



# PEP ecopassport® PROGRAM

## PSR

### SPECIFIC RULES FOR SELF-CONTAINED EMERGENCY ELECTRICAL SAFETY DEVICES

**PSR-0007-ed2-EN-2023 06 06**

According to PSR-template-ed2-EN-2021 11 18

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# 1. Introduction

This reference document complements and specifies the Product Environmental Profile (PEP) Drafting Rules defined by the PEP ecopassport® Program (PEP-PCR ed4-EN-2021 09 06), available at [www.pep-ecopassport.org](http://www.pep-ecopassport.org).

It sets out the additional requirements applicable to self-contained emergency electrical safety devices. Compliance with these requirements is necessary to:

- Qualify the environmental performance of these solutions on an objective and consistent basis,
- Publish PEPs compliant with the PEP ecopassport® program and international reference standards.<sup>1</sup>

This reference document was drawn up in compliance with the open, transparent rules of the PEP ecopassport® Program with the support of stakeholders and manufacturers of self-contained emergency electrical safety devices.

	<a href="http://www.pep-ecopassport.org">www.pep-ecopassport.org</a>
<b>PSR reference</b>	PSR-0007-ed2-EN-2023 06 06
<b>Critical review</b>	The third-party critical review was carried out by TIDE. The certificate of compliance published on 04/05/2023 can be found in Appendices.
<b>Availability</b>	The critical review report is available on request from the PEP Association <a href="mailto:contact@pep-ecopassport.org">contact@pep-ecopassport.org</a>
<b>Scope of validity</b>	The critical review report and the declaration of conformity remain valid within 5 years or until the PEP Drafting Rules, or the normative reference texts to which they refer, are modified.

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<sup>1</sup> ISO 14025, ISO 14040 and ISO 14044 standards

## 2. Scope

In accordance with the General Instructions of the PEP ecopassport® program (PEP-General Instructions- ed 4.1-EN-2017 10 17) and in addition to the PCR, Product Category Rules (PEP-PCR ed4-EN-2021 09 06) of the PEP ecopassport® environmental product declaration program, this document sets out the specific rules for SELF-CONTAINED EMERGENCY ELECTRICAL SAFETY DEVICES and defines the product specifications to be adopted by manufacturers in the development of their PRODUCT ENVIRONMENTAL PROFILES (PEPs), particularly with regard to:

- the technology and its type of application,
- the reference service life time taken into account for the Life Cycle Assessment (LCA) of products,
- the conventional use scenarios to be adopted during the product use stage.

### 2.1. Description of the product families covered.

The reference document applies to self-contained emergency electrical safety devices, wherever they are manufactured or whatever their target markets. This category includes the following two product families:

- Self-contained emergency lighting safety devices (see details in Section 2.1.1),
- Self-contained audible and/or visual alarm units for emergency evacuation (see details in Section 2.1.2).

In accordance with the standards in force for these devices, this reference document does not apply to:

- Central Power Supply system for emergency lighting luminaires,
- Fire detection and fire safety systems,
- Non-standalone audio and/or lighting devices,
- Conversion kits.

Note 1: The LCA and environmental declaration rules concerning CPS for emergency lighting luminaires will be discussed later, in accordance with the work on other types of power supply.

Note 2: Non-self-contained audio and/or lighting devices for emergency evacuation and conversion kits for emergency lighting are not considered as the product category 'self-contained emergency electrical safety devices' and their applicable regulatory scope.

#### 2.1.1. Self-contained emergency lighting units

##### 2.1.1.1. Definition

Self-contained emergency lighting units are intended for use in case of a mains failure affecting the normal lighting and, according to the case, to:

- Allow people to evacuate from a building,
- Avoid any panic situations that could arise,
- Facilitate the intervention of the emergency services,
- Allow servicing to be performed in a technical room.

The term "self-contained" refers to devices whose emergency energy electrical source is:

- Either incorporated in the device,
- Or deported to a Central Power Supply System

Some self-contained emergency lighting devices may include additional functions to enable safe evacuation for all, such as:

- During a fire alarm, the emission of a visible (luminous) signal for certain audiences (e.g.: hearing-impaired or deaf persons)
- During a fire alarm, the highlighting of an escape route for persons with reduced mobility (PRM)).

The present document applies to self-contained emergency electrical lighting devices whether permanently mounted in buildings or portable (e.g.: self-contained portable emergency luminaires).

#### 2.1.1.2. Applicable standards

The devices defined in Section 2.1 must comply with standards and regulations established at international and European level, supplemented by national laws. The latest version in force of the technical and legal texts cited must be taken into account.

**Applicable standards for a European market:** Appendix 6.1 – Table 13

**Applicable standards for the French market:** Appendix 6.1 – Table 14

**Applicable standards for a national market (excluding France):**

The standards and regulations that are applicable on a national level, other than in France, must be specified in the annex according to the country where the product is marketed.

### 2.1.2. Self-contained audible and/or visual alarm units for emergency evacuation

#### 2.1.2.1. Definition

Self-contained alarm units for emergency evacuation are designed to alert occupants in the event of fire and to give instructions for evacuation by emitting the general alarm signal via an audible and/or visual signal.

These devices are equipped with a built-in back-up energy source and are permanently secured to the building.

This includes devices which, without emitting an audible and/or visual signal but initiate an alarm process and trigger the standalone audible and/or visual electrical alarm devices, which are responsible for broadcasting the general alarm.

The term "self-contained" denotes devices whose emergency energy electrical source is:

- Either incorporated in the device,
- Or deported to a Central Power System

#### 2.1.2.2. Applicable standards

The devices defined in Section 2.2 do not currently have any normative or regulatory texts established on an international and European level. They must comply with the national laws.

**Applicable standards for the French market:** Appendix 6.1 – Table 15

**Applicable standards for a national European market (excluding France):**

The regulations that are applicable on a national level, other than in France, must be specified in the annex according to the country where the product is marketed.

### 3. Life Cycle Assessment for Self-contained emergency electrical safety devices

#### 3.1. Functional Unit and reference flow description

These specific rules are additional to Section 2.1 'Functional unit and reference flow description' of the PCR in force (PEP-PCR ed4-EN-2021 09 06).

##### 3.1.1. Reference Service Life (RSL)

In the field of Self-contained emergency electrical safety devices, system obsolescence cycles are strongly dependent on the type of building in which they are installed, the quality of their installation, and their conditions of maintenance and use.

Based on feedback from manufacturers in the sector and installation professionals, **the reference service life of Self-contained emergency electrical safety devices to be taken into account is 10 years.**

This assumed reference service life is deliberately shorter than the actual service life of AEAS usually observed on the international markets. This provisional commitment does not constitute a commercial guarantee commitment by the manufacturer.

##### 3.1.2. Functional unit

Because of their safety role, self-contained emergency electrical safety devices are subject to strict requirements in terms of reliability and ability to operate (e.g.: fire resistance, duration, lighting level, qualification of products), and in terms of implementation and maintenance (e.g.: installation rules by type of facilities, mandatory periodic checks). These requirements are generally governed by specific regulations that differ from one country to another and are specified by standards.

In order to have PEP ecopassport® rules that are valid on an international level and remain consistent with national safety requirements, the functional unit and the use scenario of Self-contained emergency electrical safety devices must be clearly defined in a dedicated appendix, taking into account the specific requirements in force in the product destination country.

**For a product intended for the French market:** the functional unit and the use scenario are described in Section 3.10 of this PSR.

**For a product intended for national European market (excluding France):** An appendix containing specific national conditions, called 'National Annexes', shall be drawn up in the framework of the PEP ecopassport® Program in accordance with the requirements specified in Appendix 6.3.

**For a product intended for a national market (excluding France) in the absence of a National Annex:**

In the absence of a National Annex, requirements to draw up the FUs and usage scenarios are prescribed by default for all Self-contained emergency electrical safety devices irrespective of destination market.

- 1) **For self-contained emergency lighting safety devices**, the functional unit must be described precisely. The service performed is characterised and quantified, and this must take the following information into account:

- Duration, expressed in hours,

- Lumen output, expressed in lumens,
- The operating mode of the emergency lighting: maintained (M)\* or non-maintained (NM)\*\* or combined (C).

**\*Maintained mode:** Whether or not the normal power supply has failed, the devices are continuously supplied by the emergency energy source (battery or Central safety power supply system). In that case, the lighting function is always active (presence or absence of the normal power supply).

**\*\*Non-maintained mode:** The devices are powered by the emergency energy source (battery or Central safety power supply system), only in the event of failure of the normal power supply. In that case, the lighting function is active only when the normal power supply is absent.

Note: 'Duration' is the period during which the self-contained emergency lighting unit can light its emergency lighting source(s) in the event of failure of the normal power supply.

2) **For self-contained audible and/or visual alarm units for emergency evacuation**, the functional unit must be described precisely. The service performed is characterised and quantified, and this must take the following information into account:

- Duration, expressed in hours,
- Maximum intensity of the audible signal, expressed in dB,
- And/or intensity of the light signal, expressed in candelas.

Note: 'Duration' is the period during which the device remains able to sound the general alarm (broadcasting the audible and/or visual alarm for the time stipulated by national regulations) after the normal power supply has been cut.

**The operating mode of Self-contained emergency electrical safety devices** is defined as follows (refer to justifications of the scenario in Appendix 6.4):

- Normal power supply to the Self-contained emergency electrical safety devices is present for 100% of its lifetime,
- This means 8,760 hours per year over a Reference service life of the safety devices, set at 10 years (1),
- Non-consumption periods for maintained modes are considered to be negligible and thus are not taken into account (2).

Note (1): The basis for calculating this figure of 8,760 hours does not take leap years into account.

Note (2): Non-consumption periods correspond to the periods during which the device does not consume energy from the electrical supply network following a deliberate cut-off or a power failure.

### 3.1.3. Reference flow description

To determine the relevant reference flow, on a consistent and transparent basis, the manufacturer must take the following into account for each family of self-contained emergency electrical safety devices:

- The Self-contained emergency electrical safety device,
- Its primary packaging (including wedging elements),
- Instruction manuals and labels dedicated to marking (e.g.: crossed-out dustbin) or production traceability,
- Signage labels and label holders delivered with the product (pictograms and arrows),
- All the elements required for the initial operation of the product (batteries and light sources supplied with the product). These elements shall be taken into account in the manufacturing stage,

- All replacement components required to maintain the operative condition of the product over its lifetime (replacement batteries and light sources). These elements shall be taken into account in the use stage in accordance with Sections 3.6.4.2.
- Only when delivered and/or prescribed with the product, accessories (e.g. vandal-proof screws, stuffing box, tools, etc.), assembly and installation components (e.g. assembly spacers, screwdriver and locking tool, flush-mount box and accessories, cap and sealing plug, etc.), and accessories for mounting the safety device in the building.

Note 1: For escape route emergency lighting devices delivered without signage labels, take into account the commercial catalogue number of the associated labels (label or set of labels available according to the manufacturer offer).

Note 2: For portable safety devices, the charger must be included in the reference flow.

The manufacturer must identify and record packages, components, products, and accessories accounted for in the LCA to perform the function expressed by the corresponding functional unit in the report accompanying the PEP.

The following flows must be omitted from the system boundary:

- the configuration tools for addressing (e.g. remote controls, etc.) which depend on the type of installation and relate to different PEPs.

## 3.2. Declared unit

The declared unit may provide additional information to assist future users of the PEP. For the France scope, the declared unit shall be applied if no functional unit can be defined.

Within the scope of this PSR, the declared unit corresponds to the functional unit.

## 3.3. System boundaries

These specific rules are additional to Section 2.2 'System Boundaries' of the PCR in force (PEP-PCR ed4-EN-2021 09 06) which describes the boundaries for each stage of the life cycle.

As described in PEP-PCR ed4-EN-2021 09 06, the following stages shall be included:

- **Manufacturing stage:** the rules described in Section 2.2.3 of PEP-PCR ed4-EN-2021 09 06 apply. The manufacturing stage includes all the elements required for the initial operation of the product (the emergency light source(s), charge indicator light source(s), and the battery pack supplied with the product). Replacement components required to maintain the operative condition of the product over its life time are not considered during this stage.
- **Distribution stage:** the rules described in Section 2.2.4 of PEP-PCR ed4-EN-2021 09 06 apply.
- **Installation stage:** the rules described in Section 2.2.5 of PEP-PCR ed4-EN-2021 09 06 apply  
Only when delivered and/or prescribed with the product, accessories (e.g. vandal-proof screws, stuffing box, tools, etc.), assembly and installation components (e.g. assembly spacers, screwdriver and locking tool, flush-mount box and accessories, cap and sealing plug, etc.), and accessories for mounting the safety device in the building.
- **Use stage:** the rules described in Section 2.2.6 of PEP-PCR ed4-EN-2021 09 06 apply.



In the case of breakdown of module B as defined in Section 2.2.6 of the PCR ed.4, the environmental impacts of the use stage must be broken down as follows for all PSR-0007 product families:

<b>B1 - Use or application of the product installed</b>	The specific rules of this PSR do not define elements to be declared in B1.
<b>B2 - Maintenance</b>	Manufacture, distribution, and end of life of replacement consumables (batteries, etc.) required for the operation of the product over its Reference service life of 10 years.
<b>B3 - Repair</b>	The specific rules of this PSR do not define elements to be declared in B3.
<b>B4 - Replacement</b>	The specific rules of this PSR do not define elements to be declared in B4.
<b>B5 - Restoration</b>	The specific rules of this PSR do not define elements to be declared in B5.
<b>B6 - Energy requirements during the use stage</b>	Electricity consumption of the reference product by applying the use scenario as defined by PSR-0007.
<b>B7 - Water requirements during the use stage</b>	The specific rules of this PSR do not define elements to be declared in B7.

- **End of life stage:** the rules described in Section 2.2.7 of PEP-PCR ed4-EN-2021 09 06 apply.

In the case of breakdown of module C, the environmental impacts of the use stage shall be broken down as following:

C1: Deinstallation
C2: Transport to waste treatment site
C3: Treatment of waste in view of its reuse, recovery and/or recycling
C4: Disposal

- **Benefits and loads beyond the system boundaries:** the rules described in Section 2.2.8 of PEP-PCR ed4-EN-2021 09 06 apply.

### 3.4. Cut-off criteria

The rules defined in Section 2.3 'Cut-off criteria' of the PCR in force (PEP-PCR ed4-EN-2021 09 06) apply.

### 3.5. Rules for allocation between co-products

These specific rules are additional to Section 2.4 'Rules for allocation between co-products' of the PCR in force (PEP-PCR ed4-EN-2021 09 06).

In the case of co-products, the impacts may be calculated in proportion to the mass of the devices manufactured. Any other rule must be justified in the LCA report and mentioned in the PEP.

## 3.6. Development of scenarios (default scenarios)

These specific rules are additional to Section 2.4 'Development of scenarios (default scenarios)' of the PCR in force (PEP-PCR ed4-EN 2021-09 06).

### 3.6.1. Manufacturing stage

#### 3.6.1.1. Recycled content

The recycled content of raw materials shall be justified\*. In the absence of justified specific information, the recycled content of the constituent materials of the product shall be considered to be nil.

#### 3.6.1.2. Waste from the manufacturing stage

##### Scrap rate:

Specific scrap rates shall be justified\*. Declarants whose scrap rates are not available shall consider the default values presented in the first column of Table 1. Columns two and three of Table 1 give an example of how the rates shall be applied.

Processes	Default scrap rate	Mass of part after manufacture	Mass to be considered with scraps
Plastic and elastomer injection	5 %	19.2 kg	20.2 kg
Other processes	30 %	14.4 kg	20.6 kg
Packaging	0 %	5.0 kg	5.0 kg

Table 1: Default scrap rate to be considered

##### Manufacturing waste treatment:

By sector-based convention, the **transport stage of this manufacturing waste** shall be considered based on an assumption of **100 km transport by truck**.

In the absence of justified\* specific data, and regardless of the geographic scope of the study, the declarant shall apply the following default **treatment scenario: 100% incineration with no energy recovery**.

##### \*Accepted supporting documents to amend default scenarios:

If the declarant wishes to use specific data, the data shall be justified in the report. Such data, forwarded by manufacturers, are not necessarily certified but based on supporting documents on the traceability chain. These supporting documents involve the liability of the declarant or supplier or third party (example of third party: independent certification body). These supporting documents shall be available if requested.

**The recycled content of raw materials** may for example be justified with supplier data (data sheet or supplier declaration), but may not be justified with generic data (e.g.: system, professional associations, ADEME).

**The scrap rates** of raw materials may for example be justified with an internal document from the production factory (e.g.: annual report mentioning the input and output material quantity of the process).

**The end-of-life waste treatment** may for example be justified with a statement from the contractor tasked with the treatment of waste from the factory.

### 3.6.1.3. Packaging of raw materials and components

The packaging of raw materials and components as well as their transport to the manufacturing site(s) shall be considered. Supplier data shall be used.

Failing justification, an average packaging content of 5% of the mass of the reference safety device (safety device + packaging) shall be considered, broken down as follows:

- Wood 50%
- Cardboard 40%
- Low-density polyethylene 10%

Packaging reused on-site is not considered.

The end-of-life treatment of packaging is modelled as in Section 3.6.1.2 of this PSR.

### 3.6.2. Distribution stage

The rules defined in Section 2.2.4 'Distribution stage' of the PCR in force (PEP-PCR ed4-EN-2021 09 06) apply.

### 3.6.3. Installation stage

The end of life of packaging, the production of which is included in the manufacturing stage, is included in the installation stage. Packaging waste produced during the installation stage falls within the category of non-hazardous waste and is disposed of, in principle, by the installer once the safety device is installed.

In the absence of supporting documents showing a specific end of life, the treatment scenarios presented in the table below shall be applied by default. The tables presented below are representative of the year 2019. The latest consolidated Eurostat data, if available, may be accessed using the information available at the address:

[https://ec.europa.eu/eurostat/databrowser/view/ENV\\_WASPAC\\_custom\\_3801295/default/bar?lang=en](https://ec.europa.eu/eurostat/databrowser/view/ENV_WASPAC_custom_3801295/default/bar?lang=en).

The reference year of the data used shall be mentioned in the PEP.

**For France scope:**

	Recycling rate	Incineration with energy recovery	Incineration with no energy recovery	Landfill rate
<b>Metal</b>	83	1	0	16
<b>Steel</b>	88	0	0	12
<b>Aluminium</b>	60	7	0	33
<b>Paper-cardboard</b>	91	5	0	4
<b>Wood</b>	7	31	0	62
<b>Plastic</b>	27	43	0	30

**Table 2: Default packaging end-of-life data for France scope**

**For European scope:**

	Recycling rate	Incineration with energy recovery	Incineration with no energy recovery	Landfill rate
<b>Metal</b>	77	2	0	21
<b>Paper-cardboard</b>	82	9	0	9
<b>Wood</b>	31	31	0	38
<b>Plastic</b>	41	37	0	23

**Table 3: Default packaging end-of-life data for European scope**

In the absence of data in Tables 2 and 3 and for a geographic scope other than France or Europe, waste shall be treated according to the following scenario: **100% incineration with no energy recovery**.

By sector-based convention, the transport stage of this manufacturing waste shall be considered based on an assumption of **100 km transport by truck**.

The strapping, packaging notes and labels present on or in the packaging of the system are considered to be negligible and may be excluded from the life cycle assessment of the packaging waste.

### **3.6.4. Use stage**

#### **3.6.4.1. Method for measuring the energy consumption of self-contained emergency electrical safety devices**

To calculate the energy consumption of self-contained emergency electrical safety devices in the use stage, the power value must be measured according to the standards in force, namely:

- The rated power supply voltage,
- In battery float charge mode, except fast charging periods,
- Using an appropriate measuring device.

In accordance with the test methods specified in the standards in force, for permanent float charge products, the power is measured after 48 hours of powering on.

For products that charge intermittently, the power chosen is the mean obtained during the 24 hours of recording, after 48 hours with of powering on.

The additional consumption generated by the visibility plus option is negligible.

#### **3.6.4.2. Accounting rules for consumables (lighting sources and batteries)**

##### **Accounting for consumables:**

Manufacture and end of life of replacement consumables\* required to maintain the operative condition of self-contained emergency electrical safety devices during its Reference service life set at 10 years shall be taken into account in the use stage (module B2).

\* Emergency lighting source(s), charge indicator lighting source(s), replacement batterie(s)

The environmental impacts associated with these replacement consumables shall be taken into account in accordance with Tables No. 4, No. 5 and No. 6 below. The default Reference service life values of the consumables presented in these tables are based on:

- The normative recommendations and data provided by the main suppliers of lighting sources and batteries (e.g.: four-year duration for batteries guaranteed by their manufacturers in accordance with Standard EN 60-598-2-22),
- Data concerning power cuts supplied by electricity network and building operators,
- Feedback from maintenance professionals and manufacturers of the sector

If another lifetime is used for consumables, the manufacturer provides evidence based on technical data sheets and/or ageing results as defined in Tables No. 4, No. 5 and No. 6.

#### **Maintenance transport:**

For each consumable replacement (emergency and charge indicator lighting sources and batteries), operator transport over a return distance of 10km shall be taken into account. If multiple consumables have the same lifetime, a single maintenance transportation may be considered for both.

E.g.: when replacing battery and an LED light source with the same lifetime of 8 years, the following shall be taken into account in the use stage (module B2):

- Manufacture of a replacement battery
- Manufacture of a replacement LED lighting source
- A single 10 km return transportation for the replacement of the battery and the LED lighting source
- End of life of the replaced battery and LED light source (in accordance with sections 3.6.4.3 and 3.6.4.4)

Operating mode of the self-contained emergency electrical safety device	RLT used for emergency lighting sources	Number of emergency lighting sources to count for the 10-year RLT of the self-contained emergency electrical safety device
	Fluorescent lamps = 10 years	One original light source to be counted in the manufacturing stage, and 0 in the use stage
	CCFL = 10 years	
	LED = 10 years	
	Fluorescent lamps = 1 year	One set of light sources to be counted in the manufacturing stage, and nine replacements during the use stage
	CCFL and LED, the reference service light of the set of light sources for operation in maintained mode must be justified in the appended report and documented by applying the following procedure.	One original light source to be counted in the manufacturing stage and <b>X</b> in the use stage according to the Reference service life of the light source. E.g.: <ul style="list-style-type: none"> <li>• - For a light source with an <b>RLT of 4 years</b>, the light source will be <b>replaced twice</b></li> <li>• - For a light source with an <b>RLT of 8 years</b>, the light source will be <b>replaced once</b></li> <li>• - For a light source with an <b>RLT of 10 years</b>, the light source <b>will not be replaced</b></li> </ul>

The reference service life of sets of light sources used in Self-contained emergency electrical safety devices in maintained mode must be supported and documented. This reference service life must be calculated under the normal operating conditions (casing temperature, voltage, current, etc.) to which they are subjected in the product when powered at its rated voltage. The minimum operating temperature in the device near the light source, chosen for the source, must be 40°C.

For this purpose, the manufacturer:

- Shows, based on technical data sheets, that the product was designed for a light source service life exceeding the corresponding default reference service life in Table 4.
- Or draws up a test report showing that the unit fulfils all of its functions after ageing during six months of normal operation at 70°C or three months at 80°C.
- Keeps the evidence, to be included in the report appended to the PEP.

**Table 4: Allowing for emergency light sources in the LCA of self-contained emergency electrical safety devices**

RLT used for charge indicator lighting sources	Number of charge indicator light sources to count for the 10-year reference service life of the AEAS
For the LED (light-emitting diode), the RLT of the set of lighting sources must be supported and documented in the appended report.	<p>One original light source to be counted in the manufacturing stage and X in the use stage according to the Reference service life of the light source. E.g.:</p> <ul style="list-style-type: none"> <li>• For a light source with an <b>RLT of 4 years</b>, the light source will be <b>replaced twice</b></li> <li>• For a light source with an <b>RLT of 8 years</b>, the light source will be <b>replaced once</b></li> <li>• For a light source with an <b>RLT of 10 years</b>, the light source <b>will not be replaced</b></li> </ul>
<p>The reference service life of sets of lighting sources used in Self-contained emergency electrical safety devices in maintained mode must be supported and documented. This reference service life must be calculated under the normal operating conditions (casing temperature, voltage, current, etc.) to which they are subjected in the product when powered at its rated voltage. The minimum operating temperature in the device near the light source, chosen for the source, must be 40°C.</p> <p>For this purpose, the manufacturer:</p> <ul style="list-style-type: none"> <li>• Shows, based on technical data sheets, that the product was designed for a light source service life exceeding the corresponding default reference service life in Table 5.</li> <li>• Or draws up a test report showing that the unit fulfils all of its functions after ageing during six months of normal operation at 70°C or three months at 80°C.</li> </ul> <p>Keeps the evidence, to be included in the report appended to the PE.</p>	

**Table 5: Allowing for charge indicator lighting sources in the LCA of self-contained emergency electrical safety devices**

RLT used for batteries	Number of batteries to be counted for the 10-year RLT of the self-contained emergency electrical safety devices
By default, the RLT of the battery taken as four years whatever its chemical system.	One original pack in the manufacturing stage and two replacement packs in the use stage.
<p>If the manufacturer can prove that the battery used, has a reference service life longer than four years, he must supply the proof specified below</p> <p>Reminder: The reference service life of batteries cannot be less than four years according to the requirements of the standards and regulations in force.</p>	<p>One pack of original batteries in the manufacturing stage and x packs of batteries in the use stage according to the RLT of the batteries. E.g.:</p> <ul style="list-style-type: none"> <li>For a battery with an <b>RLT of 4 years</b>, the battery pack <b>will be replaced twice</b></li> <li>For a battery with an <b>RLT of 8 years</b>, the battery pack <b>will be replaced once</b></li> <li>For a battery with an <b>RLT of 10 years</b>, the battery pack <b>will not be replaced</b></li> </ul>
<p>The RLT of the batteries used in the self-contained emergency electrical safety devices shall be justified and documented. This reference service life must be calculated under the normal operating conditions (casing temperature, voltage, current, etc.) to which the battery is subjected in the product when powered at its rated voltage. The minimum operating temperature in the device near the battery must be 40°C.</p> <p>For this purpose, the manufacturer:</p> <ul style="list-style-type: none"> <li>Demonstrates, based on technical data sheets, that the product is designed for a battery operating life exceeding four years</li> <li>Or draws up a test report showing that the unit fulfils all of its functions after ageing during six months of normal operation at 70°C or three months at 80°C.</li> <li>Keeps the evidence, to be included in the report appended to the PEP.</li> </ul>	

**Table 6: Counting the batteries in the LCA of self-contained emergency electrical safety devices**

### 3.6.4.3. End of life of lighting sources

The rules defined in PSR-0014 'Specific rules of luminaires' in force apply.

### 3.6.4.4. End of life of batteries

The end of life of replaced batteries shall be taken into account in the maintenance stage (B2).

In the absence of supporting documents showing a specific end of life, the treatment scenarios presented in the table below shall be applied by default.

A remediation stage shall be taken into account (pyrometallurgy, hydro, etc.) before using the table datas.

**For France scope <sup>2)</sup>:**

Battery type	Recycling	Incineration with energy recovery	Incineration with no energy recovery
Lead batteries	78 %	2 %	20 %
Nickel-cadmium batteries	73 %	0 %	27 %
Nickel-metalhydride batteries	87 %	0 %	13 %
Lithium batteries	66 %	14 %	20 %
Other batteries	100 %	0 %	0 %
Alkaline, salt and zinc-air batteries	69 %	2 %	29 %
Lithium batteries	13 %	6 %	81 %
Button cells	82 %	0 %	18 %

**Table 7: Default batteries data for France scope**

**For European scope<sup>3)</sup>:**

Battery type	Recycling	Incineration with no energy recovery
Lead batteries	65 %	35 %
Nickel-cadmium batteries	75 %	25 %
Other batteries and batteries	50 %	50 %

**Table 8: Default battery data for European scope**

For other scopes, the waste shall be treated according to the following scenario: 100% incineration with no energy recovery

By sector-based convention, the transport stage of this manufacturing waste shall be considered based on an assumption of 100 km transport by truck.

### 3.6.5. End of life cycle stage

#### **End-of-life treatment for European scope**

If the declarant is able to prove its membership of a producer responsibility organisation, it is strongly recommended to model the end-of-life treatment with the life cycle inventory modules provided in the French EcoSystem public database (referred to as ESR). This is the only French database assessing the environmental footprint of end-of-life electrical and electronic safety devices. Given that WEEE treatment technologies are generally harmonised in Europe, this database also covers the European scope. 96 materials are modelled and broken down according to the different flows treated to make it possible to quantify the environmental impacts and benefits of WEEE at the end of its life cycle.

If the ESR database is used, the data shall be selected in the 'Self-contained emergency lighting' category.

<sup>2</sup> Batteries & accumulators, 2020 data (ADEME, 2021)

<sup>3</sup> Rates set by European Directive 1(2006/66/EC)



This database does not allow computation of the following two indicators: 'Materials intended for recycling' and 'Materials intended for energy recovery'. To compute these indicators:

- Use the generic data of the producer responsibility organisation with which the company is affiliated (specific or annual report).
- Otherwise, enter 0.

If the ESR database is not used, and in the absence of justified (see page 10) data, refer to Table 6 of Appendix D of PEP-PCR ed4-EN-2021 09 06. For all materials not included in the table, consider 100% incineration with no energy recovery.

#### **End-of-life treatment for non-European (international) scope**

For a PEP created for a non-European scope, in the absence of justified (see page 10) specific data, the declarant shall apply the following default scenario: 100% incineration with no energy recovery.

For the end of life of the batteries of the product, the scenarios described in Section 3.6.4.4 shall be followed.

### **3.7. Rule(s) for extrapolation to a homogeneous environmental family**

These specific rules are additional to Section 2.6 'Rule(s) for extrapolation to a homogeneous environmental family' of the PCR in force (PEP-PCR ed4-EN-2021 09 06).

To draw up the list of commercial catalogue numbers covered by the PEP, the manufacturer guarantees that these catalogue numbers have smaller or equal environmental impacts to those of the reference product for all of the indicators calculated using an identical energy model and identical LCA hypothesis.

### **3.8. Rules applying to joint environmental declarations**

The rules defined in Section 2.7 'Rules applying to joint environmental declarations' of the PCR in force (PEP-PCR ed4-EN-2021 09 06) apply.

### **3.9. Environmental data requirements**

The rules defined in Section 2.9 'Environmental data requirements' of the PCR in force (PEP-PCR ed4-EN-2021 09 06) apply.

Note: The LCI module used to model the raw material or component may contain a default scrap rate.

- If the scrap rate included in the LCI module is modifiable, the default values of table 1 shall apply.
- If the scrap rate included in the LCI module is non-modifiable:
  - The scrap rate is less than the above default values: this scrap rate shall be entered in the LCA report, and insofar as possible, the modelling should be adapted to account for the difference in waste generated (hazardous or non-hazardous).
  - The scrap rate is greater than the above default values: this scrap rate must be entered in the LCA report.

## 3.10. Environmental impact calculation

The rules defined in Section 2.10 'Environmental data requirements' of the PCR in force (PEP-PCR ed4-EN-2021 09 06) apply.

The environmental database version shall be mentioned in the PEP and the LCA report, including the EF (Environmental Footprint) version number.

If mentioning the quantity of biogenic carbon stored in kg: for biogenic carbon storage, both 0/0 or -1/+1 assessment methodologies are accepted until the environmental databases are updated. The methodologies used shall be mentioned in the PEP and in the LCA report.

## 3.11. Life Cycle Assessment for self-contained emergency electrical safety devices for the French market

### 3.11.1. Functional Unit and reference flow description

These requirements are additional to and specify the requirements defined:

- in Section 3.1. of this guidance document,
- in the 'Functional unit and reference flow description' and 'Reference product and methodology' sections contained in PEP-PCR ed4-EN-2021 09 06.

All the supporting documents are available in Appendix 6.4.

To draw up the PEP for self-contained emergency electrical safety devices intended for the French market, the manufacturer shall clearly specify in the PEP:

- the functional unit in accordance with the relevant formulations defined for each self-contained emergency electrical safety devices family and type:
  - Family 1: Open area emergency lighting (Self-contained emergency electrical lighting safety devices)
  - Family 2: Escape route emergency lighting (Self-contained emergency electrical lighting safety devices)
  - Family 3: Self-contained portable emergency lighting luminaire (Self-contained emergency electrical lighting safety devices)
  - Family 4: Fire alarm broadcasting (Self-contained audible and/or visual alarm units for emergency evacuation)
- The declared unit (safety devices to the functional unit)

## 3.11.1.1.

## Family 1: Open area emergency lighting

Families of product	Product	Functional unit	Use scenario to be taken into account to calculate the energy consumption
Open area emergency lighting	SCELL	'Avoid panic by providing YY lumens of lighting to guarantee the visibility of obstacles for one hour in the event of an electrical power cut. This function is provided for ten years by its self-contained power supply'	- Calculate all energy consumptions in standby, counting 8760 h/year of mains presence for ten years (assuming 365 days x 24 hrs) - Disregard periods of energy non-consumption generated in the use stage by self-contained emergency electrical safety devices.
	Spotlight units		
	LCPS $\geq$ 150 lm	'Avoid panic by providing YY lumens of lighting to guarantee the visibility of obstacles for one hour in the event of an electrical power cut. This function, powered by a central power system, is provided for ten years'	- Same as above  <u>NB</u> : The consumption of open area slave luminaires for CPS must be calculated in <u>non</u> -maintained mode.

Table 9: Functional unit and use scenario for the Open area emergency lighting

The manufacturer fills in the fields to be completed when this is specified.

### 3.11.1.2.

### Family 2: Evacuation emergency lighting

Families of product	Product	Functional unit	Use scenario to be taken into account to calculate the energy consumption
Escape route lighting	SCCELL	'Facilitate the evacuation of the public by providing 45 lumens of lighting for 1 hour in the event of an electrical power cut. This function is provided for ten years by its self-contained power supply'	<ul style="list-style-type: none"> <li>- Calculate all energy consumptions in standby, counting 8,760 hours per year of mains presence for ten years</li> <li>- Disregard periods of energy non-consumption generated in the use stage by self-contained emergency electrical safety devices.</li> </ul>
	SCCELLRfor Residentialbuilding)	'Facilitate the evacuation of the public by providing 8 lumens of lighting for 5 hours, in the event of an electrical power cut. This function is provided for ten years by its self-contained power supply'	
	SCCELL + SCCELLR	'Facilitate the evacuation of the public by providing 45 lumens of lighting for 1 hour AND 8 lumens for 5 hours in the event of an electrical power cut. This function is provided for ten years by its self-contained power supply'	
	SCCELL + LD	'Facilitate the evacuation of the public and hearing-impaired persons to the outside or to secure waiting areas, by providing 45 lumens of lighting for 1 hour, in the event of an electrical power cut, supplemented by a lighting device for hearing-impaired persons. This function is provided for ten years by its self-contained power supply'	
	LCPS + LD	'Facilitate the evacuation of the public and hearing-impaired persons to the outside or to secure waiting areas, by providing 45 lumens of lighting for 1 hour, in the event of an electrical power cut, supplemented by a lighting device for hearing-impaired persons. This function is provided for ten years'	
	SCCELL + DBR	'Facilitate the evacuation of the public and persons with reduced mobility (PRM) to the outside or to secure waiting areas, by providing 45 lumens of lighting for 1 hour, in the event of a mains power cut, supplemented by a reinforced escape route for disabled persons. This function is provided for ten years by its self-contained power supply'	
	LCPS < 150 lm	'Facilitate the evacuation of the public to the outside by providing 45 lumens of lighting in the event of an electrical power cut. This function, is provided for ten years'	<ul style="list-style-type: none"> <li>- <u>N.B.</u> Consumptions are calculated in standby mode, when the evacuation slave luminaires for CPS have a standby function.</li> <li>- Failing this, the consumption of evacuation slave luminaires for CPS must be calculated in maintained mode.</li> </ul>
	LCPS + DBR	'Facilitate the evacuation of the public and persons with reduced mobility (PRM) to the outside or to secure waiting areas, by providing 45 lumens of lighting for 1 hour, in the event of a mains power cut, supplemented by a reinforced escape route for disabled persons. This function is provided for ten years'	

Table 10: Functional unit and use scenario for the evacuation emergency lighting

### 3.11.1.3.

### Family 3: Self-contained portable emergency luminaire

Families of product	Product	Functional unit	Use scenario to be taken into account to calculate the energy consumption
Self-contained portable emergency luminaire	Portable emergency lighting device	'Supply portable lighting to allow servicing in a technical room. This function is performed for 10 years.'	<ul style="list-style-type: none"> <li>- Calculate all energy consumptions in standby, counting 8760 hours per year of mains presence for ten years</li> <li>- Disregard periods of energy non-consumption generated in the use stage by self-contained emergency electrical safety devices.</li> </ul>

Table 11: Functional unit and use scenario for self-contained portable emergency luminaires

### 3.11.1.4.

### Family 4: Self-contained audible and/or visual alarm units for emergency evacuation

Families of product	Product	Functional unit	Use scenario to be taken into account to calculate the energy consumption
Self-contained audible and/or visual alarm units for emergency evacuation	BAAS Pr	'Control the sounders and/or lights of the type Sa (*) general fire alarm. This function is provided for ten years by its self-contained power supply' (*) Sa = Sa and all of its variations (Sa-Me, Sa-Me+DL, Sa+DL, etc.).	<ul style="list-style-type: none"> <li>- Calculate all energy consumptions in standby, counting 8760 hours per year of mains presence for ten years</li> <li>- Disregard periods of energy non-consumption generated in the use stage by self-contained audible alarm units for emergency evacuation.</li> <li>- Disregard periods of exceptional consumption related to the triggering of the alarm</li> </ul>
	BAAS (Standalone Audible Alarm Unit)	'Alert the public by sounding the general fire alarm at a volume of X dB, for buildings equipped with a type Ma or Sa alarm (*). This function is provided for ten years by its self-contained power supply' X = value of signal in dB (*) Sa = Sa and all of its versions (Sa-Me, Sa-Me+DL, Sa+DL, etc.) or Ma and all of its versions (Ma-Me, etc.)	
	BAAS + DL	'Alert the public by sounding the general fire alarm at a sound/light intensity of X dB, for buildings equipped with a type Y alarm. This function is provided for ten years by its self-contained power supply' X = value of the signal in dB and Candela	
	BAAL (self-contained lighting units)	'Alert the public by broadcasting the light signal of the general fire alarm, at a light intensity of X candelas. This function is provided for ten years by its standalone power supply'	

Table 12: Functional unit and use scenario for self-contained audible and/or visual alarm units for emergency evacuation

The manufacturer fills in the fields to be completed when this is specified.

## 4. Drawing up the Product Environmental Profile

### 4.1. General information

These specific rules are additional to Section 4.1 'General information' of the PCR in force (PEP-PCR ed4-EN 2021-09 06).

The PEP shall include a 'Product specifications' section. This section shall feature at the start of the PEP file. **The following specifications shall be declared:**

- Product type
- Type of lighting unit operation: maintained or non-maintained
- Lumen output (lumen)
- Power (W)
- IP protecting rating and IK mechanical impact rating
- Battery type
- Duration (hours)
- Accessories included (pictogram, etc.)
- Mass of product and packaging
- Presence of standby function

In addition, the following information shall feature in the PEP:

- 1) The full name of the reference product to be clearly specified in the title of the PEP,
- 2) The relevant functional unit in accordance with the requirements of this PSR,
- 3) The list of commercial catalogue numbers covered by the PEP,
- 4) Details of the use scenario chosen, to be recorded in the 'Use' section,
- 5) Inclusion of the following phrase, below the environmental impact table:

*'The life cycle assessment is compliant with the specific rules applicable to Self-contained emergency electrical safety devices PSR000X-edX-EN-YYYY MM DD (\*\*), available on the website [www.pep-ecopassport.org](http://www.pep-ecopassport.org) »*

Note (\*\*): Enter the version of the PSR in force on which the LCA is based.

Concerning instructions for use of products to limit their environmental impact, the manufacturer writes the following on the PEP:

**For slave luminaires powered by a Central Power System:**

*"To limit the impact of your installation on the environment and reduce your energy and maintenance bill, operate emergency lighting for open area in non-maintained mode." (1)*

Note 1: When regulations allow

### 4.2. Constituent materials

The rules defined in Section 4.2 'Constituent materials' of the PCR in force (PEP-PCR ed4-EN 2021-09 06) apply.

### 4.3. Additional environmental information

These specific rules are additional to the 'Additional environmental information' section of the PCR (PEP-PCR-ed4-EN-2021-09 06).

Within the scope of Life Cycle Assessments in respect of a building, the environmental impacts of the safety devices shall be considered in respect to the product and impacts associated with energy consumption in the use stage shall be extracted. In this way, to facilitate PEP use for the building LCA, the PEP may include the environmental impact results in the use stage according to a breakdown of module B (B1 to B7) in line with the EN 15978 and EN 15804 standards.

PEP ecopassport®																	
Manufacturing stage (Section 2.5.1)			Distribution stage	Installation stage (Section 2.5.2)	Use stage (Section 2.5.3)								End of life cycle stage (Section 2.5.4)				Benefits (Section 2.5.5)
EN 15978 / 15804	Production stage			Construction stage		Use stage							End of life cycle stage				Benefits
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Procurement of raw materials																
	Transport																
	Manufacture																
	Transport																
	Installation processes																
	Use																
	Maintenance																
	Repair																
Replacement																	
Restoration																	
Energy consumption during building use																	
Water consumption during building use																	
Demolition / Deconstruction																	
Transport																	
Waste treatment																	
Disposal																	
Benefits beyond the system boundaries																	

Note: When the total for module D is negative, this represents a benefit. When the total for module D is positive, this represents a load.

## 5. PEP update rules

The rules defined in Section 5 'PEP update rules' of the PCR in force (PEP-PCR ed4-EN-2021 09 06) apply.

## 6. Appendices

### 6.1. Appendix 1: Applicable standards for self-contained emergency electrical lighting safety devices

SELF-CONTAINED EMERGENCY ELECTRICAL SAFETY DEVICES		
International standards	European standards	National standards and regulations
<b>IEC 60598-2-22:</b> Luminaires - Part 2-22: Particular requirements - Luminaires for emergency lighting  <b>IEC 62034:</b> Automatic test systems for battery powered emergency escape lighting	<b>EN 60598-2-22:</b> Luminaires – Pat 2-22 Particular requirements. Luminaires for emergency lighting  <b>EN 62034:</b> Automatic test systems for battery powered emergency escape lighting	The standards and regulatory texts in force on a national level must be specified in the appendix of this Reference document according to the country where the devices are marketed.

**Table 13: List of applicable European standards**

Families of product	Main function (in the event of electrical power supply failure)	Type of device	Designation	Applicable normative reference documents
<b>1. Open Area emergency Lighting</b>	Reduce the risk of panic by providing lighting that guarantees the visibility of obstacles	<b>SCELL open area</b>	Standalone anti panic emergency lighting luminaire	NF C71-801 UTE C71-806 NF C71-820 NF EN 60598-2-22
		<b>LCPS open area</b>	Anti panic emergency lighting luminaire powered by a central power supply. LCPS ≥ 150 lumens	UTE C71-802 UTE C71-802F1 UTE C71-802F2 NF EN 60598-2-22
		<b>Spotlight units</b>	Spotlight units	NF C71-800 NF C71-801 NF C71-820 UTE C71-806 NF EN 60598-2-22
<b>2. Escape route emergency Lighting</b>	Facilitate the evacuation of personnel by lighting up exit routes and obstacles	<b>SCELLL for escape route</b>	Self-contained emergency lighting for escape route	NF C71-800 UTE C71-806 NF C71-820 NF EN 60598-2-22
		<b>SCELLR (Standalone)</b>	Standalone emergency lighting unit for communal residential buildings	NF C71-805 UTE C71-806 NF C71-820



		<b>Residential Lighting Unit)</b>		NF EN 60598-2-22
		<b>SCELL + SCELLR Emergency Lighting Units and Residential Lighting Units</b>	Standalone security lighting unit for establishments containing sleeping areas	UTE C 71-803 UTE C71-806 NF C71-820 NF EN 60598-2-22
		<b>LCPS for escape route</b>	Escape route emergency lighting slave luminaire. LCPS < 150 lumens	UTE C71-802 UTE C71-802F1 UTE C71-802F2 NF EN 60598-2-22
		<b>SCELL+DBR</b>	Standalone evacuation emergency lighting unit supplemented by a reinforced escape route for disabled persons	NF C71-800 UTE C 71-806 NFC71-820 NF EN 60598-2-22 P96A-101 AFNOR reference document
		<b>LCPS+DBR</b>	Emergency lighting unit powered by a central power supply, supplemented by a reinforced escape route for disabled persons	UTE C 71-802 UTE C 71-802F1 UTE C 71-802F2 NF EN 60598-2-22 P96A-101 AFNOR reference document
		<b>SCELL+LD</b>	Standalone evacuation security lighting unit equipped with a luminous device for hearing-impaired persons	NF C71-800 NF C71-806 NF C71-820 NF EN 60598-2-22 P96A-101 AFNOR reference document
		<b>LCPS+LD</b>	Evacuation security lighting unit powered by a central source, equipped with a luminous device for hearing-impaired persons	UTE C 71-802 UTE C 71-802F1 UTE C 71-802F2 NF EN 60598-2-22 P96A-101 AFNOR reference document
<b>3. Self-contained portable emergency luminaire</b>	Supply portable lighting to allow servicing in a technical room	<b>Portable emergency lighting luminaire</b>	Standalone portable servicing lighting unit	NF C71-810 <b>EN60598-2-22</b> <b>Appendix E</b>

**Table 14: List of applicable standards for the French market**

## 6.2. Appendix 2: Applicable standards for self-contained audible and/or visual alarm units for emergency evacuation

### 6.2.1.1. Applicable standards for a European market

The devices defined in Section 2.2 do not currently have any normative or regulatory texts established on an international and European level. They must comply with the national laws.

### 6.2.1.1. Applicable standards for the French market

Families of product	Main function (in the event of electrical power supply failure)	Type of device	Designation	Applicable normative reference documents
4. Self-contained audible and/or visual alarm units for emergency evacuation	To alert the public by sounding the general fire alarm	<b>BAAS (Standalone Audible Alarm Unit)</b>	Standalone audible fire alarm device	NF C48-150
	Control the sounders and/or lights of the type Sa (satellite) general fire alarm	<b>BAAS Pr</b>	Standalone main audible fire alarm device	NF C48-150
	To alert the public by sounding and/or flashing the general fire alarm	<b>BAAS+DL</b>	Standalone audible and visual fire alarm device	NF C48-150 P96A-101 AFNOR reference document
		<b>BAAL (Standalone lighting units)</b>	Standalone Visual Alarm Unit	NF C 48-150

Table 15: List of applicable standards for the French market

## 6.3. Appendix 3: Rules for defining a National Annex

All of this appendix applies to bodies concerned by writing a National Annex.

The process of creating a National Annex falls within the framework of PEP ecopassport® Program procedures (see 'PEP-AP0017: Procedure for the development and adoption of PSRs'). As such:

- The participants in the country concerned are involved in writing the draft annex via their professional organisations representing the producers or if they do not exist, with all producers representatives of the country.
- The scope of application of the annex, the functional units and use scenarios must be clearly defined in the draft annex, taking into account the requirements in force for self-contained emergency electrical safety devices in the country concerned.
- These proposals are submitted to the authorities of the PEP ecopassport® Programme and, once approved, give rise to the updating of this PSR within the framework of the procedures stipulated.

### 6.3.1. Functional unit and use scenario for self-contained emergency lighting units for emergency evacuation

To make a proposal for a National Annex concerning Self-contained emergency lighting units to the PEP ecopassport® Program, three requirements must be observed:

- 1) The functional unit must be described and must observe the requirements set by regulations in the destination country. The service provided by the self-contained emergency electrical safety devices is characterised and quantified, and must take the following into consideration:
  - Duration, expressed in hours
  - Light flux, expressed in lumens
  - The operating mode of the emergency lighting: maintained (M) non-maintained (NM) or combined (C)

Note: 'Duration' is the period during which the self-contained emergency lighting unit can light its emergency lighting source(s) in the event of failure of the normal power supply.

- 2) The use scenario must be described in accordance with the requirements imposed by law in the destination country, and justification must be given, considering the following:
  - The operating mode (e.g. maintained, non-maintained, etc.) to be justified and documented, incorporating all the energy consumption on the Reference Service Life of ten years (e.g.: for stand-by mode, charging battery, losses, etc.)
  - The effect of the chosen operating mode on the obsolescence cycle of consumables (RLT of light sources and batteries mentioned in Section 3.6.4.2).
  - Electrical power cut-offs and non-consumption periods (e.g.: maintenance tests, absence of mains power, etc.) to be justified and documented.
- 3) Once established and adopted, these rules and supporting evidence are recorded in the appendix of the present reference document. Their application is mandatory in the market concerned.

### 6.3.2. Functional unit and use scenario for self-contained alarm units

To make a proposal for a National Annex concerning Self-contained alarm units for emergency evacuation to the PEP ecopassport® Program, three requirements must be observed:

- 1) The functional unit must be described and must observe the requirements set by regulations in the destination country. The service provided by the audible and/or visual alarm unit is characterised and quantified, and must take the following into consideration:
  - Duration, expressed in hours,
  - Maximum intensity of the audible signal expressed in dB,
  - And/or intensity of the light signal, expressed in candelas.

'Duration' is the period during which the device remains able to sound the general alarm (broadcasting the audible and/or visual alarm for the time stipulated by national regulations) after the normal power supply has been cut.

- 2) The use scenario must be described in accordance with the requirements imposed by law in the destination country, and justification must be given, considering the following:
  - The operating mode to be justified and documented, incorporating all the energy consumption on the RLT of 10 years (e.g.: for standby mode, charging battery, losses, etc.)
  - The effect of the chosen operating mode on the obsolescence cycle of consumables (RLT of light sources and batteries mentioned in Section 3.6.4.2),
  - Electrical power cut-offs and non-consumption periods (e.g.: maintenance tests, absence of mains power, etc.) to be justified and documented.
- 3) Once established and adopted, these rules and supporting evidence are recorded in the appendix of the present reference document. Their application is mandatory in the market concerned.

## 6.4. Appendix 4: Justification of specific rules for self-contained emergency electrical safety devices for the French market

This appendix specifies and justifies the assumptions used to calculate the energy consumption of self-contained emergency electrical safety devices marketed in France:

- 1) Definition and role of the operating mode of self-contained emergency electrical safety devices in energy consumption
- 2) Global summary table of use scenarios and the related justifications
- 3) Justification for the omission of energy non-consumption periods for emergency lighting safety devices, Luminaires within Central power supply systems, and self-contained audible and/or visual alarm units for emergency evacuation

### 6.4.1. Use scenario and taking into account of energy consumptions

These requirements are additional to and specify the Product Environmental Profile (PEP) Drafting Rules defined by the PEP ecopassport® Program (PEP-PCR ed4-EN-2021 09 06), defined in the 'Use Stage' and 'Use scenario of the reference product' section.

To determine the environmental impact associated with the reference product's energy consumption in the use stage, the following should be observed:

- Take into account all the energy consumption in stand-by mode generated by standalone electrical security devices over their entire reference service life, defined as ten years
- For maintained or non-maintained emergency lighting units and for self-contained emergency lighting for residential buildings, disregard periods of non-energy consumption
- For lighting devices powered by a central power supply system, including a stand-by function, the manufacturer must calculate and declare the environmental impacts of the product in two distinct tables, with and without the stand-by function activated.

Note: Non-consumption periods correspond to the periods during which the device does not consume energy from the electrical supply network following a deliberate cut-off or a power failure.

#### **Definition of "non-maintained mode" and "maintained mode" for an emergency lighting installation powered by a CPS (Central Power System)**

##### Non-maintained mode for Slave luminaire for CPS:

Slave luminaires for CPS (LCPS) are connected to a central power supply system compliant with the EN 50171 standard via a dedicated power supply line. For non-maintained mode, the central power system powers the lighting units only in the event of a failure of the normal power supply. ➔ In that case, the lighting function is active only when the normal power supply is absent.

##### Maintained mode for Slave luminaire for CPS:

Slave luminaires for CPS (LCPS) are connected to a central power supply system compliant with the EN 50171 standard via a dedicated power supply line. For maintained mode, the central power system powers the lighting units whether or not the normal power supply has failed.

➔ The lighting function is always active (presence of the normal power supply or not)

- For Slave luminaire for CPS < or equal to 150 lm, energy consumptions must be calculated in maintained mode
- Slave luminaires for CPS > 150 lm can be either in maintained mode or non-maintained mode (public building regulations, Art. EC 11). For these products, energy consumptions must be calculated in non-permanent mode

- For open area emergency slave luminaires for CPS, the assumption in the use stage is 'non-maintained' mode.
- For slave luminaires for CPS that can be powered at different voltages (rated value and alternating and/or direct), the highest consumption shall be counted. The manufacturer may waive this harsh rule by providing the impact data according to operating voltage.

#### 6.4.2. Summary justifying the omission of non-consumption periods for each family of self-contained emergency electrical safety devices

As detailed in the table below, the consumption period of self-contained emergency electrical safety devices to be taken into account is 8,760 hours, which corresponds to 100% of the operating time. Because of its negligible nature, the period of non-operation is not counted. Taking it into account would reduce the environmental impacts.

The periods of non-consumption correspond to the periods during which the device does not consume energy from the electrical supply network following a deliberate cut-off or a power failure. During a power cut, self-contained emergency electrical devices consume no electrical current because the battery is charged and supplies energy. In the worst case scenario SCELL with 5 h duration, 0.3% of non-consumption period), for 99.7% of the time, the device maintains the battery charge level.

Family	Number of hours per year		Period of energy non-consumption in hours per year		Period of energy consumption in hours per year		Ratio of non-consumption period per year / Number of hours per year		Comments
	Details	Total (h)	Details	Total (h)	Details	Total (h)	Details	%	
SCELL	365 days x 24 h =	8,760	4h discharge (SATI according to NF C 71820)	9	Total for year – total for non-consumption period =	8751	Ratio of non-consumption period per year / Number of hours per year = 0.00102	0.1%	Use 8,760 h in the calculation, because the non-consumption period is negligible <sup>(1)</sup>
			5 hours related to power cut-offss (according to RTE Report 2010)						
SCELLR (Stand alone Residential Lighting Unit)	365 days x 24 h =	8760	20h discharge (SATI according to NF C 71820)	25	Total for year – total for non-consumption period =	8735	Ratio of non-consumption period per year / Number of hours per year = 0.0028	0.3 %	As above. Use 8,760 h in the calculation, because the non-consumption period is negligible <sup>(1)</sup>  Comparative EIME calculation performed on self-contained emergency lighting for residential buildings (average impact 0.11%)
			5 hours related to power cuts (according to RTE Report 2010)						
Spotlight units	365 days x 24 h =	8760	4h discharge (SATI according to NF C 71820)	9	Total for year - total for non-consumption period =	8751	Ratio of non-consumption period per year / Number of hours per year = 0.00102	0.1%	Ditto
			5 hours related to power cuts (according to RTE Report 2010)						

<sup>(1)</sup> In the worst case scenario (SCELLR), the non-consumption period of 0.3% per year is equivalent to 0.033 MJ of additional energy over the reference life time.

Family	Number of hours per year		Period of energy non-consumption in hours per year		Period of energy consumption in hours per year		Ratio of non-consumption period per year / Number of hours per year		Comments
	Details	Total (h)	Details	Total (h)	Details	Total (h)	Details	%	
Open area slave luminaires for CPS  > or = 150 lm	365 days x 24 h =	8,760	2h discharge (Public building regulations)	8753	Total for year – total for non-consumption period  =	7	Ratio of non-consumption period per year / Number of hours per year = 0.999	99.9 %	<b>Assigning 100% of the time with zero energy consumption in the active phase</b>  <b>NB:</b> NON-MAINTAINED mode is used to calculate the consumption of open area slave luminaires for CPS (>150 lm) - the energy is consumed by the slave luminaire for CPS when the normal power supply has failed. This energy was previously stored in the batteries of the centralised source during periods when the normal power supply was present in the batteries of the centralised source during periods of presence of the normal power supply..
			5 hours related to power cuts (according to RTE Report 2010)						
Escaper route slave luminaires for CPS < 150 lm	365 days x 24 h =	8,760	2h discharge (Public building regulations)	7	Total for year - total for non-consumption period  =	8,753	Ratio of non-consumption period per year / Number of hours per year = 0.0008	0.1%	<b>Assigning 100% of the time with X energy consumption (in W) in the active phase</b>  <b>N.B.:</b> MAINTAINED mode is used to calculate the consumption values for escape route slave luminaires for CPS (< 150 lm). According to ERP regulations, the energy is supplied by the central power supply system, which in turn takes it from the normal power supply.
			5 hours related to power cuts (according to RTE Report 2010)  Note: For the escape route central power supply lighting devices, the central power supply system efficiency shall be covered in a future revision of the PSR.						
BAAS (Standalone Audible Alarm Unit)	365 days x 24 h =	8760	5 hours related to power cuts (according to RTE rapport 2010) <i>Scenarios for idle times with deliberate power supply interruption during weekends and holidays are not taken into account, because there is little visibility on user practices</i>	5	Total for year - total for non-consumption period  =	8,755	Report on non-consumption period per year / Number of hours per year = 0.000571	0.1%	<b>Assigning 100% of the time with X energy consumption (in W) in the active phase</b> <b>Periods of exceptional consumption related to the triggering of an alarm are neglected because of their marginal nature.</b> Based on feedback from the field: the alarm is triggered three times per year for five minutes (spurious triggering, real triggering in case of an incident, deliberate triggering for testing).

Table 16: Summary of use scenarios by self-contained emergency electrical safety devices, with justification

### 6.4.3. Calculation of energy consumption of self-contained emergency electrical safety devices marketed in France

#### 6.4.3.1. Summary of the calculation mode for the different families of self-contained emergency electrical safety devices

- **Self-contained emergency lighting (SCCELL, SCCELLR, SCCELL+SCCELLR) / Spotlight units:**

Energy consumption in Wh (or kWh)= power consumed in standby mode (W) x **8 760 h/year** x 10 years

- **Slave luminaire for CPS (central power system) for open area > or = 150 lm:**

Energy consumption in Wh (or kWh)= power consumed in active mode (**=0 W**) x **8,760 h/year** x 10 years = **zero Wh**

- **Slave luminaire for CPS (central power system) for escape route < 150 lm:**

Energy consumption in Wh (or kWh)= power consumed in active mode (W) x **8,760 h/year** x 10 years

- **Self-contained audible alarm units for emergency evacuation:**

Energy consumption in Wh (or kWh)= power consumed in active mode (W) x **8,760 h/year** x 10 years



## 6.5. Appendix 5: Declaration of conformity



### DECLARATION DE CONFORMITE PEP ecopassport

Dans le cadre de la vérification des règles spécifiques

Portant le titre : REGLES SPECIFIQUES AUX APPAREILS ELECTRIQUES AUTONOMES DE SECURITE (AEAS)

N° : PSR-0007-ed2-FR-2023 04 27

Diffusé par : IGNES

17 rue de l'amiral Hamelin - 75116 PARIS

Date édition : 05/2023

M. LEES-PERASSO Etienne, LCIE, titulaire de l'habilitation de vérificateur numéro VH26 déclare :

- avoir exercé les opérations de vérification en toute indépendance.
- n'avoir aucun lien de nature à nuire à son impartialité vis-à-vis du déclarant, notamment n'être employé ni à temps plein ni à temps partiel par le déclarant
- avoir établi une déclaration des liens d'intérêts au cours des trois dernières années auprès de PEPecopassport®
- ne pas avoir participé au processus d'élaboration du PSR objet de la vérification
- que le PSR vérifié est conforme aux « Règles de rédaction : PCR du Programme PEP ecopassport » en vigueur (PCR-ed4-EN-2021 09 06) et à la « Procédure de développement et adoption des PSR – Règles Spécifiques aux Produits » (PEP-AP0017-ed2-FR-2015 02 13)

Date : 04/05/2023

Signature :

