European Union Aviation Safety Agency

# FAQ n.132526

## FAQs:

Lithium batteries (Non-rechargeable), Supplemental Type Certificates

## Question:

**How should I classify a change when my non-rechargeable lithium batteries (NRLBs) installation does not fit any of the 4 cases applicable as minor change under DOA privileges?**

## Answer:

Other installations of non-rechargeable lithium batteries (NRLBs) would be classified as MAJOR. Here are some examples of design changes that should be classified as major changes:

**Example A**

Installation not subject to SC-F25.1353-01 (Special Condition final version published in EASA website on 7th April 2021), when a substantial fire safety improvement is demonstrated based on Note 2 of the special conditions.

***Rationale for MAJOR classification***

The evidence that a substantial fire safety improvement is achieved through the relocation of a NRLB shall be discussed and agreed with EASA.

**Example B**

The design change introduces an exposed installation of a NRLB, even if the battery meets ETSO-C142b (e.g. ELT installed on a bulkhead in the passenger cabin).

***Rationale for MAJOR classification***

Despite meeting the minimum performance standards of ETSO C142b provides a higher level of safety, excluding fire and explosions and requesting equipment skin temperatures under 204° C, ejection of gases from the venting provisions included in the battery design is allowed. Quantity, composition and temperature of vented gases are reportable items during ETSO approval and shall be evaluated during installation. DO-227A explains that the hazardous emissions may be flammable, explosive, corrosive or toxic in sufficient concentrations. DO-227A recommends the installer to work with the battery manufacturer to quantify and mitigate the effects of hazardous emissions based on venting capabilities of the battery system and air movement and exchange characteristics at the installed location.

**Example C**

The design change consists in the installation of a NRLB in the cockpit, even if the battery meets ETSO C-142b.

***Rationale for MAJOR classification***

The same considerations applicable to example B are valid also for example C. Furthermore, the direct exposure of flight crew members to the effects of a lithium battery thermal runaway event is considered particularly critical.

**Example D**

The design change consists in the installation of a NRLB in inaccessible areas*, even if the battery meets ETSO-C142b.

*An inaccessible area is an area that can be accessed only after the removal of panels , or is not readily reachable by a person with the contents of a hand-held fire extinguisher. These areas tend to be behind interior panels (such as sidewalls or ceilings), or areas below the passenger floor.

***Rationale for MAJOR classification***

The same considerations applicable to example B are valid also for example D. Furthermore, the installation of a NRLB in an inaccessible area does not allow crew members to perform effective fire-fighting.

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**Link:**

https://www.easa.europa.eu/en/faq/132526