

**Aerodrome Standards Advisory
Document
(ASAD-07)**

Page: 1/12
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**New Global Reporting Format
for
Runway Surface Condition**

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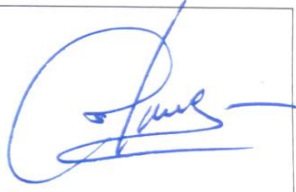

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**Aerodrome Standards Advisory
Document
(ASAD-07)**

Page: 2/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



Document Approval

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**Aerodrome Standards Advisory
Document
(ASAD-07)**

Page: 3/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



Contents

- 1. Revision History.....4
- 2. Introduction.....5
- 3. Purpose and applicability.....5
- 4. Regulatory basis (ADR & ANS)5
- 5. GRF process outline.....7
- 6. Aerodrome operator responsibilities.....7
- 7. ATS/AIS responsibilities7
- 8. Responsible units within TM-CAD8
- 9. References9
- 10. Appendix A – Runway Condition Assessment Matrix (RCAM) 10
- 11. Appendix B - RCAM Process for Aerodromes not exposed to SNOW/ICE 11
- 12. Appendix C - Reporting of runway condition code 12

Aerodrome Standards Advisory Document (ASAD-07)

Page: 4/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



1. Revision History

Version	Date	Change
1	18 February, 2021	Initial Issue.

Aerodrome Standards Advisory Document (ASAD-07)

Page: 5/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



2. Introduction

The International Civil Aviation Organisation (ICAO) has always identified runway safety, particularly runway excursions, as a primary concern for aviation safety. Indeed, lessons learnt from investigations into accidents and incidents suggest that the principal cause for excursions occurring during landing stem from ineffective braking action due to runway contamination. This trend has been corroborated by aircraft operators and aircraft manufacturers.

It has been acknowledged that a lack of standardised runway assessment and reporting methodology has created deficits in the processes employed by aerodrome operators around the world which indirectly contribute to the highlighted concerns pertaining runway safety. Consequently, to address these shortfalls, ICAO has developed a new congruous methodology for assessing and reporting runway surface conditions. This methodology is known as Global Reporting Format (GRF) and shall be globally applicable from November 2021.

Nonetheless, and with good reason, several European Union Member States (MS) have suggested that such a significant and challenging transition should not be introduced during a time of year when inclement weather is expected. As a result, the European Union Aviation Safety Agency (EASA) has mandated that introduction of GRF in EU Member States shall occur on the 12th of August 2021. Malta is committed to be compliant by this date.

3. Purpose and applicability

The purpose of this Aerodrome Standards Advisory Document (ASAD) is to provide general information and instruction on the expected process for the effective implementation of GRF in Malta. It is considered that adequate guidance material is made available by ICAO and EASA and therefore this document is not intended to be technically exhaustive. Nonetheless, reference to relevant documentation will be included as appropriate.

This advisory document is aimed for aerodrome operators, and air navigation services providers (ATS/AIM/MET).

4. Related regulatory basis (ADR & ANS)

Malta, as a Member of the European Union, and a contracting state of ICAO adopts and adheres to regulations published by the European Commission and, Standards and Recommended Practices (SARPs) issued by ICAO.

To mandate the introduction of GRF, Regulation (EU)2017/373 which addresses the common requirements for ANSPs and Authorities, has been amended by (EU)2020/469 particularly in the requirements laid down in Annex V as regards the provision of MET services and in Annex VI vis-à-vis the provision of AIS. Similarly, regulation

(EU)2020/2148 has been enacted to amend (EU)139/2014 which concerns Aerodromes and establishes the mid 2021 target date for GRF compliance.

As the leader for development and implementation of GRF, ICAO has purposefully amended a number of Annexes and Documents. The salient publications which pertain ADR Operators and ANSPs include: Annex 14 Vol I; Doc 9981, Doc 10066, and Circ 355.

5. GRF process outline

GRF is a standardised report which uses a common language for disseminating the conditions of runways. It is intended to give advanced warning to aircrew on what to expect during the take-off/landing phases and enable them to take informed decisions considering their aircraft's performance. This is achieved through the production and dissemination of the Runway Condition Report (RCR).

The RCR is made up of three elements:

- The assessment matrix (RCAM)
- Condition Code (RWYCC)
- Description of surface conditions

Assessment matrix (RCAM)

The runway condition assessment matrix (Annex A) is used by aerodrome personnel conducting runway surface assessments to encode the Runway Condition Code for each third of the runway and for aircrew to decode the RWYCC into meaningful information. The RCAM caters for all types of contaminants, however in the absence of severe weather with associated low temperatures, it is expected that an abridged version of the matrix is implemented in Malta. This version is aimed for Dry, Wet, and Standing Water conditions only.

Condition code (RWYCC)

The RWYCC is determined through the assessment of the following criteria:

- The percentage of coverage of contamination for each third of the runway;
- The type of contaminant which is selected from the RCAM;
- The depth of contamination;
- Surface air temperature (when applicable).

Description of surface conditions

The Situational Awareness section of the report allows a plain language description of surface conditions which adds value to the information being disseminated, particularly as regards other movement areas of the aerodrome. If available such information shall include the depth of related contaminant.

Aerodrome Standards Advisory Document (ASAD-07)

Page: 7/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



The RCR shall be produced when a significant change in runway surface condition occurs due to the presence of water typically following a storm. Reporting should be maintained to reflect significant changes and until such time runways are no longer deemed contaminated.

The RYWCC may be downgraded or upgraded by the Aerodrome Operator using a friction measuring device or other approved method.

6. Aerodrome operator responsibilities

The Aerodrome Operator is responsible for assessing aerodrome surface conditions and disseminating such information through the relevant ATS/AIS provider.

To fulfill this role it is expected that the aerodrome operator adopts a process which includes the following:

1. Identify the methodology to be adopted to measure the percentage of coverage and depth of contaminant for each third of runways. The process shall also include data gathering for other parts of the movement area.
2. Develop procedures for the: a) collection of data, b) production of RCR, c) dissemination of information to ATS/AIS, and d) updating of RCR.
3. Identify personnel who would be responsible for tasks highlighted in point 2.
4. Develop and amend existing training programmes to include subjects related to runway surface condition reporting as per ICAO Circular 355.
5. Coordinate with the respective ATS/AIS provider to ensure seamless transmission of RCR taking into account the applicable aeronautical data transfer protocols.
6. Perform necessary updates to ATIS and adopt the new SNOWTAM format.
7. Inform all aerodrome users, particularly the GA community and the military on GRF implementation, ideally through established safety committees.
8. Apply the approved change management process and conduct a safety risk assessment to address any potential concerns.
9. In conjunction with ATS/AIS provider, conduct system testing to ensure a smooth transition on target date.
10. Update occurrence reporting process to include GRF.

7. ATS/AIS provider responsibilities

Depending on the situation, the RCR may be disseminated by means of: a) SNOWTAM; b) ATIS, or c) radiotelephony. It is the responsibility of the ATS/AIS provider to ensure

Aerodrome Standards Advisory Document (ASAD-07)

Page: 8/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



the timely availability of the RCR to aircrew and, to perform these tasks, it is expected that the ANSP adopts a process which includes the following:

1. Coordinate with the aerodrome operator to establish the appropriate methodology for the receipt of the RCR considering the applicable aeronautical data transfer protocols.
2. Amend and introduce new procedures for the implementation of GRF. This shall consider the receipt and forwarding of AIREPs to the aerodrome operator.
3. Develop and amend existing training programmes to include subjects related to GRF application, with interest groups mainly consisting of: a) management; b) ATCOs; c) AIS personnel. Training subjects should primarily focus on: RCR decoding; SNOWTAM, and R/T transmission of RCR.
4. Perform necessary updates to include the new SNOWTAM format.
5. Apply the established change management process and conduct a safety risk assessment to address any concerns stemming pre implementation.
6. In conjunction with aerodrome operator, conduct system testing to ensure effective implementation on target date.
7. Update occurrence reporting process to include GRF.
8. Update AIP as required.

8. Responsible Units within TM-CAD

As expected, the effective application of GRF requires the collective effort of several stakeholders from all domains of the aviation system. Invariably, the key players of the process are aerodrome operators and air navigation services providers. For this reason, the Air Navigation Services & Aerodromes Unit is the leading unit for the promotion and oversight of the process at national level. Therefore, any queries from these domains should be directed to the designated ANS & ADR Inspector.

It is understood that Air Operators are preparing for the introduction of GRF as should be GA and Military operators. Related requests for information received from such organisations should be directed to the Flight Operations Inspectorate and/or Personnel Licensing Unit of TM-CAD.

The final players in the implementation of GRF are aircraft manufacturers, who are working on the integration of the new format onto onboard systems. Any questions in this regard should be addressed to TM-CAD's Airworthiness Inspectorate.

All units will be including GRF in their oversight schedule and operators are to expect audits and/or inspections accordingly.

Aerodrome Standards Advisory Document (ASAD-07)

Page: 9/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



9. References

EU regulation: (EU)2018/1139

EU regulation: (EU)139/2014

EU regulation: (EU)2017/373

EU regulation: (EU)376/2014

EU regulation: (EU)2019/1387

ICAO Annex 14 Vol 1 Aerodrome Design and Operations

ICAO Doc 9981 PANS Aerodrome

ICAO Doc 10066 Aeronautical Information Management

ICAO Circ 355 Assessment, Measurement and Reporting of Runway Surface Conditions.

Aerodrome Standards Advisory Document (ASAD-07)

Page: 10/12
Date: 18 Feb, 2021
Issue: 1
Ref.: ASAD-07-21



APPENDIX A – Runway Condition Assessment Matrix (RCAM)

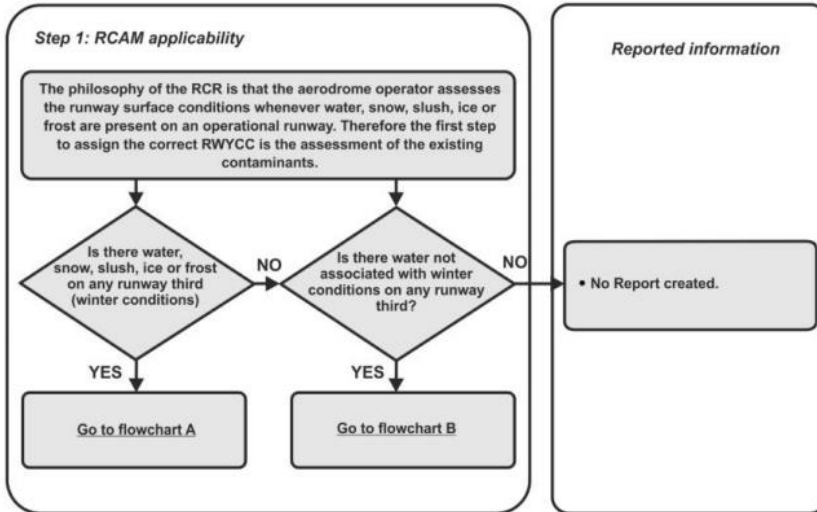
Runway condition assessment matrix (RCAM)			
Assessment criteria		Downgrade assessment criteria	
Runway condition code	Runway surface description	Aeroplane deceleration or directional control observation	Pilot report of runway braking action
6	<ul style="list-style-type: none"> • DRY 	---	---
5	<ul style="list-style-type: none"> • FROST • WET (The runway surface is covered by any visible dampness or water up to and including 3 mm depth) <p><i>Up to and including 3 mm depth:</i></p> <ul style="list-style-type: none"> • SLUSH • DRY SNOW • WET SNOW 	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4	<p><i>-15°C and Lower outside air temperature:</i></p> <ul style="list-style-type: none"> • COMPACTED SNOW 	Braking deceleration OR directional control is between Good and Medium.	GOOD TO MEDIUM
3	<ul style="list-style-type: none"> • WET ("slippery wet" runway) • DRY SNOW or WET SNOW (any depth) ON TOP OF COMPACTED SNOW <p><i>More than 3 mm depth:</i></p> <ul style="list-style-type: none"> • DRY SNOW • WET SNOW <p><i>Higher than -15°C outside air temperature¹:</i></p> <ul style="list-style-type: none"> • COMPACTED SNOW 	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	<p><i>More than 3 mm depth of water or slush:</i></p> <ul style="list-style-type: none"> • STANDING WATER • SLUSH 	Braking deceleration OR directional control is between Medium and Poor.	MEDIUM TO POOR
1	<ul style="list-style-type: none"> • ICE ² 	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0	<ul style="list-style-type: none"> • WET ICE ² • WATER ON TOP OF COMPACTED SNOW ² • DRY SNOW or WET SNOW ON TOP OF ICE ² 	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

Aerodrome Standards Advisory Document (ASAD-07)

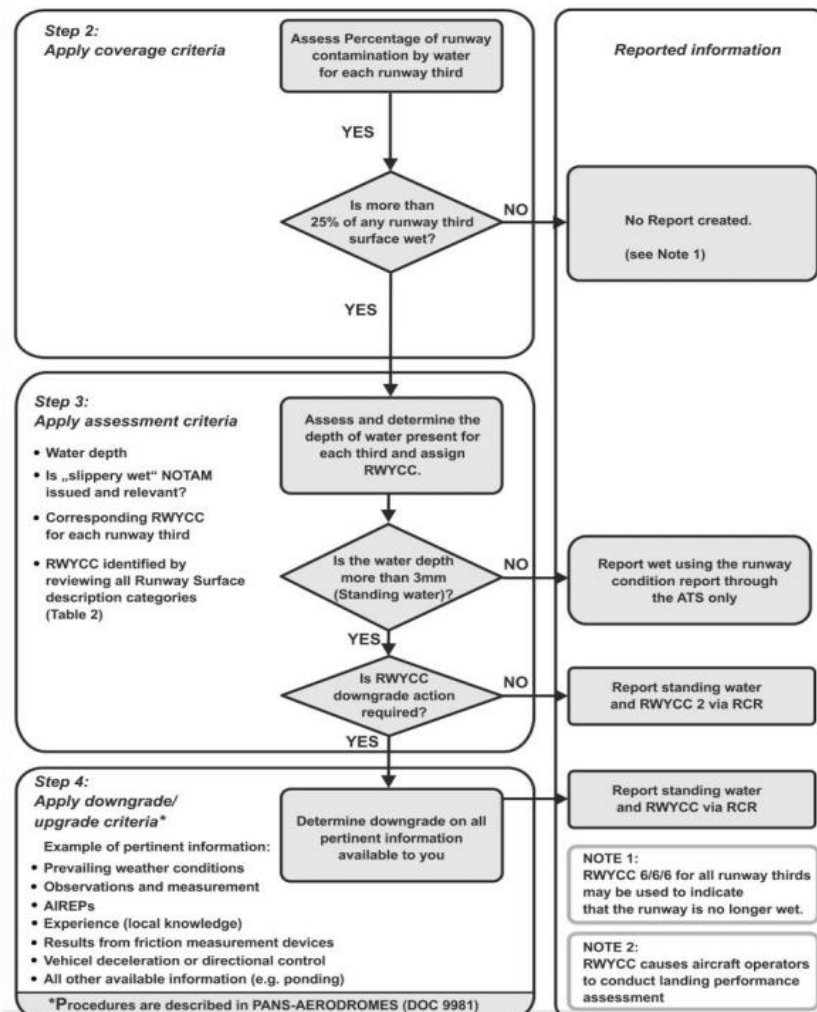
Page: 11/12
 Date: 18 Feb, 2021
 Issue: 1
 Ref.: ASAD-07-21



APPENDIX B – RCAM PROCESS FOR AERODROMES NOT EXPOSED TO SNOW/ICE



Flowchart B



APPENDIX C – REPORTING OF RUNWAY CONDITION CODE

