สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

Guidance Material on Global Reporting Format (GRF) for Runway Surface Conditions

CAAT-GM-AGA-GRFR

Revision: 00

Date: 04 November 2021

Approved by

Suttipong Kongpool

Director General of The Civil Aviation Authority of Thailand

Intentionally Left Blank

Table of Contents

0. Introduction

0.1 Background

The International Civil Aviation Organization (ICAO) has developed a new globally harmonized methodology for runway condition assessment and reporting. This internationally accepted methodology is called the Global Reporting Format (GRF). The implementation date for GRF in Thailand is November 4th, 2021.

The philosophy of the GRF is that the airport 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 format, based on the type, depth and coverage of contaminants is the best assessment of the runway surface condition by the airport operator. All other pertinent information should also be taken into consideration. When changes in conditions occur, they should be reported without delay.

The RWYCC reflects the expected braking capability as a function of the surface conditions. With this information, the flight crews can derive, from the performance information provided by the aeroplane manufacturer, the landing distance of an aeroplane under the existing conditions. When a RWYCC is not provided, pilots reference the reported runway surface description (condition or type and depth of contaminant) to determine expected landing performance.

Flight crews utilize the reported runway surface description (condition or type and depth of contaminant) when determining their aeroplane's expected take-off performance.

In preparation for the implementation of GRF in Thailand, The Civil Aviation Authority of Thailand (CAAT) has developed the new runway condition reporting methods which are described in this GM.

Thai implementation will meet the intent and important safety elements of the GRF.

Thailand Aeronautical Information Service is updating its technology and software to meet these new CAAT requirements.

0.2 Purpose

The purpose of this document is to introduce and explain the forthcoming Thai implementation of the GRF for runway surface condition reporting. Thai implementation of GRF is based on the Take-off and Landing Performance Assessment (TALPA) methodology.

This document is also being made available to the aviation industry for the purpose of conveying flight safety information. All aerodrome personnel involved with runway condition assessment should be aware of the forthcoming implementation of the new GRF for runway condition reporting. These personnel are encouraged to utilize this GM to assist them in reviewing this topic and to determine the applicability to their specific operations.

0.3 Applicability

0.3.1 This Guidance Material applies to:

a) Thai aerodrome operators operating a public-use aerodrome.

b) The Civil Aviation Authority of Thailand (CAAT) inspectors with certification and safety oversight responsibilities;

c) This document is also available to the aviation industry at large for information purposes. Its contents is of particular interest to:

(a) Thai pilots, flight dispatchers, air operators and private air operators as well as foreign air operators, and

(b) Individuals and organizations that exercise privileges granted to them under an External Ministerial Delegation of Authority.

0.4 Effective Date

04 November 2021

0.5 Reference

a) The Requirement of the Civil Aviation Authority of Thailand No. 14 – Aerodrome Standards

b) Regulation of the Civil Aviation Authority of Thailand on Aeronautical Information Services Standards

c) The Civil Aviation Authority of Thailand Rules on Manual of Standards of Aeronautical Information Services

d) Annex 14 to the Convention on International Civil Aviation, Volume I – Aerodrome Design and Operations

e) Procedures for Air Navigation Services (PANS) – Aerodromes (PANS-Aerodromes, Doc 9981)

f) Procedures for Air Navigation Services (PANS) – Aeronautical Information Management (PANS-AIM, Doc 10066)

g) Assessment, Measurement and Reporting of Runway Surface Conditions (ICAO Circular 355)

0.6 Definitions and Abbreviations

0.6.1 The following definitions are used in this document

Term	Definition
Cleared width	the narrowest portion of the runway width that has been cleared of loose contaminants. (See remaining width.)
Contaminated	Material that collects on a surface, including standing water, snow, slush, compacted snow, ice, frost, sand, and ice control chemicals.
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 following substances: compacted snow, dry snow, frost, ice, slush, standing water, wet ice or wet snow.*
Dry	A surface condition that is free of visible moisture, and has no observed contaminants.
Paved surface	A surface of asphaltic concrete (flexible) or Portland cement concrete (rigid).
Percent coverage	The estimated amount of a condition or contaminant present on the surface of the runway.
Remaining width	The un-cleared portion of the runway. (See cleared width.)
Runway Condition Assessment Matrix	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	A number describing the runway surface condition to be used in the runway condition report.
Runway surface condition	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.
a) 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.
b) 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.
c) Slippery wet runway	A wet runway where the surface friction characteristics of the runway have been determined to be degraded. Note: A runway or any portion of a runway is deemed as having low friction (e.g. due to rubber accumulation, surface texture degradation, etc.) when the friction measurements (as measured by a continuous friction measuring device in accordance with RCAAT no. 14) are below the minimum coefficient of friction specified in column 7 of table 5.
d) 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.
Runway surface condition descriptors	One of the following elements on the surface of the runway:
a) Compacted snow	Snow that has been compacted into a solid mass such that aeroplane tires, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface.

Term	Definition
b) Dry snow	Snow from which a snowball cannot readily be made.
c) Frost	Frost consists of ice crystals formed from airborne moisture on a surface whose temperature is below freezing. Frost differs from ice in that the frost crystals grow independently and therefore have a more granular texture.
d) Ice	Water that has frozen or compacted snow that has transitioned into ice, in cold and dry conditions.
e) Slush	Snow that is so water-saturated that water will drain from it when a handful is picked up or will splatter if stepped on forcefully.
f) Standing water	Water of depth greater than 3 mm.
g) Wet ice	Ice with water on top of it or ice that is melting.
h) Wet snow	Snow that contains enough water content to be able to make a well-compacted, solid snowball, but water will not squeeze out.
Runway surface condition report	*A comprehensive standardized report relating to runway surface conditions and its effect on the aeroplane landing and take-off performance.*
Significant change	*A material changes to the runway surface condition which may impact the operational performance of the surface. Significant changes can include: changes in type of condition or contaminant, such as from dry snow to wet snow; measurable changes in depth of condition or contaminant; following the application or removal of sand or chemicals; following snow removal or sweeping; changes in conditions caused by rapid increases or decreases in temperature.*
Take-off and Landing Performance Assessment	*A method of reporting runway conditions (which relates to aeroplane performance), which is intended to reduce the risk of runway excursions.*

0.6.2 The following definitions are used in this document:

Term	Definition
AIREP	A pilot report of braking action which reflects the pilots' assessment of the available wheel braking.
ASTM	American Society for Testing and Materials
ATS	*Air Traffic Services*
CAAT	The Civil Aviation Authority of Thailand
CL	Centreline
GRF	Global Reporting Format
ICAO	International Civil Aviation Organization
NOTAM	Notice to Airmen
NR	Not Reported
RCAAT	Requirement of The Civil Aviation Authority of Thailand
RCAM	Runway Condition Assessment Matrix
RCR	Runway Surface Condition Report
RSC	Runway Surface Condition
RVR	Runway Visual Range
RWY	Runway
RWYCC	Runway Condition Code
TALPA	Takeoff and Landing Performance Assessment
TWY	Taxiway

1. Components of The Global Reporting Format (GRF) in Thailand

1.1 General

The Global Reporting Format (GRF)is an internationally accepted concept which utilizes a consistent method to report runway surface conditions. The GRF consists of five fundamental elements:

a) Runway Condition Report (RCR);

b) Runway condition assessment matrix (RCAM);

c) Runway condition code (RWYCC);

d) Runway surface conditions and

e) Runway surface descriptions.

1.2 Runway Condition Report (RCR)

Consistent with the principles of the GRF, the RCR has been specially designed to align with the aeroplane performance information (based on TALPA methods) which is used by pilots.

1.3 Runway Condition Assessment Matrix (RCAM)

1.3.1 The RCAM is used to determine a runway condition code from a set of observed runway surface condition(s).

1.3.2 Details respecting the RCAM are provided in Section 4 of this GM.

1.4 Runway Condition Code (RWYCC)

1.4.1 The Assessment Criteria consist of Runway Surface Descriptions which are used to determine the Runway Condition Code (RWYCC).

1.4.2 Flight crews use the final RWYCC for determining the landing performance of their aeroplane. (The RWYCC is not utilized for determining aeroplane takeoff performance.)

1.4.3 The process for determining the RWYCC is provided in Section 4 of this GM.

1.5 Runway Surface Condition

1.5.1 There are four defined runway surface conditions:

a) Dry runway;

b) Wet runway;

c) Slippery wet runway; and

d) Contaminated runway

1.5.2 The runway surface conditions are further sub-divided into runway surface descriptions, which describe the specific details of a runway surface.

1.5.3 The runway surface descriptions, including depth and temperature (when applicable), are used to determine the preliminary RWYCC

1.5.4 Information on runway surface descriptions is provided in Section 3.4.

2. Runway Condition Assessment Matrix (RCAM)

2.1 General

2.1.1 The Runway Condition Assessment Matrix (RCAM) (Table 1) is the method by which the airport operator determines a preliminary Runway Condition Code (RWYCC) for each runway third, whenever water is present on the runway surface.

2.1.2 The RCAM applies only to paved (asphalt and concrete) runway surfaces, and does not apply to unpaved or partially paved surfaces.

2.1.3 When runway condition information is reported in thirds a RWYCC is to be reported. Conversely, if the runway condition information is not entered for each runway third, then the RWYCC will not be reported.

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 temperature :*** • 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 of water or slush:*** • 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

2.2 Assessment Criteria

This section of the RCAM consists of a Runway Surface Description and a Runway Condition Code. The Runway Surface Descriptions in each category are linked to the corresponding Runway Condition Code based on their effect on aeroplane braking performance.

2.3 Runway Surface Description

2.3.1 The Runway Surface Description column of the RCAM lists:

a) the contaminants on the runway (e.g. slush, dry snow, wet snow, etc.); and

b) runway surface conditions, if a runway is dry, wet or slippery when wet.

2.3.2 These runway surface descriptions are directly correlated to aeroplane landing performance and are listed in order of slipperiness (i.e. from least slippery to most slippery).

2.4 Runway Condition Code (RWYCC)

2.4.1 Runway Condition Codes (Format: X/X/X) represent the runway condition description based on defined terms and increments. Use of these codes harmonizes with ICAO Annex 14, providing a standardized "shorthand" format for reporting runway condition, which can be used by pilots to determine landing performance parameters.

2.4.2 A preliminary RWYCC is determined using the RCAM based on type and depth of contaminant and outside air temperature (where applicable); or the runway condition, when the runway is dry, wet, or slippery when wet. The preliminary RWYCC must be confirmed, downgraded or upgraded. The full process to determine the final RWYCC is outlined in Section 5.

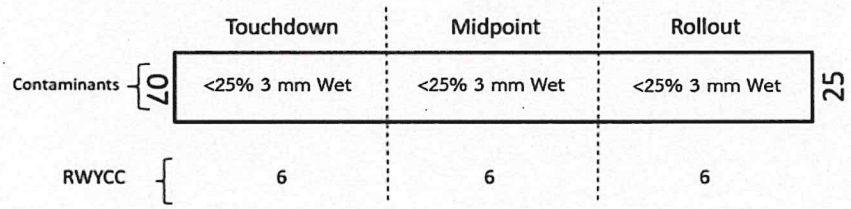
2.4.3 In the event the full width of the runway is not cleared, the runway condition code will be determined based on the contaminants present in the cleared portion of the runway.

2.4.4 The processes used to determine the preliminary RWYCC are described and illustrated below:

a) When the runway third contains a single contaminant, the preliminary RWYCC for that third is based directly on that contaminant in the RCAM (Table 3) as follows:

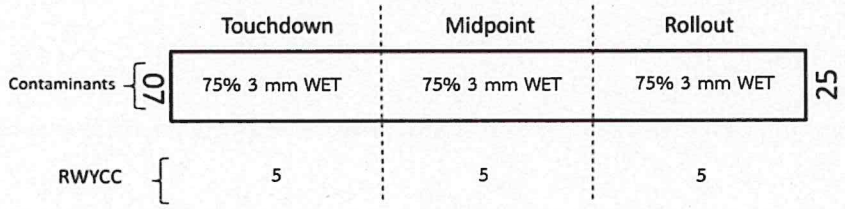
(a) If the percent coverage of contaminant for the runway third is less than 25%, a RWYCC of 6 is reported for that third;

Figure 1 – Single contaminant, less than 25% coverage per runway third



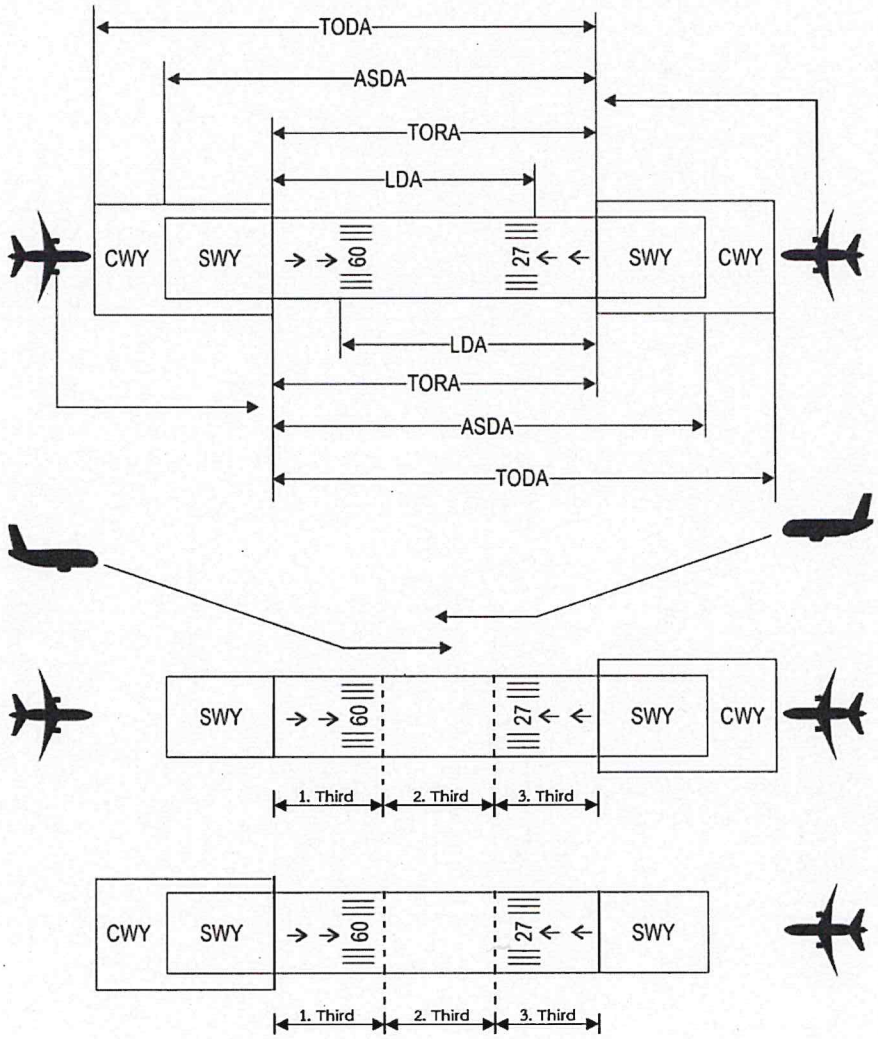
(b) If the percent coverage of contaminant for the runway third is greater than 25%, the preliminary RWYCC for that third is based on the code for that contaminant that is specified in the RCAM.

Figure 2 – Single contaminant, greater than or equal to 25% coverage per runway third



b) When the runway has displaced threshold, the runway third is determine follow as figure 3

Figure 3 – Determine runway third on displaced threshold



2.5 RWYCC Downgrade Assessment Criteria

2.5.1 As described in Section 2.4, the preliminary RWYCC is initially determined using the RCAM based on type and depth of contaminant and outside air temperature (where applicable); or the runway condition, when the runway is dry, wet, or slippery when wet.

2.5.2 The airport operator should consider downgrading a RWYCC when vehicle deceleration or directional control observations, pilot report(s), local knowledge and/or other information reveal that the runway surface is more slippery than the preliminary RWYCC indicated.

2.5.3 The airport operator should exercise vigilance and downgrade the RWYCC when appropriate – so that flight crews are provided with a RWYCC that best reflects the actual slipperiness of the runway.

2.5.4 The shaded area of the RCAM provides Downgrade Assessment Criteria, as detailed below:

a) The airport operator should be test runway friction, when available, to assess slipperiness of the runway.

b) Air reports may also provide useful information. These reports may relate to the specific sections of the runway in which wheel braking was applied, and should be considered for the applicable runway third.

2.6 Pilot Reported Braking Action

2.6.1 An air report (AIREP) of braking action reflects the pilots' assessment of the available wheel braking.

2.6.2 Where available, air reports of braking action should be taken into consideration as part of the ongoing monitoring process, using the following principles:

a) An air report of braking action should be taken into consideration for downgrading purposes

b) When previous pilot braking action reports have indicated GOOD or MEDIUM braking action, two consecutive pilot braking action reports of POOR indicates that surface conditions may be deteriorating. In this situation, the airport operator should conduct a runway assessment prior to the next aircraft operation.

c) Where Air Traffic Services (ATS) are provided, ATS are to notify airport operators of any significant change in surface conditions that they have observed or have been provided knowledge of.

d) Airport operators need to ensure that runway surface descriptions (type and depth)

3. Reporting Criteria for Runway Surface Condition Report (RCR)

3.1 General

3.1.1 The following sections describe the data fields for the runway condition information to be included in the new Runway Surface Condition Report (RCR) format.

3.1.2 To harmonize the data being entered into the software, each data field has a range of acceptable entries (parameters). This results in some constraints for some of the items reported by the individual inspecting the runway.

3.2 RCR Component and Format

3.2.1 When airport will report RCR. RCR consists of eight fundamental elements:

a) Aerodrome location indicator (ICAO)

b) Date (MMDD) and Time (UTC) of assessment

c) Lower runway designation number

d) RWYCC for each runway third

e) Percent coverage contaminant for each runway third

f) Depth of loose contaminant for each runway third

g) Condition description for each runway third

h) Width of cleared runway in metres to which the RWYCC apply if less than published width (if any)

3.2.2 When airport reported RCR. RCR format shall be as follow:

a) - Aerodrome location indicator	b) – Date and time of assessment		d) – RWYCC for each runway third		f) – Depth of loose contaminant for each runway third
VTSF	09251400	01	5/5/2	50/50/50	NR/NR/04
		c) – Lower runway designation number		e) - % coverage contaminant for each runway third	

WET/WET/STANDING WATER

g) – Condition description for each runway third

h) – Width of cleared runway in meters to which the RWYCC apply if less than published width

and example of RCR is provided in Section 5

3.3 Reporting

3.3.1 Runway condition information is reported for each third of the runway, the RCR will provide a single report per runway start with Lower runway designation number.

3.3.2 The runway condition information will normally be entered for each third of the runway. Reporting the runway condition information in thirds provides useful information for pilots. This format allows pilots to identify where conditions or contaminants are located on a runway and where the biggest impact on aeroplane performance may exist.

3.3.3 The RCR shall be established when:

a) At least once during each shift when runway is wet or contaminants are present

b) When weather conditions are changing that may change the previous runway surface condition report

c) When visual runway inspections and/or pilot braking action report(s) indicate that runway conditions are changing

d) Immediately following any aircraft incident or accident on the runway

e) When information from Air Traffic Control (ATC) indicates a need

3.3.4 The RCR shall be issued new RCR when:

a) A change in the RWYCC

b) A change in contaminant type

c) A significant change in contaminant depth

d) A significant change in reportable contaminant coverage

e) At the beginning of each shift of operations personnel

3.3.5 Reporting of RWYCC for runway third on runway with displaced threshold

3.4 Runway Surface Descriptions

3.4.1 The following terms will be used to describe the runway surface condition for each runway third.

a) DRY

b) WET

c) SLIPPERY WHEN WET

d) STANDING WATER

3.5 Percent Coverage

3.5.1 The percent coverage is reported using the increments listed in Table 2. If the assessed percent coverage is between increments, it should be rounded up as indicated.

Table 2 – Percent of coverage for contaminants

Assessed Percent	Reported Percent
0 - 9	NR
10 - 25	25
26 - 50	50
51 - 75	75
76 - 100	100

3.6 Depth Assessments

3.6.1 Contaminant depths will continue to be reported in millimeter and fractions of millimetre, as illustrated in Table 3, below.

Table 3 – Depth for contaminants

Contaminant	Valid values to be report	Significant Change
STANDING WATER	04, then assessed value	3 mm up to and including 15 mm

3.6.2 When the depth of contaminant(s) is variable:

a) The maximum depth should be entered, since only one value may be entered in this field, and the maximum depth is the most important information for pilots; and

b) The remarks section may be used to report a range of values for depth.

3.6.3 Contaminant depths will be reported for:

a) STANDING WATER

3.6.4 For STANDING WATER, 04 (4 mm) is the minimum depth value at and above which the depth is reported. (From 3 mm and below, the runway third is reported to be WET)

3.7 Dry Runways

3.7.1 A "DRY" runway surface condition should be report:

a) when there is need to report wet or contaminated conditions on the remainder of the surface. This would be the case when a runway third(s) is 100% DRY.

b) the cleared width is less than the published width and the cleared portion of the runway is 100% DRY;

c) when a significant change has occurred. For example when a runway third(s) reported as RWYCC 5 is now RWYCC 6; and

d) when a runway(s) at an aerodrome is DRY and another runway(s) at the same aerodrome is reported to be wet or contaminated.

3.8 Wet Runways

3.8.1 The timely and accurate reporting of conditions when water or moisture is present on the runway is recognized to be challenging. For example, during an active thunderstorm a runway may rapidly transition from dry, to wet (water 3 mm or less) to contaminated with standing water (water greater than 3 mm inch), in a very short period of time. In addition, variations in the drainage capabilities of a runway and/or portions of a runway further complicate accurate reporting. Therefore, airport operators may not be able to report these conditions.

3.8.2 When an airport operator reports water or moisture on a runway, the following should be considered:

a) A surface condition where there is any visible dampness or water up to and including 3mm is reported as "WET."

b) A surface condition where there is water of depth greater than 3mm is reported as "STANDING WATER" as described in Section 3.8, below.

3.8.3 The reporting of "SLIPPERY WHEN WET" runway conditions is described in Section 3.9, below.

3.9 Standing Water

3.9.1 Water on a runway at a depth greater than 3mm is reported as "STANDING WATER."

3.9.2 As discussed in Section 3.8, due to the dynamic nature of rainfall conditions, the timely and accurate reporting of conditions when water or moisture is present on the runway, is recognized to be challenging.

3.9.3 Where practicable, the reporting of standing water is encouraged.

3.9.4 To facilitate the accurate reporting of standing water, airport operators should also be aware of the conditions which would lead to the accumulation of standing water including:

a) The drainage characteristics of their runways, and

b) The rate and amount of precipitation.

3.10 Slippery When Wet

3.10.1 A runway or any portion of a runway is deemed as having low friction (e.g. due to rubber accumulation, surface texture degradation, etc.) when the friction measurements (as measured by a continuous friction measuring device in accordance with RCAAT No. 14) are below the minimum coefficient of friction specified in column 7 of table 5.

3.10.2 A normal NOTAM (as opposed to a RCR) which states that a runway may be "slippery when wet" is issued whenever the surface friction characteristics of a runway fall below the minimum standard, as described above in paragraph (3.10.1).

3.10.3 The airport operator may cancel this normal "slippery when wet" NOTAM only when the runway friction level meets or exceeds the minimum standard.

3.10.4 When there is a "slippery when wet" normal NOTAM in effect, runway conditions and contaminants on a runway are reported in the following manner:

a) for any visible dampness or water up to and including 3mm present on the runway, an RCR is issued with a runway condition of "SLIPPERY WHEN WET;"

b) with more than 3mm of water present on the runway, an RCR is issued with a runway condition of "STANDING WATER" with the corresponding percentage of coverage and depth (e.g. 25 % 4 mm STANDING WATER); and

3.10.5 When there is a "slippery when wet" normal NOTAM in effect and there is a need to report a dry runway condition as outlined in Paragraph 3.6.3, an RCR is issued with a runway condition of "DRY."

3.10.6 As per paragraph 3.10.5 above, when reporting in thirds and there is a "slippery when wet" normal NOTAM in effect, the runway surface conditions for each third will be reported as shown in the following examples:

a) If the first third of a runway had twenty-fifth percent coverage of a 3 mm or less water and the remaining runway thirds were dry, this would be reported as: SLIPPERY WHEN WET, DRY, DRY

b) If the first third of a runway had thirty percent coverage of 5 mm of water (more than 4 mm of water) and the last two thirds were wet, this would be reported as: STANDING WATER, SLIPPERY WHEN WET, SLIPPERY WHEN WET

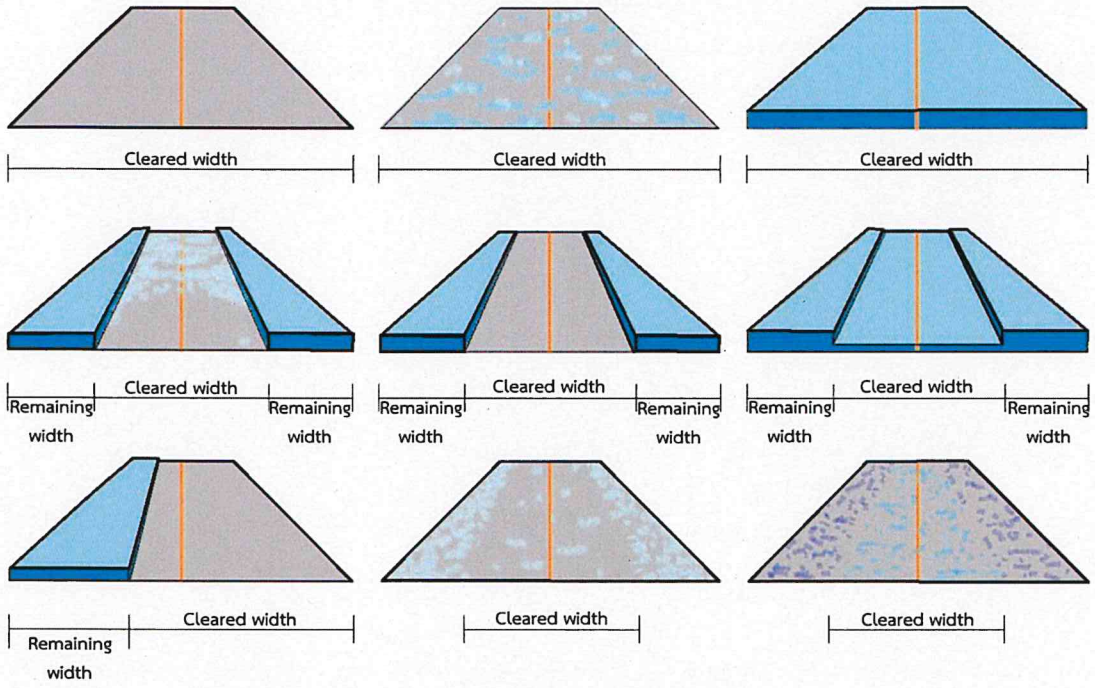
3.10.7 The processes used to determine a RWYCC when there is a "slippery when wet" normal NOTAM in effect are described in Section 4.4.

3.11 Cleared Width

3.11.1 If the cleared width is less than the published width, the width for which the runway conditions and RWYCCs apply is reported in metre. Example: RCR 18 ... 40 M WIDTH.

3.11.2 Figure 4 illustrates various possibilities for cleared width.

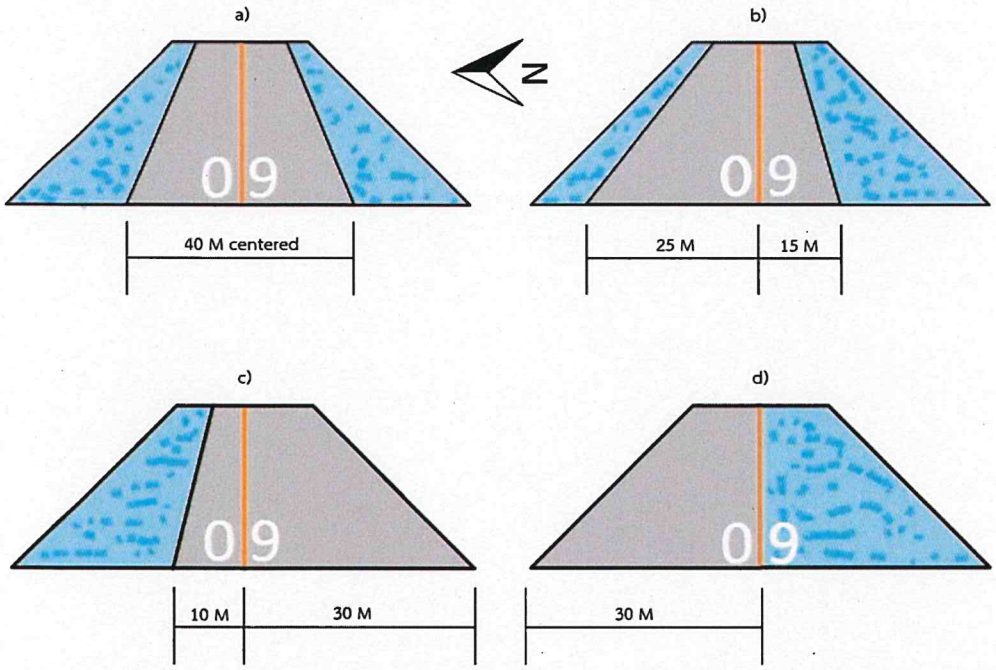
Figure 4 – Cleared width and remaining width



3.11.3 If the cleared width is not symmetrical about the runway centreline, the cardinal (or inter-cardinal) direction of the offset from the runway's centreline is to be included in the RCR. Example: RCR 09 ... 40 M WIDTH OFFSET NORTH

3.11.4 Figure 5 depicts runways with an asymmetric cleared width. (Example a) is provided for comparison purposes.)

Figure 5 – Cleared width offset



3.11.5 Examples of reports corresponding to the illustration in Figure 2 appear below:

a) RCR 09 ... 40 M WIDTH.
b) RCR 09 ... 40 M OFFSET NORTH.
c) RCR 09 ... 40 M OFFSET SOUTH.
d) RCR 09 ... 30 M OFFEST NORTH.

3.12 Conditions on Remaining Width of Runway

3.12.1 The conditions on the un-cleared portion of the runway (i.e. remaining width) will continue to be reported by full runway length (i.e. not by runway thirds).

3.12.2 Only one type of surface condition and corresponding depth, should be reported for the un-cleared width of the runway, where applicable. Example: RCR 09... REMAINING WIDTH STANDING WATER

3.12.3 While contaminant depths may vary from the centre cleared portion to the remaining portions or edges of the runway, the condition of the outlying portions should not present an operational hazard.

4. Process to Determine the RWYCC

To use the Runway Condition Assessment Matrix (RCAM), the airport operator will use similar runway condition assessment practices as they have used in the past. The airport operator will assess surfaces, and report contaminants present on each runway. Based on the reported information, the preliminary RWYCCs will be determined using the RCAM in accordance with the process described in Section 4.4. The airport operator will then be prompted to confirm whether the preliminary RWYCCs are appropriate in consideration of other available information. Details of this process are provided in Sections 4.1 to 4.3, below. The process described in Sections 4.1 to 4.3 is summarized in a flowchart in Appendix A.

A separate process outlined in Section 5.4 is used to determine the RWYCC for a runway that does not meet the minimum coefficient of friction specified in column 7 of table 5 with RCAAT No. 14, for which a "slippery when wet" normal NOTAM must be issued. (Information on these runways and the corresponding runway condition reporting procedures is found in Section 3.9.)

4.1 Step 1 – Determine Applicability of RWYCCs

RWYCCs are only applicable if:

a) the runway condition information is reported by runway thirds; and

b) the runway surface is paved.

4.2 Step 2 - Apply Assessment Criteria to Determine Preliminary RWYCC

Based on the runway surface description, the RCAM is used to determine a preliminary RWYCC for each third of the runway.

4.3 Step 3 - Validate Preliminary RWYCCs

4.3.1 After the preliminary RWYCCs have been assigned, the airport operator should determine that the preliminary RWYCCs accurately reflect the runway condition. Through this determination, which should consider Friction test report (if available), vehicle deceleration or directional control observations, pilot report(s), local knowledge and/or other information, the preliminary RWYCC will then be:

a) Confirmed;

b) Downgraded

4.3.2 If the preliminary RWYCCs accurately represent the runway condition, the preliminary RWYCCs will be confirmed and the final RWYCCs may be disseminated.

4.3.3 However, if it is determined – through Friction test report, pilot report(s), and/or other information – that the runway is more slippery than indicated by the preliminary RWYCC (determined with reference to the RCAM Assessment Criteria), the RWYCC should be downgraded. Guidance for the downgrade process is provided in Section 2.5 of this GM

4.4 RWYCC for Slippery When Wet Runways

4.4.1 The processes used to determine a RWYCC for runways which do not meet the minimum coefficient of friction specified in column 7 of table 5 with RCAAT No. 14. These procedures are applicable for wet conditions or standing water not associated with winter contaminants, where these conditions are reported.

4.4.2 For these procedures the percentage of coverage does not factor into the determination of the RWYCC. In addition, when more than one condition or contaminant is present, the lowest corresponding RWYCC is used, regardless of the amount of coverage.

5. Example for Runway Surface Condition Report

5.1 Wet Runway

5.1.1 Krabi Airport runway 14/32 on 20 June 2019 at 09.00 am. Local time. It has rained recently. The runway is still covered with visible dampness 3 mm deep. RCR is "VTSG 06200200 14 5/5/5 100/100/100 NR/NR/NR WET/WET/WET"

5.1.2 U – Tapao Airport runway 18/36 on 12 May 2018 at 04.15 pm. Local time. A thunderstorm has passed and significant rain has fallen on the airport and surrounding region. The first third of the runway has 33% coverage of water up to 3 mm. The middle third of the runway has 20% coverage of water up to 3 mm. The last thord of the runway has 50% coverage of water up to 3 mm. RCR is " VTBU 05120915 18 5/6/5 50/25/50 NR/NR/NR WET/DRY/WET"

5.2 Slippery When Wet Runway

5.2.1 Don Mueang Airport runway 03L/21R on 30 September 2020 at 6.30 pm. Local time. It has rained recently. The runway is still covered with visible dampness 3 mm deep. The runway is covered with rubber deposits and has runway friction less than minimum friction level on sta. 2900 – sta. 3700 m. Don Mueang Airport has TORA on runway 03L/21R is 3700 m. RCR is " VTBD 09301130 03L 5/5/3 100/100/100 NR/NR/NR WET/WET/WET RWY 03L SLIPPERY WET"

5.3 Standing Water

5.3.1 Samui Airport runway 17/35 on 06 July 2020 at 7.00 pm. Local time. A thunderstorm is passing and significant rain is falling on the airport and surrounding Koh Samui. The runway is completely covered with layer of water that is approximatively 1 cm in depth. RCR is " VTSM 07061200 17 2/2/2 100/100/100 10/10/10 STANDING WATER /STANDING WATER/STANDING WATER"

6. Validity Period

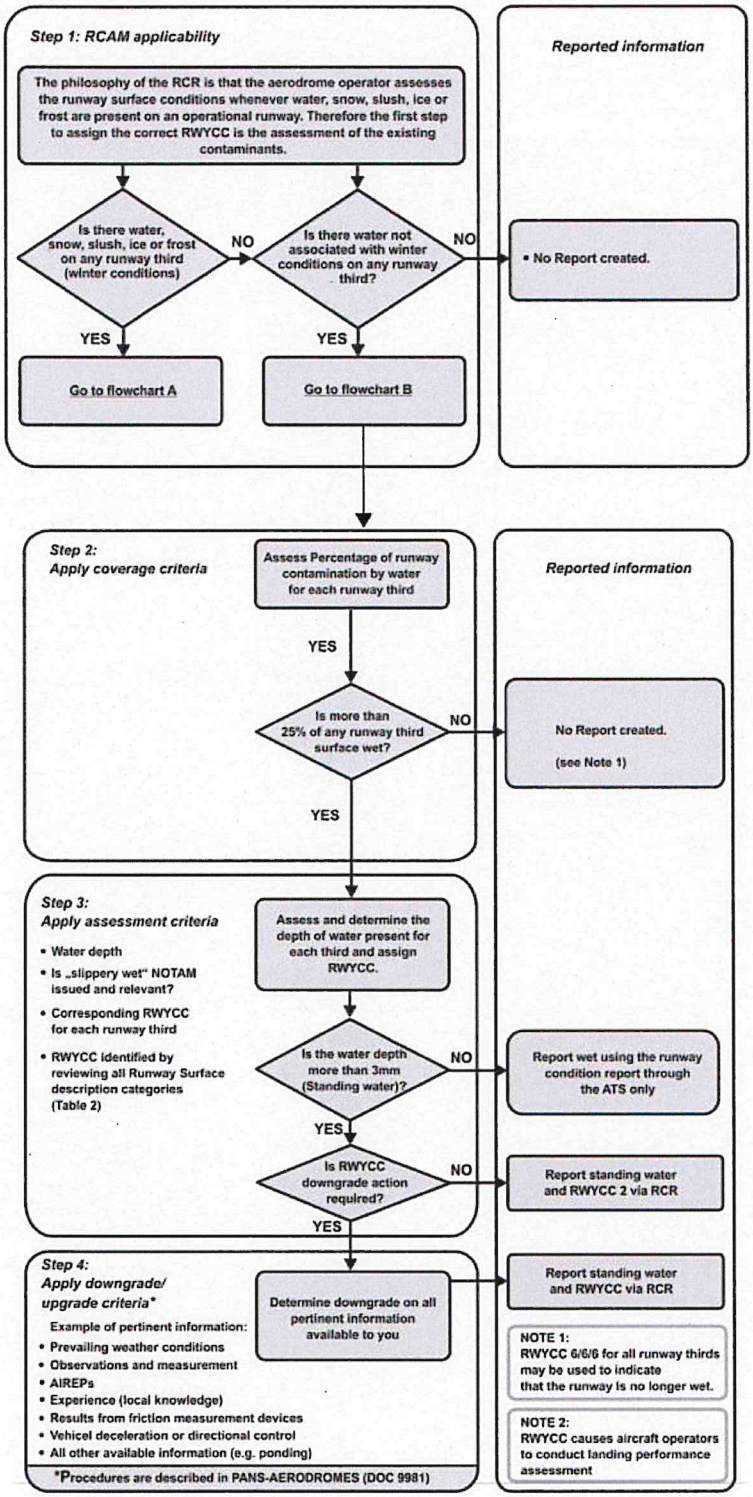
a) The validity period of an should not exceed the published operating hours for an airport, unless the surface conditions are being monitored.

b) For airports, the maximum validity period for an RCR is 8 hours.

c) For aerodromes reporting RWYCCs, the maximum validity period for an RCR is 8 hours.

d) For aerodromes not reporting RWYCCs, the maximum validity period for an RCR is 24 hours

7. Appendix


Step 1: RCAM applicability
The philosophy of the RCR is that the aerodrome operator assesses the runway surface conditions whenever water, snow, slush, ice or frost are present on an operational runway. Therefore the first step to assign the correct RWYCC is the assessment of the existing contaminants.
Is there water, snow, slush, ice or frost on any runway third (winter conditions)
NO
Is there water not associated with winter conditions on any runway third?
NO
YES
YES
Go to flowchart A
Go to flowchart B
Reported information
• No Report created.
Step 2:
Apply coverage criteria
Assess Percentage of runway contamination by water for each runway third
YES
Is more than 25% of any runway third surface wet?
NO
YES
Reported information
No Report created.
(see Note 1)
Step 3:
Apply assessment criteria
• Water depth
• Is „slippery wet" NOTAM issued and relevant?
• Corresponding RWYCC for each runway third
• RWYCC identified by reviewing all Runway Surface description categories (Table 2)
Assess and determine the depth of water present for each third and assign RWYCC.
Is the water depth more than 3mm (Standing water)?
NO
YES
Is RWYCC downgrade action required?
NO
YES
Report wet using the runway condition report through the ATS only
Report standing water and RWYCC 2 via RCR
Step 4:
Apply downgrade/ upgrade criteria*
Example of pertinent information:
• Prevailing weather conditions
• Observations and measurement
• AIREPs
• Experience (local knowledge)
• Results from friction measurement devices
• Vehicel deceleration or directional control
• All other available information (e.g. ponding)
*Procedures are described in PANS-AERODROMES (DOC 9981)
Determine downgrade on all pertinent information available to you
Report standing water and RWYCC via RCR
NOTE 1:
RWYCC 6/6/6 for all runway thirds may be used to indicate that the runway is no longer wet.
NOTE 2:
RWYCC causes aircraft operators to conduct landing performance assessment