



**ADMINISTRATIVE DOCUMENT**

**ENEC 331**

**Guidelines, Q&A**

**On the application of ENEC+ EPRS documents**

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## Introduction

The purpose of this document is to provide answers in order to clarify the process of getting ENEC+ for LED based products luminaires and LED modules.

It is based on permanent and operational documents issued by EEPCA.

This update includes the following:

- Change from IEC/PAS to IEC published standards in 2014.
- Addition of reference documents
- Rewording of LED luminaire, Q&A 4; second bullet point not necessary
- LED module, Q&A 5; add clarification for clause 6.2.3

NOTE: Some guidelines will be removed from this document and included in the next review of EPRS documents by WG technical matters.

### Referenced documents

<b>PD ENEC 301 ANNEX E</b>	ENEC+ Rules
<b>OD ENEC 312</b>	Operation of Manufacturer's Performance Laboratories (MPL)
<b>EPRS 001</b>	LED modules for general lighting – Performance Application of IEC 62717:2014
<b>EPRS 002</b>	Luminaire Performance – General Application of IEC 62722-1:2014
<b>EPRS 003</b>	Luminaire Performance – LED Luminaires Application of IEC 62722-2-1:2014

## General

### 1. How can I understand ENEC+ scheme?

Permanent Document PD ENEC 301 Annex E gives a complete overview of ENEC+ scheme.

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PD ENEC 301 is accessible at the following location:

<http://www.eepca.eu/doc/third.php?groupid=170&nbmax=12&typ=p>

### 2. Does my product need Safety compliance?

Yes, a product certified with ENEC+ Mark shall carry the ENEC Safety Mark (see, ENEC+ Rules, PD ENEC 301 Annex E, clause 3). The ENEC Safety Mark shall be valid and can be issued by any CB (ENEC certification Body) participant to the ENEC Mark scheme (see, ENEC+ Rules, PD ENEC 301 Annex E, clause 7).

### 3. How many samples do I need?

As this is a type testing, one sample per test described is enough. This means for:

Product	Total number of samples
Luminaire	1
LED luminaire	4 (1 for Photometry, 1 for each endurance tests)
LED luminaire Particular case Variation 3 of PD EPRS 003	1 (Photometry only)
LED module	4 (1 for Photometry, 1 for each endurance tests)

### 4. Which Certification Body can deliver ENEC+?

The CBs listed in PD ENEC 301 Annex G are participants. You can also check the membership on the EEPKA website at the following address: <http://www.eepca.eu/members.php?s=7>

### 5. Can I perform ENEC+ in my own laboratory?

Yes, conditions to obtain your laboratory under supervision (Manufacturer Performance Laboratory or MPL) of a CB are described in PD ENEC 301 Annex E, clause 5 and in the document OD ENEC 312.

## Luminaire

### 1. Which tests are included?

Reference document is PD EPRS 002 for luminaire. Luminaire test is to verify initial values, photometrical and electrical. It may include efficacy in lm/W.

### 2. Do I need to perform testing on all variations?

In document PD EPRS 002 for luminaires, please refer to 2.2 Performance data for families/ranges of luminaires.

NOTE; in IEC 62722-1, clause 6, it is stated the Luminous intensity distribution shall be provided according International standard. In IEC 62722-1, Annex D provides provides information and requirements for the measurement resolution, methods of comparison, and acceptable variation to the declared data of the manufacturer.

## LED luminaire

### 1. Which tests are included, endurance test, lumen maintenance?

Reference document is PD EPRS 003 for LED luminaires, endurance tests are included. Lumen maintenance and maintained chromaticity, colour temperature and colour rendering at 6000 h are not included at the start of the ENEC+ scheme, see **Variation 1**, Table A, 10.2.

It is the aim to include these when a more appropriate method is available.

### 2. Do I have to perform endurance tests on the LED luminaire?

The document PD EPRS 003 gives the answer.

Yes, in case LED module was not tested separately.

In case the LED module is tested according to PD EPRS 001, no endurance tests are necessary on the LED luminaire as they are already performed on the LED module.

In case a secondary optic is placed on the LED module, and the LED module was not tested with secondary optic, it should be verified that thermal behaviour of LED package is not changed. If  $t_p$ -point in located close to the LED package, it can be controlled by  $t_p$  highest temperature. Where appropriate, the endurance tests have to be performed on the LED luminaire.

NOTE: In case Clause 10.3.3 is applied to LED luminaire, the following of IEC 62722-2-1 Ed1.0 Annex A applies;

*The provisions of Clause A.1 of IEC 62717 apply to the LED luminaire, except that the wording in the third paragraph, first sentence "in the temperature interval ( $t_p$  rated – 5,  $t_p$  rated)" does not apply to the LED luminaire.*

### 3. How to select the representative LED luminaire in a family for endurance tests?

The most onerous of the family shall be presented for endurance tests. This is to be chosen by CB/TL and manufacturer.

*To be further elaborated*

#### **4. What certification is accepted for a LED module used inside a LED luminaire to be ENEC+ certified?**

The LED module shall be proven to be in conformity with both EN 62031 (Safety) and EPRS001 (Performance).

- a) For EN 62031 (Safety), conformity is already proven at LED module level as LED luminaire shall be ENEC Mark approved. To support LED module compliance to EN 62031, a type test report issued by an ENEC signatory (certificates older than 2 years are not accepted) is accepted.
- b) For EPRS001 (Performance), conformity may be proven:
  - By the LED module being ENEC+ certified. Test includes Luminous intensity distribution measurement as stated in IEC 62717, clause 8.2.3.
  - By a test report issued by a CB TL or MTL operating under the supervision of a CBTL (reports older than 2 years are not accepted). *In this particular case, it is not required to perform luminous intensity distribution measurement as stated in IEC 62717, clause 8.2.3 because this will be done on the LED luminaire, but it is recommended.*

#### **5. How a Family of LED luminaire is defined?**

In the document PD EPRS 003 for LED luminaire, definition is given in §3.2. This is a group of LED luminaires that have LED module with same characteristics. Provisions of 6.2.1, 6.2.2 and 6.2.3 of IEC 62717 apply to the LED luminaire (see below).

*To be further elaborated*

#### **6. Do I need to perform photometric test on all variations?**

No, under above conditions

NOTE; in IEC 62722-1, clause 6, it is stated the Luminous intensity distribution shall be provided according International standard. In IEC 62722-1, Annex D provides information and requirements for the measurement resolution, methods of comparison, and acceptable variation to the declared data of the manufacturer.

### **LED module**

#### **1. Which tests are included, endurance test, lumen maintenance?**

Reference document is PD EPRS 001 for LED module, endurance tests are included.

Lumen maintenance and maintained chromaticity, colour temperature and colour rendering at 6000 h are not included at the start of the ENEC+ scheme. This will be added when the amendment on alternative method to 6000h will be included in IEC 62717 and published.

#### **2. How a Family of LED module is defined?**

Variations within a family are defined in IEC 62717 in 6.2.2. A family consists on LED module designed with the same materials and manufactured by the same manufacturer (produced with the same

process). Family is designed from a “baseline product” which the first LED module complying with the standard. Behaviour with regards to performance shall be the same.

Table 4 gives possible variations for housing, heat management, optics, LED package and controlgear (LED module integrated and semi-integrated).

Example of differentiation part of same family;

- LED package with other colour
- Number of LED package on the board
- Shape of the board

### **3. How to select the representative LED module in a family for endurance tests?**

The most onerous of the family shall be presented for endurance tests. This is to be chosen by CB/TL and manufacturer using above guidance.

It is recommended to select 20% of all family members of representative LED module to be tested on endurance.

*To be further elaborated (sample size)*

### **4. How many samples need to be tested?**

See above

### **5. Do I need to present all variations of the LED module and any optical attachments?**

In IEC 62717, clause 6.2.3, Compliance testing of family members requires that members within a family to be tested with 10.3.4 Accelerated operation life test. This is practically not feasible.

As an interim step, in case there is question on members to be part the family, CB TL may require to test some more sample additional to the representative LED module. It is the aim to propose an amendment to the IEC 62717.

It is recommended to test 20% of “all” family members for the endurance accelerated operation life test.

In IEC 62717, A.3.3, it is given that luminous intensity distribution data shall be provided for all variations.

NOTE; in IEC 62722-1, clause 6, it is stated the Luminous intensity distribution shall be provided according International standard. In IEC 62722-1, Annex D provides provides information and requirements for the measurement resolution, methods of comparison, and acceptable variation to the declared data of the manufacturer.

- For photometric test, representative of the family has to be selected by CB/TL and manufacturer. As photometry as to be repeated on luminaire, it is not necessary to test all variations.
  - For endurance tests, see above, the most onerous of the family has to be tested.
    - This means including possible attachment that may change the heat management in the LED luminaire like secondary optics. Otherwise, endurance tests will have to be repeated on the LED luminaire.
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