

**GUERNSEY
ADVISORY
CIRCULAR
(GACs)**



GAC OPS-10

**Braking Action
Reporting. Global
Reporting Format
(GRF)**

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First Issue

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1 - Purpose

The purpose of this Guernsey Advisory Circular (GAC) is to present information to pilots-in-command and aircraft operators regarding the Global Reporting Format (GRF), being the new ICAO methodology and terminology for assessing and reporting the runway surface condition.

2 - Related laws, regulations and requirements

This GAC relates to:

- GAR 91/121/135.182 Braking action report;
- GAR 91.432 Aeroplane operating procedures for landing performance;
- ICAO Circular 355: Assessment, Measurement and Reporting of Runway Surface Conditions

3 - Audience

This GAC is targeted at pilots-in-command and operators of aircraft:

- registered in Guernsey and operated anywhere;
- registered elsewhere when operated in the Bailiwick of Guernsey.

This GAC is not targeted at aerodrome operators and other stakeholders, who are informed by other means.

4 - Runway surface condition reporting and use

In 2016, ICAO introduced a globally harmonized methodology, and associated standards, for assessing and reporting runway surface conditions to help mitigate the risk of runway excursions. This methodology and these standards became effective in 2021 and are now applied by both aerodrome operators and aircraft operators and is known as the Global Reporting Format.

For the stakeholders mentioned in chapter 3, braking action reporting standards were introduced in 2018 with amendments 4 and 7 of GAR 91/121/135 and GAR 91/125 respectively, as follows:

- *91.182 Braking action report*
The pilot-in-command shall submit the runway braking action special air-report (AIREP) when the runway braking action encountered is not as good as reported.
- *135.182/121.182 Braking action report*

The operator shall ensure that the pilot-in-command submits the runway braking action special air-report (AIREP) when the runway braking action encountered is not as good as reported.

It should be noted that submitting an AIREP in this context is done by radio.

At the same time, the following requirement was introduced so as to ensure that the actual runway surface condition is used for determining whether a safe landing can be made:

- *91.432 Aeroplane operating procedures for landing performance*
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.

Elements of the runway surface condition methodology include:

- The runway condition code (RWYCC);
- Runway condition reporting by Air Traffic Services (RCR);
- Runway condition reporting by flight crew, using the AIREP format;
- The runway condition assessment matrix (RCAM).

These elements are further explained in the following chapters.

5 - Runway condition code

A fundamental change in the new reporting system is the introduction of a “Runway Condition Code” (RWYCC). The assessment process of assigning a RWYCC starts with the aerodrome operator’s identification of the various contaminants that determine what initial RWYCC must be reported. Based on all other information available, this initial RWYCC can be downgraded or upgraded.

The revised scale GOOD, GOOD TO MEDIUM, MEDIUM, MEDIUM TO POOR, POOR and LESS THAN POOR is used by the flight crew to characterize perceived braking action and lateral control of the aeroplane during landing roll.

RWYCCs 0 through 6 are mapped to this terminology in the “runway condition assessment matrix” (RCAM) (see chapter 8) and describe a consistent runway

surface condition in relation to its effect on aircraft braking performance and lateral control.

Another fundamental change is that WET runway conditions are included in the “runway condition report” (RCR) (see chapter 6) on a regular basis.

6 - Runway Condition Reporting (RCR) by AIS/ATS

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 takeoff 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.

When the runway is wholly or partly contaminated by standing water, snow, slush, ice or frost, or is wet associated with the clearing or treatment of snow, slush, ice or frost, the RCR should be disseminated through the Aeronautical Information Services (AIS) and Air Traffic Services (ATS). When the runway is wet, not associated with the presence of standing water, snow, slush, ice or frost, the assessed information should be disseminated using the runway condition report through the ATS only.

The RCR should consist of the aeroplane performance calculation section and the situational awareness section. The information is included in an information string in the following order using only AIS compatible characters:

An example of a complete information string prepared for dissemination is as follows:

(COM header and abbreviated header - completed by the aerodrome operator via AIS)

GG EADBZQZX EADNZQZX EADSZQZX 070645

EADDYNYX

SWEA0151 EADD 02170055

SNOWTAM 0151

[Aeroplane performance calculation section]

EADD 02170055 09L 5/5/5 100/100/100 NR/NR/NR WET/WET/WET EADD

02170135 09R 5/2/2 100/50/75 NR/06/06 WET/SLUSH/SLUSH

EADD 02170225 09C 2/3/3 75/100/100 06/12/12 SLUSH/WET SNOW/WET SNOW

[Situational awareness section]

RWY 09L SNOWBANK R20 FM CL. RWY 09R ADJ SNOWBANKS. TWY B POOR. APRON NORTH POOR.

7 - Runway braking action reporting by flight crew

The role of the pilots in the runway surface condition reporting process does not end once a safe landing has been achieved. While the aerodrome operator is responsible for generating the RCR, flight crew are responsible for providing accurate braking action reports. The flight crew braking action reports provide feedback to the aerodrome operator regarding the accuracy of the RCR resulting from the observed runway surface conditions.

Air Traffic Services (ATS) passes these braking action reports to the aerodrome operator, which in turn uses them to determine if it is necessary to downgrade or upgrade the RWYCC.

During busy times, runway inspections and maintenance may be less frequent and need to be sequenced with arrivals. Therefore, aerodrome operators may depend on braking action reports to confirm that the runway surface condition is not deteriorating below the assigned RCR.

Since both the aerodrome operator and other pilots rely on accurate braking action reports, pilots should use standardised terminology in their AIREP, as follows:

(a) Good braking action (5), is reported as 'BRAKING ACTION GOOD'.

- (b) Good to medium braking action (4), is reported as 'BRAKING ACTION GOOD TO MEDIUM'.
- (c) Medium braking action (3), is reported as 'BRAKING ACTION MEDIUM'.
- (d) Medium to poor braking action (2), is reported as "BRAKING ACTION MEDIUM TO POOR"
- (e) Poor braking action (1), is reported as 'BRAKING ACTION POOR'.
- (f) Less than poor (0), braking action is reported as 'BRAKING ACTION LESS THAN POOR'.

Whenever requested by ATS, pilots should provide a braking action report. When the braking action encountered during the landing roll is not as previously reported by the aerodrome operator in the RCR, per GAR 91/121/135.182, the pilot-in-command shall report the runway braking action special air-report (AIREP). This is especially important and safety relevant where the experienced braking action is worse than the braking action associated with any RWYCC code currently in effect for that portion of the runway concerned.

When the experienced braking action is better than that reported by the aerodrome operator, it is important to report this information, which may trigger further actions for the aerodrome operator in order to upgrade the RCR.

If an aircraft-generated braking action report is available, it should be transmitted, identifying its origin accordingly. If the flight crew have a reason to modify the aircraft-generated braking action report based on their judgement, the pilot-in-command should be able to amend such report.

A Mandatory Occurrence Report should be submitted whenever low braking action may have represented a significant risk to aviation safety.

8 - Runway Condition Assessment Matrix (RCAM)

The following table shows the correlation between the terminology used by the aerodrome operator for specifying the RWYCC based on the initial assessment of the runway surface condition and the pilot-in-command to report the braking action in the AIREP based on the aeroplane's response.

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	• DRY	_____	_____
5	• FROST • WET (The runway surface is covered by any visible dampness or water up to and including 3 mm depth) Up to and including 3 mm depth: • SLUSH • DRY SNOW • WET SNOW	Braking deceleration is normal for the wheel braking effort applied AND directional control is normal.	GOOD
4	-15°C and Lower outside air temperature: • COMPACTED SNOW	Braking deceleration OR directional control is between good and medium	GOOD TO MEDIUM
3	• WET ("slippery wet" runway) • DRY SNOW or WET SNOW (any depth) ON TOP OF COMPACTED SNOW More than 3 mm depth: • DRY SNOW • WET SNOW Higher than -15°C outside air temperature¹: • COMPACTED SNOW	Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced.	MEDIUM
2	More than 3 mm depth: • STANDING WATER • SLUSH	Braking deceleration OR directional control is between medium and poor.	MEDIUM TO POOR
1	• ICE	Braking deceleration is significantly reduced for the wheel braking effort applied OR directional control is significantly reduced.	POOR
0	• WET ICE • WATER ON TOP OF COMPACTED SNOW • DRY SNOW or WET SNOW ON TOP OF ICE	Braking deceleration is minimal to non-existent for the wheel braking effort applied OR directional control is uncertain.	LESS THAN POOR

END