



Class D compartments

RELATED NPA 2019-02 — RMT.0070 — 7.10.2019

EXECUTIVE SUMMARY

This comment-response document (CRD) contains the comments received on notice of proposed amendment (NPA) 2019-02, and the individual responses provided to them by the European Union Aviation Safety Agency (EASA).

The summary in this CRD highlights the most substantial comments received and the corresponding EASA responses.

Based on these comments, EASA has made some changes to the proposed amendments to Part-26 and CS-26.

Action area:	Aircraft environment		
Affected rules:	Part-26, CS-26		
Affected stakeholders:	Air operators and POA holders		
Driver:	Safety	Rulemaking group:	No
Impact assessment:	Full	Rulemaking Procedure:	Standard



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1. Summary of the outcome of the consultation

Stakeholders from national aviation authorities or organisations and industry companies and associations placed 17 comments.

The commentators are in general supportive of EASA's proposal.

EASA rejected one comment expressing disagreement with the option proposed. This comment suggested that the prohibition of lithium batteries on board 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 the cargo or baggage compartment. The significant growing number of lithium-based batteries carried by individual passengers is, however, increasing the potential risk.

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

Further to the other comments received, EASA has modified some parts of the text that was proposed in the NPA, for improvement or clarification purposes.

The individual comments and the responses to them are provided in Chapter 2 of this comment-response document.



2. Individual comments and responses

In responding to the comments, a set of standard terminology has been applied to attest EASA's position. This terminology is as follows:

- (a) **Accepted** — EASA agrees with the comment and any proposed amendment is wholly transferred to the revised text.
- (b) **Partially accepted** — EASA either partially agrees with the comment, or agrees with it but the proposed amendment is only partially transferred to the revised text.
- (c) **Noted** — EASA acknowledges the comment, but no change to the existing text is considered necessary.
- (d) **Not accepted** — The comment or proposed amendment is not agreed by EASA.

(General comments)	-
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comment	2	comment by: <i>DGAC France</i> Please note that DGAC France has no specific comments on this NPA.	
response	Noted		

comment	3	comment by: <i>UK CAA</i> Thank you for the opportunity to comment on this NPA 2019-02, please be advised that there are no comments from the UK CAA. We fully support the amendment proposed.	
response	Noted	Thank you for your support.	

comment	12	comment by: <i>EUROCONTROL</i> EUROCONTROL does not have any comments.	
response	Noted		

comment	13	comment by: <i>FOCA Switzerland</i> Comment FOCA: FOCA of Switzerland welcomes the opportunity to comment on this NPA. We are supporting the proposed amendment, addressing the issue of potential uncontrollable fires in the Class D compartments of large aero planes used for commercial air transport (CAT). The proposed changes are increasing safety by mitigating the risk of uncontrollable fires in Class D cargo or baggage compartments, and improving harmonization with the FAA.	
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response	Noted Thank you for your support.
comment	<p>14 comment by: <i>European Cockpit Association</i></p> <p>ECA would like to thank EASA for re-introducing RMT.0070 into rulemaking process.</p> <p>NPA 2013-23, CSG/2 and DOT/FAA/AR-TN98/32 showed a greater risk of loss of aircraft with cargo fire in Class D cargo compartment compared to a cargo fire in Class C cargo compartment. Although CSG/2 showed fire risks to still be present also in Class C cargo compartments ECA feels rmt.0070 to be a good start in improving cargo fire safety.</p> <p>Compared to NPA 2013-23 even more evidence of inadequate fire resistance of class-D cargo compartments has been submitted for creation of NPA 2019-02. Since NPA 2013-23 the number of large aircraft in EASA member states with Class D cargo compartments has gone down, but with a lower rate than anticipated in NPA 2013-23. Also, as mentioned in NPA 2019-02 4.6.1 currently there is no mechanism or rule to prevent operators from downgrading existing Class C cargo compartments into Class D cargo compartments, which ECA believes is a major loophole of the NPA that should be addressed as soon as possible by the Agency.</p> <p>ECA questions if the number of lithium battery thermal runaway occurrences (27) used in the 4.1.1. Safety Risk Assessment is just the tip of the iceberg. FAA has reported 254 known incidents for approximately the same time.</p> <p>ECA recommends EASA to re-evaluate the accuracy of its figures as such a gap exists between the two main oversight agencies number of reported incidents. With similar scope of operations and amount of flights between the two agencies jurisdictional area could be a sign of an inefficient reporting system.</p> <p>History has shown that in aviation rules are ineffective unless they are mandatory. That is why ECA is strongly in favour of Option 2 in the NPA - Mandatory conversion of Class D cargo compartments into Class C or Class E cargo compartments. ASH ADG Lithium Battery Incident Chart, April 2019</p>
response	Noted EASA notes the support of the ECA in favour of Option 2. Thanks to the general support received, there is no need to re-evaluate the thermal runaway occurrence figures, as this would not have an impact on the preferred Option.
comment	<p>15 comment by: <i>Bombardier</i></p> <p>Bombardier has reviewed the NPA and has no objection to the proposed changes, as they do not affect any Bombardier products.</p>
response	Noted

Executive Summary

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comment

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comment by: FAA

The objective of this NPA is to address the issue of potential uncontrollable fires in the Class D compartments of large aeroplanes used for commercial air transport (CAT). This includes any fires that result from thermal runaways of lithium batteries.

While FAA supports the goal of eliminating Class D cargo compartments in NPA-2019-02, FAA is not aware of any commercially available means to satisfy the requirement to address any fire from lithium batteries. Gaseous fire suppressions systems in service today (in Class C cargo compartments) do not afford acceptable safety for the carriage of large quantities of lithium batteries. Currently available alternatives in Class E cargo compartments (e.g., FCCs and FRCs) have not been successfully tested against a fire with large quantities of lithium batteries.

FAA recommends this sentence be deleted from the NPA: "This includes any fires that result from thermal runaways of lithium batteries."

response

Noted

Thank you for this comment. The clarification is valuable and EASA will consider it for the drafting of the final deliverables.

2. In summary — why and what

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comment

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comment by: GAMA

The General Aviation Manufacturers Association (GAMA) is an international trade association representing over 100 of the world's leading manufacturers of general aviation airplanes and rotorcraft, engines, avionics, components, and related services. GAMA's members also operate repair stations, fixed based operations, pilot and maintenance training facilities and they manage fleets of aircraft.

GAMA appreciates the opportunity to provide feedback to EASA's NPA 2019-02 'Class D Compartments' and offers the following feedback for consideration.

Applicability and Impact Assessment of NPA

GAMA recognizes that EASA is proposing to address concerns related to potential uncontrollable fires in certain Class D compartments and that EASA is specifically targeting large aeroplanes used for commercial air transport (CAT). This will better align with the FAA's large transport category aircraft operating in commercial Part 121 service. GAMA is concerned however that the applicability of the NPA, as written, will go beyond the intended audience of larger commercial operated aircraft and unintentionally impact many business jet manufacturers and operators that were not considered as part of the risk assessment and financial impact criteria for the NPA.

Regulatory Harmonization Efforts

The NPA language in Section 2.1 references a similar approach taken by the FAA to control the risk of uncontrollable fires in Class D compartments of in-service aircraft



via the issuance of a final rule promulgated in 1998 for FAR Part 121 Amdt. 121-269. As EASA points out, this NPA's intent, in part, is to harmonize with the FAA. While the NPA would improve harmonization between the authorities for larger commercially operated aircraft, it is important to note and take into consideration that the FAA did not introduce similar language in Part 135 operations which clearly distinguishes the requirement for larger transport commercial operations from smaller commuter and on demand aircraft such as business jet operators (19 passengers or less).

As indicated in section 2.4 "the proposal is expected to increase both safety and harmonization with the FAA". As proposed, the NPA would be better harmonized for FAA's Part 121 however it will create a difference for FAA's Part 135 operations.

Economic Impact Assessment

The NPA includes a description in section 4.5.4 of the economic impact analysis and states that "Since for most of the affected aeroplane types, the design changes are already available (as required for compliance with the FAA regulations), the cost of development of a modification is negligible for the aeroplane TC/STC holders". GAMA is concerned that since the FAA requirements are only targeting large commercially operated aircraft (Part 121) this impact analysis did not include modification costs for all CS-25 business jets that are operated in certain CAT operations. This concern is further supported by the list of aircraft in section 4.1.2 table 1 as it does not include many business jet manufacturers (e.g. Textron – Cessna, Hawker, Beech as well as others).

Recommendation

GAMA requests that EASA either clarify that the only impacted aircraft are those within Table 1 of section 4.1.2 or establish applicability criteria that excludes business aircraft containing a passenger seating capacity of 19 seats or less. This approach would align with other EASA and FAA applicability criteria contained in EASA CS-25 Appendix S (similar to FAA SFAR 109) where passenger density and operational considerations is a critical factor in determining a risk assessment and mitigating requirements for low occupancy aircraft. In addition, the FAA's part 26 is largely based on applicability with either 30 passengers or above or excludes many business jet manufacturers and operators.

If EASA is unable to clarify that the NPA does not apply to low-occupancy aircraft / business jet manufacturers, GAMA suggests that EASA re-evaluate the financial impact assessment, safety risk assessment, probability data, and the retirement curve evaluations to include business jet manufacturers and operators as well as update the table 1 in section 4.1.2 to clearly identify who (manufacturer / type / number of AC) is affected.

GAMA appreciates your attention to these comments and would welcome the opportunity to answer any questions regarding our feedback.

response

Noted.

EASA has listed in the NPA the large aeroplanes that are known to include Class D cargo or baggage compartments in their type design. EASA is not aware of any business jets approved with Class D compartments (see also the comment from



Bombardier), nor is EASA aware of any other aircraft registered in EASA Member States that are equipped with Class D compartments.

3.2 CS-26 - 26.157 Conversion of Class D compartments

p. 6-7

comment

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comment by: *Airbus-EIAIX-SRg*

Page 7/24, Section 3.2 [Book1, Subpart B], CS 26.157:

Proposed CS 26.157(b)(1) refers to "...CS 25.857(c) and CS 25.858 of CS-25;" whereas proposed CS 26.157(b)(2) refers only to "...CS25.857(e) of CS-25."

Airbus comment:

CS 25.858 [...smoke or fire detection systems] applies to both, Class C (CS25.857(c)) and Class E (CS25.857(e)) cargo compartment.

Therefore CS 25.858 should be added to section (b)(2).

Proposed Change:

(b) Compliance with 26.157(b) of Part-26 can be demonstrated by showing compliance with:

- (1) either CS 25.857(c) and CS 25.858 of CS-25;
- (2) or CS 25.857(e) **and CS 25.858 of CS-25.**

Rationale:

Requirement should be clearly.

response

Accepted

The text will be amended as proposed.

comment

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comment by: *Embraer S.A.*

Embraer suggests the addition of the term "or equivalent" to address cases in which products certified under rules prior to CS (example: JAR-25) or products certified under foreign regulations equivalent with the CS could show compliance using their original certification basis.

To change the text from:

- (a) Compliance with 26.157(a) of Part-26 can be demonstrated by showing compliance with CS 25.857(c) and CS 25.858 of CS-25.
- (b) Compliance with 26.157(b) of Part-26 can be demonstrated by showing compliance with:
 - (1) either CS 25.857(c) and CS 25.858 of CS-25;
 - (2) or CS 25.857(e) of CS-25.

To:

- (a) Compliance with 26.157(a) of Part-26 can be demonstrated by showing compliance with CS 25.857(c) and CS 25.858 of CS-25, **or equivalent.**



	(b) Compliance with 26.157(b) of Part-26 can be demonstrated by showing compliance with: (1) either CS 25.857(c) and CS 25.858 of CS-25, or equivalent ; (2) or CS 25.857(e) of CS-25, or equivalent .
response	Accepted The text will be amended as proposed.

4. Impact Assessment (IA) - 4.1 What is the issue

p. 8-10

comment	6 comment by: <i>Airbus-EIAIX-SRg</i>
	Page 9/24, section 4.1.2, Table 1: 158 Airbus A/C with Class D cargo compartment are listed. Airbus comment: Airbus has introduced Class C Cargo Compartment in serial production and has provisioned Service Bulletins for all affected models which were already in Service. Taking into account aircraft which have been retired <u>no more than 60 Airbus aircraft</u> are still in service with Class D cargo compartment. Rationale: Airbus data base.
response	Noted Thank you for this feedback, which allows EASA to have even more accurate data.

comment	7 comment by: <i>Airbus-EIAIX-SRg</i>
	Page 9/24, section 4.1.2, Table 1 Airbus Comment: Airbus confirms that A300-B4 aircraft with partial Class <u>D Cargo Compartments are out of service</u> . Rational: Airbus data base.
response	Noted Thank you for the confirmation.

4. Impact Assessment (IA) - 4.6. Conclusion

p. 13-14

comment	1 comment by: <i>Luftfahrt-Bundesamt</i>
	Germany supported ICAO State Letter AN 11/1.1.33-18/80 where in attachment G the cargo compartment fire suppression was addressed. In the new chapter 15 of ICAO Annex 6, Part I, 'Cargo Compartment Safety', paragraph 15.1.1 clearly requests



	<p>a risk assessment by the operator that on the one hand takes into account which items are to be transported and which specific hazards are linked to that (para 15.1.1 a)) and on the other hand lists the capabilities of the aeroplane's cargo compartment fire suppression system (para 15.1.1 d)).</p> <p>EASA's NPA 2019-02 'Class D compartments' only mentions a single hazard. Thermal runaway of lithium batteries in fact is a big danger to aviation safety, which has fatally been proven.</p> <p>Germany clearly supports the view of the Agency that in case lithium batteries are carried in an aircraft, the fire suppression system has to be state of the art. This means class C for CAT operations with passengers and class E for pure cargo operations. But EASA totally ignores the possibility of simply NOT transporting lithium batteries. In that case a class D system would be sufficient.</p> <p>This is the point that was made in State Letter 18/80 by the introduction of the risk analysis. If an operator continues to fly with class D he would not be able/allowed to transport certain hazardous cargo items.</p> <p>For these reasons Germany clearly prefers option 1 from EASA NPA 2019-02.</p>
response	<p>Not accepted</p> <p>The risk does not only originate from 'controlled' cargo, but also from passengers' equipment stowed in their luggage in the baggage compartment. In addition, lithium batteries are not the only possible source for the start of a fire in a cargo or baggage compartment. The significant and growing number of lithium-based batteries carried by individual passengers is, however, increasing the potential risk.</p> <p>Replacement of the class D compartments will contribute to reducing the risk of a fire propagating, irrespective of its origin.</p>
comment	<p>8 comment by: Airbus-EIAIX-SRg</p> <p>Page 13/24, section 4.6.1 Comparison of options</p> <p>Airbus proposal: Change head line as follows: "4.6.1 Comparison of options as defined in 4.5"</p> <p>Rational: Options are defined in section 4.5.x.</p>
response	<p>Noted</p> <p>Thank you for this comment. The clarification is valuable, however, this part of the NPA will not be included in the final deliverables.</p>
comment	<p>9 comment by: Airbus-EIAIX-SRg</p> <p>Page 13/24, section 4.6.1, 4th sub-section, 2nd sentence:</p> <p>"If a thermal runaway of batteries occurred in one of these converted aeroplanes, it would then be better contained in a Class C or Class E compartment".</p>

	<p>Airbus comment: This formulation is not clear.</p> <p>Airbus proposal: Change the wording as follows: “If a thermal runaway of batteries occurs in one of these converted aeroplanes, it would be better contained than in the former Class D compartment configuration.”</p> <p>Rational: The converted aircraft are in either “Class C Cargo Compartment” or “Class E Cargo Compartment” configuration.</p>
response	<p>Noted Thank you for this comment. The clarification is valuable and EASA will consider it for the drafting of the final deliverables.</p>

8. Appendix 2: Tables

p. 19-24

comment	<p>10 comment by: Airbus-EIAIX-SRg</p> <p>Page 20/24, Appendix 2, Table 6, 2nd line:</p> <p>The average age of an A319 aircraft is shown as 37.1 years.</p> <p>Airbus comment. The first flight of the first A319 aircraft was made in 1995.</p>
response	<p>Noted Thank you for this comment. An error in the editing of the table resulted in it being incorrect. The correct values are as follows:</p>



Manufacturer	Type	Number of A/C	Average age
328 Support Services	Dornier 328	21	22.3
Airbus	A319	61	20.7
Airbus	A320	97	24.0
BAE Systems (Avro)	RJ	27	22.2
BAE Systems (HS)	ATP	3	28.4
BAE Systems (Jetstream)	Jetstream 41	22	24.2
Boeing	737 (CFMI)	138	25.2
Boeing	737 (JT8D)	1	37.1
Boeing	737 NG	15	20.6
Boeing (McDonnell-Douglas)	MD-80	24	28.6
Embraer	EMB-120	6	29.0
Embraer	ERJ-145	27	20.0
Fokker	Fokker 100	20	26.8
Fokker	Fokker 70	5	22.9
Grand Total		467	23.9

comment

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comment by: Airbus-EIAIX-SRg

Page 22/24, Appendix 2, Table 9.

This Table list aircraft with Class D Cargo Compartments.

This table is headed:

"Table 9: Cost of additional fuel burn and shadow prices of emission with climatic effect"

Airbus proposal:

Change header as follows:

"Table 9: Cost of additional fuel burn and shadow prices of emission with climatic effect (Aircraft with converted Cargo Compartment)"

Rationale

Cost are induced by additional system installations during conversion.

response

Noted.

Thank you for this comment. The clarification is valuable, however, this part of the NPA will not be included in the final deliverables.

