AAA Policy

Assessment, Measurement and Reporting of Runway Surface Conditions for Licensed Aerodromes (Applicable 4 November 2021)

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Runway Surface Condition Assessment and Reporting (Applicable 4 November 2021)

Introduction

1.1 The global reporting system for assessing and reporting runway surface conditions (commonly known as the Global Reporting Format (GRF)) involves all stakeholders involved in collecting data, converting the data into structured operational information and bringing the structured information to the end users, and the end users using the structured information.

1.2 A fundamental change in the new reporting system is the introduction of a runway condition code (RWYCC).

1.3 The assessment process of assigning a RWYCC is a deterministic, starting with the identification of the various contaminants, that determines what initial RWYCC must be reported. Based on all other information available, this initial RWYCC can be downgraded or upgraded using procedures detailed in Paragraph 41.

1.4 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 5 are mapped to this terminology in the runway condition assessment matrix (RCAM) and describe a consistent runway surface condition in relation to its effect on aircraft braking performance and lateral control.

1.5 Another fundamental change is that WET runway conditions are included in the runway condition report (RCR) on a regular basis.

1.6 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.

1.7 These harmonized procedures are reflected in a runway condition assessment matrix (RCAM) which correlates the RWYCC, the agreed set of criteria and the aircraft braking action which the flight crew should expect for each value of the RWYCC.

1.8 It is recognized that information provided by the aerodrome's personnel assessing and reporting runway surface condition is crucial to the effectiveness of the runway condition report. However, a misreported runway condition alone should not lead to an accident or incident. Operational margins should cover for a reasonable error in the assessment, including unreported changes in the runway condition. But a misreported runway condition can mean that the margins are no longer available to cover for other operational variance (such as unexpected tailwind, high and fast approach above a threshold or long flare).

1.9 This is further amplified by the need for providing the assessed information in the proper format for dissemination, which requires insight into the limitations set by the syntax for dissemination. This in turn restricts the wording of plain text remarks that can be provided.

1.10 It is important to follow standard procedures when providing assessed information on the runway surface conditions to ensure that safety is not compromised when aeroplanes use wet or contaminated runways. Personnel should be trained in the relevant fields of competence and their competence verified to ensure confidence in their assessments.

Reporting of Surface Contaminants

1.11 The aerodrome operator shall report to the aeronautical information services and air traffic services units on matters of operational significance affecting aircraft and aerodrome operations on the movement area, particularly in respect of the presence of the following:

a) water;

b) snow;

c) slush;

d) ice;

e) frost;

f) anti-icing or de-icing liquid chemicals or other contaminants; and

g) snowbanks or drifts.

1.12 The aerodrome operator shall report the runway surface condition over each third of the runway using a runway condition report (RCR). The report shall include a runway condition code (RWYCC) using numbers 0 to 6, the contaminant coverage and depth, and a description to be reported in capital letters using the following terms:

a) COMPACTED SNOW; (snow that has been compacted into a solid mass such that aeroplane tyres, at operating pressures and loadings, will run on the surface without significant further compaction or rutting of the surface)

b) DRY;

c) DRY SNOW; (snow from which a snowball cannot readily be made)

d) DRY SNOW ON TOP OF COMPACTED SNOW;

e) DRY SNOW ON TOP OF ICE;

f) FROST; (ice crystals formed from airborne moisture on a surface whose temperature is at or below freezing; frost differs from ice in that frost crystals grow independently and therefore, have a more granular texture)

g) ICE; (water that has frozen or compacted snow that has transitioned into ice in cold and dry conditions)

h) SLIPPERY WET;

i) 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)

j) SPECIALLY PREPARED WINTER RUNWAY;

k) STANDING WATER; (water of depth greater than 3 mm)

l) WATER ON TOP OF COMPACTED SNOW;

m) WET;

n) WET ICE; (ice with water on top of it or ice that is melting)

o) WET SNOW; (snow that contains enough water to be able to make a well-compacted, solid snowball, but water will not squeeze out)

p) WET SNOW ON TOP OF COMPACTED SNOW;

q) WET SNOW ON TOP OF ICE;

r) CHEMICALLY TREATED;

s) LOOSE SAND;

1.13 Reporting shall commence when a significant change in runway surface condition occurs due to water, snow, slush, ice or frost.

1.14 Reporting of the runway surface condition shall continue to reflect significant changes until the runway is no longer contaminated. When this situation occurs, the aerodrome operator shall issue an RCR that states that the runway is wet or dry as appropriate.

1.15 Significant changes in the runway surface condition used in the runway condition report are described in Paragraph 28.

1.16 Friction measurements shall not be reported (see Para. 29).

1.17 When a paved runway or portion thereof is slippery wet, the aerodrome operator shall make such information available to the relevant aerodrome users. This shall be done by issuing a NOTAM and shall describe the location of the affected portion.

Runway Condition Report

1.18 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 RCR is used for reporting assessed conditions through the issuance of SNOWTAM, when necessary.

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

1.20 The RCR should consist of the:

a) aeroplane performance calculation section; and

b) situational awareness section.

1.21 The information should be included in an information string in the following order:

a) **aeroplane performance calculation section**:
   (i) aerodrome location indicator;
   (ii) date and time of assessment;
   (iii) lower runway designation number;
   (iv) RWYCC for each runway third;
   (v) per cent coverage contaminant for each runway third;
   (vi) depth of loose contaminant for each runway third;

(vii) condition description for each runway third; and
(viii) width of runway to which the RWYCCs apply if less than the published width.

b) **Situational awareness section**:
(i) reduced runway length;
(ii) drifting snow on the runway;
(iii) loose sand on the runway;
(iv) chemical treatment on the runway;
(v) snowbanks on the runway;
(vi) snowbanks on the taxiway;
(vii) snowbanks adjacent to the runway;
(viii) taxiway conditions;
(ix) apron conditions; and
(x) plain-language remarks.

1.22 The philosophy of the RCR is that the aerodrome operator assesses the runway surface condition whenever water, snow, slush, ice or frost are present on an operational runway. From this assessment, a 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 aerodrome operator; however, all other pertinent information is taken into consideration and kept up to date, and changes in conditions are reported without delay.

1.23 The RWYCC reflects the runway braking capability as a function of the surface conditions. With this information, the flight crew can derive, from the performance information provided by the aeroplane manufacturer, the necessary stopping distance of an aircraft on the approach under the prevailing conditions.

AEROPLANE PERFORMANCE CALCULATION SECTION

1.24 The aeroplane performance calculation section is a string of grouped information, separated by a space ‘ ’ ending with a return and a two-line feed ‘<<≡’, in order to distinguish the aeroplane performance calculation section from the following situational awareness section or the following aeroplane performance calculation section of another runway.

1.25 The information to be included in this section consists of the following:

a) **Aerodrome location indicator:** a four-letter ICAO location indicator in accordance with ICAO Doc 7910, *Location Indicators.*

This information is mandatory.

Format: nnnn

b) **Date and time of the assessment:** date and time (UTC) when the assessment was performed.

This information is mandatory.

Format: MMDDhhmm

c) **Lower runway designation number:** a two- or three-character number identifying the runway for which the assessment is carried out and reported.

This information is mandatory.

Format: nn[L] or nn[C] or nn[R]

d) **Runway condition code for each runway third:** a 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 is the direction as seen from the lower designation number.

This information is mandatory.

When transmitting information on the runway surface condition by air traffic services to flight crews, the sections are, however, referred to as the first, second or third part of the runway. The first part always means the first third of the runway as seen in the direction of landing or take-off as illustrated in Figures 1 and 2.

Format: n/n/n

Example: 5/5/2

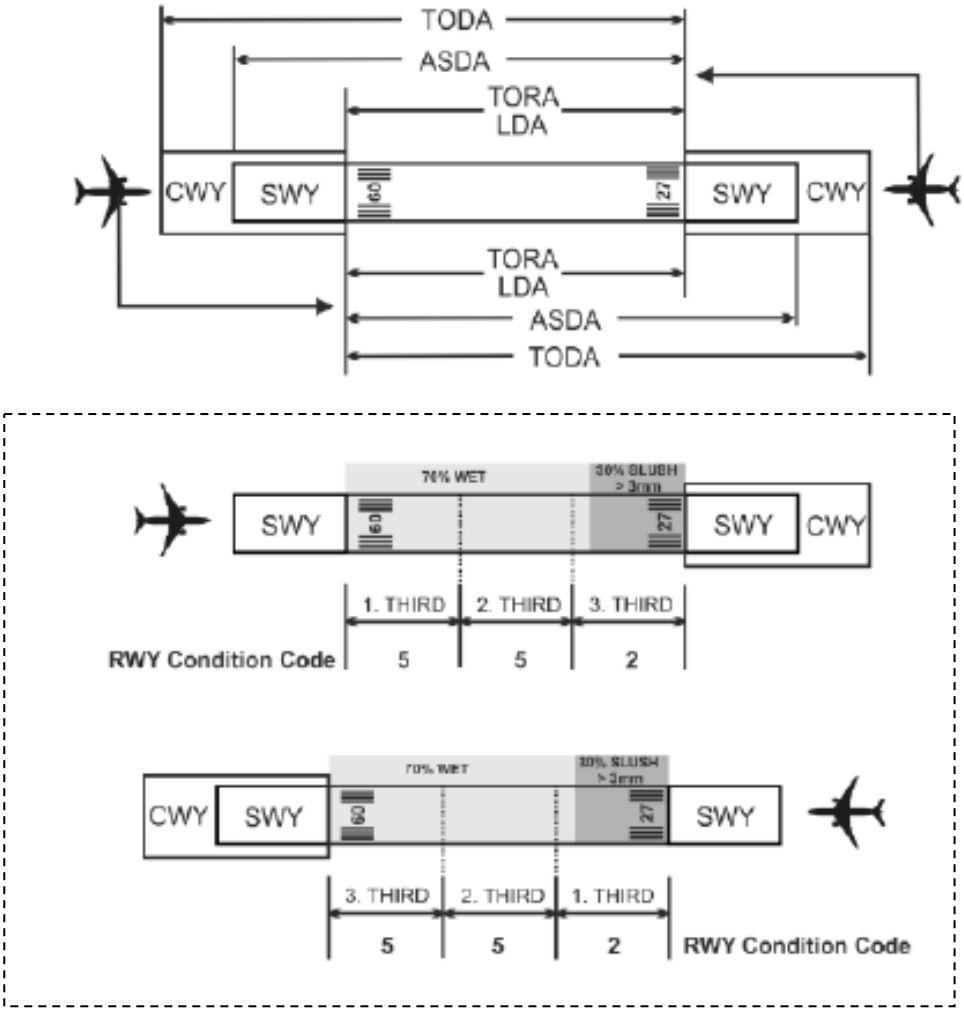

Figure 1 — Reporting of RWYCC
-------- (from air traffic services to flight crew for runway thirds)

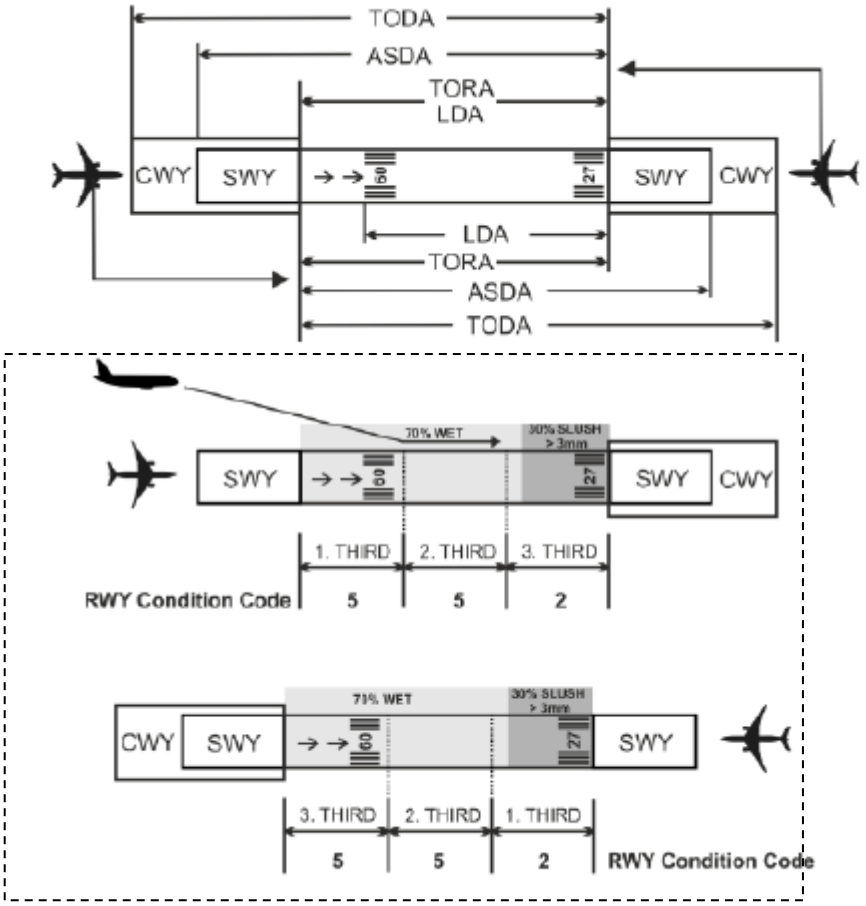

Figure 2 — Reporting of RWYCC
-----(for runway thirds from air traffic services to flight crew on a runway with displaced threshold)

e) **Per cent coverage contaminant for each runway third:** a number identifying the percentage coverage. The percentages are to be reported in an up-to-nine character group separated by a '/' for each runway third. The assessment is based upon an even distribution within the runway thirds using Table 1.

This information is conditional. (It is not reported for any runway third that is dry or covered with less than 10 per cent).

Format: [n]nn/[n]nn/[n]nn

Example: 25/50/100

In case of uneven distribution of the contaminants, additional information is given in the plain-language remark part of the situational awareness section of the RCR. Where possible, a standardised text is used. When no information is to be reported, 'NR' is inserted at the relevant position of the message to indicate to the user that no information exists.

f) **Depth of loose contaminant: dry snow, wet snow, slush or standing water for each runway third:** 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-character group separated by a '/' for each runway third as defined in

Table YYY. The assessment is based upon an even distribution within the runway thirds following an assessment. If measurements are included as part of the assessment process, the reported values are still reported as assessed depths.

This information is conditional. It is reported only for DRY SNOW, WET SNOW, SLUSH and STANDING WATER.

Format: [n]nn/[n]nn/[n]nn

g) **Condition description for each runway third:** to be reported in capital letters using the terms specified in Para 8. The condition types are separated by an oblique stroke '/'.

This information is mandatory.

Format: nnnn/nnnn/nnnn

h) **Width of runway to which the RWYCCs apply if less than the published width:** two-digit number representing the width of cleared runway in metres.

This information is mandatory.

Format: nn

If the cleared runway width is not symmetrical along the centre line, additional information is given in the plain-language remark part of the situational awareness section of the RCR.

SITUATIONAL AWARENESS SECTION

1.26 All individual messages in the situational awareness section end with a full-stop sign, in order to distinguish the message from subsequent message(s).

1.27 The information to be included in this section consists of the following:

a) **Reduced runway length:**

The information is conditional when a NOTAM has been published with a new set of declared distances affecting the landing distance available (LDA).

Format: Standardised fixed text – RWY nn [L] *or* nn [C] *or* nn [R] LDA REDUCED TO [n]nnn

b) **Drifting snow on the runway:**

This information is conditional.

Format: Standardised fixed text – RWY nn [L] or nn [C] or nn[R] DRIFTING SNOW

c) **Loose sand on the runway**

This information is conditional.

Format: RWY nn[L] or nn[C] *or* nn[R] LOOSE SAND

d) **Chemical treatment on the runway**

This information is conditional.

Format: RWY nn[L] *or* nn[C] *or* nn[R] CHEMICALLY TREATED

e) **Snowbanks on the runway**

This information is conditional.

Left or right distance in metres from centre line.

Format: RWY nn[L] *or* nn[C] *or* nn[R] SNOWBANK Lnn *or* Rnn *or* LRnn FM CL

f) **Snowbanks on taxiway**

This information is conditional.

Format: TWY [nn]n or TWYS [nn]n/[nn]n/[nn]n/… or ALL TWYS SNOWBANKS

g) **Snowbanks adjacent to the runway penetrating level/profile set in the aerodrome snow plan.**

This information is conditional.

Format: RWY nn[L] *or* nn[C] *or* nn[R] ADJ SNOWBANKS

h) **Taxiway conditions**

This information is optional.

Format: TWY [nn]n POOR

i) **Apron conditions**

This information is conditional.

Format: APRON [nnnn] POOR

j) **Plain-language remarks using only allowable characters in capital letters**

Where possible, standardised text is used. ‘UPGRADED’ or ‘DOWNGRADED’ is used whenever assessed RWYCC differs from what follows directly from RCAM.

This information is optional.

Format: Combination of allowable characters where use of full stop ‘.’ marks the end of the message.

Allowable characters: A B C D E F G H I J K LM 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]

If ICE, SNOW or SNOW ON ICE affects only the runway edge, the following text may be used:

RWY nn[L] or nn[C] or nn[R] ICE or SNOW or SNOW ON ICE Lnn or Rnn or LRnn FM EDGE

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

COM header and abbreviated header] (Completed by 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.

REPORTING BY AERODROMES WITH MULTIPLE RUNWAYS

1.28 On aerodromes with multiple runways, SNOWTAM should include all the runways, in case that at least one runway is contaminated. This improves pilots' situational awareness and support their decision on the selection of the landing/take-off runway.

SIGNIFICANT CHANGES

1.29 A change in the runway surface condition used in the RCR is considered significant whenever there is any:

a) change in the RWYCC;

b) change in the contaminant type;

c) change in reportable contaminant coverage according to Table 1;

d) change in contaminant depth according to Table 2; and

e) other information, for example a SPECIAL AIR-REPORT of runway braking action, which according to assessment techniques used, is known to be significant.

Assessed per cent	Reported per cent
10-25	25
26-50	50
51-75	75
76-100	100

Table 1 — Percentage of coverage for contaminants

Contaminant	Valid values to be reported	Significant change
STANDING WATER	04, then assessed value	3 mm
SLUSH	03, then assessed value	3 mm
WET SNOW	03, then assessed value	5 mm
DRY SNOW	03, then assessed value	20 mm

Table 2 – Depth assessments for contaminants

Note 1 — For STANDING WATER, 04 (4 mm) is the minimum depth value at and above which the depth should be reported. From 3 mm and below, the runway third should be considered WET.
Note 2 — For SLUSH, WET SNOW and DRY SNOW, depths up to and including 3 mm should be reported as 03 (3 mm).

Note 3 — Above 4 mm for STANDING WATER and above 3 mm for SLUSH, WET SNOW and DRY SNOW, an assessed value should be reported and a significant change relates to the observed change from this assessed value.

An example of reporting depth of contaminant whenever there is a significant change is as follows.

- After the first assessment of runway condition, a **first Runway Condition Report** is generated. The initial report is:

5/5/5 100/100/100 02/02/02 SLUSH/SLUSH/SLUSH

Note — The full information string is not used in this example.

- With continuing precipitation, a new Runway Condition Report is required to be generated as a subsequent assessment reveals a change in the RWYCC is needed. A **second Runway Condition Report** is therefore created as:

2/2/2 100/100/100 03/03/03 SLUSH/SLUSH/SLUSH

- With even more precipitation, a further assessment reveals the depth of contamination has increased from 3 mm to 5 mm along the entire length of the runway. However, a new Runway Condition Report **is not** required because the RWYCC has not changed (change in depth is less than the significant change threshold of 3 mm).

- A final assessment of the contamination reveals that the depth has increased to 7 mm. A new RWYCC is required because the change in depth from the last RCR

(**second RWYCC**), i.e. from 3 mm to 7 mm is greater than the significant change threshold of 3 mm. A **third Runway Condition Report** is thus created as below:

2/2/2 100/100/100 7/7/7 SLUSH/SLUSH/SLUSH

Note: For contaminants other than STANDING WATER, SLUSH, WET SNOW or DRY SNOW, the depth is not reported. The position of this type of information in the information string is then identified by /NR/.

- When the depth of the contaminants varies significantly within a runway third, additional information is to be given in the plain-language remark part of the situational awareness section of the Runway Condition Report.

USE OF FRICTION MEASUREMENTS

1.30 Friction measurements cannot be used by flight crews to determine landing performance requirements, because there is no correlation between the measurements and aeroplane performance data. Nevertheless, continuous friction measuring devices may be used, together with all other available means, to support upgrade or downgrade of the RWYCC, by using friction measurements in a comparative way and not as absolute values.

Runway Condition Assessment

RUNWAY CONDITION ASSESSMENT MATRIX (RCAM)

1.31 The aerodrome operator should use the following RCAM in order to assign the RWYCC:

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)	Braking deceleration is normal for the	GOOD

Runway Condition Assessment Matrix (RCAM)			
Assessment criteria		**Downgrade assessment criteria**	
	Up to and including 3 mm depth: • SLUSH • DRY SNOW • WET SNOW	wheel braking effort applied AND directional control is normal.	
4	***−15ºC 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 −15ºC outside air temperature[1]:*** • 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

[1] Runway surface temperature should preferably be used where available.

Runway Condition Assessment Matrix (RCAM)			
Assessment criteria		**Downgrade assessment criteria**	
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

1.32 The RCAM is a tool to be used when assessing runway surface conditions. It is not a standalone document and should be used in compliance with the associated procedures of which there are two main parts:

a) assessment criteria; and

b) downgrade assessment criteria.

AVAILABLE MEANS USED TO DETERMINE THE RWYCC

1.33 The visual inspection of the movement area to assess the surface condition is the core method to determine the RWYCC. An overall assessment however implies more than that. The continuous monitoring of the development of the situation and the prevailing weather conditions is essential to ensure safe flight operations. Other aspects to be considered in the assessment result are the outside air temperature, the surface temperature, the dew point, the wind speed and direction, the effect of surface treatment, control and deceleration of the inspection vehicle, the special-air-reports of braking action, the output from friction measuring devices, the weather forecast, etc. Due to the interaction between them, a deterministic method on how these factors affect the RWYCC to be reported cannot be precisely defined.

1.34 The RCAM supports the classification of runway surface conditions by their effect on aeroplane braking performance using a set of criteria identified and quantified based on the best industry knowledge, built upon dedicated flight testing and in-service experience. The thresholds at which a criterion changes the classification of a surface condition are intended to be reasonably conservative, without being excessively pessimistic.

1.35 The following describes why the primary classification criteria in the RCAM have been set this way, and why it is important for aerodrome personnel to monitor and accurately report conditions when operating close to the boundaries of each RWYCC:

a) Percentage of coverage with contamination in each runway third

A runway is considered contaminated whenever the extent of the coverage is more than a quarter of the surface of at least one-third of the runway. It is

important to note that whenever coverage is assessed to be below the 25 per cent threshold in each third, the computation assumption made by flight crew will be a dry runway (uniformly bare of moisture, water and contamination). It has been demonstrated that in conditions of contamination just below the reporting threshold but concentrated in the most unfavourable location, this assumption of dry runway still provides positive stop margins.

b) Type of contaminant

Different contaminants affect the contact area between tyre and runway surface, where the stopping force is generated, in different ways. A water film of any depth leads to the partial (viscous aquaplaning) or total separation (dynamic aquaplaning) of the tyre from the surface. The smaller the surface, the smaller the force of adhesion, the less braking is available. This is why the maximum braking force decreases at higher speed and depends on contaminant depth. Other fluid contaminants have a similar effect. Hard contaminants, such as ice or compacted snow, prevent the contact between tyre and runway surface completely and at any speed, effectively providing a new surface that the tyre rolls on. A deterministic classification of the stopping performance can be made only for the contaminants listed in the RCAM. For other reportable contaminants (oil, mud, ash, etc.), a large variance in the aeroplane performance effect exists, or insufficient data is available to permit a deterministic classification. An exception is rubber contamination, for which in-service data indicates that an assumption of RWYCC 3 provides a satisfactory performance margin. Runway surface treatments with sand, grit or chemicals may be very effective or even detrimental depending on the conditions of the application, and no credit can be attributed to such treatment without verification and validation.

c) Depth of the contamination

The industry accepts that the threshold for the effect of depth of fluid contaminants on aeroplane performance is at 3 mm. Below this threshold, any type of fluid contaminant can be removed from the tyre/runway contact zone either by forced drainage or by compressing it into the macrotexture of the surface, thus allowing adhesion between tyre and surface to exist, albeit on less than the full footprint surface area. This is the reason that contamination depths up to 3 mm are expected to provide similar stopping performance as a wet runway. It should be noted that the physical effects causing reduced friction forces begin to take effect from very small film thickness, therefore damp conditions are considered to provide no better braking action than a wet runway. Aerodrome personnel should be aware of the fact that the capability to generate friction in wet (or with thin layers of fluid contaminants) conditions is very dependent upon the inherent qualities of the runway surface (friction characteristics) and may be less than normally expected on poorly drained, polished or rubber contaminated surfaces. Above the 3 mm threshold, the impact on friction forces is more significant, leading to classification in lower RWYCCs. Above this depth, and depending on the density of the fluid,

additional drag effects start to apply, due to displacement or compression of the fluid and impingement on the airframe of the aeroplane. These latter effects depend on the depth of the fluid and affect the ability of the aeroplane to accelerate for take-off.

d) Surface or air temperature

It is self-evident that close to the freezing point significant changes in surface conditions can occur very quickly. Surface temperature is more significant for the relevant physical effects, and surface and air temperature may be significantly different due to latency and radiation. However, surface temperature may not be readily available and it is acceptable to use air temperature as a criterion for the contaminant classification. The threshold for the classification of compacted snow in RWYCC 4 (below OAT -15 degrees) or RWYCC 3 (above this temperature) is based on historical North American operational practice and may be very conservative, therefore other assessment means should be used to support the classification. Such assessment means should be based upon specific rationale, specific procedures and substantiating aeroplane data.

ICE is considered to be untreated ice that covers the runway macrotexture.

ASSIGNMENT OF RUNWAY CONDITION CODE

1.36 The aerodrome operator should:

a) assign a RWYCC 6, if 25 per cent or less area of a runway third is wet or covered by contaminant;

b) describe in the plain-language remarks part of the situational awareness section of the RCR the location of the area that is wet or covered by the contaminant, if the distribution of the contaminant is not uniform;

c) assign a RWYCC based on the contaminant that will most likely affect the aeroplane’s performance, if multiple contaminants are present and the total coverage is more than 25 per cent but no single contaminant covers more than 25 per cent of any runway third;

d) not upgrade an assigned RWYCC 5, 4, 3, or 2; and

e) not upgrade beyond RWYCC 3 an assigned RWYCC 1 or 0.

1.37 The aerodrome operator may upgrade an assigned RWYCC 1 or 0 when all available means of assessing runway slipperiness, including properly operated and calibrated measuring devices, if available, have been used to support the decision.

1.38 The aerodrome operator, when RWYCC 1 or 0 is upgraded, should assess the runway surface frequently during the period the higher RWYCC is in effect, to ensure that the runway surface condition does not deteriorate below the assigned code.

1.39 The aerodrome operator, if sand or other runway treatments are used to support upgrading of the RWYCC, should assess the runway surface frequently to ensure the continued effectiveness of the treatment.

1.40 The aerodrome operator should appropriately downgrade the RWYCC taking into consideration all available means of assessing runway slipperiness, including special air-reports.

SINGLE AND MULTIPLE CONTAMINANTS

1.41 When single or multiple contaminants are present, the RWYCC for any third of the runway is determined as follows:

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

(i) If the contaminant coverage for that third is less than 10 per cent, a RWYCC 6 is to be generated for that third, and no contaminant is to be reported. If all thirds have less than 10 per cent contaminant coverage, no report is generated; or

(ii) If the contaminant coverage for that third is greater than or equal to 10 per cent and less than or equal to 25 per cent, a RWYCC 6 is to be generated for that third and the contaminant reported at 25 per cent coverage; or

(iii) If the contaminant coverage for that third is greater than 25 per cent, the RWYCC for that third is based on the contaminant present.

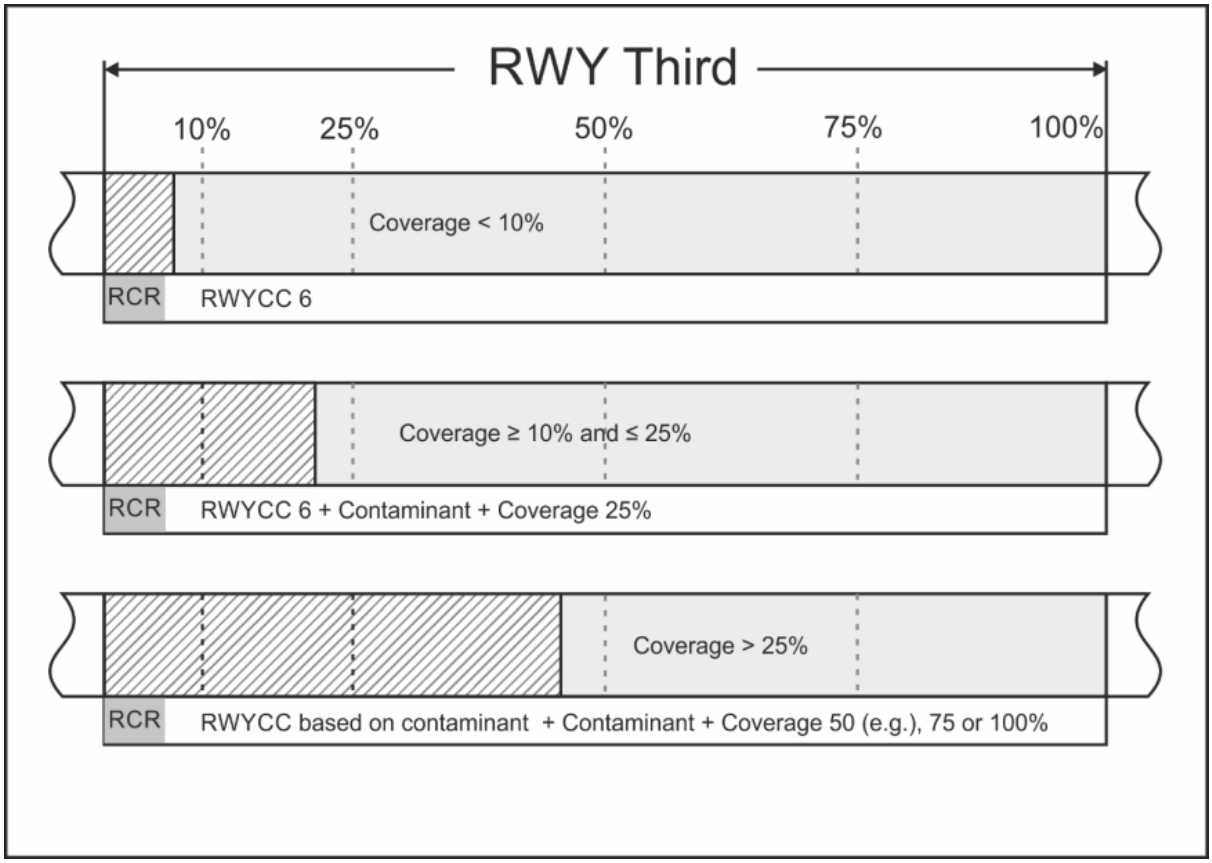

Figure 1 — Single contaminant

b) If multiple contaminants are present where the total coverage is more than 25 per cent but no single contaminant covers more than 25 per cent of any runway third, the RWYCC is based upon the judgement of the runway inspector, considering what contaminant will most likely be encountered by the aeroplane and its likely effect on the aeroplane's performance. Typically, this would be the most widespread contaminant, but this is not an absolute.

c) The structure of the RCAM is ranking the contaminants in the column 'Runway surface description' from top to bottom and is having the most slippery contaminants at the bottom. However, this ranking is not an absolute, as the RCAM by design is landing oriented and if judged in a take-off scenario, the ranking could be different due to drag effects of loose contaminants.

DOWNGRADING AND UPGRADING

1.42 The RCAM allows making an initial assessment based on visual observation of contaminants on the runway surface: their type depth and coverage, as well as the outside air temperature. Downgrading and upgrading is an integral part of the assessment process and essential to developing relevant reports of the prevailing runway surface condition. When all other observations, experience and local knowledge indicate that the primary assignment of the RWYCC does not reflect the prevailing conditions accurately, a downgrade or upgrade should be made.

Examples of aspects to be considered in assessing the runway slipperiness for the downgrade process:

a) Prevailing weather conditions

(i) stable sub-freezing temperature

(ii) dynamic conditions

(iii) active precipitation

b) Observations

c) Measurements

(i) friction measurements

(ii) vehicle behaviour

(iii) shoe scraping

c) Experience (local knowledge)

d) Special air-reports

1.43 An assigned RWYCC 5, 4, 3 or 2 shall not be upgraded.

1.44 When the complete removal of contaminants cannot be achieved, but the RWYCC initially assigned does not reflect the real surface condition, the aerodrome personnel may apply the upgrade procedures. Upgrading is applicable only when the initial RWYCC is 0 or 1. Upgrading can only occur up to RWYCC 3.

1.45 An assigned RWYCC 1 or 0 can be upgraded using the following procedures:

a) if a properly operated and calibrated State-approved measuring device and all other observations support a higher RWYCC as judged by trained personnel;

b) the decision to upgrade RWYCC 1 or 0 cannot be based upon one assessment method alone. All available means of assessing runway slipperiness are to be used to support the decision;

c) when RWYCC 1 or 0 is upgraded, the runway surface is assessed frequently during the period the higher RWYCC is in effect to ensure that the runway surface condition does not deteriorate below the assigned code; and

d) variables that may be considered in the assessment that may affect the runway surface condition, include but are not limited to:

i) any precipitation conditions;

ii) changing temperatures;

iii) effects of wind;

iv) frequency of runway in use; and

v) type of aeroplane using the runway.

1.46 When a friction measuring device is used for upgrading purposes, a preponderance of evidence should exist. In order to upgrade a RWYCC 0 or 1 to no higher than RWYCC 3, the friction measuring device should demonstrate an equivalent friction to that of a wet runway (RWYCC 5) or higher.

USE OF SPECIAL AIR-REPORTS

1.47 Where available, the pilot reports of runway braking action should be taken into consideration as part of the ongoing monitoring process, using the following principle:

a) a pilot report of runway braking action is taken into consideration for downgrading purposes; and

b) a pilot report of runway braking action can be used for upgrading purposes only if it is used in combination with other information qualifying for upgrading.

1.48 The aerodrome operator should:

a) re-assess the runway surface condition if RWYCC 2 or better has been reported and two consecutive pilot reports of POOR runway braking action are received; and

b) re-assess the runway surface condition and consider the suspension of operations on that runway when one pilot has reported a LESS THAN POOR runway braking action.

1.49 The aerodrome operator may use a special air-report of runway braking action for upgrading purposes only if it is used in combination with other information qualifying for upgrading.

Special air-reports typically provide aerodrome personnel and other pilots with an observation that can confirm the ground-based assessment of or alert to degraded conditions experienced in terms of braking capability and/or lateral control during the landing roll. The braking action observed is dependent on the type of aircraft, aircraft weight, runway portion used for braking, and other factors. Pilots will use the terms GOOD, GOOD TO MEDIUM, MEDIUM, MEDIUM TO POOR, POOR and LESS THAN POOR. When receiving a special air-report, the recipient should consider that it rarely applies to the full length of the runway and is limited to the specific sections of the runway surface in which sufficient wheel braking was applied to reach friction limitation. As special air-reports are subjective and contaminated runways may affect the performance of different aeroplane types in a different way, the reported braking action may not be directly applicable to another aeroplane.

SNOWTAM FORMAT

(COM heading)	(Priority indicator	(Addresses)			<≡
	(Date and time of filing)	(Originator's indicator)			<≡
(Abbreviated heading)	(SWAA* SERIAL NUMBER) S W * *	(LOCATION INDICATORS)	DATE-TIME OF ASSESSMENT	(OPTIONAL GROUP)	<≡(
SNOWTAM →	(Serial number) <≡				

Aeroplane performance calculation section			
(AERODROME LOCATION INDICATORS)	M	A)	<≡
(DATE/TIME OF ASSESSMENT *(Time of completion of assessment in UTC)*)	M	B)	→
(LOWER RUNWAY DESIGNATION NUMBER)	M	C)	→
(RUNWAY CONDITION CODE (RWYCC) ON EACH RUNWAY THIRD) (From Runway Condition Assessment Matrix (RCAM) 0, 1, 2, 3, 4, 5 or 6)	M	D)	// →
(PER CENT COVERAGE CONTAMINANT FOR EACH RUNWAY THIRD)	C	E)	// →
DEPTH (mm) OF LOOSE CONTAMINANT FOR EACH RUNWAY THIRD)	C	F)	// →
(CONDITION DESCRIPTION OVER TOTAL RUNWAY LENGTH (Observed on each runway third, starting from threshold having the lower runway designation number) COMPACTED SNOW DRY DRY SNOW DRY SNOW ON TOP OF COMPACTED SNOW DRY SNOW ON TOP OF ICE FROST ICE SLIPPERY WET SLUSH SPECIALLY PREPARED WINTER RUNWAY 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	M	G)	// →
(WIDTH OF RUNWAY TO WHICH THE RUNWAY CONDITIONS CODES APPLY, IF LESS THAN THE PUBLISHED WIDTH)	O	H)	<≡≡
Situational awareness section			
(REDUCED RUNWAY LENGTH, IF LESS THAN THE PUBLISHED LENGTH (m))	O	I)	→
(DRIFTING SNOW ON THE RUNWAY)	O	J)	→
(LOOSE SAND ON THE RUNWAY)	O	K)	→
(CHEMICAL TREATMENT ON RUNWAY)	O	L)	→
(SNOWBANKS ON THE RUNWAY) (If present, distance from runway centreline (m) followed by 'L', 'R' or 'LR' as applicable))	O	M)	→
(SNOWBANKS ON A TAXIWAY)	O	N)	→
(SNOWBANKS ADJACENT TO THE RUNWAY)	O	O)	→
(TAXIWAY CONDITIONS)	O	P)	→
(APRON CONDITIONS)	O	R)	→
(MEASURED FRICTION COEFFICIENT)	O	S)	→
(PLAIN-LANGUAGE REMARKS)	O	T)	) <<≡

NOTES:
1. *Enter ICAO nationality letters as given in ICAO Doc 7910, Part 2 or otherwise applicable aerodrome identifier.
2. Information on other runways, repeat from B to H.
3. Information in the situational awareness section repeated for each runway, taxiway and apron. Repeat as applicable, when reported.
4. Words in brackets () not to be transmitted.
5. For letters A) to T), refer to the *Instructions for the completion of the SNOWTAM format, paragraph 1, item b).*

SIGNATURE OF ORIGINATOR *(not for transmission)*