



PEP ecopassport® PROGRAMME

PSR

SPECIFIC RULES FOR SELF-CONTAINED EMERGENCY ELECTRICAL EQUIPMENT

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1. Introduction

This reference document complements and explains the Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02), available at www.pep-ecopassport.org.

It defines the additional requirements applicable to self-contained emergency electrical equipment. These requirements must be satisfied in order to:

- Qualify the environmental performance of these products on an objective and consistent basis,
- Publish PEPs compliant with PEP Ecopassport® Program and with international reference standards¹.

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

	www.pep-ecopassport.org
PSR reference	PSR-0007-ed1.1-EN-2015 10 16
Critical review	The third-party critical review was carried out by Solinnen SAS. The certificate of compliance published on 21/03/2013 is shown in Appendix 3
Availability	The critical review report is available on request from the PEP Association contact@pep-ecopassport.org
Scope of validity	The critical review report and the certificate of compliance remain valid within 5 years or PEP Drafting Rules, or the normative reference texts to which they refer, are modified.

Following the publication of the PCR Edition 3 (PEP-PCR-ed 3-EN- 2015 04 02), this PSR was the subject of an impact analysis in 2015², which led to an editorial revision.

¹ ISO 14025, ISO 14040 and ISO 14044 standards

² Document available from the PEP Association on request : contact@pep-ecopassport.org

2. Scope

In accordance with the General Instructions of the PEP Ecopassport® Program (PEP-General Instructions-ed 3.1-EN-2015 04 02) and in addition to the PCR, Product Category Rules (PEP-PCR ed.3-EN-2015 04 02) of the PEP Ecopassport® eco-declaration program, this document sets out the specific rules for self-contained emergency electrical equipment and defines the product specifications to be adopted by manufacturers in development of their PRODUCT ENVIRONMENTAL PROFILES (PEPs) particularly with regard to :

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

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

- Emergency lighting units (see details in Section 2.1).
- Self-contained audible and/or visual alarm units for emergency evacuation (see details in Section 2.2).

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

- Central Power System (CPS) for emergency lighting units,
- Fire detection and safety systems,
- Non self-contained audible and/or visual alarm units for emergency evacuation,
- Conversion kits.

Note 1: The LCA and environmental declaration rules concerning CPS for emergency lighting units 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 equipment' and their applicable regulatory scope.

2.1. Self-contained emergency lighting units

2.1.1. 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 occupants to be evacuated from a building,
- Avoid any panic situations that could arise,
- Facilitate intervention by emergency services and fire brigades,
- Allow servicing in a technical room.

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

- Either incorporated in the device,
- Or remote by Central Power System.

Some self-contained emergency lighting devices may include additional functions to evacuate everybody safely, such as:

- for a fire alarm, by emitting a visible (luminous) signal for a certain audience (e.g.: hearing-impaired or deaf persons)
- during a fire alarm, highlighting an escape route for disabled persons (e.g.: people with reduced mobility)

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

2.1.2. Applicable standards

The devices defined in Section 2.1 must be compliant with a normative and regulatory rules established internationally and Europe-wide, supplemented by national laws.

Table 1 below lists the international and European texts, and is supplemented in the appendix by national standards and regulations. The latest version in force of the technical and legal texts cited must be taken into account.

Table 1: List of applicable standards

SELF-CONTAINED EMERGENCY ELECTRICAL EQUIPMENT		
International standards	European standards	National standards and regulations
<ul style="list-style-type: none"> - IEC 60598-2-22: Specific rules for emergency lighting luminaires - IEC 62034: Automatic testing system for emergency lighting on batteries for devices equipped with a self-testing system 	<ul style="list-style-type: none"> - EN 60598-2-22: Luminaires – Part 2-22: Specific rules for emergency lighting luminaires - EN 62034: Automatic testing system for emergency lighting on batteries for devices equipped with a self-testing system - Pr EN60598-2-22 Appendix E: Specific requirements for portable self-contained emergency lighting 	<p>The standards and regulatory texts in force at national level must be specified in the appendix of this Reference document according to the country where the devices are marketed.</p>

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

2.2.1. Definition

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

These devices are equipped with a built-in back-up electrical energy source and are permanently installed in buildings.

This includes devices which do not emit an audible and/or visual signal but launch an alarm process for triggering self-contained sounders or beacon lights (e.g. Self-contained monitoring panel for fire alarm devices).

2.2.2. 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.

The laws that are applicable on a national level must be specified in the appendix according to the country where the product is marketed. For France, the applicable laws are listed in Appendix A2.2.

3. Life Cycle Assessment for Self-contained emergency electrical equipment

3.1. Functional Unit and reference flow description

This paragraph complements and explains the Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02), defined in the following sections:

- “functional unit and reference flow description”,
- “reference product and methodology”.

To perform the Life Cycle Analysis (LCA) of a SELF-CONTAINED EMERGENCY ELECTRICAL EQUIPMENT and draw up its environmental declaration in the form of a PEP, the manufacturer must comply with the specific requirements stipulated to characterise and quantify the service performed by such equipment in the functional unit (FU).³

³ The ISO 14040 standard defines the functional unit (FU) as the 'quantified performance of a system of products intended to be used as a reference unit in a life cycle analysis'.

Because of their safety role, SELF-CONTAINED EMERGENCY ELECTRICAL EQUIPMENT are subject to strict requirements in terms of reliability and operational fitness (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.

These particular conditions, to which other types of specific local conditions are added (e.g.: quality of the electrical network) are decisive in characterising and quantifying the service provided by the product, and have a significant effect on the environmental impact generated by the product.

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 EQUIPMENT must be clearly defined in a dedicated appendix, taking into account the specific requirements in force in the product destination country.
These appendices contain specific national conditions and are called "National Annexes". They are drawn up in the framework of the PEP Ecopassport® Program in accordance with the requirements specified in Section 3.1.2
- In the absence of a National Annex, requirements concerning the functional unit and a default use scenario are specified in Section 3.1.3.

As an example, for a Self-contained emergency lighting unit (BAES), the functional unit is defined as follows:

"to facilitate the evacuation of personnel by providing 45 lumens of light for one hour in the event of an electrical power cut".

3.1.1. Reference Life Time of self-contained emergency electrical equipment

These requirements complement and explain the Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02), defined in the "functional unit and reference flow description" section.

In the field of Self-contained emergency electrical equipment, 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 equipment is taken to be 10 years.

This assumed reference service life is deliberately shorter than the actual service life of cable management solutions usually observed on the market. This provisional commitment does not constitute a commercial guarantee commitment by the manufacturer.

3.1.2. Rules for writing a National Annex

All of Section 3.1.2 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 don't 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 equipment in the country concerned.
- These proposals are submitted to the authorities of the PEP Ecopassport® Program and, once approved, give rise to the updating of this PSR within the framework of the procedures stipulated.

3.1.2.1. FU 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 equipment is characterised and quantified, and must take the following into consideration:

- Duration, expressed in hours
- Lumen output, 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 lamp(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 use mode on the obsolescence cycle of consumables (Reference service life of light sources and rechargeable batteries mentioned in Section 3.5).
- Electrical power cuts 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.

3.1.2.2. FU 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
 - The maximum intensity of the audible signal, expressed in dB
 - and/or the 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.

- 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 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 (Reference Service Life of light sources and accumulators mentioned in Section 3.5),
 - Electrical power cuts 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.

3.1.3. FU and default Use Scenario 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 equipment irrespective of destination market.

- 1/ For self-contained emergency lighting equipment, 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) non-maintained (NM) or combined (C)

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

2/ For self-contained audio and/or visual (lighting) alarm 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,
- The maximum intensity of the audible signal, expressed in dB,
- and/or the 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.

3/ The operating mode of self-contained emergency electrical equipment is defined as follows (refer to justifications of the scenario in appendix 2.4):

- Normal power supply to the self-contained emergency electrical equipment is present for 100% of its service life.
- This means 8760 hours per year over a Reference Service Life of the equipment, set at 10 years (1),
- Non-consumption periods are considered to be negligible and thus are not taken into account (2)

Note (1): The basis for calculating this figure of 8760 hours does not take leap years into account.

Note (2): 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 or a power failure.

3.2. System boundary

This paragraph complements and explains the Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02), defined in the following sections :

- "Manufacturing stage",
- "Installation stage",
- and "Use stage".

To determine the relevant reference flow⁴, on a consistent and transparent basis, the manufacturer must take the following into account for each family of self-contained emergency electrical equipment:

- The Self-contained emergency electrical equipment
- Its primary packaging (including wedging elements)
- Instruction manuals and labels dedicated to marking (e.g.: crossed-out dustbin) or production traceability, manufacturer address...
- Signage labels and label holders delivered with the product (pictograms and arrows).

⁴ The reference flow lists the elements to be counted in the LCA to perform the function expressed by the corresponding functional unit

Note: Note: For escape route emergency lighting 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)

- The maintenance parts and consumables necessary for the operation of the product during its Reference Service Life (e.g.: batteries and accumulators, light sources, etc.) – see Section 3.3.2 of the reference devoted to the handling of consumables,
- 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 equipment in the building.

Note 1: For portable equipment, the charger must be included in the reference flow

Note 2: in accordance with PCR ed.3-EN-2015 04 02, a transport distance of 100 km is assumed for the travel of persons involved in the maintenance of AEASs.

The manufacturer must identify and record packages, components, products, and accessories counted 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 PEP,

3.3. Use scenario

3.3.1. Method for measuring the energy consumption of self-contained emergency electrical equipment

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

- The rated power supply voltage,
- In battery drip 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 drip charge products, the power is measured after 48 hours with power applied.

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

3.3.2. Accounting rules for consumables (light sources and accumulators)

This paragraph complements and explains the Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02), defined in the section concerning the 'Use Stage'.

In accordance with Tables 2, 3, and 4 below, the manufacturer must include the following in the reference flow:

- The emergency light source(s), charge indicator light source(s), and the accumulator pack supplied with the product. The environmental impacts associated with these original consumables must be counted in the manufacturing stage.
- Emergency light source(s), charge indicator light source(s), and replacement accumulator(s) required to maintain the operative condition of the self-contained emergency electrical equipment during their reference service life, which has been defined as 10 years. The environmental impacts associated with these replacement consumables must be counted in the manufacturing stage.
- The transportation of consumables and persons necessary to maintain self-contained emergency electrical equipment in operational condition during their Reference Service Life, defined as 10 years. The transport scenario to be used is defined in the PCR of the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02).

The Reference Service Life of the consumables used in the self-contained emergency electrical equipment is given in Tables 2, 3, and 4. These values are defined by default and concern emergency light sources and accumulators. They result from:

- The normative recommendations and data provided by the main suppliers of light sources and accumulators (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 network managers and building operators
- Feedback from maintenance professionals and manufacturers of the sector

The reference service life of consumables is calculated under the normal operating conditions (temperature, voltage, current, etc.) to which they are subjected in the product when powered at its rated voltage.

If another service life is used for consumables for the LCA, the manufacturer demonstrates, based on technical data sheets and/or ageing results, that the product was designed to allow an operating life exceeding the default value specified.

Table 2: Allowing for emergency light sources in the LCA of self-contained emergency electrical equipment

Operating mode of the product	Reference service life used for emergency light sources	Number of emergency light sources to count for the 10-year reference service life of the product
No Maintained (1)	Incandescent lamps = 1 year	one set of light sources to be counted in the manufacturing stage, and nine replacements during the use phase
	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 (Light-Emitting Diode) = 10 years	
Maintained (2)	Fluorescent lamps = 1 year	one set of light sources to be counted in the manufacturing stage, and nine replacements during the use stage
	Incandescent lamps = 6 months	one set of light sources to be counted in the manufacturing stage, and 19 replacements during the use stage
	CCFL and LED, the reference service life 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 X in the use stage according to the reference service life of the light source. E.g.: - for a light source with a reference service life of four years, the light source will be replaced twice - for a light source with a reference service life of eight years, the light source will be replaced once - for a light source with a reference service life of ten years, the light source will not be replaced

(1) Non-maintained mode: The devices are powered by the emergency energy source (accumulator or Central safety power supply systems), 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.

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

The reference service life of sets of light sources used in Self-contained emergency electrical equipment 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 2.
- 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 3: Allowing for charge indicator light sources in the LCA of self-contained emergency electrical equipment

Reference service life used for charge indicator light sources	Number of charge indicator light sources to count for the 10-year reference service life of the product
Incandescent lamps = 1 year	1 set of light sources to use in the manufacturing stage and 9 replacement ones for the use stage
For the LED (light-emitting diode), the reference service life of the set of light sources must be supported and documented in the appended report.	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.: - for a light source with a reference service life of four years, the light source will be replaced twice - for a light source with a reference service life of eight years, the light source will be replaced once - for a light source with a reference service life of ten years, the light source will not be replaced

Table 4: Counting the accumulators in the LCA of self-contained emergency electrical equipment

Reference service life used for accumulators	Number of accumulators to be counted for the 10-year reference service life of the product
By default, the reference service life of the accumulator is taken as four years whatever its chemical system.	One original pack in the manufacturing stage and two replacement packs in the use stage
If the manufacturer can prove that the accumulator used, has a reference service life longer than four years, he must supply the proof specified below Reminder: The reference service life of accumulators cannot be less than four years according to the requirements of the standards and regulations in force.	One pack of original accumulators in the manufacturing stage and x packs of accumulators in the use stage according to the reference service life of the accumulators. E.g.: - for an accumulator with a reference service life of four years, the accumulator pack will be replaced twice - for an accumulator with a reference service life of eight years, the accumulator pack will be replaced once - for an accumulator with a reference service life of ten years, the accumulator pack will not be replaced The reference service life of the accumulators used in the SELF-
The reference service life of the accumulators used in the Self-contained emergency electrical equipment must be supported and documented. This reference service life must be calculated under the normal operating conditions (casing temperature, voltage, current, etc.) to which the accumulator is subjected in the product when powered at its rated voltage. The minimum operating temperature in the device near the accumulator must be 40°C. For this purpose, the manufacturer:	
<ul style="list-style-type: none"> • Demonstrates, based on technical data sheets, that the product is designed for an accumulator operating life exceeding four years • 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. 	

4. Drafting and checking PEP : additional requirements

This paragraph complements and explains the Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02), defined in the 'Appended report' and in the rules 'Drafting the Product Environmental Profile'.

In the context of the procedures specified by the Program, the qualified verifier checks the PEPs concerning Self-contained emergency electrical equipment, taking the following specific writing requirements into account.

To comply with the transparency requirements specified by the reference standards and contribute to the correct interpretation of the data, the manufacturer gives the following information on the PEP that he wish to publish:

- The full name of the reference products, i.e. taken as reference for the LCA, to be specified in the PEP title
- The corresponding functional unit in accordance with the specifications in Section 3.1 and related appendix.
- The list of the different commercial references covered by the PEP, using the table below given as an example. In this case, the table is preceded by the following sentence:

"The environmental impact calculated for the reference product is applicable to the following commercial references:"

Product Reference	IP Protection rating	IK Mechanical shock index	Consumption in Watts (*)

Note (*): Energy consumption of the product in the use stage, measured according to the method described in section 3.3.1.

To draw up the list of commercial references covered by the PEP, the manufacturer:

- Guarantees that these references 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.

Moreover, the manufacturer:

- Specifies the details of the use scenario chosen, to be recorded in the "Use stage" section.
- Gives the following text under the environmental impact table: "The life cycle analysis is compliant with the specific rules applicable to Self-contained emergency electrical equipment PSR000X-edX-EN-YYYY MM DD (**), available on the website www.pep-ecopassport.org"

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

- For emergency lighting powered by Central Power 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. (Refer to the definition of stand-by mode for Central Power System in Section 6)

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

- For slave luminaire 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)
- For self-contained emergency lighting:
"The use of a remote control to place the system on stand-by in periods when the establishment is idle can reduce the environmental impact of your installation by as much as 20% and reduce your electricity bill." (2)

Note (1): When regulations allow

Note (2): The 20% savings is justified and documented at the end of Appendix A2-4. Because this saving depends on the user's conditions of use, and to avoid misleading the user, these notifications must be placed after the impact table, in the last section, "additional information" (also called "eco-solutions"), to avoid giving the impression that the calculation of the indicators takes the stand-by mechanism into account.

5. Update rule for PEP on self-contained emergency electrical equipment

Any PEP recorded by the PEP Ecopassport® Program must be updated and a new record created whenever the product to which it refers, a change in technology is applied to :

- The battery
- And/or the light source
- And/or the electronic board
- And/or its casing.

These parameters are chosen because changes in them strongly affect the value of the environmental impacts of the Self-contained emergency electrical equipment.

6. Glossary and definitions

6.1. Meaning of the abbreviations used in the PSR reference document

- AEAS: Self-contained emergency electrical equipment
- DVR : Reference Service Life (RSL)
- CCFL: cold cathode lamp
- BAES: Self-contained emergency lighting for open area or for escape route
- BAEH: Self-contained Emergency lighting for residential buildings
- LSC: Slave luminaire for CPS (Central Power System)
- Spotlight unit: Emergency lighting unit equipped with powerful emergency lamps (pivoting spotlights)
- BAPI: Self-contained portable emergency luminaire
- BAES + BAEH: Self-contained emergency lighting for facilities with sleeping premises
- BAES + DBR: self-contained emergency lighting for reinforced escape route for people with reduced mobility
- BAES + DL: self-contained emergency lighting with beacon light device
- LSC + DBR: Emergency lighting slave luminaire for people with reduced mobility
- LSC + DL: Emergency lighting slave luminaire with beacon light device
- BAAS: Self-contained audible alarm units for emergency evacuation
- BAAS + DL: self-contained audible alarm units for emergency evacuation with beacon light device
- BAAL: Self-contained visual alarm units for emergency evacuation
- BAAS Pr: Self-contained monitoring panel for fire alarm devices

6.2. Definitions

Non-maintained emergency luminaire (definition of EN60598-2-22 clause 22.3.6) : luminaire in which the emergency lighting lamps are in operation only when the supply to the normal lighting fails

Maintained emergency luminaire (definition of EN60598-2-22 clause 22.3.5) : luminaire in which the emergency lighting lamps are energized at all times when normal or emergency lighting is required

Normal supply failure (definition of EN60598-2-22 clause 22.3.13) : condition in which the normal lighting can no longer provide a minimum illuminance for emergency escape purposes and when the emergency lighting should become operative

Normal mode for CPS slave luminaires :

A slave luminaire powered in maintained mode can be designed to provide in the normal mode (when normal lighting supply is on) a lumen output lower than its emergency lumen output (when normal lighting supply failed). In this case the power consumption of the slave luminaire is less than that which would be consumed by the luminaire in emergency mode.

7. Appendices

7.1. Appendix 1: National Annex Template

To ensure the consistency of the reference document and specify what is expected as described in Section 3.1.2, the recommended National Annex template is given below

(X = Annex Number / Y = country concerned)

Appendix X: Specific PEP ecopassport® drafting rules for Self-contained emergency electrical equipment on the Y market

AX-1 - Scope of the Y National Annex

AX-2 - Reference standards and texts for Self-contained emergency electrical equipment on the Y market

AX-3 - Functional Unit and use scenario for Self-contained emergency electrical equipment for the Y market

AX-4 - Justification of assumptions applied to the energy consumption calculation

7.2. Appendix 2: PEP ecopassport® drafting rules for Self-contained emergency electrical equipment placed on the market

In accordance with Section 3.1 of the present reference document, this national annex defines particular requirements for performing LCAs and for the publication of PEP (Product Environmental Profile) concerning Self-contained emergency electrical equipment marketed in France, taking into account the regulatory and standardisation requirements governing their performance and their conditions of use and maintenance.

7.2.1. Scope of the French National Annex

The PEP Ecopassport® drafting rules apply to all Self-contained emergency electrical equipment marketed everywhere in French territory (mainland France and French overseas departments and territories).

These devices fall into four separate categories, with specific rules for each:

- Open Area emergency Lighting
- Escape route emergency Lighting
- Self-contained portable emergency luminaire
- Self-contained audible and/or visual alarm units for emergency evacuation

This segmentation is based on the function of the products and refers to the applicable French, European, and international standards. (Refer to Table 5 below.) The French standards (NFC or UTE C) take national regulatory recommendations into account and supplement the corresponding European (EN) and international (IEC) standards.

Note 1: The LCA and environmental declaration rules concerning Central safety power supply systems will be discussed later, in version 2.0 of the PSR, in accordance with the work on other types of power supply.

Note 2: Non- self-contained audible devices and conversion kits are not considered to be within the scope of the self-contained emergency electrical equipment and their normative framework.

7.2.2. A2-2 - Reference standards and texts for Self contained emergency electrical equipment on the French market

Table 5: Definition and content of self-contained emergency electrical equipment categories for France

Families of product	Main function (in the event of electrical power supply failure)	Type of device	Designation	Normative reference documents To be observed
1. Open Area emergency Lighting	Reduce the risk of panic by providing lighting that guarantees the visibility of obstacles	BAES open area	Self-contained emergency lighting for open area	NFC71-801 UTE C71-806 NFC71-820 NF EN 60598-2-22
		LSC open Area	Slave luminaire for CPS (central power system) for open area LSC ≥ 150 lumen	UTE71-802 UTE71-802F1 UTE71-802F2 NF EN 60598-2-22
		Spotlight units	Spotlight units	NFC71-800 NFC71-801 NFC71-820 UTE C71-806 NF EN 60598-2-22
2. Escape route emergency Lighting	Facilitate the evacuation of personnel by lighting up exit routes and obstacles	BAES escape route	Self-contained emergency lighting for escape route	NFC71-800 UTE C71-806 NFC71-820 NF EN 60598-2-22
		BAEH	Self-contained Emergency lighting for residential buildings	NFC71-805 UTE C71-806 NFC71-820 NF EN 60598-2-22
		BAES + BAEH	Self-contained emergency lighting for Facilities with sleeping premises	UTE C 71-803 UTE C71-806 NFC71-820 NF EN 60598-2-22
		LSC escape route	Slave luminaire for CPS (central power system) < 150 lumen	UTE71-802 UTE71-802F1 UTE71-802F2 NF EN 60598-2-22
		BAES+DBR	self-contained emergency lighting for reinforced escape route for people with reduced mobility	NFC71-800 UTE C71-806 NFC71-820 NF EN 60598-2-22 P96A-101 AFNOR reference document
		LSC+DBR	Emergency lighting slave luminaire for people with reduced mobility	UTE71-802 UTE71-802F1 UTE71-802F2 NF EN 60598-2-22 P96A-101 AFNOR reference document

Families of product	Main function (in the event of electrical power supply failure)	Type of device	Designation	Normative reference documents To be observed
2. Escape route emergency Lighting	Facilitate the evacuation of personnel by lighting up exit routes and obstacles	BAES+DL	Self-contained emergency lighting with beacon light device	NFC71-800 NFC71-806 NFC71-820 NF EN 60598-2-22 P96A-101 AFNOR reference document
		LSC+DL	Emergency lighting slave luminaire with beacon light device for hearing-impaired or deaf persons	UTE71-802 UTE71-802F1 UTE71-802F2 NF EN 60598-2-22 P96A-101 AFNOR reference document
3. Self-contained portable emergency luminaire	To supply portable lighting for the purpose of performing servicing in a technical room	BAPI	Self-contained portable emergency luminaire	NFC71-810 Pr EN60598-2-22 Appendix E
4. Sounding of the fire alarm	To alert the public by sounding the general fire alarm	BAAS	Self-contained audible alarm units for emergency evacuation	NFC48-150
	To control the sounders and/or lights of the type Sa (satellite) general fire alarm	BAAS Pr	Self-contained monitoring panel for fire alarm devices	NFC48-150
	To alert the public by sounding and/or flashing the general fire alarm	BAAS+DL	Self-contained audible alarm units for emergency evacuation with beacon light device	NFC48-150 P96A-101 AFNOR reference document
		BAAL	Self-contained audible alarm units for emergency evacuation	NF C 48-150

7.2.3. Functional Unit and use scenario for Self-contained emergency electrical equipment on the French market

These requirements supplement and specify for self-contained emergency electrical equipment intended for the French market, the requirements defined:

- In Section 3.1 of the present reference document,
- In the 'Functional unit and description of the reference flow' and 'Reference product and methodology' sections contained in Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02).

To draw up the PEP for a self-contained emergency electrical equipment for the French market, the manufacturer must clearly specify the functional unit⁵ in the PEP, complying with the corresponding writing rules defined below for each family and type of self-contained emergency electrical equipment:

- Family 1: Open Area emergency Lighting
- Family 2: Escape route emergency Lighting
- Family 3: Self-contained portable emergency luminaire
- Family 4: Self-contained audible alarm units for emergency evacuation

Family 1: Open Area emergency Lighting

Table 6: Functional unit and use scenario for the Open area emergency lighting

Families of product	Product (**)	Functions			RSL and power supply mode	Use scenario to be taken into account to calculate the energy consumption
(**) The full name of the reference product is clearly specified in the title of the PEP. The FU must be indicated in its entirety on the PEP, as shown below in purple. The manufacturer fills in the fields to be completed when this is specified.					These requirements supplement and add detail to the requirements in force defined Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02) and defined in the "Use stage" and "Reference produce use scenario" paragraph. →(*) Justification in Appendix A2-4	
Open Area emergency Lighting	BAES	"Prevent	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 stand-by mode, counting 8760 h/year of mains presence for 10 years (365 days x 24 hours (*))
	Spotlight units				This function is provided for ten years by its self-contained power supply	- Neglect periods of energy non-consumption generated in the usage stage by Self-contained emergency electrical equipment (*)
	LSC ≥ 150 lm				"This function, powered by a Central safety power supply systems, is provided for ten years".	- Same as above - <u>CAUTION</u> : The consumption of ambient central source lighting devices must be calculated in non-maintained mode (*)

⁵ The ISO 14040 standard defines the functional unit (FU) as the 'quantified performance of a system of products intended to be used as a reference unit in a life cycle analysis'. For SELF-CONTAINED EMERGENCY ELECTRICAL EQUIPMENT, the service performed to be quantified is associated with an duration and/or a luminous and/or sound intensity.

Family 2: Escape route emergency Lighting

Table 7: Functional unit and use scenario for the evacuation emergency lighting

Families of product	Product (**)	Functions		RSL and power supply mode	Use scenario to be taken into account to calculate the energy consumption	
<p>(**) The full name of the reference product is clearly specified in the title of the PEP. The FU must be indicated in its entirety on the PEP, as shown below in purple. The manufacturer fills in the fields to be completed when this is specified.</p>				<p>These requirements supplement and add detail to the requirements in force defined Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02) and defined in the "Use stage" and "Reference produce use scenario" paragraph. →(*) Justification in Appendix A2-4</p>		
Escape route emergency Lighting	BAES	"Facilitate	the evacuation of personnel by providing	45 lumens of light for one 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"> - Calculate all energy consumptions in stand-by, counting 8760 hours per year of mains presence for ten years (*) - Neglect periods of energy non-consumption generated in the usage stage by self-contained emergency electrical equipment (*)
	BAEH			8 lumens of light for five hours in the event of an electrical power cut.	This function is provided for ten years by its self-contained power supply"	
	BAES + BAEH			45 lumens of light for 1 hour AND 8 lumens for 5 hours in the event of electrical power cut	This function is provided for ten years by its self-contained power supply"	

Families of product	Product (**)	Functions		RSL and power supply mode	Use scenario to be taken into account to calculate the energy consumption	
<p>(**) The full name of the reference product is clearly specified in the title of the PEP. The FU must be indicated in its entirety on the PEP, as shown below in purple. The manufacturer fills in the fields to be completed when this is specified.</p>				<p>These requirements supplement and add detail to the requirements in force defined Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02) and defined in the "Use stage" and "Reference produce use scenario" paragraph. →(*) Justification in Appendix A2-4</p>		
Escape route emergency Lighting	LSC < 150 lm	"Facilitate"	the evacuation of personnel by providing	45 lumens of light in the event of electrical power cut	This function, powered by a Central safety power supply systems, is provided for ten years".	<p>Same as above</p> <ul style="list-style-type: none"> - CAUTION Consumptions are calculated in stand-by mode, when the evacuation central source lighting devices have a stand-by function, - Failing this, the consumption of evacuation central source lighting devices must be calculated in maintained mode (*).
	BAES + DL		evacuation of personnel and hearing-impaired persons to the outside or to secure waiting areas by providing	lighting of 45 lumens for one hour in the event of an electrical power cut, supplemented by a lighting device for hearing-impaired persons.	This function is provided ten years by its self-contained power supply"	<ul style="list-style-type: none"> - Calculate all energy consumptions in stand-by, counting 8760 hours per year of mains presence for ten years (*) - Neglect periods of energy non-consumption generated in the usage stage by Self-contained emergency electrical equipment (*)
	LSC + DL		evacuation of personnel and hearing-impaired persons to the outside or to secure waiting areas by providing	lighting of 45 lumens for one hour in the event of an electrical power cut, supplemented by a lighting device for hearing-impaired persons.	This function, powered by a Central safety power supply systems, is provided for ten years".	

Families of product	Product (**)	Functions			RSL and power supply mode	Use scenario to be taken into account to calculate the energy consumption
<p>(**) The full name of the reference product is clearly specified in the title of the PEP. The FU must be indicated in its entirety on the PEP, as shown below in purple. The manufacturer fills in the fields to be completed when this is specified.</p>					<p>These requirements supplement and add detail to the requirements in force defined Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02)and defined in the "Use stage" and "Reference produce use scenario" paragraph. →(*) Justification in Appendix A2-4</p>	
<p>Escape route emergency Lighting</p>	<p>BAES + DBR</p>	<p>"Facilitate</p>	<p>evacuation of personnel and disabled persons to the outside or to secure waiting areas, ensuring</p>	<p>lighting of 45 lumens for one hour, in case of a mains power cut, supplemented by a heavy-duty signposting system for disabled persons</p>	<p>This function is provided for ten years by its self-contained power supply"</p>	<ul style="list-style-type: none"> - Calculate all energy consumptions in stand-by, counting 8760 hours per year of mains presence for ten years (*) - Neglect periods of energy non-consumption generated in the usage stage by self-contained emergency electrical equipment (*)
	<p>LSC + DBR</p>		<p>evacuation of personnel and disabled persons to the outside or to secure waiting areas, ensuring</p>	<p>lighting of 45 lumens for one hour, in case of a mains power cut, supplemented by a heavy-duty signposting system for disabled persons</p>	<p>This function, powered by a Central safety power supply systems, is provided for ten years".</p>	

Family 3: Self-contained portable emergency luminaire

Table 8: Functional unit and use scenario for Self-contained portable emergency luminaires

Families of product	Product (**)	Functions			RSL and power supply mode	Use scenario to be taken into account to calculate the energy consumption
<p>(**) The full name of the reference product is clearly specified in the title of the PEP. The FU must be indicated in its entirety on the PEP, as shown below in purple. The manufacturer fills in the fields to be completed when this is specified.</p>					<p>These requirements supplement and add detail to the requirements in force defined Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02)and defined in the "Use stage" and "Reference produce use scenario" paragraph. →(*) Justification in Appendix A2-4</p>	
<p>Self-contained portable emergency luminaire</p>	<p>BAPI</p>	<p>"To supply</p>	<p>portable lighting, allowing</p>	<p>servicing to be performed in a technical room.</p>	<p>This function is performed for 10 years."</p>	<ul style="list-style-type: none"> - Calculate all energy consumptions in stand-by, counting 8760 hours per year of mains presence for ten years (*) - Neglect periods of energy non-consumption generated in the usage stage by self-contained emergency electrical equipment (*)

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

Table 9: Functional unit and use scenario for self-contained audible and/or visual alarm units for emergency evacuation

Families of product	Product (**)	Functions		RSL and power supply mode	Use scenario to be taken into account to calculate the energy consumption
<p>(**) The full name of the reference product is clearly specified in the title of the PEP. The FU must be indicated in its entirety on the PEP, as shown below in purple. The manufacturer fills in the fields to be completed when this is specified.</p>				<p>These requirements supplement and add detail to the requirements in force defined Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02) and defined in the "Use stage" and "Reference produce use scenario" paragraph. →(*) Justification in Appendix A2-4.</p>	
Self-contained audible and/or visual alarm units for emergency evacuation	BAAS Pr	"To control"	<p>the sounders and/or lights of the type Sa (*) general fire alarm.</p> <p>(*) Sa = Sa and all of its variations (Sa-Me, Sa-Me+DL, Sa+DL, etc.)</p>	<p>This function is provided for ten years by its self-contained power supply"</p>	<ul style="list-style-type: none"> - Calculate all energy consumptions in stand-by, counting 8760 hours per year of mains presence for ten years (*) - Neglect periods of energy non-consumption generated in the usage stage by self-contained audible alarm units for emergency evacuation (*) - Neglect periods of exceptional consumption related to the triggering of the alarm(*)
	BAAS	"To alert"	<p>the public by sounding the general fire alarm at a volume of X dB, for buildings equipped with a type Ma or Sa alarm (*)</p> <p>X = value of the signal in dB</p> <p>(*) Sa = Sa and all of its variations (Sa-Me, Sa-Me+DL, Sa+DL, etc...) or Ma and all of its versions (Ma-Me, etc.)</p>	<p>This function is provided for ten years by its self-contained power supply"</p>	<p>- Same as above</p>

Families of product	Product (**)	Functions		RSL and power supply mode	Use scenario to be taken into account to calculate the energy consumption
(**) The full name of the reference product is clearly specified in the title of the PEP. The FU must be indicated in its entirety on the PEP, as shown below in purple. The manufacturer fills in the fields to be completed when this is specified.				These requirements supplement and add detail to the requirements in force defined Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02) and defined in the "Use stage" and "Reference produce use scenario" paragraph. ➔(*) Justification in Appendix A2-4.	
Self-contained audible and/or visual alarm units for emergency evacuation	BAAS + DL	To 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 X = value of the signal in dB and Candela Y = type of alarm "MA+DL" OR "SA+DL" OR "MA-ME+DL" OR "SA-ME+DL"	This function is provided for ten years by its self-contained power supply"	Same as above
	BAAL	To alert	the public by broadcasting the light signal of the general fire alarm, at a light intensity of X candelas X = value of the signal in candelas	This function is provided for ten years by its self-contained power"	

7.2.4. Justification of assumptions applied to the energy consumption calculation of Self-contained emergency electrical equipment

This annex specifies and justifies the assumptions used to calculate the energy consumption of Self-contained emergency electrical equipment marketed in France:

- 1/ Definition and involvement of the operating mode of AEAS in their 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 equipment, Central safety power supply systems, and self-contained audible and/or visual alarm units for emergency evacuation

7.2.4.1. Use scenario and taking into account of energy consumptions

These requirements supplement and add detail the Product Environmental Profile (PEP) Drafting Rules defined by the PEP Ecopassport® Program (PEP-PCR ed.3-EN-2015 04 02), defined in the 'Use Stage' and 'Use scenario of the reference product' paragraph.

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 the self-contained emergency electrical equipment 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, neglect periods of non-energy consumption
- For Slave luminaire for CPS (central power 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: 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 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 luminaire for CPS (LSC) are connected to a Central safety power supply systems compliant with the EN 50171 standard via a dedicated power supply line. For non-maintained mode, the centralised source 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 luminaire for CPS (LSC) are connected to a Central safety power supply systems compliant with the EN 50171 standard via a dedicated power supply line. For maintained mode, the centralised source 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
- For Slave luminaire 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-maintained mode
- For open area emergency slave luminaire for CPS, the operating mode assumption is 'non-maintained' mode.
- For Slave luminaire for CPS that can be powered at different voltages (rated value and alternating and/or direct), the highest consumption will be counted. The manufacturer may waive this harsh rule by providing the impact data according to operating voltage.

7.2.4.2. Summary justifying the omission of non-consumption periods for each family of self-contained emergency electrical equipment

As detailed in the table below, the consumption period of self-contained emergency electrical equipment to be taken into account is 8760 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 have reduced 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 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 most unfavourable case (BAEH with 5 h autonomy, 0.3% of non-consumption period), for 99.7% of the time, the device maintains the battery's charge level.

Table 10: Summary of use scenarios by self-contained emergency electrical equipment, with justification

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		Comments
	details	Total (h)	details	Total (h)	details	Total (h)	details	%	
BAES	365 days x 24 h =	8760	4h discharge (SATI according to NFC 71820)	9	year total – non-consumption period total =	8751	Report on non-consumption period per year / Number of hours per year = 0.00102	0.1%	Use 8760 h in the calculation, because the non-consumption period is negligible ⁽¹⁾
			5 hours related to power cuts (according to RTE Report 2010)						
BAEH	365 days x 24 h =	8760	20 h discharge (SATI according to NFC 71820)	25	yearly total – non-consumption period total =	8735	Report on non-consumption period per year / Number of hours per year = 0.0028	0.3%	Ditto Use 8760 h in the calculation, because the non-consumption period is negligible ⁽¹⁾ 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)						

⁽¹⁾ In the most unfavourable case (BAEH), the non-consumption period of 0.3% per year is equivalent to 0.033 MJ of additional energy over the reference service life.

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	%	
Spotlight Unit	365 days x 24 h =	8760	4 h discharge (SATI according to NFC 71820)	9	yearly total - non-consumption period total =	8751	Report on 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)						
Slave luminaire for CPS for open Area emergency Lighting > 150 lm	365 days x 24 h =	8760	2 h discharge (ERP regulations)	8753	yearly total - non-consumption period total =	7	Report on non-consumption period per year / Number of hours per year= 0.999	99.9%	Assigning 100% of the time with zero energy consumption in the active phase NB: NON-MAINTAINED mode is used to calculate the consumption of the ambient central source lighting devices (>150 lm) - the energy is consumed by the central source lighting device when the normal power supply has failed. This energy was previously stored in the accumulators of the centralised source during periods when the normal power supply was present in the accumulators of the centralised source during periods of presence of the normal power supply..
			5 hours related to power cuts (according to RTE Report 2010)						

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		Comments
	details	Total (h)	details	Total (h)	details	Total (h)	details	%	
Slave luminaire for CPS for escape route emergency Lighting < 150 lm	365 days x 24 h =	8760	2 h discharge (ERP regulations)	7	yearly total - non-consumption period total =	8753	Report on non-consumption period per year / Number of hours per year = 0.0008	0.1%	<p>Assigning 100% of the time with X energy consumption (watts) in the active phase</p> <p>NB: MAINTAINED mode is used to calculate the consumption values for the evacuation central source lighting devices (< 150 lm). According to ERP regulations, the energy is supplied by the centralised source, which in turn takes it from the normal power supply.</p>
			<p>5 hours related to power cuts (according to RTE Report 2010)</p> <p>Note: For the evacuation central source lighting devices, the centralised source efficiency shall be covered in a future revision of the PSR.</p>						
Self-contained audible alarm units for emergency evacuation	365 days x 24 h =	8760	<p>5 hours related to power cuts (according to RTE Report 2010)</p> <p><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></p>	5	yearly total - non-consumption period total =	8755	Report on non-consumption period per year / Number of hours per year = 0.000571	0.1%	<p>Assigning 100% of the time with X energy consumption (watts) in the active phase</p> <p>Periods of exceptional consumption related to the triggering of an alarm are neglected because of their marginal nature. 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).</p>

7.2.4.3. Calculation of energy consumption of Self-contained emergency electrical equipment marketed in France

7.2.4.3.1 Summary of the calculation mode for the different families of Self-contained emergency electrical equipment

Self-contained emergency lighting (BAES, BAEH, BAES+BAEH) / Spotlight units:

→ Energy consumption in Wh (or kWh) = power consumed in stand-by mode (W) x **8760 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 **8760 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 **8760 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 **8760 h/year** x 10 years

7.2.4.3.2 Emergency lighting units with an idle function: justification of the induced drops in consumption

- The energy consumption is calculated according to the calculation mode established for emergency lighting units above, to perform the LCA
- Justification of the 20% environmental gain which can be mentioned on the PEP as additional information (refer to the last paragraph of Section 4) *"This product incorporates a function allowing the use of a remote control to place the system in idle mode during periods when the establishment is not operating; activating this function limits the environmental impact of your installation by **up to 20%** and reduces your electricity bill"*

Standard use scenario used for the idle function: offices (ADEME 2012 data)

- Average number of annual holidays: 10
- Number of closure days (weekend): 52 x 2 = 104
- Number of days during which the devices are idle for 24 hours: 104 + 10 = 114 days
- Non-consumption period during weekends and holidays: 114 x 24h = **2736 h**

Non-consumption period during the night (ADEME 2012 data)

- Number of idle days = 365 days - 114 days = 251 days
- idle time slot: from 7 PM (placing in idle mode) to 7 AM the next morning = 12 hours. Or: 251 days x 12 h = 3012 h

Consumption period to be taken into account:

→ 8760 h – 2736 h – 3012 h = **3012 h per year**

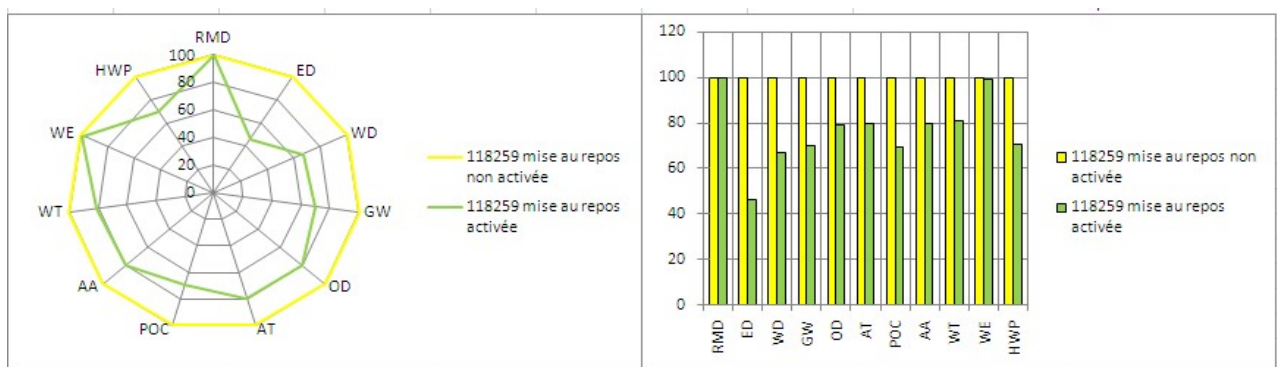
Comparative study of impacts of different emergency lighting units with and without activation of the idle function

Conclusion: savings of - 23% on the average of the 11 EIME indicators when the idle function is activated

→ Idle scenario = consumption for 3012 h (34% of the time) and non-consumption for 5748 h (66% of the time)

→ Study performed on three emergency lighting units of different brands (for example, below are the results obtained for URALIFE emergency lighting units, Cat. No. 118259)

	118259 mise au repos non activée				U/SUM	118259 mise au repos activée				U/SUM	Diff	M	D	U
	SUM	M	D	U		SUM	M	D	U					
Y-1	2,16E-13	1,10E-13	5,69E-19	1,06E-13	49%	2,16E-13	1,10E-13	5,69E-19	1,06E-13	49%	-0,12%	0,00%	0,00%	-0,25%
MJ	8,44E+02	123,58	4,17E-01	7,20E+02	85%	3,89E+02	1,25E+02	4,17E-01	2,64E+02	68%	-53,92%	1,17%	0,00%	-63,40%
dm3	2,64E+02	71,719002	3,96E-02	1,93E+02	73%	1,77E+02	71,858	3,96E-02	1,05E+02	59%	-32,89%	0,19%	0,00%	-45,22%
g ~CO2	1,50E+04	6,66E+03	33,019001	8,28E+03	55%	1,05E+04	6,77E+03	33,019	3,65E+03	35%	-30,18%	1,72%	0,00%	-55,95%
g ~CFC-11	1,29E-03	7,00E-04	2,33E-05	5,66E-04	44%	1,02E-03	7,81E-04	2,33E-05	2,18E-04	21%	-20,71%	11,63%	0,00%	-61,51%
m3	4,88E+06	2,15E+06	6,22E+03	2,72E+06	56%	3,88E+06	2,17E+06	6,22E+03	1,70E+06	44%	-20,48%	1,05%	0,00%	-37,56%
g ~C2H4	6,2020001	2,65E+00	2,82E-02	3,5239999	57%	4,308	2,748	2,82E-02	1,531	36%	-30,54%	3,70%	0,00%	-56,56%
g ~H+	3,944	1,66E+00	4,21E-03	2,2839999	58%	3,136	1,672	4,21E-03	1,46	47%	-20,49%	0,91%	0,00%	-36,08%
dm3	3,98E+03	2,61E+03	4,1279998	1,36E+03	34%	3,22E+03	2,63E+03	4,128	5,92E+02	18%	-19,05%	0,55%	0,00%	-56,63%
g ~PO4	5,1459999	2,346	5,49E-04	2,80E+00	54%	5,095	2,348	5,49E-04	2,746	54%	-0,99%	0,09%	0,00%	-1,89%
kg	1,88E-01	1,00E-01	1,23E-05	8,84E-02	47%	1,33E-01	1,00E-01	1,23E-05	3,28E-02	25%	-29,50%	0,04%	0,00%	-62,32%
					55,70%					41,40%	-23,53%	1,91%	0,00%	-43,45%



7.3. Appendix 3: Certificate of conformity from the critical review

The report giving the conclusions of the critical review is available on request from the PEP Association, which runs the PEP Ecopassport® Program : contact@pep-ecopassport.org

 Solutions innovantes pour l'environnement

PROGRAMME PEP Ecopassport

Attestation de revue-critique des règles spécifiques aux Appareils électriques autonomes de sécurité (AEAS)

Document revu : PSR, Règles spécifiques aux appareils électriques autonomes de sécurité (AEAS)
Version et date : PSR-0007-ed1-FR-2013 04 09 du 18 mars 2013¹
Établi par : l'Industrie du Génie Numérique, Énergétique et Sécuritaire

L'Industrie du Génie Numérique, Énergétique et Sécuritaire (IGNES) a demandé à Solinnen, en tant que bureau d'études spécialisé en Analyse du Cycle de Vie (ACV), la revue critique des règles spécifiques aux Appareils électriques autonomes de sécurité (AEAS).

Référentiels

L'objectif de la revue critique est de vérifier la conformité de ce document avec les référentiels suivants :

- le Programme PEP ecopassport, il s'agit du document intitulé : « PCR Règles de définition Des Catégories de Produits du PROGRAMME PEP ecopassport Profils Environnementaux de Produits Electriques, Electroniques et du Génie Climatique », dont la référence est : « PEP-PCR-ed 2.1-FR-2012 12 11 » disponible à l'adresse : <http://www.pep-ecopassport.org/creer-un-pep> ;
- la norme NF EN ISO 14025:2010 ;
- les normes NF EN ISO 14040:2006 & NF EN ISO 14044:2006.

Conclusion

Le document revu ne comporte pas de non-conformité par rapport aux référentiels. Par conséquent, ce document – PSR, Règles spécifiques aux appareils électriques autonomes de sécurité (AEAS) – est conforme aux exigences des référentiels.

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Anis Ghoumidh
Directeur Général de Solinnen

¹ La date du PSR est celle du 18 mars 2013 contrairement à ce pourrait laisser croire la référence de ce dernier.

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