European Union Aviation Safety Agency

COMMENT RESPONSE DOCUMENT

EASA CRD of Deviation to CS 25.855 Amdt 24
Applicable to Large Aeroplanes
[Published on 07 September 2020 and officially closed for comments on 28 September 2020]

Commenter 1: Smartlynx Airlines – Sergejs Gorbunovs, Ground Operations Director – 22.09.2020

Comment # 1

Deviation Chapter III paragraph 2) d) (1) the cargo should not extend above the seatback height.

Could it be changed to: Cargo could extend above seatback height under following conditions: not obstructing aisle and ventilation, not contacting upper panel or overhead bin, the centre of gravity of any cargo piece loaded should be at least 5 cm lower than seatback height.

EASA response: *NOT AGREED*

The limitation to the maximum height of cargo loaded on seats is consistent with the content of the Guidelines for the transport of cargo in passenger aircraft exemptions under Article 71(1) of Regulation 2018/1139 Issue 4released by EASA on 9th June 2020 and is harmonized with equivalent exemptions issued by other Aviation Authorities. The height limit is introduced to ensure good visibility throughout the cabin for smoke detection and to allow access from the top of the cargo for firefighting by providing a reasonable distance to the overhead stowage bins (when they remain installed).

Commenter 2: Lufthansa Technik AG – Rob van den Bosch, Certification Engineer – 25.09.2020

Comment # 2

LHT disagrees with the EASA assumption that up to 2500 aeroplanes will be converted to transport cargo in the passenger compartment. LHT believes that the assumed number is too high. Consequently, the risk based limitation of 2000 FH until 31st December 2021 could be expanded.

LHT believes that the demand in the EU is significantly lower, rather around 300 aircraft. Admittedly, this is an estimate as well. Nevertheless, it is based on feedback received by aircraft operators, taking into account the operational conditions, limitations and required investment.

We suggest that EASA reconsiders the assumed number of aircraft conversions and resulting time/FH limitation. We would welcome if EASA would transparently show how the assumed number of converted airplanes has been established.

EASA response: *PARTIALLY AGREED*

The assumptions made by EASA consider the worst case scenario. EASA reserves the right to adjust the limitations once evidence is provided. This however will only be possible after some time and after experiences have been shared between EASA, design approval holders and affected operators.

Commenter 3: KLM – KAY LOTTE/ SR COMPLIANCE OFFICER – 28.09.2020

Comment # 3

KLM does not have dedicated tail registrations for cargo-in-cabin (CIC) operation. The aircraft are mainly operated in pax configuration, and are only converted to CIC configuration on a case-to-case basis for individual legs (depending on cargo/pax demand and availability of tail registration). This makes the CIC flight hour registration very complicated for our fleet.

KLM suggests, as an alternative method to the proposed, to calculate the 2000FH limit as an average per aircraft sub-fleet used for CIC (instead of the 2000FH limit per individual tail registration).
So for a specific sub-fleet (for example: B777-300) the limit will be: the number of aircraft in the specific sub-fleet multiplied by 2000FH.

EASA response: *NOT AGREED*

EASA recognises that the calculation of a cargo fire event probability considering for example a 3 aircraft fleet times 2000 FH per aircraft and per year to be 6000 FH per fleet. The same would in principle apply if only one aircraft out of three would be operated with 6000 FH per year. However the risk would be 3 times higher per affected aircraft and this risk exposure is not acceptable. Furthermore if the number of flight hours for CIC operation cannot be monitored per individual aircraft it can probably also not be monitored for a sub-fleet of e.g. 3 aircraft of the same type.

Commenter 4: Airbus Commercial Aircraft – Stephan Runge, Regulations Manager – 28.09.2020

Comment # 4, general, PDF-page 1/15, Requirement definition

This deviation paper refers to CS 25.855 Amdt 25. It is obviously applicable to aircraft with a Certification Basis at a lower amendment level.

Airbus proposal: Not to name the Amendment by dedicated number.

EASA response: *NOT AGREED*

The deviation is formally addressing compliance with the applicable ESSENTIAL REQUIREMENTS FOR AIRWORTHINESS OF REGULATION (EU) 2018/1139 (Annex II), listed in Chapter II on pages 3 to 6 of the consultation paper. As identified in Chapter III on page 6:
Quote
Compliance with the mitigating factors ensures compliance with the applicable Essential Requirements of Annex II of Regulation (EU) 2018/1139.
Unquote
Therefore, the deviation establishes an acceptable way to deviate from direct compliance to CS 25.855(a)(b)(c)(d)(h)(i) at Amdt.25 (and inherently any previous amendments of such Certification Specifications) by establishing a direct compliance to the applicable essential requirements.

Comment # 5, general, PDF-page 2/15, max duration for deviation

Airbus request a provision in the deviation paper to optionally extend the termination date beyond 31 December 2021 when necessary and if justified.

EASA response: *NOT AGREED*

EASA reserves the right to adjust the limitations once evidence is provided. This however will only be possible after some time and after experiences have been shared between EASA, design approval holders and affected operators to confirm or not the assumptions used for the risk assessment performed by EASA (see also response to comment # 6).

Comment # 6, PDF-page 2/15 and 6/15, Deviation's validity and Section III – Mitigating Factors

Sub-chapter III (1) (a)

"The following limitation shall be included in the ALS and in the AFM:

The allowance to transport cargo in passenger compartment is limited to 2 000 FH following installation of the change or to 31 December 2021, whatever occurs first."

Airbus comment:

The ALS, whatever Part is considered, seems to be inappropriate to host an operational limitation.

Airbus understands that the flight crew has no simple means to manage a limitation expressed as a number of cumulative FH (probably the reason for proposing the ALS).

Airbus proposals:

a) Airbus proposes NOT to name the Flight Hours possible to accumulate until 31.12.2021, to read as follows:

"...it is therefore sufficiently conservative to allow each affected aeroplane to fly ~~for a maximum of 2000 flight hours~~ *under this deviation* until 31st December 2021."

b) Modify SEC III (1) (a) to read as follows:

'The following operational limitation shall be included ~~in the ALS and~~ in the AFM:

The allowance to transport cargo in passenger compartment is limited to ~~2 000 FH following installation of the change or to~~ 31 December 2021. ~~whatever occurs first~~."

Rational:

Even if the 2000 FH would be an artificially attribute to be used as life limit of an item of equipment (e.g. for the fixation of cargo on the cabin floor), it would not prevent that this item would be replaced by a new one and thus (be default) restarting the time counter for another 2000 FH.

Consequently, the ALS cannot support the purpose of an operational limitation.

EASA response: *NOT AGREED*

EASA considers it essential that both limitations, i.e. a time limitation to flight hours and a calendar time limitation are necessary and justified. With an optimistic view that the aviation sector will recover until a certain time and will not require this special approach to last longer than necessary and justified by COVID-19 aspects a calendar limit is fully justified. The risk exposure to a catastrophic cargo/cabin fire event however can only be mitigated through a flight time limitation. Hence EASA has decided after internal discussions that it is appropriate to put such a limitation in the ALS.

Comment # 7, PDF-page 10/15, Interpretative Material, 2) Fire Protection, Inspection Interval

Airbus would like to point to FAA Exemption 18584, condition #20 (Cargo in Passenger Cabin; US-Docket: FAA-2020-0492-0007) which requires an inspection interval of max. 30 minutes.

Airbus would like to propose to harmonize the EASA definition with that FAA exemption condition.

EASA response: *NOT AGREED*

An early detection of a potential fire event is essential for a successful firefighting procedure. A time interval of 30 minutes between inspections in the cabin is considered as too long (a potential fire will have 30 minutes to develop, such fire can be impossible to fight) and EASA will therefore have a more conservative approach.

Commenter 5: Dassault - Aviation – Jean-Louis Cormier, Certification Directorate – 28.09.2020

Comment # 8

III.1.a page 6: structural parts are substantiated w/o any limitation (FH or FC), with maintenance checks : what is the intent of this limitation ?

EASA response: *NOT AGREED*

The explanation of the considerations on which the limitations required by mitigating factor 1)a) are based, as well as a review of the assumptions and of the methodology used for their determination, is included in the 'Identification of Issue' section of the Proposed Deviation.

Comment # 9

III.1.b page 6: DA proposes that the manufacturer only provides (and substantiates) the cargo area. Operator should meet with applicable Operation with its National Authority, taking into account for the type of goods carried

EASA response: *NOT AGREED*

As per Part 21 any appropriately qualified DOA can apply for a STC that establishes the transportation of cargo in the cabin. This may or may not be the aircraft TC holder and manufacturer preferred technical solution. It is not the operator to apply for such a design change (unless the operator also holds an appropriate DOA approval).

Comment # 10

III.2.c page 6: this requirement is not adapted to non-commercial operations and low-occupancy a/c (19 or less passenger seating): volume of extinguishers is not in adequation with bizjet cabin volume. DA proposes to let the manufacturer fit the cabin with appropriate extinguishers

EASA response: *NOT AGREED*

Please refer to EASA response to Comment # 26. As outlined in answer to comment # 9 the design change approval by EASA shall include the appropriate number and classification of fire extinguishers proportionate to the aircraft size and the intended cargo.

Commenter 6: SII Netherlands – Daniël Prins, DOA Project management – 28.09.2020

Comment # 11

Most likely the current exemptions to operate medical goods will be extended to next year (dec.2021). in addition, operators can ask permission to the local authority to extend the type of cargo to be transported when safety concerns are properly addressed (e.g. by support of DOA organisations)

If the above route is already possible, what would be the added value of the proposed deviation when it is limited in time?

EASA response: *NOTED*

Exemptions granted by National Aviation Authorities i.a.w. Art. 71 of the Basic Regulation expire after 8 months the latest. One of the main reasons for an operational exemption was the lack of a dedicated EASA design approval to transport cargo in the cabin. This situation will change once EASA has issued such certificates. EASA is in the process of revising the Guidelines for the transport of cargo in passenger aircraft exemptions under Article 71(1) of Regulation 2018/1139 in order to address this comment.

Comment # 12

Why is mail excluded from the proposed deviation?

Does this mean it is possible to get an STC for mail flights?

EASA response: *NOT AGREED*

Mail is excluded from potential cargo to be transported in the cabin as mail has usually a not identified content. It can e.g. include Li-batteries that are considered to pose a high risk for cabin fire.

Comment # 13

The non-compliance is identified as the cargo on seat does not meet any cargo class requirements, (for all baggage or cargo compartments)

How are the overhead luggage bins and regular cabin stowages than classified?

EASA response: *NOTED*

Overhead bins and regular cabin stowage compartments can be used to stow cargo provided that adequate access for fire-fighting is provided. Their classification as cargo compartments is not required by the Proposed Deviation.

Comment # 14

the non-compliance for cargo in cabin is due to the cargo classes requirements which are not met.

These classes were (re)defined after the crash of South African airways combi which triggered an AD so that all A/C meet the current cargo class requirements.

The AD was triggered since cargo in an aircraft without meeting the class requirements was identified as a safety issue.

How is this non-compliance handled for the already approved STCs / minor changes regarding cargo seat bag installations and how is this in line with the safety issue that triggered the AD?

EASA response: *NOTED*

EASA has not the intention to systematically review any previously issued design change approval, e.g. on transportation of cargo seat bags. If however operational experiences indicate a safety issue, EASA reserves the right to react accordingly in the context of Continued Airworthiness.

Comment # 15

Where in part 21 can I find that a Deviation is the procedure to follow in case of a non-compliance, and not a Special condition?

EASA response: *NOT AGREED*

The following is stated in Annex Part 21.A.101(e)(1)(ii):
Quote

(e) By derogation from points (a), (b) and (c), the change and areas affected by the change may comply with an alternative to a certification specification designated by the Agency if proposed by the applicant, provided that the Agency finds that the alternative provides a level of safety which is:

1. in the case of a type-certificate:
…
(ii) compliant with the essential requirements of Annex II to Regulation (EU) 2018/1139;
Unquote

Furthermore, it is stated in Annex Part 21.B.80(a)(3)(i) that:
Quote
The Agency shall establish the type certification basis and notify it to the applicant for a type-certificate or restricted type-certificate. The type certification basis shall consist of:
(a) the certification specifications for airworthiness designated by the Agency from those applicable to the product at the date of application for that certificate, unless:
…
3. the Agency accepts or prescribes other means that:
(i) in the case of a type-certificate, demonstrate compliance with the essential requirements of Annex II to Regulation (EU) 2018/1139; or
…
Unquote

A Special Condition is usually raised by EASA for novel or unusual design features, for unconventional use of the product or to address unsafe conditions have been identified in-service for similar products.
In exceptional cases, if an applicant can neither demonstrate compliance to the literal content nor to the intent of a CS, the applicant may request for a Deviation, i.e. introduction of mitigating factors that ensure compliance with the essential requirements of annex II to Regulation (EU) 2018/1139. As identified in the current consultation paper, the intent of this proposed Deviation is, in the context of the COVID-19 crisis and its commercial impact on the industry and on airline operators, to allow higher flexibility in the transportation of cargo in the cabin. This additional flexibility could be granted as long as the exposure to the risk of a catastrophic cargo fire is mitigated.

Comment # 16

Would the compartment F classification be an appropriate alternative to avoid the non-compliance (a compartment F with limited size integrated within the passenger cabin)?

EASA response: *PARTIALLY AGREED*

Applicants are free to show compliance with CS 25.855 and CS 25.857 by demonstrating that the cabin meets a cargo compartment classification. EASA however considers such design changes to be more of permanent nature, as they will involve the redesign of the cabin to an appreciable extent. Such changes are not subject of this deviation as full compliance to the applicable certification requirements will have to demonstrated.

Commenter 7: ATR – Philippe LEPERT / Aircraft interior engineering / Cabin Design Office – 28/09/2020
Camille Bentz / Certification Specialist

Comment # 17

Page 6, §2)c): Fire extinguishers

Based on experience with cargo container already installed in ATR cabin,

Considering that the ATR dimensions allow a maximum cargo capacity in cabin about 16m^3 for an ATR72,

Considering that the 2 attendants are present to monitor the cabin during all flight,

Considering that if a fire breaks out, its sense of smell will be more effective than a smoke detector,

Considering that the staff will act immediately on the fire ignition,

Under these conditions, knowing that it is the first seconds which are decisive in the fire fight, that the attendants will be able to simultaneously attack the fire with two 5BC extinguishers or to take turns, this action is conservative in relation to the protocol for using one 10: BC fire extinguisher

Considering that the extinguisher type UL 4A-80B:C or UL 2A-10B:C are not installed and are not certified on ATR,

Considering that type of extinguisher are oversized compare to ATR cargo capacity.

ATR recommends to install in addition (to the one water extinguisher TSO C19 P/N 892480 and Two Class EN 34 B Extinguishers installed basically) one water extinguisher TSO C19 P/N 892480 and Two Class EN 34 B Extinguishers or two UL 5B:C extinguishers.

EASA response: *NOT AGREED*

The type and rating of the fire extinguishers that must be installed according to mitigating factor 2)c) of the proposed deviation is consistent with the content of the Guidelines for the transport of cargo in passenger aircraft exemptions under Article 71(1) of Regulation 2018/1139 issued by EASA on 29th April 2020. The policy is based on the guidance of FAA AC 20-42D on Class B cargo compartments with a volume exceeding 200 ft^3. EASA recognizes that in the past design change approvals may have been granted based on lower level performance standards of the required handheld fire extinguishers. However, the design changes in question were

approved in a completely different context than the present one, had a different scope, and were subject to regulatory standards and/or guidance material that are not current.

Comment # 18

Page 7, §2)d)ii)(3): Cargo installation on floor to floor

Due the dimension of the ATR aircraft, ATR recommends to install the cargo on the RH side and in the center of the cabin, and to maintain a LH side aisle under the overhead bin.

The height of the aisle is about 1400mm (55'') that allows the crew member to walk along the cabin for evacuation or for fire fitting.

What is the minimum height of the aisle to consider the « walking upright »?

EASA response: *NOT AGREED*

The intent of mitigating factor 2)d)ii)(3) is to facilitate mobility in the cabin and consequently fire detection and fire fighting. EASA does not intend to change the policy to take into account specific design concepts not developed with the same primary intent. EASA will evaluate on a case-by-case basis if the height of the available longitudinal aisle(s) is adequate to meet the intent of the mitigating factor.

Comment # 19

Page 7, §3)a)i): Crew members

Considering that ATR 42 passenger capacity could be less than 50 PAX, and that ATR 42 has only one crew member and only one crew attendant seat,

Is it acceptable to have only one crew member in ATR42 cabin when only one crew attendant seat is installed?

If not, is it possible to install the second crew member on the third man seat in the flight deck during take-off and landing phase (during the flight, the two crew members shall be in the cabin to inspect the cargo) ?

EASA response: *PARTIALLY AGREED*

EASA finds that the intent of mitigating factor 3)a)i) cannot be met by having only one crew member in the cabin. This is mainly due to the complexity of the manual fire fighting procedure, which may involve retrieving emergency equipment and communicating with the flight crew while discharging the content of a handheld fire extinguisher. The crew members in the cabin are not required to occupy cabin crew seats. However, it is required that no cargo is installed between the seat occupied by a crew member in the cabin and the nearest available emergency exits on both sides of the fuselage.

Comment # 20

Page 11, §2)(e): crow bar

Considering that no crow bar is installed and approved on ATR,

Can the crash axe (already installed and approved on ATR) be replaced by the crow bar?

Proposal new sentence (in accordance with EASA AIR OPS CAT.IDE.A.255 Crash axe and crowbar):

(e) A crow bar or a crash axe

EASA response: *AGREED*

The Interpretative Material section of the Deviation will be revised as proposed by the Commenter.

Comment # 21

Page 11, §3: Cabin occupants

What is the definition for « separation » (the wording is ambiguous) ? Could a free area of cargo be considered as a separation? If yes, what is the minimum distance between crew members and cargo?

EASA response: *PARTIALLY AGREED*

EASA acknowledges that the definition of a minimum spacing between cargo areas and seats that are occupied during taxi, take-off and landing may be more straightforward and easy to handle when designing a configuration that will allow the transportation of cargo in the cabin. However, EASA has decided to allow flexibility in the definition of separation criteria, which may significantly vary from project to project depending on the baseline design of the aircraft and on the design solutions proposed by the applicant.

Comment # 22

Page 12, §4: Emergency escape routes

Considering that only a maximum of two crew members are in the cabin,

Considering that the crew members are seated directly near the exit door (left and right),

Considering that the crew members know the cabin,

Considering that the transversal path in front of exit door are not impacted by the cargo loading,

Considering that the exit doors are at the ends of the cabin,

ATR consider that it is not necessary to have the longitudinal path marking, in the case of a side aisle on an ATR with a floor-to-floor cargo load, (the longitudinal path marking is masked by the cargo).

EASA response: *PARTIALLY AGREED*

EASA has decided to publish a Proposed Deviation applicable to all Large Aeroplanes for passenger operation that are intended to use the cabin for transportation of cargo`. The considerations made by the commenter are related to a specific aircraft design with specific exit arrangement, and assume a specific set of limitations for the number and location of crew members in the cabin. They will have to be discussed with EASA in the context of a certification project.

Commenter 8: Transport Canada – David Johns – Manager, Occupant Safety and Environmental Systems– 28/09/2020
Hershell Lubin, A/Regulatory Program Analyst

Comment # 23

Transport Canada (TCCA) notes in the Statement of Issue the following –

"…As not all cargo fire events are catastrophic, it is therefore sufficiently conservative to allow each affected aeroplane to fly for a maximum of 2000 flight hours until 31st December 2021…."

TCCA notes that this calendar deadline is not consistent with the currently published FAA and TCCA documents on the same subject. FAA and TCCA have published an expiry date of July 31, 2021 on their documents. It is recognized that the pandemic situation is challenging to predict accurately. As a result, TCCA notes this non-harmonized date may result in some industry feedback. TCCA also notes that its expiry date could be re-evaluated if pandemic conditions warrant.

EASA response: *NOTED*

EASA acknowledges that in July 2020 the FAA and TCCA have granted exemptions that will expire on 31st July, 2021. Operators that have decided to make use of the above-mentioned exemptions will be able to do so for 12 months. The Proposed Deviation will apply to design certification projects and will be purely applicable in the context of Initial Airworthiness. EASA has considered that certification projects that will use the Proposed Deviation are not going to be approved earlier than November 2020. Considering the time needed to convert the cabin of the affected aeroplanes, EASA expects that operators will be able to transport cargo in the

cabin for a period of approximately 12 months. It must be noted that the Proposed Deviation mandates a limitation to the maximum number of flight hours for which cargo can be transported in the cabin. A similar limitation is not present in the exemptions published by the FAA and by TCCA.

Comment # 24

Transport Canada (TCCA) notes in Section III MITIGATING FACTORS –

"…3) Cabin Occupants

a) The AFM shall: i) Contain an operating limitation specifying the minimum number of crew members whose duties are to detect and fight a fire, and relay information to the flight crew. Additional occupants shall be justified based on a fire risk assessment…."

On the previously EASA proposed Special Condition on this subject, TCCA raised comment # 147 in that CRD that the minimum crew size should be specified as 2 and should be adjusted upwards depending upon the aeroplane type, cargo load, flight plan, etc. In response to comment # 147, EASA responded by – "…The text of the generic deviation will consider this comment and better clarify that only crew members and no passengers are allowed in the cabin…"

From previous Cabin Safety Working Group and Authorities only discussions over the last many months, TCCA believes that the Authorities and industry felt that 2 additional crew members in the passenger cabin would be a minimum for these types of operations. Should smoke or fire occur during flight, one of these additional crew members would be required to investigate the smoke or fire, and quickly extinguish the smoke or fire. The second additional crew member would be required to be the communicator between the cabin and the flight crew as well as being available to assist the first additional crew member if needed. Therefore, a minimum of 2 additional crew members is needed as they each have their specific duties during the flight including emergency procedures.

As a result, TCCA requests that EASA reconsider the wording in the proposed deviation to specifically require a minimum of 2 additional crew members be required for cargo inspection, smoke / fire detection, and fire-fighting duties during flight operations. These additional crew members are over and above the required flight crew members.

TCCA has applied this minimum number of 2 additional crew members in its documentation for these types of accepted operations as a required safety measure.

EASA response: AGREED

The Proposed Deviation will be revised to require at least two cabin occupants whose duties are to detect and fight a fire and relay information to the flight crew. Additional cabin occupants shall be justified based on a fire risk assessment considering, at a minimum, the size of the aeroplane. It will also be clarified that the expression 'cabin occupants', as used in the Deviation, does not refer to the required flight crew members.

Comment # 25

Transport Canada noted that EASA mentioned the possibility of "combi" operations with cargo being transported in the passenger cabin. This is not specifically addressed in the proposed deviation, however, the subject of cargo seat bags is identified. TCCA's experience with transport of cargo in the passenger compartment

for COVID-19 pandemic related activities has been to deny operators' requests for combined passenger carriage and cargo carriage in the passenger compartment under the conditions stated in TCCA's CASA 2020-04 for COVID-19 pandemic activities. EASA should clarify if EASA's intent is to allow combined passenger carriage and cargo carriage in the passenger compartment under the conditions stated in EASA's proposed deviation, or not.

EASA response: *PARTIALLY AGREED*

EASA agrees with the commenter. Operation of 'combi' configurations shall not be allowed by the Deviation. However, EASA finds that this objective is already achieved by means of mitigating factor 3)a)ii).

Comment # 26

Similar to the EASA proposed Special Condition on this subject, TCCA notes that some of the conditions in the EASA proposed deviation are focused more on applications to wide body aeroplanes. TCCA has raised the concern previously that some flexibility in the conditions of the proposed deviation may be necessary when they are applied to narrow body aeroplanes especially those aeroplanes where the maximum passenger capacity is typically less than 100 passengers. These are typically in airliner configuration. TCCA requests some indication as to EASA's approach to these smaller aeroplanes and if, on a case by case basis, some flexibility in the proposed deviation technical conditions may be required.

EASA response: *AGREED*

EASA has decided to publish a Proposed Deviation applicable to all Large Aeroplanes for passenger operation that are intended to use the cabin for transportation of cargo. EASA agrees with the commenter that a different set of mitigating factors may be adequate for a subset of CS-25 types, e.g. narrow body aeroplanes. If deemed necessary, EASA is ready to publish deviations with a more limited applicability and a set of compensating factors that are tailored accordingly.

Commenter 9: The Boeing Company – Todd D. Sigler – Director, Global Safety & Regulatory Affairs – 28/09/2020

Comment # 27

Page: 2
Paragraph: 5

THE PROPOSED TEXT STATES:

"EASA has established the proposed operating limitations assuming that until 31st December 2021 maximum 2500 aeroplanes will be converted to transport cargo in the cabin. …each affected aeroplane to fly for a maximum of 2000 flight hours until 31st December 2021."

REQUESTED CHANGE:
Suggest that the maximum number of flight hours based on industry projections should be clarified as an assumption for calculating usage rate and that the maximum is not a limit. Also, we recommend the emphasis to be on the date limit.

JUSTIFICATION:
The volume of airplanes should be evaluated since current industry data (Reference Cargo Facts August 11, 2020) is already nearing 2500 airplanes and unless the number flying in this configuration plateaus, the volume may soon exceed 2500 especially since the high cargo traffic season from October thru December is approaching. Focusing on a date limit for the applicability of the EASA Consultation paper will harmonize with the philosophy in FAA Exemptions 18561A and 18584.

EASA response: *NOTED*

EASA considers that both a limitation to the number of flight hours and a date limit are necessary and justified. EASA reserves the right to adjust the limitations once evidence is provided. This however will only be possible after some time and after experiences have been shared between EASA, design approval holders and affected operators to confirm the assumptions used for the risk assessment performed by EASA. See also the replies to comments #5, 6, 23 and 42.

Comment # 28

Page: 5
Paragraph: *2.3 (b)*

THE PROPOSED TEXT STATES:
"(b) Cabin compartments, as appropriate to the type of operations, must provide passengers with suitable transport conditions and adequate protection…"

REQUESTED CHANGE:
Revise the statement to the following: "(b) Cabin compartments, as appropriate to the type of operations, must provide ~~passengers~~ ***crew occupants*** with suitable transport conditions and adequate protection…"

JUSTIFICATION:
This clarification ensures that all personnel being transported are members of the trained crew and/or trained occupants as defined in paragraph 3 page 7 and the required AFM limitations. Traditional fare-paying "passengers" are not allowed to travel on the aircraft when cargo is carried.

EASA response: *PARTIALLY AGREED*

The text highlighted in the comment is quoted from the Essential Requirements for Airworthiness of Regulation (EU) 2018/1139 (Annex II). The text in the deviation will be changed to eliminate the reference to "passengers". However, for consistency reasons "passengers" will be replaced with "occupants".

Comment # 29

Page: 6
Paragraph: 1.b.iv

THE PROPOSED TEXT STATES:
"b) The Transportation of the following cargo in the cabin shall be prohibited:
i) dangerous goods;
ii) mail;
iii) batteries, including batteries contained in, or packed with, equipment;
iv) Cargo of a piercing or penetrating nature, or cargo with sharp edges or corners, such as rods, pipes, extrusions, or beams, that could become a projectile hazard during flight operations;
v) live animals."

REQUESTED CHANGE:
"b) The Transportation of the following cargo in the cabin shall be prohibited:
i) hazardous material and dangerous goods;
ii) mail;
iii) batteries, including batteries contained in, or packed with, equipment;
iv) Cargo of a piercing***, dense, rigid,*** or penetrating nature, or cargo with sharp edges or corners, such as rods, pipes, extrusions, or beams, that could become a projectile hazard during flight operations;
v) live animals."

JUSTIFICATION:
Adding more detail on the restrictions for cargo type will reduce risk and the detailed definition of restricted cargo will drive consistency. Piercing, rigid, and dense cargo should not to be carried on the main deck due to hazards associated with potential occupant impact and airplane damage.

EASA response: *AGREED*

The text in the deviation will be changed accordingly.

Comment # 30

Page: 6
Paragraph: 2(b)

THE PROPOSED TEXT STATES:
"There shall be means by which the presence of a fire would likely be detected in a timely manner."

REQUESTED CHANGE:
"There shall be means by which the presence of a fire would ~~likely~~ be detected in a timely manner."

JUSTIFICATION:
Use of the term "likely" implies that it is acceptable to have a configuration/procedure that may or may not detect a fire in a timely manner. The intent is that it would be detected so firefighting procedures can be enacted.

EASA response: *AGREED*

The text in the deviation will be changed accordingly.

Comment # 31

Page: 6
Paragraph: *2.d*

THE PROPOSED TEXT STATES:
"d) The cargo installation in the cabin shall be designed such that there is adequate access to the cargo by the crew members for fire detection and fire-fighting."

REQUESTED CHANGE:
Revise the statement to the following: "d) The cargo installation in the cabin shall be designed such that there is ***visibility and*** adequate access to the cargo by the crew members for fire detection and fire-fighting."

JUSTIFICATION:

This clarification ensures that the trained crew can readily survey the cabin.

EASA response: *AGREED*

The text in the deviation will be changed accordingly.

Comment # 32

Page: 8
Paragraph: 5.b

THE PROPOSED TEXT STATES:
b) "In addition, means shall be provided to prevent the cargo items from becoming a hazard by shifting under the appropriate maximum load factors corresponding to the specified flight and ground load conditions, and to the emergency landing conditions of CS 25.561(b)."

REQUESTED CHANGE:
Add the additional sentence, "**In addition to the primary cargo restraint, provide a method as a mitigation for inadvertent aft and forward load shifts. (i.e. install every fifth row of seats between cargo load areas.)**"

JUSTIFICATION:
This additional requirement is intended to protect the airplane from an inadvertent aft and forward center of gravity shift.

EASA response: *PARTIALLY AGREED*

EASA agrees that the design proposed by applicants need to consider the possibility of inadvertent aft and forward center of gravity shift and provide adequate design features that will reliably prevent such shifting of cargo. However, it is the EASA position that the existing text is reflecting the scenario as identified in the comment.

Comment # 33

Page: 8
Paragraph: *5.c*

THE PROPOSED TEXT STATES:

"c) Deflections and deformation of cargo items installations under the load conditions mentioned under 5)a) shall not result in additional forces being imposed on the other items in the cabin (such as adjacent pallets, seats, sidewalls, ceiling panels and bulkheads) unless these additional forces are accounted for."

REQUESTED CHANGE:
Add statement to c), "***Clearance post deformation must still be maintained from sidewall liners and sidewall (floor) vents.***"

JUSTIFICATION:
Clearance of cargo from sidewall liners and sidewall (floor) vents is required to ensure the ventilation/decompression system functions properly.

EASA response: *PARTIALLY AGREED*

EASA agrees that floor vents and other decompression protection panels should not be obstructed due to the shifting of cargo under flight and ground loads. Mitigating factor 5.c) already addresses interference with other items in the cabin, therefore EASA will amend Paragraph 5.f to address the issue (see also reply to comment #34).

Comment # 34

Page: 8
Paragraph: *5.f*

THE PROPOSED TEXT STATES:
"f) Ventilation inlets, exhausts and decompression protection panels shall not be obstructed."

REQUESTED CHANGE:
Add the additional sentence, "f) Ventilation inlets, exhausts and decompression protection panels shall not be obstructed. ***"Clearance must be maintained from sidewall liners and sidewall (floor) vents".***"

JUSTIFICATION:
Clearance of cargo from sidewall liners and sidewall (floor) vents is required to ensure the ventilation/decompression system functions properly.

EASA response: *PARTIALLY AGREED*

To consider also comment #33, EASA is amending Paragraph 5.f as follows:

f) Ventilation inlets, exhausts and decompression protection panels shall not be obstructed, considering the shifting of cargo items under the applicable ground and flight loads.

Comment # 35

Page: 11
Paragraph: *Cabin occupants section 3.a.ii*

THE PROPOSED TEXT STATES:
"a. Any person determined by the operator for the particular flight, to be necessary for:
i. the safety of flight
ii. the loading or unloading of cargo"

REQUESTED CHANGE:
Eliminate 3.1.ii so as not to include persons with the sole purpose of loading and unloading cargo:
"a. Any person determined by the operator for the particular flight, to be necessary for:
i. the safety of flight
~~ii. the loading or unloading of cargo~~

JUSTIFICATION:
The mitigating factors of this deviation include the AFM limitation that limits the occupants on the airplanes to those necessary to detect/fight fire and that all occupants must be justified based on risk of fire on the aircraft. Additional Individuals on the aircraft only for loading/unloading of cargo are would be difficult to justify based on the risk of fire on the aircraft.

EASA response: *PARTIALLY AGREED*

EASA agrees that it is important to limit the number of occupants to the minimum possible. However it is also understood that in the case of cargo transportation in a passenger cabin special cargo handling would be necessary to protect the interior and to maintain the possibility to retrofit the aircraft back to the original passenger configuration.
The design change should therefore minimize the number of occupants and at the same time provide the flexibility to reflect the needs of the operator. As the number of occupants will have to be justified a change to the wording is not envisaged.

Comment # 36

Page: 13
Paragraph: *W&B / Maint Program / ICA section a.*

THE PROPOSED TEXT STATES:
"a. Cargo loading in a storage location that is not addressed in the airplane Weight & Balance Manual (WBM) would require a change to the WBM;"

REQUESTED CHANGE:
Revise the statement to the following: "a. Cargo loading in a storage location that is not addressed in the airplane Weight & Balance Manual(WBM) would require a change to the WBM ***limited to the temporary applicability period noted by this Consultation paper;***"

JUSTIFICATION:
Revising the statement to a time limit would reduce risk exposure. This revision aligns with the 3rd paragraph on page 2 of the EASA Consultation paper CS 25.855.

EASA response: *PARTIALLY AGREED*

EASA agrees that the proposed wording would provide additional clarification. However, as the whole change for the introduction of the carriage of cargo in the "passenger cabin" is of a temporary nature, also the WBM change would be of a temporary nature. No change of the published text is envisioned.

Comment # 37

Page: 13
Paragraph: *W&B / Maint Program / ICA section b.*

THE PROPOSED TEXT STATES:
"b. Instructions on how to load cargo (i.e. distribute cargo items, considering for example rigid objects and vertical and horizontal centre of gravity locations) in seat bags or on pallets;"

REQUESTED CHANGE:
Revise the statement to the following:
"b. Instructions on how to load cargo (i.e. distribute cargo items~~, considering for example rigid objects and~~ ***with consideration of the*** vertical and horizontal centre of gravity locations) in seat bags or on pallets;"

JUSTIFICATION:

Eliminating the “rigid” cargo example would be consistent with not allowing the carriage of rigid cargo as proposed in Comment #2.

EASA response: *AGREED*

The text of the deviation will be changed accordingly.

Comment # 38

Page: 13
Paragraph: *W&B / Maint Program / ICA section new statement between a. and b.*

THE PROPOSED TEXT STATES:
N/A

REQUESTED CHANGE:
Add statement: ***“Instructions on how to correctly sequence the loading and unloading of cargo should [...] in order to maintain proper airplane center of gravity while on the ground;”***

JUSTIFICATION:
Requiring instructions for the proper loading and unloading sequence for cargo will prevent tipping aircraft due to an improper loading and unloading sequence.

EASA response: *AGREED*

The following text will be introduced as item b. all other items will be renamed accordingly:

b. Instructions on how to correctly sequence the loading and unloading of cargo in order to maintain proper airplane center of gravity while on the ground;

Commenter 10: International Air Transport Association – Dragos Munteanu, Assistant Director Safety & Flight Operations – 28.09.2020

Comment # 39

The operation of aircraft with use of the passenger cabin to transport cargo is recognised as a scenario requiring a robust safety risk assessment (SRA) from the part of the aircraft Operator and TCH with the SRA outcome identifying essential conditional factors for the feasibility of such operation. We consider that some elements

of the proposed deviation should be better tailored/revised to enable the basis of such SRA: e.g. assumptions for risk exposure and the proposed FH and calendar limitations or identical limitations in addressing the transportation using cargo seat bags (having their own STC) and transportation of cargo with seats removed.

In support of the above e.g. please consider that, generally, the installation and removal of seat bags is not be falling under special factors (CS 25.619) such as fitting factors (CS 25.625) and wear & tear factors (CS 25.561) - see CM-S-002 “Frequent Removal of Interior Structures”

EASA response: *NOTED*

The comment # 39 is not proposing a change to the published text of the deviation.

Comment # 40

The proposed deviation formally addresses CS 25 @ Amdt25; please clarify on how would this proposed deviation be applied to the certification basis at previous amendments of the CS25. The certification basis for all airplanes which may be considered for this type of cargo operations pre-date Amdt 25.

EASA response: *NOTED*

Please refer to EASA response to Comment # 4.

Comment # 41

The Proposed Deviation could be “applied for” only by a TC/STC Applicant and not by an Operator since it is a CS-25 focused deviation. The Operators intending to use the TC/STC employing the deviation would only have to comply with the list of “Operating Limitations and Mitigating Factors” identified in the deviation and the applicable “Interpretative Material”? How would some provisions of operations specific regulation be addressed / answered to by using this proposed deviation? (e.g. CAT.OP.MPA.160 and AMC2 CAT.OP.MPA.160 (b)).

EASA response: *NOTED*

The deviation published by EASA is applicable to design changes to large aeroplanes. It does not affect in any way the operational requirements that apply to the operation of the large aeroplanes on which the design changes in question are implemented. However, as the aircraft will, following to the installation of the change, not be a passenger transport aircraft (limitation of no passenger transportation is part of the deviation), the relevant operational requirements related to cargo operation would be applicable.

Comment # 42

The "statistical evidence from international databases" of a cargo fire probability of 10-7/FH (which happens to be corresponding to the extremely remote failure probability defined in AMC 25.1309 for a hazardous failure severity) is used as a basis to set the 2000 FH and 2500 airplanes limit. Does the estimated eligibility number of 2500 consider the global fleet or only the European TC-ed fleet? What would be the monitoring mechanism intended by the Agency for the limits set (i.e. aircraft and FH)?

EASA response: *NOTED*

The EASA assumptions consider the worldwide fleet. The intention is to use the multiple monitoring means available to gather such data, e.g. IORS and applicant surveys. Furthermore, EASA will invite the holders of design approvals to monitor the implementation of the design changes. This will involve requesting the affected operators to provide information on the number of modified aeroplanes and the number of flight hours accumulated by those aeroplanes. There are two conditions that are necessary for EASA to consider a revision of the deviation implementing less stringent limitations:

- no improvement to the current scenario in which we observe a significant reduction of the number of flights for passenger transportation;
- no cargo fire events on aeroplanes that transport cargo in the cabin;
- availability of data showing that the assumptions initially made to determine the limitations were too conservative.

Comment # 43

The use of words "cabin occupants" and aircraft "crew" (as the sum of "cabin crew" and "flight crew") needs clarification. Elaborate on the briefing/assigned duties/training/individual equipment requirements for Cabin Occupants who are not part of the cabin crew and flight crew. It seems per 3) a) iv) that occupants should be able to act in case of a fire emergency. Additionally, the point 3) a) vii) seems to be setting an obligation for any occupant when leaving her/his seat and having to walk through the cabin irrespective of the purpose of inspecting or not the cargo.

EASA response: Partially *AGREED*

The wording "cabin occupants" is used in the context of this deviation to highlight that they are not passengers and in addition each person on board will have to be justified. In addition EASA is requesting that appropriate training is provided as a prerequisite to be eligible to be transported on aeroplanes that carry cargo in the cabin. The additional "cabin occupants" that are needed for the operation of the aircraft are not required to be cabin crew members as for commercial transportation of passengers. However, "cabin occupants" may naturally be selected among trained cabin crew members. A change to the wording of the deviation text is not envisaged.

Comment # 44

If a Seat Bag STC exists already would this deviation still be needed? Do the STC (STCDS) elements address the concerns which generated this Proposed Deviation? What would be the expected form in which an Operator could use the seat bags STC (like EASA STC # 10050612 and # 10073073)? It is assumed that such STC approval was granted (without a FH or time limitation) through the usual process/procedures which ensure compliance with the applicable Essential Requirements of Annex II of Regulation (EU) 2018/1139.

Note that such STC approvals from EASA were the result of following a regulatory compliant process based on legitimate business needs which existed outside the COVID crisis period and which are supposed to continue existing post this crisis.

EASA response: *NOTED*

This proposed deviation is not intended to be applied retroactively to existing approved changes (major changes or STCs).
Consequently, there is no change in the form in which an Operator could use the above-mentioned seat bags STCs resulting from the proposed deviation.
Corrective actions will be taken if an unsafe condition is identified in the context of Continued Airworthiness.

Comment # 45

The proposed deviation establishes the prohibition of carriage of mail in the cabin (see point 1)b)ii)). Could you elaborate on the rationale? While this would apply to European operators, the American operators could fly mail on the cabin seats up to 10 Jul 2021 based on the FAA Exemption No. 18561 with no limitation on FH.

EASA response: *NOTED*

In defining the list of limitations to the cargo that can be transported in the cabin, EASA has considered that the fire threat that is associated to shipment of mail has increased in recent years (e.g. the mail shipment may include lithium batteries). EASA would like to highlight that FAA 18584 prohibits transportation of mail in the cabin also when some cargo is secured to seat tracks and some cargo is secured to seats.

Comment # 46

Should point 3) b) consider notification by the flight crew of “the cabin occupants” instead of only “…the crew members…” since, as mentioned before, the cabin occupants are expected to assume certain actions during those emergencies?

EASA response: *AGREED*

It is agreed by EASA that emergencies should be notified to all occupants. EASA will clarify the text in the final version of the DEV accordingly. The proposed text is:
“*b) Provisions shall be available to allow the flight crew members to notify the cabin occupants of emergencies (….)*”.

Comment # 47

The drastic limitation of cabin occupants to a number well below the aircraft in case certificated MPSC would justify the need of a drastically reduced number of emergency exits. While this seems to be accounted for in 4)b) wording, we suggest to clarify by stating “the emergency exits required per the approved limited number of cabin occupants ” instead of “required emergency exits”.

EASA response: *NOT AGREED*

The number of required emergency exits will be defined in the certification process and will depend on the seating of cabin occupants. Please consider that for the task of smoke detection/cabin surveillance, cabin occupants may be seated at cabin crew seats next to emergency exits to have a better overview of the cabin (direct view). This may require a number of emergency exits to become “required” emergency exits.

Comment # 48

Point 7) c) creates the premise that occupants could be in charge of performing the applicable fire protection procedures (and this is consistent with what was mentioned in 3)a)iv), v) and vi)). There should be a paragraph under point 7) to address the oxygen system specifics for the respective (“in charge”) category of occupants or it should be made clear that they fall under 7) b) and, as far as the oxygen systems specifics are concerned, such occupants are assimilated as crew members.

EASA response: *PARTIALLY AGREED*

While the wording of the mitigating factors is considered sufficiently clear, EASA agrees to add some more clarifications on the expected use of available oxygen systems by cabin occupants in the final version of the Deviation.