMOVED (*length and width as applicable*), *or* CHEMICALLY TREATED, *or* COVERED WITH PATCHES OF DRY SNOW (*or* WET SNOW, *or* COMPACTED SNOW, *or* SLUSH, *or* FROZEN SLUSH, *or* ICE, *or* WET ICE, *or* ICE UNDERNEATH, *or* ICE AND SNOW, *or* SNOWDRIFTS, *or* FROZEN RUTS AND RIDGES *or* LOOSE SAND)];
- i) TOWER OBSERVES (*weather information*);
- j) PILOT REPORTS (*weather information*).

...

Appendix 1

**INSTRUCTIONS FOR AIR-REPORTING
BY VOICE COMMUNICATIONS**

1. Reporting instructions

...

MODEL AIREP SPECIAL

ITEM	PARAMETER	TRANSMIT IN TELEPHONY as appropriate
------	-----------	--------------------------------------

...

Section 3	<p>9</p> <p>Phenomenon encountered or observed, prompting a special air-report:</p> <ul style="list-style-type: none"> • Moderate turbulence • Severe turbulence • Moderate icing • Severe icing • Severe mountainwave • Thunderstorms without hail • Thunderstorms with hail • Heavy dust/sandstorm • Volcanic ash cloud • Pre-eruption volcanic activity or volcanic eruption <p><i>Applicable as of 5-4 November 2020 2021</i></p> <p>Runway braking action</p> <ul style="list-style-type: none"> • Good • Good to Medium 	<p>TURBULENCE MODERATE TURBULENCE SEVERE ICING MODERATE ICING SEVERE MOUNTAINWAVE SEVERE THUNDERSTORMS THUNDERSTORMS WITH HAIL DUSTSTORM <i>or</i> SANDSTORM HEAVY VOLCANIC ASH CLOUD PRE-ERUPTION VOLCANIC ACTIVITY <i>or</i> VOLCANIC ERUPTION</p> <p><i>Applicable as of 5-4 November 2020 2021</i></p> <p>GOOD GOOD TO MEDIUM</p>
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	<ul style="list-style-type: none"> • Medium • Medium to Poor • Poor • Less than Poor 	<p>MEDIUM MEDIUM TO POOR POOR LESS THAN POOR</p>
--	--	--

...

Section 3

Item 9 — PHENOMENON PROMPTING A SPECIAL AIR-REPORT. Report one of the following phenomena encountered or observed:

...

- Good braking action as “BRAKING ACTION GOOD”
[applicable as of 5-4 November 2020 2021]
- Good to medium braking action as “BRAKING ACTION GOOD TO MEDIUM”
[applicable as of 5-4 November 2020 2021]
- Medium braking action as “BRAKING ACTION MEDIUM”
[applicable as of 5-4 November 2020 2021]
- Medium to poor braking action as “BRAKING ACTION MEDIUM TO POOR”
[applicable as of 5-4 November 2020 2021]
- Poor braking action as “BRAKING ACTION POOR”
[applicable as of 5-4 November 2020 2021]
- Less than poor braking action as “BRAKING ACTION LESS THAN POOR”
[applicable as of 5-4 November 2020 2021]

The following specifications apply: *[applicable as of 5-4 November 2020 2021]*

Good — Braking deceleration is normal for the wheel braking effort applied and directional control is normal.

Good to medium — Braking deceleration or directional control is between Good and Medium.

Medium — Braking deceleration is noticeably reduced for the wheel braking effort applied or directional control is noticeably reduced.

Medium to poor — Braking deceleration or directional control is between Medium and Poor.

Poor — Braking deceleration is significantly reduced for the wheel braking effort applied or directional control is significantly reduced.

Less than poor — Braking deceleration is minimal to non-existent for the wheel braking effort applied or directional control is uncertain.

...

**PROCEDURES FOR AIR NAVIGATION SERVICES —
AERODROMES (PANS-AERODROMES, DOC 9981)**

...

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...

...

PART II – AERODROME OPERATIONAL MANAGEMENT

Chapter 2

(applicable on 5-4 November 2020-2021)

**REPORTING FORMAT USING
STANDARD RUNWAY CONDITION REPORT (RCR)**

**2.1 RUNWAY SURFACE CONDITION
ASSESSMENT AND REPORTING**

2.1.1 General

...

2.1.1.1 Assessing and reporting the condition of the movement area and related facilities is necessary in order to provide the flight crew with the information needed for safe operation of the aeroplane. The runway condition report (RCR) is used for reporting assessed information.

2.1.1.2 On a global level, movement areas are exposed to a multitude of climatic conditions and consequently a significant difference in the condition to be reported. The RCR describes a basic structure applicable for all these climatic variations. Assessing runway surface conditions rely on a great variety of techniques and no single solution can apply to every situation.

...

Attachment to Chapter 2
(applicable on 5-4 November ~~2020~~ 2021)

METHODS OF ASSESSING RUNWAY SURFACE CONDITION

...

***PROCEDURES FOR AIR NAVIGATION SERVICES —
AERONAUTICAL INFORMATION MANAGEMENT
(PANS-AIM, DOC 10066)***

...

Chapter 1

DEFINITIONS

...

Route stage. A route or portion of a route flown without an intermediate landing.

SNOWTAM.[†] A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format.

SNOWTAM.^{††} A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.

...

5.2.2.2 The snow plan issued under AD 1.2.2 of the AIP shall be supplemented by seasonal information, to be issued well in advance of the beginning of each winter (not less than one month before the normal onset of winter conditions) and shall contain information such as that listed below:

- a) until 4-3 November 2020-2021, a list of aerodromes/heliports where snow clearance is expected to be performed during the coming winter:
- a) as of 5-4 November 2020-2021, a list of aerodromes/heliports where snow, slush, ice or frost clearance is expected to be performed during the coming winter:

...

5.2.5.1.3 All NOTAM shall be issued in the English language.

Note.— If necessary for domestic users, NOTAM may additionally be issued in a national language.

[†] Applicable until 4-3 November 2020-2021.

^{††} Applicable as of 5-4 November 2020-2021.

H-15

(FURTHER CLEARANCE <i>(If planned, insert length (m)/width (m) to be cleared or if to full dimensions, insert "TOTAL")</i>)	L)	→
(FURTHER CLEARANCE EXPECTED TO BE COMPLETED BY . . . (UTC))	M)	→
(TAXIWAY <i>(If no appropriate taxiway is available, insert "NO")</i>)	N)	→
(TAXIWAY SNOWBANKS <i>(If higher than 60 cm, insert "YES" followed by the lateral distance apart, m)</i>)	P)	<≡
(APRON <i>(If unusable insert "NO")</i>)	R)	→
(NEXT PLANNED OBSERVATION/MEASUREMENT IS FOR) <i>(month/day/hour in UTC)</i>	S)	→
(PLAIN-LANGUAGE REMARKS <i>(Including contaminant coverage and other operationally significant information, e.g. sanding, de-icing, chemicals)</i>)	T)) <≡
NOTES: 1. *Enter ICAO nationality letters as given in ICAO Doc 7910, Part 2. 2. Information on other runways, repeat from B to P. 3. Words in brackets () not to be transmitted.		

SIGNATURE OF ORIGINATOR *(not for transmission)*

INSTRUCTIONS FOR THE COMPLETION OF THE SNOWTAM FORMAT

1. *General*

- a) When reporting on more than one runway, repeat Items B to P inclusive.
- b) Items together with their indicator shall be dropped completely, where no information is to be included.
- c) Metric units shall be used and the unit of measurement not reported.
- d) The maximum validity of SNOWTAM is 8 hours. New SNOWTAM shall be issued whenever a new runway condition report is received. The following changes relating to runway conditions are considered as significant:

- 1) a change in the coefficient of friction of about 0.05;
- 2) changes in depth of deposit greater than the following: 20 mm for dry snow, 10 mm for wet snow, 3 mm for slush;
- 3) a change in the available length or width of a runway of 10 per cent or more;
- 4) any change in the type of deposit or extent of coverage which requires reclassification in Items F or T of the SNOWTAM;
- 5) when critical snow banks exist on one or both sides of the runway, any change in the height or distance from centre line;
- 6) any change in the conspicuity of runway lighting caused by obscuring of the lights;
- 7) any other conditions known to be significant according to experience or local circumstances.

e) The abbreviated heading "TTAAiiii CCCC MMYGGgg (BBB)" is included to facilitate the automatic processing of SNOWTAM messages in computer data banks. The explanation of these symbols is:

- TT = data designator for SNOWTAM = SW;
- AA = geographical designator for States, e.g. LF = FRANCE, EG = United Kingdom (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
- iiii = SNOWTAM serial number in a four-digit group;

CCCC = four-letter location indicator of the aerodrome to which the SNOWTAM refers (see *Location Indicators* (Doc 7910));

MMYYGGgg = date/time of observation/measurement, whereby:

MM = month, e.g. January = 01, December = 12

YY = day of the month

GGgg = time in hours (GG) and minutes (gg) UTC;

(BBB) = optional group for:

Correction to SNOWTAM message previously disseminated with the same serial number = COR.

Note 1.— Brackets in (BBB) are used to indicate that this group is optional.

Note 2.— When reporting on more than one runway and individual dates/times of observation/measurement are indicated by repeated Item B, the latest date/time of observation/measuring is inserted in the abbreviated heading (MMYYGGgg).

Example: Abbreviated heading of SNOWTAM No. 149 from Zurich, measurement/observation of 7 November at 0620 UTC:

SWLS0149 LSZH 11070620

Note.— The information groups are separated by a space, as illustrated above.

- f) The text “SNOWTAM” in the SNOWTAM Format and the SNOWTAM serial number in a four-digit group shall be separated by a space, for example: SNOWTAM 0124.
 - g) For readability purposes for the SNOWTAM message, include a line feed after the SNOWTAM serial number, after Item A, after the last item referring to the runway (e.g. Item P) and after Item S.
2. *Item A* — Aerodrome location indicator (four-letter location indicator).
 3. *Item B* — Eight-figure date/time group — giving time of observation as month, day, hour and minute in UTC; this item shall always be completed.
 4. *Item C* — Lower runway designator number.
 5. *Item D* — Cleared runway length in metres, if less than published length (see Item T on reporting on part of runway not cleared).
 6. *Item E* — Cleared runway width in metres, if less than published width; if offset left or right of centre line, add (without space) “L” or “R”, as viewed from the threshold having the lower runway designation number.

7. *Item F* — Deposit over total runway length as explained in SNOWTAM Format. Suitable combinations of these numbers may be used to indicate varying conditions over runway segments. If more than one deposit is present on the same portion of the runway, they should be reported in sequence from the top (closest to the sky) to the bottom (closest to the runway). Drifts, depths of deposit appreciably greater than the average values or other significant characteristics of the deposits may be reported under Item T in plain language. The values for each third of the runway shall be separated by an oblique stroke (/), without space between the deposit values and the oblique stroke, for example: 47/47/47.

Note.— *Definitions for the various types of snow are given at the end of this appendix.*

8. *Item G* — Mean depth in millimetres deposit for each third of total runway length, or “XX” if not measurable or operationally not significant; the assessment to be made to an accuracy of 20 mm for dry snow, 10 mm for wet snow and 3 mm for slush. The values for each third of the runway shall be separated by an oblique stroke (/), without space between the values and the oblique stroke, for example: 20/20/20.
9. *Item H* — Estimated surface friction on each third of the runway (single digit) in the order from the threshold having the lower runway designation number.

Friction measurement devices can be used as part of the overall runway surface assessment. Some States may have developed procedures for runway surface assessment which may include the use of information obtained from friction measuring devices and the reporting of quantitative values. In such cases, these procedures should be published in the Aeronautical Information Publication (AIP) and the reporting made in Item (T) of the SNOWTAM format.

The values for each third of the runway are separated by an oblique stroke (/), without space between the values and the oblique stroke-, for example: 5/5/5.

10. *Item J* — Critical snow banks. If present insert height in centimetres and distance from edge of runway in metres, followed (without space) by left (“L”) or right (“R”) side or both sides (“LR”), as viewed from the threshold having the lower runway designation number.
11. *Item K* — If runway lights are obscured, insert “YES” followed (without space) by “L”, “R” or both “LR”, as viewed from the threshold having the lower runway designation number.
12. *Item L* — When further clearance will be undertaken, enter length and width of runway or “TOTAL” if runway will be cleared to full dimensions.
13. *Item M* — Enter the anticipated time of completion in UTC.
14. *Item N* — The code (and combination of codes) for Item F may be used to describe taxiway conditions; enter “NO” if no taxiways serving the associated runway are available.
15. *Item P* — If snow banks are higher than 60 cm, enter “YES” followed by the lateral distance parting the snow banks (the distance between) in metres.
16. *Item R* — The code (and combination of codes) for Item F may be used to describe apron conditions; enter “NO” if the apron is unusable.
17. *Item S* — Enter the anticipated time of next observation/measurement in UTC.

18. *Item T* — Describe in plain language any operationally significant information but always report on length of uncleared runway (Item D) and extent of runway contamination (Item F) for each third of the runway (if appropriate) in accordance with the following scale:

RWY CONTAMINATION 10 PER CENT — if 10% or less of runway contaminated

RWY CONTAMINATION 25 PER CENT — if 11–25% of runway contaminated

RWY CONTAMINATION 50 PER CENT — if 26–50% of runway contaminated

RWY CONTAMINATION 100 PER CENT — if 51–100% of runway contaminated.

EXAMPLE OF COMPLETED SNOWTAM FORMAT

GG EHAMZQZX EDDFZQZX EKCHZQZX

070645 LSZHNYX

SWLS0149 LSZH 11070700

(SNOWTAM 0149

A) LSZH

B) 11070620 C) 02 D)...P)

B) 11070600 C) 09 D)...P)

B) 11070700 C) 12 D)...P)

R) NO S) 11070920

T) DEICING

Note.— See the Aeronautical Information Services Manual (Doc 8126) for additional SNOWTAM examples incorporating different runway conditions.

Definitions of the various types of snow

Slush. Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8.

Note.— Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.

Snow (on the ground).

- a) *Dry snow.* Snow which can be blown if loose or, if compacted by hand, will fall apart again upon release; specific gravity: up to but not including 0.35.
- b) *Wet snow.* Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.
- c) *Compacted snow.* Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.

INSTRUCTIONS FOR THE COMPLETION OF THE SNOWTAM FORMAT

Note.— Origin of data, assessment process and the procedures linked to the surface conditions reporting system are prescribed in the Procedures for Air Navigation Services — Aerodromes (PANS-Aerodromes, Doc 9981).

1. General

- a) When reporting on more than one runway, repeat Items B to H (airplane performance calculation section).
- b) The letters used to indicate items are only used for reference purpose and should not be included in the messages. The letters, M (mandatory), C (conditional) and O (optional) mark the usage and information and shall be included as explained below.
- c) Metric units shall be used and the unit of measurement not reported.
- d) The maximum validity of SNOWTAM is 8 hours. New SNOWTAM shall be issued whenever a new runway condition report is received.
- e) A SNOWTAM cancels the previous SNOWTAM.
- f) The abbreviated heading “TTAAiiii CCCC MMYGGgg (BBB)” is included to facilitate the automatic processing of SNOWTAM messages in computer data banks. The explanation of these symbols is:

TT = data designator for SNOWTAM = SW;
 AA = geographical designator for States, e.g. LF = FRANCE, EG = United Kingdom (see *Location Indicators* (Doc 7910), Part 2, Index to Nationality Letters for Location Indicators);
 iiii = SNOWTAM serial number in a four-digit group;
 CCCC = four-letter location indicator of the aerodrome to which the SNOWTAM refers (see *Location Indicators* (Doc 7910));
 MMYGGgg = date/time of observation/measurement, whereby:
 MM = month, e.g. January = 01, December = 12
 YY = day of the month
 GGgg = time in hours (GG) and minutes (gg) UTC;
 (BBB) = optional group for correction, in the case of an error, to a SNOWTAM message previously disseminated with the same serial number = COR.

Note 1.— Brackets in (BBB) are used to indicate that this group is optional.

Note 2.— When reporting on more than one runway and individual dates/times of observation/assessment are indicated by repeated Item B, the latest date/time of observation/assessment is inserted in the abbreviated heading (MMYYGGgg).

Example: Abbreviated heading of SNOWTAM No. 149 from Zurich, measurement/observation of 7 November at 0620 UTC:

SWLS0149 LSZH 11070620

Note.— The information groups are separated by a space, as illustrated above.

- g) The text “SNOWTAM” in the SNOWTAM Format and the SNOWTAM serial number in a four-digit group shall be separated by a space, for example: SNOWTAM 0124.
- h) For readability purposes for the SNOWTAM message, include a line feed after the SNOWTAM serial number, after Item A, and after the aeroplane performance calculation section.
- i) When reporting on more than one runway, repeat the information in the aeroplane performance calculation section from the date and time of assessment for each runway before the information in the situational awareness section.
- j) Mandatory information is:
 - 1) AERODROME LOCATION INDICATOR;
 - 2) DATE AND TIME OF ASSESSMENT;
 - 3) LOWER RUNWAY DESIGNATOR NUMBER;
 - 4) RUNWAY CONDITION CODE FOR EACH RUNWAY THIRD; and
 - 5) CONDITION DESCRIPTION FOR EACH RUNWAY THIRD (when runway condition code (RWYCC) is reported 1–5)

2. *Aeroplane performance calculation section*

Item A — Aerodrome location indicator (four-letter location indicator).

Item B — Date and time of assessment (eight-figure date/time group giving time of observation as month, day, hour and minute in UTC).

Item C — Lower runway designator number (nn[L] or nn[C] or nn[R]).

Note.— *Only one runway designator is inserted for each runway and always the lower number.*

Item D — Runway condition code for each runway third. Only one digit (0, 1, 2, 3, 4, 5 or 6) is inserted for each runway third, separated by an oblique stroke (n/n/n).

Item E — Per cent coverage for each runway third. When provided, insert 25, 50, 75 or 100 for each runway third, separated by an oblique stroke ([n]nn/[n]nn/[n]nn).

Note 1.— *This information is provided only when the runway condition for each runway third (Item D) has been reported as other than 6 and there is a condition description for each runway third (Item G) that has been reported other than DRY.*

Note 2.— *When the conditions are not reported, this will be signified by the insertion of “NR” for the appropriate runway third(s).*

Item F — Depth of loose contaminant for each runway third. When provided, insert in millimetres for each runway third, separated by an oblique stroke (nn/nn/nn or nnn/nnn/nnn).

Note 1.— *This information is only provided for the following contamination types:*

- *standing water, values to be reported 04, then assessed value. Significant changes 3 mm up to and including 15 mm;*
- *slush, values to be reported 03, then assessed value. Significant changes 3 mm up to and including 15 mm;*
- *wet snow, values to be reported 03, then assessed value. Significant changes 5 mm; and*
- *dry snow, values to be reported 03, then assessed value. Significant changes 20 mm.*

Note 2.— When the conditions are not reported, this will be signified by the insertion of “NR” for the appropriate runway third(s).

Item G — Condition description for each runway third. Insert any of the following condition descriptions for each runway third, separated by an oblique stroke.

COMPACTED SNOW
 DRY SNOW
 DRY SNOW ON TOP OF COMPACTED SNOW
 DRY SNOW ON TOP OF ICE
 FROST
 ICE
 SLUSH
 STANDING WATER
 WATER ON TOP OF COMPACTED SNOW
 WET
 WET ICE
 WET SNOW
 WET SNOW ON TOP OF COMPACTED SNOW
 WET SNOW ON TOP OF ICE

DRY (only reported when there is no contaminant)

Note.— When the conditions are not reported, this will be signified by the insertion of “NR” for the appropriate runway third(s).

Item H — Width of runway to which the runway condition codes apply. Insert the width in metres if less than the published runway width.

3. *Situational awareness section*

Note 1.— Elements in the situational awareness section end with a full stop.

Note 2.— Elements in the situational awareness section for which no information exists, or where the conditional circumstances for publication are not fulfilled, are left out completely.

Item I — Reduced runway length. Insert the applicable runway designator and available length in meters (example: RWY nn [L] or nn [C] or nn [R] REDUCED TO [n]nn).

Note.— This information is conditional when a NOTAM has been published with a new set of declared distances.

Item J — Drifting snow on the runway. When reported, insert “DRIFTING SNOW”.

- Item K* — Loose sand on the runway. When loose sand is reported on the runway, insert the lower runway designator and with a space “LOOSE SAND” (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] LOOSE SAND).
- Item L* — Chemical treatment on the runway. When chemical treatment has been reported applied, insert the lower runway designator and with a space “CHEMICALLY TREATED” (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] CHEMICALLY TREATED).
- Item M* — Snow banks on the runway. When snow banks are reported present on the runway, insert the lower runway designator and with a space “SNOW BANK” and with a space left “L” or right “R” or both sides “LR”, followed by the distance in metres from centre line separated by a space FM CL (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] SNOW BANK Lnn *or* Rnn *or* LRnn FM CL).
- Item N* — Snow banks on a taxiway. When snow banks are present on a taxiway, insert the taxiway designator and with a space “SNOW BANK” (TWY [nn]n SNOW BANK).
- Item O* — Snow banks adjacent to the runway. When snow banks are reported present penetrating the height profile in the aerodrome snow plan, insert the lower runway designator and “ADJ SNOW BANKS” (RWY nn *or* RWY nn[L] *or* nn[C] *or* nn[R] ADJ SNOW BANKS).
- Item P* — Taxiway conditions. When taxiway conditions are reported as poor, insert the taxiway designator followed by a space “POOR” (TWY [n *or* nn] POOR *or* ALL TWYS POOR).
- Item R* — Apron conditions. When apron conditions are reported as poor, insert the apron designator followed by a space “POOR” (APRON [nnnn] POOR *or* ALL APRONS POOR).
- Item S* — Measured friction coefficient. Where reported, insert the measured friction coefficient and friction measuring device.

Note.— *This will only be reported for States that have an established programme of runway friction measurement using a State-approved friction measuring device.*

- Item T* — Plain language remarks.

EXAMPLE OF COMPLETED SNOWTAM FORMAT

Example SNOWTAM 1

```
GG EADBZQZX EADNZQZX EADSZQZX
170100 EADDYNYX
SWEA0149 EADD 02170055
(SNOWTAM 0149
EADD
02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW
)
```

Example SNOWTAM 2

```
GG EADBZQZX EADNZQZX EADSZQZX
170140 EADDYNYX
```

SWEA0150 EADD 02170135
(SNOWTAM 0150
EADD
02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW
02170135 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
)

Example SNOWTAM 3

GG EADBZQZX EADNZQZX EADSZQZX
170229 EADDYNYX
SWEA0151 EADD 02170225
(SNOWTAM 0151
EADD
02170055 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/WET SNOW
02170135 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
02170225 09C 2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW

RWY 09L SNOW BANK R20 FM CL. RWY 09R ADJ SNOW BANKS. TWY B POOR. APRON
NORTH POOR)

Example SNOWTAM 4

GG EADBZQZX EADNZQZX EADSZQZX
170350 EADDYNYX
SWEA0152 EADD 02170345
(SNOWTAM 0152
EADD
02170345 09L 5/5/5 100/100/100 NR/NR/03 WET/WET/SLUSH
02170134 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH
02170225 09C 2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW 35

DRIFTING SNOW. RWY 09L LOOSE SAND. RWY 09R CHEMICALLY TREATED. RWY 09C
CHEMICALLY TREATED.)

— END —

NEW ICAO METHODOLOGY FOR ASSESSING AND REPORTING RUNWAY SURFACE CONDITIONS (GRF)
IMPLEMENTATION ACTION PLAN TEMPLATE¹

_____ [Insert name of State]

ID	ACTION	ENTITY RESPONSIBLE	TARGET DATE²	IMPLEMENTATION DATE³	REMARKS³
GRF 1	Review ICAO provisions and guidance and other Organisations guidance (see References)	CAA	31/12/2020		
GRF 2	Designate a focal point to coordinate implementation activities at the national level	CAA	31/12/2020		
GRF 3	Identify concerned focal points in each entity (CAA, Airport, ANSP, Aircraft operators – include BA, GA and military as applicable)	CAA, Airports, ANSP, Aircraft operators	31/12/2020		
GRF 4	Establish an Implementation Coordination Team including staff from the identified stakeholder entities	CAA	15/01/2021		
GRF 5	Conduct the initial training for the CAA, Airports, ANSP and Aircraft Operators' personnel (e.g. ICAO/ACI/IATA online courses, national awareness workshop, etc.)	CAA	01/03/2021		
GRF 6	Identify regulations, standards, procedures and guidance material to be developed/amended	National Focal Point and the Implementation Coordination Team	01/04/2021		
GRF 7	Develop a detailed national implementation plan and safety risk assessment. Each entity should also establish its specific implementation plan and safety risk assessment.	CAA, Airports, ANSP, Aircraft operators	01/04/2021		
GRF 8	Identify the necessary means and resources for the implementation (human, financial and material resources)	National Focal Point and the Implementation Coordination Team	01/04/2021		
GRF 9	Consult with Airport Runway Safety Teams	Airports	14/05/2020		
GRF 10	Develop and promulgate regulations and standards	CAA	14/05/2020		
GRF 11	Develop procedures and guidance material (translate if required)	National Focal Point and the Implementation Coordination Team	15/06/2020		

ID	ACTION	ENTITY RESPONSIBLE	TARGET DATE ²	IMPLEMENTATION DATE ³	REMARKS ³
GRF 12	Provide the necessary means and resources for the implementation (human, financial and material resources)	CAA, Airports, ANSP, Aircraft operators	30/06/2020		
GRF 13	Conduct On-the-Job Training (OJT) on the implementation (ACI on-site GRF training course is available to support Airports)	CAA, Airports, ANSP, Aircraft operators	01/08/2020		
GRF 14	Perform tests/trials prior to the effective implementation	All	01/10/2020		
GRF 15	Applicability date for the new methodology for assessing and reporting runway surface conditions	All	04/11/2021		

Notes: ICAO Runway Safety Go-Team Assistance Missions may be arranged to support States and Airports. ACI APEX Safety Reviews are also available to support Airports.

Remarks: ¹ To be tailored and detailed by States; ² Target dates are indicative only; ³ For input by States

References

Publications / Websites

- Annexes 3, 6, 8, 14, & 15 – applicability date 4 Nov 2021
- PANS Aerodromes (Doc 9981), Aeronautical Information Management (Doc 10066), & Air Traffic Management (Doc 4444)
- Assessment, Measurement and Reporting of Runway Surface Conditions (Cir 355)
- Aeroplane Performance Manual (Doc 10064)
- ICAO GRF website <https://www.icao.int/safety/Pages/GRF.aspx>
- ICAO EUR/NAT Guidance on the Issuance of SNOWTAM
<https://www.icao.int/EURNAT/EUR%20and%20NAT%20Documents/EUR%20Documents/EUR%20Documents/SNOWTAM%20Guidance.pdf>

Training / Events

- ICAO/ACI Online Course for Airport Operators <https://www.olc.aero/product/icao-global-reporting-format/>
- ICAO/IATA Online Course for Aircraft Operators & Flight Crew <https://www.iata.org/en/training/courses/grf-runway-surface/talp38/en/>
- *Future* [SPR1] ICAO-IATA-CANSO Online Course for ANSPs, ATS & AIS staff
- ICAO APAC Regional GRF Seminar <https://www.icao.int/APAC/Meetings/Pages/2019-AOP-SG3-GRF-Seminar.aspx>
- ICAO Global GRF Symposium <https://www.icao.int/Meetings/grf2019/Pages/default.aspx>