EASA European Union Aviation Safety Agency	**Consultation paper** **Special Condition**	Doc. No.: CPTS-0000529 Issue : 1 Date : 22 May 2025 Proposed ☒ Final ☐ Deadline for comments: 12 Jun 2025

SUBJECT	:	Installation of a Fire Containment Bag (FCB) as PED charging station
REQUIREMENTS incl. Amdt.	:	CS 25.601, CS 25.1301 at Amendment 28
ASSOCIATED IM/MoC	:	Yes☒ / No ☐
ADVISORY MATERIAL	:	ANSI/CAN/UL 5800:2021

Table of Content for Public Consultation

INTRODUCTORY NOTE:

The following Special Condition (SC) has been classified as important and as such shall be subject to public consultation in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) which states:

"*2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency.*"

ABBREVIATIONS:

CS	Certification Specifications
EFB	Electronic Flight Bag
FCB	Fire Containment Bag
OSD-CCD	Operational Suitability Data – Cabin Crew Data
OSD-FCD	Operational Suitability Data – Flight Crew Data
PED	Portable Electronic Device

IDENTIFICATION OF ISSUE:

In recent years, EASA has made significant efforts to address the threat associated to thermal runaways of rechargeable and non-rechargeable lithium batteries that are certified as part of the aeroplane design. Nonetheless, a significant amount of lithium batteries not included in the design configuration of the certified aeroplane, are brought on board by crew members, passengers, or as part of the cargo.

Transportation of Portable Electronic Devices (PEDs) powered by lithium batteries on Large Aeroplanes is addressed in the EASA Air Ops rules. PEDs that are commonly transported on Large Aeroplanes range from electronic flight bags (EFB) to devices carried by the crew or by passengers for personal convenience (mobile phones, tablets, laptop computers, e-cigarettes, etc.).

An application to EASA for a major change has proposed the installation of a Fire Containment Bag (FCB) for the stowage of Personal Electronic Device (PED) carried by crew members on Large Aeroplanes. The FCB may be installed in various locations in the passenger cabin. The proposed stowage facilities are intended to minimize the hazard associated to thermal runaway of the lithium battery of the PED stowed inside the FCB. Recent experience with lithium batteries, that are the main power supplies of PEDs, has shown that there is an increased fire risk associated to the use of such batteries.

Lithium batteries are capable of ignition and subsequent explosion due to overheating. Overheating may be caused by shorting, rapid discharge or overcharging. Overheating results in thermal runaway, which is a chemical reaction within the battery causing the internal temperature and pressure to rise. The result is the release of flammable electrolyte from the battery and, in the case of disposable lithium batteries, the release of molten burning lithium. Once one battery cell goes into thermal runaway, it produces enough heat to cause adjacent battery cells to also go into thermal runaway. This produces a fire that repeatedly flares up as each battery cell in turn ruptures and releases its contents.

EASA considers that a lithium battery has a higher likelihood of catching fire through thermal runaway during or immediately following a charging cycle, although the effects of thermal runaway may be delayed. By removing external power from the device, it will be ensured that additional energy is not being fed to the battery to promote a fire. Charging of lithium batteries may lead to higher battery temperatures that can create the conditions for thermal runaway to occur.

To ensure that the installation of a FCB as PED stowage in an aeroplane cabin will not create an unacceptable safety hazard, the following Special Condition and its associated MOC are proposed to complement the applicable CS-25 Amendment 28 certification specifications.

M-TS-0000529

Special Condition

Installation of a Fire Containment Bag (FCB) as PED charging station

1. APPLICABILITY

This SC is applicable to CS 25 Large Aeroplanes incorporating Fire Containment Bags (FCB's) for the stowage and charging of Personal Electronic Device (PED) carried by crew members. The FCB's may be installed in various locations in the passenger cabin.

2. SPECIAL CONDITION

1. The use of each FCB is limited to stowing one battery-powered device transported in the cabin by the crew. Battery charging is allowed in flight phases other than taxi, take-off and landing.

2. It is prohibited to stow in the FCB any device for which evidence exists that a lithium battery thermal runaway is on-going or may develop.

3. The FCB must be approved for installation in specified locations in the passenger cabin. The removal of the FCB from the location designated for its installation is allowed only in accordance with procedures and limitations specified in the Aeroplane Flight Manual.

4. The FCB must contain ejection of flames and fragments generated by the thermal runaway of the lithium battery of the device stowed in it, without the need of any action performed by the flight crew or the cabin crew. Effective fire containment performance must be shown by testing, or by analysis based on testing.

5. In case a lithium battery fire develops inside the FCB, no hazardous quantities of smoke must be released into compartments occupied by the crew or passengers.

6. There must be means to switch off power supply to the device stowed in the FCB without touching or relocating the FCB.

7. The Aeroplane Flight Manual must include:
   a. any limitation applicable to the use of the FCB.
   b. Any procedure that ensures that proper use is made of the FCB considering the different threats (i.e. heat, smoke, fire and explosion) associated to a potential lithium battery thermal runaway event.

8. Adequate training material must be specified for the flight and cabin crew addressing any procedures and limitations associated with the use of the FCB.

9. Safety marking must be installed in conspicuous location on the FCB with the following information:
    a. Maximum capacity expressed in Wh of the battery of the PEDs that may be stowed inside the FCB.
    b. Maximum weight allowed for a PED stowed inside the FCB.
    c. No more than one PED may be stowed inside each FCB.
    d. Only crew members may use the FCB.
    e. PED stowed inside the FCB must not be charged during taxi, take-off and landing.

MEANS OF COMPLIANCE TO SPECIAL CONDITION M-TS-0000529

Installation of a Fire Containment Bag (FCB) as PED charging station

The associated Means of Compliance is published for awareness only and is not subject to public consultation.

1. **MOC to SC 4** EASA considers acceptable to demonstrate fire containment performance of the FCB performing tests according to ANSI/CAN/UL 5800:2021. Any deviation from the test setup, test procedure and acceptance criteria specified in ANSI/CAN/UL 5800:2021, should be described and justified in the test plan, and agreed with EASA. The results of the fire containment tests should be evaluated to determine if any limitation applicable to the installation of the FCB is needed. In particular, no cabin occupant should be endangered by the release of hot gases ejected from the FCB during a lithium thermal runaway. Thermal effects on systems installed in proximity of the FCB (e.g. portable oxygen systems, battery-powered equipment such as ELTS, flashlights, etc.) should also be evaluated with the objective to determine installation limitations that ensure that no failure critical for the safety of the aeroplane and its occupants occurs as a consequence of the PED thermal runaway.

2. **MOC to SC 5** The results of the battery fire containment tests should be evaluated to determine if the amount of smoke released from the FCB during a thermal runaway event could be hazardous for cabin occupants. Considering that the thermal runaway and the consequent release of smoke from the FCB may last for several minutes, emergency procedures should be established to ensure that the FCB is timely relocated in an unoccupied compartment and subsequently monitored by the crew for the remainder of the flight. The type and the expected level of performance of the emergency equipment required to effectively follow the emergency procedures should be established taking into account the design of the FCB and of its installation, as well as the results of the fire containment tests conducted on the FCB (e.g. amount of smoke released during the test, temperature levels on the outer surface and on features that may be touched by crew members when deploying the applicable emergency procedures). The emergency equipment should be located in close proximity to the FCB so that it can be timely retrieved in an emergency.

3. **MOC to SC 8** In case the final modified aeroplane design will be operated by an EU operator, the specific training material should be achieved through OSD FCD and CCD processes as part of the EASA airworthiness approval process.