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GCAA ADVISORY CIRCULAR

**AERODROME & GROUND AID
AC NO: GCAA AC/AGA/001**

SUBJECT: AERODROME PAVEMENT REPORT	DATE INITIATED:	August 7, 2021
	INITIATED BY:	DIRECTOR AVIATION SAFETY REGULATION

1.0 PURPOSE

On a global level, movement areas are exposed to a multitude of climatic conditions and consequently may have significant effects on aircraft operations. A system of runway condition report (RCR) describes a basic methodology which is applicable to all climatic variations and is structured in such a way that States can adjust them to the climatic conditions applicable for that State or region.

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 associate aircraft landing and take-off performance tables and how they are 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.

This format is a globally harmonized reporting of runway surface condition to be used in international aviation. The main intent of this system is to reduce runway excursion. This report is generated by the Airport Authority, disseminated by the Air Navigation Service Section, either by the Aeronautical Information Service and/or Air Traffic Services for use by pilots in calculating the declared distances required for their operation based on the existing meteorological and pavement conditions. The meteorological agency has an integral role in supplying data to be used in generating this report.

2.0 GENERAL INFORMATION/CANCELLATION

- a. This Advisory Circular GCAA AC/AGA/001 is an update to the initial issue and becomes effective date is November 4, 2021.
- b. This AC applies to Air Operator, Aerodrome Operator & Air Navigation Service Provider in Guyana.

3.0 RELATED REFERENCES

This Advisory Circular is in accordance with Directive No: GCAA/ASR/DIR/2021-01

4.0 CONTACT INFORMATION

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5.0 DEFINITION

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.

Declared Distances.

- a) Take-off run available (TORA). The length of runway declared available and suitable for the ground run of an aeroplane taking off.
- b) Take-off distance available (TODA). The length of the take-off run available plus the length of the clearway, if provided.
- c) Accelerate-stop distance available (ASDA). The length of the take-off run available plus the length of the stopway, if provided.
- d) Landing distance available (LDA). The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

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.

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.

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.

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.

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.

6.0 GENERATION OF THE RUNWAY SURFACE CONDITION REPORT

- a) In According to the Standards and Recommended Practices for Certified aerodromes Chapter 2 Aerodrome Data, 2.9 Condition of the movement area and related facilities, require the generation of the Runway Surface Condition in accordance with the Global Report Format by competent personnel at least once per day for a code 1 or 2 runway and at least 2 times per day for a code 3 or 4; and additional inspections must be conducted when the runway condition may change due to significant changes in the meteorological condition.
- b) Persons assessing and reporting runway surface condition must be trained in the Global Reporting Format (GRF) and competent to perform their duties.
- c) The runway surface condition must be assessed and reported through a Runway Condition Code (RWYCC) and a description, relevant to Guyana with wet and dry conditions, using the following terms:

DRY

Standing water (water above 3mm up to 15mm)

Wet (water level less than 3mm)

- d) Whenever an operational runway is contaminated, an assessment of the contamination depth and coverage over each third of the runway must be reported.
- e) Information that a runway or portion thereof is slippery wet shall be made available.
- f) Notification must be given to relevant aerodrome users when the friction level of a paved runway or portion thereof is less than:

CFME	MFL
Mu-Meter	0.57
Grip Tester	0.63

- g) RWYCC reflects the runway braking capability as a function of the surface conditions.
- h) The Global Report Format is divided into Aeroplane Performance Calculation with eight sections and Situational Awareness with six elements:

Aeroplane performance calculation

- i. Aerodrome location indicator (Mandatory).
 - Aerodrome location indicator as published in Doc 7910.
- ii. Date and time of assessment (Mandatory).

- Two digits to reflect Month, Day, Hour, Minutes respectively MMDDhhmm (M).
- iii. Lower runway designation (Mandatory).
 - Two or three character identifying the lowest designation for the runway nn(L/C/R).
- iv. RWYCC for each third (Mandatory).
 - one-digit number identifying the RWYCC assessed for each runway third. The codes are reported in a three-character group separated by a “/” for each third. The direction for listing the runway thirds shall be in the direction as seen from the lower designation number.
 - RWYCC must reflect one of the following options:

Aerodrome Operator Report		Pilot Report Correlation		
Runway condition description	RWYCC	Pilot report of runway braking action	RWYCC	Description
DRY	6	N/A		
WET (the runway surface is covered by any visible dampness or water up to and including 3 mm depth)	5	GOOD	5	Braking deceleration is normal for the wheel braking effort applied and directional control is normal
WET (“slippery wet” runway)	3	MEDIUM	3	MEDIUM Braking deceleration is noticeably reduced for the wheel braking effort applied OR directional control is noticeably reduced
Standing water (greater than 3mm)	2	MEDIUM TO POOR	2	Braking deceleration OR directional control is between Medium and Poor.

Table 1: Runway Condition Code

- v. Percentage contaminant for each runway third (Mandatory)
 - number identifying the percentage coverage. The percentages are to be reported using a six-to-nine character group separated by a “/” for each runway third.
 - The percentage reflect one of the options below:

Assessed (%)	Reported (%)
0-9	NR
10-25	25
26-50	50
51-75	75
76-100	100

Table 2: Percentage of Contaminants Cover

- vi. Depth of loose contaminant for each third (Mandatory).
- A two- or three-digit number representing the assessed depth (mm) of the contaminant for each runway third. The depth is reported in a six-to-nine-characters group separated by a “/” for each runway third as defined below:

Contaminant	Valid values to be Reported	Significant change
STANDING WATER	< 04, then assessed value	3 mm up to and including 15 mm

Table 3: Depth of Contaminants

- vii. Condition description for each third (Mandatory).
- to be reported in capital letters using the following terms:
DRY, Standing Water, Wet (water level less than 3mm), Loose sand.
 - The condition type is reported by any of the above condition type descriptions for each runway third and separated by an oblique stroke “/”.
- viii. Width of runway to which the RWYCC is applicable if less than published width (Optional).
- this two-digit number representing the width of cleared runway in metres.

Situational awareness section.

All individual messages in the situational awareness section end with a full stop sign. This is to distinguish the message from subsequent message(s).

- reduced runway length.
 - This information is optional when a NOTAM has been published with a new set of declared distances affecting the LDA.
 - It is reflected as “RWY 07 LDA REDUCED TO 1200.”
- loose sand on the runway (Optional).
 - It is reflected as “RWY 07 LOOSE SAND.”
- taxiway conditions (Optional).
 - The frictional characteristic of the taxiway is below RWYCC 3 from table 1.
 - It is reflected as “TWY B POOR.”
- apron conditions (Optional).

- The frictional characteristics of the taxiway is below RWYCC 3 from table 1.
- v. (Optional for further development).
- vi. plain language remarks (Optional).
Where possible, standardized text should be developed.
Allowable characters:
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z
0 1 2 3 4 5 6 7 8 9
/ [oblique stroke] “.” [period] “ ” [space]

Example of a GRF report generated and promulgated.

[Aeroplane performance calculation section]

SYEC 02170055 07 5/5/5 100/100/100 NR/NR/NR WET/WET/WET

[Situational awareness section]

RWY 07 LDA REDUCED TO 1200. TWY B POOR. APRON MEDIUM TO POOR).

7.0 PROMULGATION OF THE RUNWAY SURFACE CONDITION REPORT.

- a.) The Aerodrome Operator shall forward the Runway Condition Report contained in Table 1 to the Aeronautical Information Service. The AIS shall promulgate the RCR provided by an Aerodrome Operator when the RWYCC falls below 5 as referred to in Table 1.
- b.) The AIS shall notify the appropriate Air Traffic Services Unit of the RCR so that the information can be passed to flight crews to allow for adequate planning prior to departure and landing at the affected aerodrome.

8.0 PILOT INTERPRETATION OF THE RUNWAY CONDITION REPORT.

Based on the level of contaminants on the runway pilots are required to adjust the required declared distances for the departure and landing phases of flight. The aeroplane performance calculation is applicable to turbine-powered subsonic transport-type aeroplanes over 5 700 kg maximum certificated take-off mass having two or more engines.

8.1 Landing Distance Factor

For some older aeroplanes out of production but still in service, fully compliant data for the time of landing assessment may not be available. This is especially true for those manufacturers no longer in business. In this case, the landing distance factors (LDFs) depicted in Table 4 apply. The LDFs provided include a 15 per cent safety margin and an air distance representative of normal operational practices. They account for variations of temperature up to international standard atmosphere (ISA) +20°C, runway slopes between -2 per cent and +2 per cent and an average approach speed increment of 5 kts up to 20 kts. They may not be conservative for all configurations in case of unfavourable combinations of these parameters. To calculate the landing distance required (LDR), multiply the flight manual landing distance (dry, un-factored) by the applicable LDF in Table 4 for the runway conditions existing at the time of arrival. If the landing distances furnished in the flight manual are presented as factored landing distances, then those data must be adjusted to remove the applicable dispatch factors applied to that data.

Runway condition code	6	5	3	2
Braking action	Dry	Good	Medium	Medium to poor
Turbojet, no reverse	1.67	2.6	3.2	4.0
Turbojet, with reverse	1.67	2.2	2.5	2.9
Turboprop ²	1.67	2.0	2.4	2.7

² These LDFs apply only to modern turboprops with efficient disk drag. For older turboprops without adequate disk drag use the turbojet, no reverse LDFs.

Table 4: Landing distance factors

8.2 Take-off Distance and Accelerated Stopping Distance factor

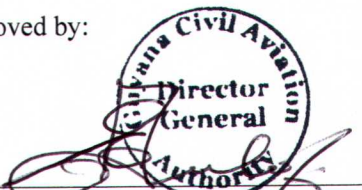
In the absence of appropriate test data or specific analysis, the effect of contaminant on drag and wheel braking should be based on parameters for the specific aeroplane to the greatest degree possible using assessment methods found acceptable by the competent authority of State of Design.

The suggested equivalences above assume that the RWYCC reported along with the contaminant and depth is consistent with the classification shown in the RCAM of the PANS-Aerodromes (Doc 9981). However, in accordance with the procedures associated with the RCAM, the aerodrome personnel may use all other observations to downgrade or upgrade the RWYCC from that usually associated with a contaminant. Operators should provide recommendations in their operations manual on how to determine performance in such situations, considering that contaminant drag effects may not allow to identify simply a contaminant representative of the reported condition. In case of doubt, the prudent approach is to delay take-off. However, due to the low exposure to rejected take-off, it may be sufficient to determine performance in nominal conditions and to adopt appropriate operational procedures such as considering reduced crosswind limits or using the full length of available runway and potentially avoiding a rolling take-off.

8.3 Notwithstanding the above, compliance with performance data in the flight manual that do not conflict with national regulation is acceptable for the varying RCR. In no case should the limitations in the flight manual be exceeded. However, the above limitations in 8.2 must be applied when operational conditions not included in the flight manual are encountered. When applying the factors prescribed, any operational factors already incorporated in the flight manual data should be considered to avoid double application of factors.

In the event that the reported friction is less than the actual friction experienced by a pilot, it is obligatory that the pilot inform the ATS Unit. The pilot's report must be inserted in the pilot report correlation column of the form in Table 1.

Approved by:


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