



# Opinion No 04/2019

## Reduction of runway excursions

RELATED NPA/CRD 2018-12 — RMT.0570

## Class D compartments

RELATED NPA/CRD 2019-02 — RMT.0070

### Executive Summary

The objective of this Opinion is to reduce:

- the number of longitudinal runway excursions of large aeroplanes during landing; and
- the risk of uncontrollable fires in the Class D compartments of large aeroplanes.

This Opinion proposes to require:

- every large aeroplane operated in commercial air transport (CAT), and manufactured after a certain date, to be equipped with a runway overrun awareness and alerting system (ROAAS). This system shall support the flight crew during the landing phase in identifying and managing the risk of a runway excursion; and
- operators, whose in-service large aeroplanes used for CAT contain Class D cargo or baggage compartments, to apply to those aircraft the standards applicable to:
  - Class C compartments, if the aeroplanes are involved in the transport of passengers; or
  - either Class C or Class E compartments, if the aeroplanes are only involved in all-cargo operations.

The proposed changes are expected to:

- increase the level of safety by reducing the number of accidents and incidents during landing for large aeroplanes operated in CAT; and
- increase safety by mitigating the risk of uncontrollable fires in Class D cargo or baggage compartments; and
- improve harmonisation with the Federal Aviation Administration (FAA).

<b>Action area:</b>	Runway safety; Aircraft environment		
<b>Affected rules:</b>	Part-26		
<b>Affected stakeholders:</b>	CAT operators (large aeroplanes); TC holders and Supplemental TC holders/applicants (large aeroplanes); production organisations; National Aviation Authorities		
<b>Driver:</b>	Safety	<b>Rulemaking group:</b>	No
<b>Impact assessment:</b>	Full	<b>Rulemaking Procedure:</b>	Standard

### EASA rulemaking process milestones



<b>RMT.0570: 9.10.2012</b>	<b>15.10.2018</b>	<b>7.10.2019</b>	<b>2021/Q2</b>	<b>2021/Q2</b>
<b>RMT.0070:17.9.2010</b>	22.11.2013 (NPA 2013-23) 1.3.2019 (NPA 2019-02)			



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## 1. About this Opinion

### 1.1. How this Opinion was developed

The European Union Aviation Safety Agency (EASA) developed this Opinion in line with Regulation (EU) 2018/1139<sup>1</sup> ('Basic Regulation') and the Rulemaking Procedure<sup>2</sup>.

This rulemaking activity is included in the European Plan for Aviation Safety (EPAS) [2019-2023](#) under rulemaking tasks RMT.0570 and RMT.0070. The scope and timescales of these tasks were defined in the related ToR<sup>3</sup>.

#### RMT.0570 'Reduction of runway excursions'

The draft text of this Opinion has been developed by EASA. All the interested parties were consulted through NPA 2018-12<sup>4</sup>. 99 comments were received from the interested parties, including industry, national aviation authorities (NAAs), and social partners.

EASA has addressed and responded to the comments received on the NPA. The comments received and EASA's responses to them are presented in Comment-Response Document (CRD) 2018-12<sup>5</sup> summarised under 2.4 below.

#### RMT.0070 'Class D compartments'

The draft text of this Opinion has been developed by EASA. All the interested parties were consulted through NPA 2019-02<sup>6</sup>. 17 comments were received from the interested parties, including industry, NAAs, and social partners.

EASA has addressed and responded to the comments received on the NPA. The comments received and EASA's responses to them are presented in CRD 2019-02<sup>7</sup> summarised under 2.4 below.

The final text of this Opinion and the draft regulation have been developed by EASA, for both RMT.0570 and RMT.0070.

The draft rule text proposed by EASA is published on the EASA website<sup>8</sup>.

The major milestones of this rulemaking activity are presented on the title page.

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<sup>1</sup> Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1) (<https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1535612134845&uri=CELEX:32018R1139>).

<sup>2</sup> EASA is bound to follow a structured rulemaking process as required by Article 115(1) of Regulation (EU) 2018/1139. Such a process has been adopted by the EASA Management Board (MB) and is referred to as the 'Rulemaking Procedure'. See MB Decision No 18-2015 of 15 December 2015 replacing Decision 01/2012 concerning the procedure to be applied by EASA for the issuing of opinions, certification specifications and guidance material (<http://www.easa.europa.eu/the-agency/management-board/decisions/easa-mb-decision-18-2015-rulemaking-procedure>).

<sup>3</sup> <https://www.easa.europa.eu/document-library/terms-of-reference-and-group-compositions>

<sup>4</sup> In accordance with Article 115 of Regulation (EU) 2018/1139 and Articles 6(3) and 7 of the Rulemaking Procedure.

<sup>5</sup> <http://easa.europa.eu/document-library/comment-response-documents>

<sup>6</sup> In accordance with Article 115 of Regulation (EU) 2018/1139 and Articles 6(3) and 7 of the Rulemaking Procedure.

<sup>7</sup> <http://easa.europa.eu/document-library/comment-response-documents>

<sup>8</sup> <http://easa.europa.eu/document-library/opinions>

## 1.2. The next steps

This Opinion contains the proposed amendments to Annex I (Part-26) to Commission Regulation (EU) 2015/640 and their potential impacts. It is submitted to the European Commission, which will use it as a technical basis in order to prepare an EU regulation.

The decision that contains the related certification specifications (CS) and guidance material (GM) (amendment of CS-26) will be published by EASA when the related regulation is adopted by the European Commission.

For information, EASA published the draft text for the related EASA decision that contains CS and GM (draft amendment of CS-26). The final decision that amends CS-26 will be published by EASA once the European Commission has adopted the regulation.



## 2. In summary — why and what

### 2.1. Why we need to change the rules — issue/rationale

#### RMT.0570 ‘Reduction of runway excursions’

For the last few decades, runway excursions have been recognised as major contributors to accidents worldwide, and as significant risks to aviation safety.

The EASA Annual Safety Review 2018 identifies runway excursions as one of the two highest key risk areas. This classification is based on an analysis of occurrence data taking into account the frequency of occurrences, and the risk score from the European Risk Classification Scheme (ERCS), for large aeroplanes in commercial air transport (CAT)-airlines and non-commercial complex (NCC)-business operations (2013-2017). Furthermore, runway excursions accounted for 30 % of the non-fatal accidents over the same period and for the same population.

The number of occurrences of runway excursions during landings has increased in line with the growth in traffic. As aviation traffic is expected to continue to grow worldwide, as well as in Europe, the number of runway excursions can also be expected to increase further if no action is taken.

#### RMT.0070 ‘Class D compartments’

Almost 500 large aeroplanes fitted with Class D cargo or baggage compartments are currently registered in EASA Member States.

The risk of uncontrollable fires in this type of compartment was evaluated in NPA 2013-23. At this time, the overall economic impact of a mandatory conversion from a Class D compartment into a Class C or Class E compartment was considered too high in comparison to the limited safety benefit, therefore EASA did not propose a regulatory change (cost of EUR 49.1 million in 2013 values for the industry, 0.07 accidents avoided and 5 lives saved).

In parallel, the carriage of lithium batteries in cargo or baggage compartments has increased over recent years, together with the identified risk of thermal runaways and the subsequent fires related to those batteries.

For this reason, EASA published Safety Information Bulletin (SIB) No. 2017-04R1 in December 2017 and decided to review the assessment performed in 2013 and the conclusion reached with NPA 2013-23.

NPA 2019-02 presented the updated assessment made by EASA and the new proposal based on the conclusions of this assessment.

Note:

A Class D cargo or baggage compartment is one in which a fire should be completely contained without endangering the safety of the aeroplane or the occupants and without being accessible to crew members. Such compartments depend on oxygen deprivation to prevent and suppress combustion, and on the capability of liners to resist flame penetration.

A Class C cargo or baggage compartment is one equipped with a smoke or fire detector system and with a fire extinguishing or suppression system that is controllable from the cockpit.



A Class E compartment is similar to a Class C compartment, but it is not equipped with a built-in fire extinguisher and is installed on aircraft used only for the carriage of cargo.

## 2.2. What we want to achieve — objectives

The overall objectives of the EASA system are defined in Article 1 of the Basic Regulation. This proposal will contribute to the achievement of the overall objectives by addressing the issues outlined in Section 2.1.

### RMT.0570 ‘Reduction of runway excursions’

The specific objective of this proposal is therefore to reduce the number of runway excursions during landings by providing design-related means to support the flight crew in identifying and managing the risk of a longitudinal runway excursion.

### RMT.0070 ‘Class D compartments’

The specific objective of this proposal is therefore to mitigate the risk of a serious incident or accident caused by a fire that starts in a Class D compartment of a large aeroplane.

## 2.3. How we want to achieve it — overview of the proposals

### RMT.0570 ‘Reduction of runway excursions’

It is proposed to amend Annex I (Part-26) to Commission Regulation (EU) 2015/640 (Part-26) to require every large aeroplane, manufactured after a certain date and operated in CAT, to be equipped with a ROAAS. This system will reduce the risk of a longitudinal runway excursion during landing by providing an alert, in-flight and on the ground, to the flight crew when the aeroplane is at risk of not being able to stop within the available distance to the end of the runway.

In addition, EASA will also require such a system to be installed on every new large aeroplane design. CS-25 (Certification Specifications for Large Aeroplanes) will be amended with the creation of a new specification.

### RMT.0070 ‘Class D compartments’

It is proposed to introduce a requirement into Part-26 to state that (within three years of the amendment of the Regulation) all the in-service large aeroplanes that are used for CAT should have their Class D cargo or baggage compartments converted into:

- (a) Class C compartments, if they are involved in the CAT of passengers; or
- (b) either Class C or Class E compartments, if they are only involved in the CAT of cargo.

It is also proposed to amend CS-26 to provide specifications to be used to show compliance with the new requirement in Part-26.

## 2.4. What are the stakeholders’ views — outcome of the consultation

### RMT.0570 ‘Reduction of runway excursions’

Among the 25 stakeholders who commented (there were 99 comments) on the NPA, a majority of the commentators were supportive of the EASA proposal.

Some commentators from the industry:



- challenged the proposed timeline (three years) for the production cut-in after the entry into force of the Regulation amending Commission Regulation (EU) 2015/640 (Part-26); and
- proposed to exempt some categories of aeroplanes: these were business aeroplanes, and turboprop aeroplanes.

EASA carefully analysed these reported concerns and concluded that:

- the proposed three-year timeline may be too short for industry stakeholders who have not yet started to develop a new system or to adapt an existing one that complies with the proposed rule and the corresponding EUROCAE standard. EASA therefore proposes to set the deadline in order to provide:
  - five years between the date of publication of this Opinion and the date of applicability of the production cut-in; and
  - not less than three years between the entry into force of the Regulation and the date of applicability of the production cut-in.

On this basis, the proposed deadline is 1 January 2025 or a later date determined to fulfil the second condition above.

- the proposed exemptions are justified neither by the analysis of safety data, nor by actual technical or economical concerns that could be foreseen regarding aeroplanes in production and to be registered in an EASA Member State.

More detailed information is available in CRD 2018-12.

#### RMT.0070 ‘Class D compartments’

Stakeholders from NAAs or organisations, and industry companies and associations, placed 17 comments.

The commentators were in general supportive of EASA’s proposal.

EASA rejected one comment that expressed disagreement with the option proposed. This comment suggested that the prohibition of lithium batteries on board the aeroplanes would solve the issue.

EASA does not share this view, and considers that lithium batteries are not the only possible source for the start of a fire in a cargo or baggage compartment. The significant growing number of lithium-based batteries carried by individual passengers is, however, increasing the potential risk.

Replacing class D compartments will contribute to reducing the risk of the fire propagating, independent of its origin.

More detailed information is available in CRD 2019-12.

## **2.5. What are the expected benefits and drawbacks of the proposals**

### RMT.0570 ‘Reduction of runway excursions’

According to the regulatory impact assessment of NPA 2018-12, the proposed amendment of Regulation (EU) 2015/640 (Part-26), combined with a new specification in CS-25, provides the most cost-effective option.



It would create a significant safety benefit, with an estimate of 13 accidents avoided, 9 fatalities and 81 injuries prevented over a 21-year period, and accident costs avoided in the order of EUR 94 million. The costs for implementing this option are estimated to range between EUR 65 and 196 million, depending on the unit cost assumptions.

A key cost-effectiveness indicator was calculated, which was the net cost per fatality prevented. According to this indicator, this option is the most cost-effective: the avoided accident costs are higher than the low estimate for the equipment costs, while the high estimate for the equipment installation would result in a cost of EUR 11 million per fatality prevented.

#### RMT.0070 'Class D compartments'

The proposal is expected to increase both safety and harmonisation with the FAA.

The cost generated by the proposal would be financed for the most part by the operators of the affected aeroplanes.

The environmental impact is expected to be low to negligible.

No adverse social impact is expected.

## **2.6. How we monitor and evaluate the rules**

#### RMT.0570 'Reduction of runway excursions'

The monitoring of the effects created by the proposed amendment of Part-26 (and the related amendment of CS-26), as well as the corresponding amendment of CS-25, will consist of:

- (a) feedback from future large aeroplane certification projects; and
- (b) in the long term, the direction of the trend of the numbers of accidents and incidents triggered by runway excursions during landings.

Item (a) depends on the applications received after the amendment of CS-25 and Part-26/CS-26. A review may be made at the earliest five years after the CS-25 amendment in order to include feedback from new type design certifications, in addition to certifications of existing designs and STCs.

Item (b) would be available once the aeroplanes equipped with a ROAAS have entered into service and have experienced sufficient flight time, which would require several years (at least five years to obtain relevant statistical information).

In addition, the changes made to CS-25 and Part-26/CS-26 might be subject to interim/ongoing/ex post evaluation that will show the outcome that is obtained after the application of the new rules, taking into account the earlier predictions made in this impact assessment. The evaluation would provide evidence-based judgement of the extent to which the proposal has been relevant (given the needs and its objectives), effective and efficient, coherent, and has achieved added value for the EU. The decision as to whether an evaluation will be necessary should also be taken based on the monitoring results.

#### RMT.0070 'Class D compartments'

The monitoring of the effects brought about by the proposed amendments to Part-26/CS-26 will consist of monitoring the trend in the number of large aeroplanes converted from Class D compartments into either Class C or Class E compartments before the end of the transition period.



In addition, the changes made to Part-26/CS-26 might be subject to interim/ongoing/ex post evaluation that will show the outcome that is obtained after the application of the new rules, taking into account the earlier predictions made in the impact assessment. The evaluation would provide evidence-based judgement of the extent to which the proposal has been relevant (given the needs and its objectives), effective and efficient, coherent, and has achieved added value for the EU. The decision as to whether an evaluation will be necessary should also be taken based on the results of the monitoring.

Cologne, 7 October 2019

Patrick KY  
Executive Director



### 3. References

#### 3.1. Affected regulations

- Commission Regulation (EU) 2015/640 of 23 April 2015 on additional airworthiness specifications for a given type of operations and amending Regulation (EU) No 965/2012.

#### 3.2. Related decisions

- ED Decision 2015/013/R of 8 May 2015 adopting Certification Specifications for additional airworthiness specifications for operations (CS-26)

#### 3.3. Other reference documents

- NPA 2018-12 'Reduction of runway excursions'  
<https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2018-12>
- EASA Annual Safety Review 2018  
<https://www.easa.europa.eu/document-library/general-publications/annual-safety-review-2018>
- NPA 2019-02 'Class D compartments'  
<https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2019-02>
- SIB No.: 2017-04R1 'Safety Precautions Regarding the Transport by Air of Portable Electronic Devices containing Lithium Batteries carried by Passengers' issued on 19 December 2017:  
<https://ad.easa.europa.eu/ad/2017-04R1>



#### 4. Related documents

CRD 2018-12 'Reduction of runway excursions'

CRD 2019-02 'Class D compartments'

#### 5. Appendices

N/A

