



**PERMANENT DOCUMENT**

**ERS 001**

**ENEC Requirement Sheet 001**

**Li-ion batteries for emergency lighting –  
Application of EN 62133-2 and EN 62620  
according EN 60598-2-22 Annex A.7**

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# Application of EN 62133-2 and EN 62620 for the granting of the ENEC Mark within the European Certification System (ECS)

Table of change

Revision	Reason to change
date	Changed reference to EN standard after publication of the EN 60598-2-22
date	Annex: Family grouping battery packs

## 1 Introduction

This Permanent Document details the application of EN 62133-2 and 62620 with respect to the specifications use for the granting of the ENEC Mark for Li-Ion batteries/battery packs for emergency lighting.

For emergency lighting the cells and batteries/battery packs are not only tested on safety aspects, but also some performance aspects are critical for the safety of the emergency lighting. The necessary requirements relating to the Li-ion cells and batteries/battery packs are described in Annex A.7 of the EN IEC 60598-2-22 Luminaires for emergency lighting.

### **A.7 Lithium Iron Phosphate (LiFePO<sub>4</sub>), Lithium Nickel Manganese Cobalt Oxide (LiNiMnCoO<sub>2</sub>), Lithium Titanate Oxide batteries (LTO)**

**A.7.1** The cell/s shall conform to IEC 62620 and IEC 62133-2.

**A.7.2** A battery shall conform to the following clauses of IEC62133-2;

- 7.2.2 Case stress at high ambient temperature (battery)
- 7.3.2 External short-circuit (battery)
- 7.3.6 Over-charging of battery
- 9.2 Battery marking
- 9.4 Other information

**A.7.3** A battery shall conform to the following clauses of IEC62620

- 5.3 Battery designation
- 6.3.1 Discharge performance at +25 °C
- 6.3.2 Discharge performance at low temperature
- 6.3.3 High rate permissible current
- 6.5 Cell and battery internal resistance
- 6.6.2 Endurance in storage at constant voltage (permanent charge life)

Note: For lithium batteries conformity with UN38.3, covering United Nations recommendations on the transport of dangerous goods, is often a mandatory requirement. There exists significant commonality between the requirements of UN38.3 and the requirements of the IEC lithium battery standards detailed by A.7. Where equivalent or more onerous assessments have been conducted to demonstrate UN38.3 conformity these same results may also be used as a basis to demonstrate conformity with the mentioned IEC standards. The establishment of common UN/IEC assessment protocols by a manufacturer can be used to limit the need for repeated testing against IEC standards.

## 2 Requirements

### Li-ion batteries/battery packs

- 2.1 Li-ion batteries/battery packs shall contain Li-ion cells which comply with the requirements of EN 62133-2:2017 and EN 62620:2015
- 2.2 Additionally the battery shall comply with the following clauses of EN 62133-2:
- 7.2.2 Case stress at high ambient temperature (battery)
  - 7.3.2 External short-circuit (battery)
  - 7.3.6 Over-charging of battery
  - 9.2 Battery marking
  - 9.4 Other information

And the following clauses of EN 62620:

- 5.3 Battery designation
- 6.3.1 Discharge performance at +25 °C
- 6.3.2 Discharge performance at low temperature
- 6.3.3 High rate permissible current
- 6.5 Cell and battery internal resistance
- 6.6.2 Endurance in storage at constant voltage (permanent charge life)

## 3 License requirement information text

The following requirement information shall be stated on the ENEC license.

ERS 001:yyyy-mm

Based on EN 62133-2:2017 and EN 62620:2015 according EN 60598-2-22 Annex A.7

## 4 Additional data to be shown on the ENEC license

In addition to the common data for all ERS listed in the document OD ENEC 321, the ENEC License for this ERS shall contain at least the following data:

- (r 11) Rated voltage
- (r 12) Rated capacity  $C_5$
- (r 13) Minimum cell voltage ( $V_{low}$ )
- (r 14) Cut off battery voltage ( $V_{blow}$ )
- (r 15) Residual discharge current ( $I_{low}$ )
- (r 16) End of capacity battery voltage ( $V_{min}$ )
- (r 17) Maximum cell charge voltage ( $V_{max}$ )
- (r 18) Maximum charging current ( $I_{max}$ )
- (r 19) Minimum temperature at charge start ( $T_{cmin}$ )
- (r 20) Maximum temperature at charge start ( $T_{cmax}$ )

## Annex

### Family testing battery packs

This document only covers battery packs. Considerations for cells are already covered in the standard.

- Ni battery pack no additional components so acceptance on cell level shall be possible.
- Li-ion battery pack additional test necessary for family testing the following shall be the same within a family
  - Same protection architecture (EN 62133-2 critical components)
  - Cells can be of different manufacturers, under the following conditions:
    - Within one battery pack a combination of cells of different manufacturers is not allowed
    - Shall be already approved
    - Shall have minimum performance level
    - Same cell electrochemistry
  - Same mechanical structure
  - UN 38.3.2.2 as a reference

For each family or range of products a case-by-case consideration is required. The range of products should be manufactured by the same manufacturer, under the same assurance system. The type variants of the range should be essentially identical with respect to materials used, components and technology applied. Type test sample(s) should be selected in cooperation with the manufacturer.

Additional requirement according EN 60598-2-22

- years rated duration