2021-01-25

**EASA Guidelines**

**Transport of Cargo in Passenger Compartment - exemptions under Article 71(1) of Regulation 2018/1139 (the Basic Regulation) v. 5.1**

Name of the Operator: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Aircraft type (s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| **Evaluation criteria for Cargo in the cabin** | **In place Yes (Y), No (N) or N/A** | **Document reference** | **How is it achieved (in case additional comment is required)?** | **LT CAD inspector’s assessment remarks** |
| **1. Operational aspects for Transport of Cargo in passenger compartment** |  |  |  |  |
| Cargo shall only be transported by Operators holding valid Cargo transport approvals. |  |  |  |  |
| **1.1. Crew composition** |  |  |  |  |
| 1. Operations without passengers shall still require the presence of cabin occupants to survey and access all areas of the cabin during all phases of flight. Any fire that might occur must be timely detected and effectively fought utilizing the available existing emergency equipment.
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| 1. (Deleted).
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| **1.2. Procedures** |  |  |  |  |
| 1. A risk assessment shall be performed in order to identify hazards related to operating cargo flights using cabin configurations which have been approved for transporting only passengers.
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| 1. Checks shall be made before take-off, before landing and whenever requested by the captain to ensure that cargo is properly stowed and secured.
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| 1. Operators shall establish procedures to manage emergencies in the cabin.
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| 1. Operators shall publish temporary revisions to the OM to include the new type of operations and the related procedures.
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| **1.3. Loading, Mitigations (Focus areas for the competent authorities) for transport of cargo in passenger compartment including on passenger seats** |  |  |  |  |
| 1. Exact cargo weight and position in the cabin and in the cargo hold shall be reflected in the mass and balance documentation (load sheet).
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| 1. The Pilot in Command (PIC) shall be informed of the content of all the cargo using Notice to Captain (NOTOC).
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| 1. The operator shall load the aircraft considering the different levels of available fire protections of the loading areas.
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| 1. For the bulkheads that have a placard indicating maximum capacity, the cargo items stowed in these bulkheads shall not exceed the maximum capacity indicated in the placard.
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| 1. The maximum capacity limitations in the required safety placards (on or adjacent to the cargo approved stowage locations) shall not be exceeded. All stowage instructions specified in the placards apply.
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| 1. The mass of the cargo shall not exceed the structural loading limits of the floor or seats, as published in the aircraft documentation (e.g. Limitation chapter of the Weight and Balance Manual). Compliance with CS 25.561 and CS 25.789 is expected.
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| 1. The cargo placed in enclosed stowage areas shall not be of such size that they prevent latched doors from being closed securely.
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| 1. The cargo items shall be stowed only in a location that is capable of restraining it.
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| 1. The cargo stowage location shall be such that, in the event of an emergency evacuation, it will not hinder aisle access and egress.
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| 1. The cargo shall not be placed where it can impede access to emergency equipment.
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| 1. The cargo shall be checked to ensure proper stowage in the following instances (at the minimum):
	* Before take-off,
	* Before landing,
	* Under orders of the Pilot in Command (PIC).
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| 1. The available aisle(s) shall remain free to enable access to the cargo to fight a fire.
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| 1. Any smoke/ fire within the cabin must be able to be detected and extinguished using the existing emergency equipment. Thoroughly briefed cabin occupants (not part of the flight crew) shall be on-board to survey and access all areas of the cabin during all flight phases. There must be an adequate number of trained cabin occupants acting as fire-fighter with sufficient amount of firefighting equipment. This equipment may be stowed in the cabin using existing stowage provisions (overhead bins, stowage’s) provided that the location is identifiable for the crew. Specific details must be coordinated with local regulatory authorities.
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| 1. Cabin occupants should use existing cabin crew seats and must not share seat rows with cargo. There must be a clear separation of areas occupied by occupants and those fitted with cargo during taxi, take-off and landing. At least one empty seat row between cargo and reserved occupant seats must be established.
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| 1. ‘Under seat stowage’ is allowed only if the seat is equipped with a restraint bar system and the cargo items can be placed fully underneath the seat. The loading of the cargo under each seat should not exceed 9 kg (20 lbs).
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| 1. The cargo packaging shall be able to equalize the pressure so that it can handle the Delta Pressure (DP) during the flight, as applicable.
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| 1. All smoke and fire detectors shall be maintained as per Maintenance Manual instructions.
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| 1. The Air Conditioning system shall be set taking into account the nature of the cargo transported in the cabin and the number and distribution of cabin occupants.
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| 1. If nets are used to restrain cargo items, these nets should be (E)TSO approved and any load limitations of these nets including their attachment means should be adhered to. Any deformation of these nets due to the mass of the cargo items restrained under emergency landing, flight or ground loads should be evaluated for contact to other objects in the cabin and be shown not to block emergency evacuation paths nor access to emergency equipment.
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| **2. Transport of Dangerous Goods**  |  |  |  |  |
| 2.1. Dangerous goods (DG) shall only be transported by Operators holding an approval (SPA.DG) |  |  |  |  |
| 1. In the absence of passengers, the limits for the dangerous goods can be those established in the Technical Instructions for Cargo Aircraft, instead of Passenger Aircraft. The operator shall nevertheless include this aspect in the risk assessment performed.
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| 1. Additional training/briefing shall be given to the crew, particularly letting them know whether the limits have been increased from those applicable to passengers to those applicable to cargo. This should, at least, include the following:
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| * + the risks and consequences of increasing the amount of DG in the hold;
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| * + any changes in the emergency procedures and the emergency equipment that may be on board.
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| 1. Relevant information on dangerous goods (e.g. affecting emergency procedures) shall be included in the briefing given to other people occupying the aircraft.
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| 1. Dangerous goods (with an exemption to vaccines cooled by dry ice) shall not be carried in the passenger cabin and always be carried in the hold and shall be transported under the conditions established by the Technical Instructions.
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| 1. Nobody other than a crew member, an operator’s employee in an official capacity, an authorised representative of a NCA or an authorised person accompanying a consignment or other cargo may be present on board. Any other person will be considered a passenger and, therefore, the aircraft will no longer be able to use the provisions applicable to cargo aircraft as regards the transport of dangerous goods.
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| 3. Transport of cargo in the passenger cabin under the provisioning of Article 71.1 of the Basic Regulation 2018/1139 |  |  |  |  |
| In order to continuously provide a transport solution in the frame of the current COVID-19 situation, EASA supports the use of Article 71 of the Basic Regulation 2018/1139, also in case of on-going certification projects. A design change approval is not a prerequisite for the issuance of an Exemption. However, certain design data may support the process.The present guidelines enable to address to an acceptable level on a temporary basis (i.e. up to 8 months) the airworthiness certification aspects for projects regarding transport of cargo in the passenger cabin of Large Aeroplanes. |  |  |  |  |
| 4. **Transport of cargo in the passenger cabin under a design change approval** |  |  |  |  |
| In order to allow transport of cargo on a permanent basis, i.e. beyond the 8 months limitation set by Article 71.1 of the Basic Regulation 2018/1139, a design change approval must be pursued outside the scope of flexibility provisions ensuing from the Article.For transport of cargo restrained on seats as well as in case a removal of seats is necessary to allow fixation of cargo onto the aircraft structure, a Major Change or STC application is required and will be processed by EASA with priority.The type of cargo to be transported in the passenger cabin would need to be under control (no unidentified cargo) and assessed beforehand in the frame of the technical investigation by the EASA certification team. |  |  |  |  |
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| **Annex 1 (An applicability list of the below listed areas - depending on the kind of cargo – is provided in Table 1 of the EASA guidelines)** |  |  |  |  |
| * 1. **Restrictions to the kind of cargo:**
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| The Transportation of the following cargo in the cabin shall be prohibited: |  |  |  |  |
| 1. dangerous goods (with an exemption to vaccines cooled by dry ice dealt with in the separate EASA “Transportation of vaccines using dry ice” guidelines);
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| 1. mail;
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| 1. batteries, including batteries contained in, or packed with, equipment;
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| 1. 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;
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| 1. live animals.
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| * 1. **Cabin preparation:**
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| 1. Passenger convenience systems (IFE, in-seat power, galley systems and any other heat generating systems) in the cabin areas in which cargo is transported will have to be disabled or deactivated.
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| 1. Automatic supplemental oxygen systems in the cabin areas in which cargo is transported will have to be removed from the PSU channels, without leaving any opening, or should be deactivated.

Note: Chemical O2 generator or decentralized gaseous O2 installed in the PSU channel will start the O2 generation or O2 release when certain temperatures are reached. Based on the possible fire scenario originating from the cargo loaded the O2 systems would need to be removed or deactivated (O2 mask drop prevented to keep the shielding from the container doors). |  |  |  |  |
| 1. Cargo should not be stowed in any compartment containing oxygen bottles and/or PBEs, as well as devices containing lithium batteries.
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| * 1. **Cargo loading:**
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| a) It is not required to install a 9g barrier and a smoke barrier to protect the flight deck and cabin occupants. Cargo shall be restrained so that each cargo installation meets 25.561 and other applicable structural requirements. |  |  |  |  |
| b) In each section of the cabin where cargo is transported: |  |  |  |  |
|  o there should be at least one longitudinal aisle meeting the minimum width dimensions specified in 25.815 for aeroplanes with a seating capacity of 10 or less passengers. |  |  |  |  |
|  o Cargo should be loaded so that there is sufficient access to the cargo to allow effective fire-fighting. |  |  |  |  |
|  o For twin-aisle aeroplanes in which seats are not removed and are used to restrain cargo, there should be an unloaded seat row to allow crossing from one aisle to the other. To the extent possible the unloaded seat row should be located at equal distance from the available cross-aisles required by CS 25.813. |  |  |  |  |
| 1. Floor path marking may be removed or obscured by cargo in areas that are not going to be used as evacuation paths by the cabin occupants.
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| 1. Features that allow decompression should be maintained, i.e. pallets or cargo should not obstruct decompression vents or flow.
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| 1. When cargo is loaded on the floor:

o The height of the cargo shall not exceed 127 cm (50 inches) (approximately the height of a typical economy class seat).o The volume of each cargo loading area, whether on a pallet or directly tied to the floor should not exceed 3.54m³ (125 ft³).o A lateral access should be provided fore and aft of each cargo loading area as noted below. To allow for appropriate access to the cargo and for firefighting the following should be provided:i. A longitudinal aisle(s) width of at least 51 cm (20”). Each longitudinal aisle must enable a crewmember to traverse it while walking uprightii. A lateral access fore and after of each loading area of at least 38 cm (15”) wideiii. Access provisions should be unobstructed including from the cargo restraint meanso In addition, limitations applicable to the mass, distribution and method of restraint of the cargo should be established based on guidance from the aircraft OEM as deemed necessary by the NCA; EASA support can be provided upon request. |  |  |  |  |
| 1. Cargo loaded on a seat should not exceed 22,5 kg (50 lbs) per seat place or 50kg (110lbs) in a single package per triple seat respectively, unless other loads can be substantiated. Underseat stowage of up to 9 kg (20 lbs) per seat place is allowed in addition to this limitation. The cargo should not extend above the seatback height. Potential restraint methods might include:
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| o Seat tracks (after removing the plastic row-to-row track cover), based on guidance from the aircraft OEM as deemed necessary by the NCA.Attach netting over the seat and boxes. Secure the net to the seat track. Ensure that the net is moderately taut so as to maintain an aisle width for in-flight surveillance of smoke and fire. |  |  |  |  |
| o Seat belts or seat belt shackles.Add additional strapping attached to or going around the forward and top side of the boxes. This strapping to be attached to the buckled and cinched down seat belt (seat belt does not go around box since it doesn’t adequately restrain the box in forward and up directions). |  |  |  |  |
| o Seat beams (located immediately below the seat bottom cushion)Strap the forward and top side of the boxes to the forward and aft beams by routing the straps under the seat. |  |  |  |  |
| o Seat legsStrap the forward and top side of the boxes to the front legs and to the aft legs by looping the straps around the legs. |  |  |  |  |
| * 1. **Safety equipment:**
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| 1. Portable oxygen equipment should be provided for each cabin occupant whose duties on board include fire detection and fire-fighting in the cabin. The equipment shall meet 25.1439 (b) (1), (2) and (4) and 25.1443(e) and shall be carried by the cabin occupants during their inspections.
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| 1. Appropriate protective garments (e.g. fire gloves, etc.) shall be stored adjacent to the crew member's stations.
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| 1. In addition to the extinguishers already installed in the cabin the need for additional firefighting capabilities should be evaluated by considering the cargo to be transported (e.g. expected class of fire). The following additional fire extinguishers would provide adequate firefighting capabilities in case of no cargo restrictions other than the ones prescribed in paragraph 1.1:
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| o Two Underwriters Laboratories (UL)2A (2-1/2 gallon) rated water portable fire extinguishers, or an equivalent amount of water, and |  |  |  |  |
| o At least two fire extinguishers with a minimum UL 4A-80B:C rating or equivalent. Four UL 2A-10B:C extinguishers is considered equivalent. |  |  |  |  |
| 1. Extinguishers should be located next to firefighters station(s) or at other locations that the operator determines would be more effective in providing fire protection.
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| * 1. **ECS settings:**
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| 1. Normal Procedures

ECS settings shall be adapted considering the number aircraft occupants. If the ECS system is configured with Gasper outlets they should be in close / off position at all phases of flight. |  |  |  |  |
| 1. Emergency Procedures

In the event of a fire in the cabin it should be ensured that the ventilation system is set to low flow. The existing Smoke, Fire, Fumes FCOM procedures (which includes possible divert, don oxygen masks, establish crew communications, re-circulation fans switched off, Smoke Fumes Checklist) must be followed. |  |  |  |  |
| * 1. **Procedures and documentation:**
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| The Airplane Flight Manual (AFM) should be revised as to include the following: |  |  |  |  |
| 1. Minimum number of additional crew members in the cabin:
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| 1. Minimum of two additional cabin occupants whose duties are to detect and fight a fire, and relay information to the flight crew. |  |  |  |  |
| 2. For twin aisle and other large long range airplanes, a minimum of 3 additional cabin occupants will likely be needed. Additional cabin occupants above 3 should be justified based on a risk assessment. The number of cabin occupants should be minimized to the number necessary to satisfy item 1. |  |  |  |  |
| 1. the additional cabin occupants should have received training, including practical sessions, on:
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| o Fire-fighting procedure |  |  |  |  |
| o Use of the emergency equipment, including portable oxygen systems |  |  |  |  |
| o Operation of emergency exits and evacuation procedures |  |  |  |  |
| 1. The additional cabin occupants should make a visual inspection of the cargo on a regular basis including prior to TT&L.
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| 1. When making the inspection required above, the additional cabin occupants should carry portable oxygen equipment (see section 1.4 Safety Equipment).
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| 1. Provisions should be available to allow the flight crew members to notify the cabin occupants of emergencies (e.g. decompression).
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| 1. Seats that need to be occupied during TT&L and emergency scenarios such as turbulence or decompression (possibly ensuring visibility of cargo).
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| 1. A new cabin fire emergency procedure based on manual fire-fighting.
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| 1. **Return to passenger service**
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| Before the aircraft is used for passenger service, the operator should ensure the return of the cabin back to the configuration certified for passenger transportation. Operators are reminded that if the operator wishes to make these changes permanent, then a design change approval is required. |  |  |  |  |
| **Appendix to Annex 1** |  |  |  |  |
| Interim cargo carriage on seat for 3 boxes maximum 22.5kg (50 lbs) |  |  |  |  |
| Maximum height of cargo not higher than top of seat backrest |  |  |  |  |
| Interim cargo carriage on seat for 1 box maximum 50kg (110 lbs) |  |  |  |  |
| **Appendix 2 to Annex 1:** |  |  |  |  |
| The below recommended procedure is an example. The recommended loading / unloading sequence depends on the aircraft type.Sequence for loading: First, load the lower forward cargo compartment Next, load the main deck from the front to the back Last, load the lower centre/aft cargo compartments (lower cargo compartment aft of the wing)Sequence for unloading: reverse order from loading sequence |  |  |  |  |
| **Annex 2 Industry guidance** |  |  |  |  |
| Certain aircraft OEMs to provide guidance on how to transport cargo in the passenger cabin: |  |  |  |  |
|  Airbus SAS : FOT-999-0028-20-00) |  |  |  |  |
|  ATR: OIM2020/003 |  |  |  |  |
|  The Boeing Company : MOM-MOM-20-0239 |  |  |  |  |
| Guidance on how to restrain cargo on seats can be found in SAE ARP 4049 Cargo Restraint on Aircraft Passenger Seats – Main Passenger Cabin. |  |  |  |  |

Any additional comments by the Operator (if required):

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| Operator’s representative(s): | Name/Signature:  | Date: |

The undersigned certifies that the information provided by the Operator in this form is correct and true to permit the TKA to review the applicant’s documents with supporting evidence to satisfy conditions for issuing an exemption under article 71 of regulation 2018/1139 (the Basic Regulation).

***Note: Blue text shows difference from the checklist v.4 and v. 5.***