



Safety Information Bulletin

Operations

SIB No.: 2018-02

Issued: 18 January 2018

Subject: Runway Surface Condition Reporting

Ref. Publications:

[European Action Plan for the Prevention of Runway Excursions](#) (EAPPRE), Edition 1.0, dated January 2013.

International Civil Aviation Organization (ICAO) [Annex 6](#) 'Operation of Aircraft'.

ICAO [Annex 14](#) 'Aerodromes'.

ICAO [Annex 15](#) 'Aeronautical Information Services'.

ICAO Doc 9981 — 'Procedures for Air Navigation Services (PANS) — Aerodromes'.

ICAO Doc 4444 — "Procedures for Air Navigation Services (PANS) — Air Traffic Management (ATM)".

ICAO Circular 329 — 'Assessment, Measurement and Reporting of Runway Surface Conditions'.

Commission Regulation (EU) No [965/2012](#) of 05 October 2012.

Commission Regulation (EU) No [139/2014](#) of 12 February 2014.

Federal Aviation Administration (FAA) Safety Alert for Operators (SAFO) [16009](#) — 'Runway Assessment and Condition Reporting, Effective October 1, 2016' dated 15 August 2016.

FAA Advisory Circular (AC) No [150/5200-30D](#) - 'Airport Field Condition Assessments and Winter Operations Safety', Change 1 dated 03 August 2017.

Applicability:

Operators, Flight Crews, National Aviation Authorities (NAAs) of EASA Member States.

Description:

Runway surface condition has contributed to many safety events. Investigations have revealed shortfalls in the accuracy and timeliness of the assessment and reporting methods currently in use. An issue has been identified particularly in the lack of standardisation in the way runway surface condition and braking action are assessed, reported and used by the flight crew.

The aim of this SIB is to enhance awareness of air operators and pilots of the risks associated with incorrect or unreliable runway surface condition reporting, inform about on-going rulemaking actions on the matter and provide recommendations for the purpose of mitigating the associated risks.

Runway surface condition may be reported using several types of descriptive terms such as type and depth of contamination, readings from a runway friction measuring device, an aeroplane braking action report, or an airport vehicle braking condition report. The described means used for such purpose are not standardised globally.

This is information only. Recommendations are not mandatory.



The way this information is compiled and reported to the end-users (flight crews and flight planners) with regard to terminology, format and timeliness is also not standardised.

At the same time, safety investigations indicate that in most of the runway excursion events runway contamination is present and the runway surface condition plays a role.

A discrepancy between the reported runway surface condition and the actual one may affect the performance calculations, the use of deceleration devices and the flight crew's ability to maintain directional control. Training is also necessary to ensure that the reported information is understood and used correctly by the flight crew. Examples of incidents or accidents where the reporting of runway surface condition played a role are contained in the Appendix to Notice of Proposed Amendment, [NPA 2016-11](#), published by EASA in 2016.

Moreover, an overrun accident involving a Boeing 737 triggered the FAA to charter an Aviation Rulemaking Committee (ARC) to review Take-off and Landing Performance Assessment (TALPA) requirements across various domains of aviation (operations, airworthiness and aerodromes). TALPA ARC identified several shortcomings and proposed the following corrective actions:

- New standards for runway condition assessment and reporting;
- Correlation of the reported runway condition with aeroplane performance data; and
- New operational rules for landing performance calculation at the time of arrival.

Later on, most of the TALPA ARC recommendations were endorsed by the European Action Plan for the Prevention of Runway Excursions (EAPPRE), which, in particular, contained the following recommendations to EASA:

3.7.1 — Establish and implement one consistent method of contaminated runway surface condition assessment and reporting by the aerodrome operator for use by aircraft operators. Ensure the relation of this report to aircraft performance as published by aircraft manufacturers.

3.7.3 — It is recommended that aircraft operators always conduct an in-flight assessment of the landing performance prior to landing. Note: Apply an appropriate margin to these results.

On-going rulemaking actions

A number of regulatory actions have started in the last few years and are currently on-going. They are long term solutions, some of which still require some time to be completed and implemented. Those can be summarised as follows:

- After the work of the TALPA ARC and trials conducted during the winter season, the FAA has launched in 2016 the TALPA initiative through a number of Advisory Circulars, Orders and other guidance material, aimed at implementing the TALPA ARC recommendations. Starting from the 1st of October 2016, US federally obligated airports are using TALPA

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procedures to conduct runway assessments and to report those conditions in newly formatted Field Condition (FICON) Notices to Airmen (NOTAMs). This allows pilots and flight planners to use the information, along with manufacturer's aeroplane-specific data, to determine the runway length needed to stop safely an aeroplane after landing or rejected take-off.

- ICAO has developed an improved global runway condition assessment and reporting format based on the proposals of the TALPA ARC. The methodology, intended for global application, relies on the following:
 - An agreed set of criteria used in a consistent manner for runway surface condition assessment, aeroplane (performance) certification and operational performance calculation;
 - A unique Runway Condition Code (RWYCC) linking the agreed set of criteria with the aeroplane performance data, which can be correlated to the braking action experienced and reported by flight crews; and
 - A standardized common terminology for runway surface condition description reported by the aerodrome operator's runway assessors, Air Traffic Controllers and Aeronautical Information Services (AIS) for the use of aeroplane operators, notably the flight crew.

The methodology is based on the following principles:

- Assessment and reporting, by means of a uniform Runway Condition Report (RCR), of the runway surface conditions, including contaminants, for each third of the runway length shall be done by trained runway assessors. These contaminants, in turn, are:
 - categorized based on their effect on aeroplane braking performance; and
 - coded in a matrix (Runway Condition Assessment Matrix – RCAM) which will be used by aeroplane manufacturers to determine the appropriate performance data to provide to aeroplane operators and flight crew for specific runway surface conditions. The key documentation in this respect is the approved data and guidance material provided by the aeroplane manufacturers for the safe operation of the aeroplane on dry, wet and contaminated runway surfaces.
- Air Traffic Services (ATS) provide the information received via the RCR to end users through voice communication, Controller-Pilot Data Link Communication (CPDLC), voice Automatic Terminal Information Service (ATIS) and Digital ATIS. The information is presented by ATS to flight crews in the direction of the aeroplane movement, with the first runway third being the one nearest to the aeroplane;
- AIS provide the information received in the RCR to end users by an improved SNOTAM. The information is presented as reported and always as observed from the lowest runway designation number; and
- Aeroplane operators utilize the information in conjunction with the performance data provided by the aeroplane manufacturer to determine, along with other information such as, but not limited to, weather conditions and the weight of the aeroplane, if landing or take-off operations can be conducted safely. Flight crews contribute to close the loop by reporting the braking action experienced when different from the expected one.

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Due to the horizontal nature of the amendments proposed, touching many ICAO Annexes (particularly Annex 6, 14 and 15) and other related ICAO documents (particularly Doc 9981 PANS-Aerodromes and Doc 4444 PANS-ATM), and because of the need for industry to prepare, the applicability date is set to 05 November 2020.

- In order to implement the ICAO changes, EASA has launched in 2015 a rulemaking task (RMT.296), currently on-going and amending the Air Operations Regulation and airworthiness specifications on aeroplane performance. A Notice of Proposed Amendment was published in 2016 (NPA 2016-11). A parallel task in the aerodrome domain (RMT.704) has started in 2017. The two tasks are conducted in close coordination.

At this time, the safety concern described in this SIB does not warrant the issuance of an operational directive under Regulation (EU) [965/2012](#), Annex II, ARO.GEN.135(c).

Recommendations:

While a permanent solution to the above mentioned issues is being developed through rulemaking, as precautionary measures:

Operators and flight crews are reminded and should be aware that:

- As foreseen in Commission Regulation (EU) 965/2012 in CAT.OP.MPA.300 - Approach and landing conditions:
Before commencing an approach to land, the commander shall be satisfied that, according to the information available to him/her, the weather at the aerodrome and the condition of the runway or FATO intended to be used should not prevent a safe approach, landing or missed approach, having regard to the performance information contained in the operations manual.
- Furthermore, AMC1 CAT.OP.MPA.300 - Approach and landing conditions provides:
IN-FLIGHT DETERMINATION OF THE LANDING DISTANCE
The in-flight determination of the landing distance should be based on the latest available meteorological or runway state report, preferably not more than 30 minutes before the expected landing time.
- Within their Safety Management System (SMS) operators should consider and be aware of the runway surface condition reporting methodology at the aerodromes to which they operate. Special consideration should be given to those aerodromes that are critical in terms of runway length, challenging weather conditions and aerodrome capability, and reliability for runway surface conditions assessment and reporting. Consideration should be given in particular to the runway surface condition reporting format and terminology in use. Operators should base their assessment at least on:
 - Information contained in the AIP;
 - In-service experience;
 - Occurrence reporting.

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- Operators should include in their flight crew training programme at least the following elements:
 - Description of runway surface condition reporting methods;
 - Types of runway contamination and its effects;
 - Aeroplane take-off and landing performance on wet and contaminated runways.
- When substantial differences are identified at a particular aerodrome or in a particular State or region in relation to runway surface condition assessment and reporting, the operator should ensure that flight crews are properly informed on the type and format of runway surface condition reports they will get at these locations. If risks are identified at a particular aerodrome in relation to runway surface condition reporting, these should be considered in the categorisation of that aerodrome for the purpose of aerodrome knowledge and familiarisation, in accordance with AMC1 ORO.FC.105(b)(2);(c) - ROUTE/AREA AND AERODROME KNOWLEDGE FOR COMMERCIAL OPERATIONS.
- In case of uncertainty on runway surface condition reporting, conservative assumptions should be made either in terms of aeroplane performance calculations or, when different conditions are reported for different segments of the runway, in terms of assuming the worst condition for the entire runway.
- Flight crews should report the runway braking action encountered when it is not as expected according to the values previously reported to them. Flight crew reports should be consistent with the format in use at the aerodrome being operated as they may be used by the aerodrome operator to update the runway condition. They may be used also by the flight crews of subsequent flights arriving on the same runway.
For US aerodromes where TALPA ARC type reporting formats are already in use, guidance on how to report braking action may be found in FAA SAFO 16009 and in FAA AC No 150/5200-30D.
Guidance on the changes adopted by ICAO for runway surface condition reporting format may be found in ICAO Doc 9981 — PANS Aerodromes and ICAO Doc 4444 — PANS ATM.

EASA Member State NAAs should include in the AIP information on the methodology in use for runway surface condition assessment and reporting, as well as on the terminology and reporting format.

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