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ANNEX IV

Verification procedure for market surveillance purposes

When performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC, the Member States' authorities shall apply the verification procedures listed in this Annex. The market surveillance authorities shall provide the information of the testing results to other Member States and to the Commission.

Member State authorities shall use reliable, accurate and reproducible measurement procedures, which take into account the generally recognised state-of-the-art measurement methods, including methods set out in documents whose reference numbers have been published for that purpose in the *Official Journal of the European Union*.

1. VERIFICATION PROCEDURE FOR LAMPS OTHER THAN LED LAMPS AND FOR LED LAMPS THAT ARE MEANT TO BE REPLACED IN THE LUMINAIRE BY THE END-USER

Member States' authorities shall test a sample batch of a minimum of twenty lamps of the same model from the same manufacturer, where possible obtained in equal proportion from four randomly selected sources, unless specified otherwise in Table 9.

The model shall be considered to comply with the requirements laid down in this Regulation if:

- (a) the lamps in the batch are accompanied by the required and correct product information, and
- (b) the lamps in the batch are found to comply with the compatibility provisions of points 2.1 and 2.2 of Annex III, applying state-of-the-art methods and criteria for assessing compatibility, including those set out in documents whose reference numbers have been published for that purpose in the *Official Journal of the European Union*, and
- (c) testing of the parameters of the lamps in the batch listed in Table 9 shows no non-compliance for any of the parameters.

TABLE 9

Parameter	Procedure
Lamp survival factor at 6 000 h (for LED lamps only)	<p>The test shall end</p> <ul style="list-style-type: none"> — when the required number of hours is met, or — when more than two lamps fail, whichever occurs first. <p>Compliance: a maximum of two out of every 20 lamps in the test batch may fail before the required number of hours. Non-compliance: otherwise.</p>
Number of switching cycles before failure	<p>The test shall end when the required number of switching cycles is reached, or when more than one out of every 20 lamps in the test batch have reached the end of their life, whichever occurs first.</p> <p>Compliance: at least 19 of every 20 lamps in the batch have no failure after the required number of switching cycles is reached.</p>

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	Non-compliance: otherwise.
Starting time	Compliance: the average starting time of the lamps in the test batch is not higher than the required starting time plus 10 %, and no lamp in the sample batch has a starting time longer than two times the required starting time. Non-compliance: otherwise.
Lamp warm-up time to 60 % Φ	Compliance: the average warm-up time of the lamps in the test batch is not higher than the required warm-up time plus 10 %, and no lamp in the sample batch has a warm-up time that exceeds the required warm-up time multiplied by 1,5. Non-compliance: otherwise.
Premature failure rate	The test shall end <ul style="list-style-type: none"> — when the required number of hours is met, or — when more than one lamp fails, whichever occurs first. Compliance: a maximum of one out of every 20 lamps in the test batch fails before the required number of hours. Non-compliance: otherwise.
Colour rendering (Ra)	Compliance: the average Ra of the lamps in the test batch is not lower than three points below the required value, and no lamp in the test batch has a Ra value that is more than 3,9 points below the required value. Non-compliance: otherwise.
Lumen maintenance at end of life and rated lifetime (for LED lamps only)	For these purposes, ‘end of life’ shall mean the point in time when only 50 % of the lamps are projected to survive or when the average lumen maintenance of the batch is projected to fall below 70 %, whichever is projected to occur first. Compliance: the lumen maintenance at end of life and the lifetime values obtained by extrapolation from the lamp survival factor and from the average lumen maintenance of the lamps in the test batch at 6 000 h are not lower than respectively the lumen maintenance and the rated lifetime values declared in the product information minus 10 %. Non-compliance: otherwise.
Equivalence claims for retrofit lamps according to points 3.1.2(l) and (m) of Annex III	If only the equivalence claim is verified for compliance, it is sufficient to test 10 lamps, where possible obtained approximately in equal proportion from four randomly selected sources.

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	Compliance: the average results of the lamps in the test batch do not vary from the limit, threshold or declared values by more than 10 %. Non-compliance: otherwise.
Beam angle	Compliance: the average results of the lamps in the test batch do not vary from the declared beam angle by more than 25 % and the beam angle value of each individual lamp in the test batch does not deviate by more than 25 % of the rated value. Non-compliance: otherwise.
Peak intensity	Compliance: the peak intensity of each individual lamp in the test batch is not less than 75 % of the rated intensity of the model. Non-compliance: otherwise.
Other parameters (including the energy efficiency index)	Compliance: the average results of the lamps in the test batch do not vary from the limit, threshold or declared values by more than 10 %. Non-compliance: otherwise.

Otherwise, the model shall be considered not to comply.

2. VERIFICATION PROCEDURE FOR LED MODULES NOT INTENDED TO BE REMOVED FROM THE LUMINAIRE BY THE END-USER

For the purposes of the tests described below, Member States' authorities shall obtain test units of the same model from the same manufacturer (of LED modules or luminaires, as applicable), where possible in equal proportion from randomly selected sources. For points (1), (3) and (5) below, the number of sources shall be at least four where possible. For point (2), the number of sources shall be at least four where possible, unless the number of luminaires necessary to obtain by extraction 20 LED modules of the same model is less than four, in which case the number of sources is equal to the number of luminaires needed. For point (4), if the test on the first two luminaires fails, the next three to be tested shall come from three other sources where possible.

Member States' authorities shall apply the following procedure in the order given below, until a conclusion regarding the compliance of model(s) of the LED module(s) is reached, or they conclude that testing cannot be performed. 'Luminaire' refers to the luminaire containing the LED modules, and 'test' refers to the procedure described in part 1 of this Annex, except in point (4). If testing according to both points (1) and (2) is allowed in the technical documentation file, the authorities may choose the most appropriate method.

- (1) If the technical documentation file of the luminaire provides for testing the whole luminaire as a lamp, the authorities shall test 20 luminaires as lamps. If the model of the luminaire is considered to comply, the model(s) of the LED module(s) shall be considered to comply with the requirements laid down in this Regulation. If the model of the luminaire is considered not to comply, the model(s) of the LED module(s) shall be considered not to comply either.
- (2) Otherwise, if the technical documentation file of the luminaire allows for the removal of the LED module(s) for testing, the authorities shall obtain enough luminaires to obtain 20 copies of each incorporated LED module model. They shall follow the

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instructions of the technical documentation file to dismantle the luminaires and test each LED module model separately. The conclusion regarding the compliance of the model(s) of the LED module(s) shall follow from the test(s).

- (3) Otherwise, if according to the technical documentation file of the luminaire, the luminaire manufacturer obtained the incorporated LED module(s) as individual CE marked product(s) from the Union market, the authorities shall obtain 20 copies of each LED module model from the Union market for testing and test each LED module model separately. The conclusion regarding the compliance of the model(s) of the LED module(s) shall follow from the test(s). If the model(s) are not available any more on the Union market, market surveillance cannot be performed.
- (4) Otherwise, if the luminaire manufacturer did not obtain the incorporated LED module(s) as individual CE marked products from the Union market, the authorities shall request the luminaire manufacturer to deliver a copy of the original test data of the LED module(s) showing that the LED module(s) comply with the requirements applicable to:
- all LED modules in Table 5 of this Regulation,
 - if they are directional LED modules, in Tables 1 and 2 of this Regulation,
 - if they are non-directional LED modules, in Tables 1, 2 and 3 of Regulation (EC) No 244/2009.

If according to the test data, any of the LED module model(s) in the luminaire do not comply with the requirements, the model(s) of the LED module(s) shall be considered not to comply.

Otherwise, the authorities shall dismantle a single luminaire to check that the LED module(s) in the luminaire are the same type as described in the test data. If any of them is different or cannot be identified, the model(s) of the LED module(s) shall be considered not to comply.

Otherwise, the switching cycles, premature failure, starting time and warm-up time requirements of Table 5 shall be tested on another luminaire operated at its rating. During operation of the luminaire at its rated values, the temperature of the LED module(s) shall be also tested against the defined limits. If the results of the tests (other than on premature failure) vary from the limit values by more than 10 %, or the luminaire failed prematurely, three more luminaires shall be tested. If the averages of the results of the subsequent three tests (other than those relating to premature failure and to operating temperature) do not vary from the limit values by more than 10 %, none of the luminaires failed prematurely, and the operating temperature (in °C) is within 10 % of the defined limits in all three of them, the model(s) of the LED module(s) shall be considered to comply with the requirements. Otherwise, they shall be considered not to comply.

- (5) If testing according to points (1) to (4) is not possible because no independently testable LED modules can be distinguished in the luminaire, the authorities shall test the switching cycles, premature failure, starting time and warm-up time requirements of Table 5 on a single luminaire. If the results of the tests vary from the limit values by more than 10 %, or the luminaire failed prematurely, three more luminaires shall be tested. If the averages of the results of the subsequent three tests (other than those relating to premature failure) do not vary from the limit values by more than 10 %, and none of the luminaires failed prematurely, the model(s) of the LED module(s) incorporated into the luminaire shall be considered to comply with the requirements laid down in this Regulation. Otherwise, they shall be considered not to comply.

[^{F13}]. **VERIFICATION PROCEDURE FOR EQUIPMENT DESIGNED FOR INSTALLATION BETWEEN THE MAINS AND THE LAMPS**

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Member State authorities shall test one single unit.

The equipment shall be considered to comply with the requirements laid down in this Regulation if it is found to comply with the compatibility provisions of point 2.3 of Annex III, applying state-of-the-art methods and criteria for assessing compatibility, including those set out in documents whose reference numbers have been published for that purpose in the *Official Journal of the European Union*. If non-compatibility is concluded for the compatibility provisions of point 2.3.(a) of Annex III, the model shall still be considered to comply if it fulfils the product information requirements in point 3.3 of Annex III or in Article 3.2 of Delegated Regulation (EU) No 874/2012.

In addition to the compatibility requirements, lamp control gear shall also be tested for the efficiency requirements in point 1.2 of Annex III. The test shall be carried out on a single piece of lamp control gear, not on a combination of several pieces of lamp control gear, even if the model is designed to rely on other pieces of lamp control gear to operate the lamp(s) in a given installation. The model shall be considered to comply with the requirements if the results do not vary from the limit values by more than 2,5 %. If the results vary from the limit values by more than 2,5 %, three more units shall be tested. The model shall be considered to comply with the requirements if the average of the results of the subsequent three tests does not vary from the limit values by more than 2,5 %.

In addition to the compatibility requirements, luminaires intended to be marketed to end-users shall also be checked for the presence of lamps in their packaging. The model shall be considered to comply if no lamps are present or if the lamps that are present are of the energy classes required in point 2.3 of Annex III.

In addition to the compatibility requirements, dimming control devices shall be tested with filament lamps when the control device is in the minimum dimming position. The model shall be considered to comply if, when installed according to the manufacturer's instructions, the lamps provide at least 1 % of their luminous flux at full load.

If the model does not fulfil the applicable compliance criteria referred to above, it shall be considered not to comply. The Member State authorities shall provide the test results and other relevant information to the authorities of the other Member States and to the Commission within one month of the decision being taken on the non-compliance of the model.]

Textual Amendments

- F1** Substituted by [Commission Regulation \(EU\) 2015/1428 of 25 August 2015 amending Commission Regulation \(EC\) No 244/2009 with regard to ecodesign requirements for non-directional household lamps and Commission Regulation \(EC\) No 245/2009 with regard to ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps and repealing Directive 2000/55/EC of the European Parliament and of the Council and Commission Regulation \(EU\) No 1194/2012 with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment \(Text with EEA relevance\).](#)

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Changes and effects yet to be applied to :

- Regulation revoked by [S.I. 2021/1095 reg. 19\(d\)](#)
- Annex 4 words omitted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(c\)](#)
- Annex 4 words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(a\)](#)
- Annex 4 words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(b\)](#)
- Annex 4 words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(a\)](#) by [S.I. 2020/1528 reg. 6\(1\)reg. 6\(2\)\(b\)\(xv\)](#)
- Annex 4 words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(b\)](#) by [S.I. 2020/1528 reg. 6\(3\)reg. 6\(4\)\(b\)\(xv\)](#)

Changes and effects yet to be applied to the whole legislation item and associated provisions

- Signature words omitted by [S.I. 2019/539 Sch. 2 para. 16\(6\)](#)
- Annex 1 para. 1 words substituted by [S.I. 2019/539 Sch. 2 para. 16\(7\)](#)
- Annex 1 para. 2 words substituted by [S.I. 2019/539 Sch. 2 para. 16\(7\)](#)
- Annex 3 para. 2.3(b) words substituted by [S.I. 2019/539 Sch. 2 para. 16\(8\)\(a\)](#)
- Annex 3 para. 3.1.3(o) words substituted by [S.I. 2019/539 Sch. 2 para. 16\(8\)\(b\)](#)
- Annex 4 s. 3 words omitted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(f\)\(i\)](#)
- Annex 4 s. 3 words omitted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(f\)\(ii\)](#)
- Annex 4 s. 1 words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(d\)](#)
- Annex 4 s. 2 words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(e\)\(i\)](#)
- Annex 4 s. 2 words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(e\)\(ii\)](#)
- Annex 4 s. 2(3) words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(e\)\(iii\)\(aa\)](#)
- Annex 4 s. 2(3) words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(e\)\(iii\)\(bb\)](#)
- Annex 4 s. 2(4) words substituted by [S.I. 2019/539 Sch. 2 para. 16\(9\)\(e\)\(iv\)](#)
- Annex 4 s. 1 words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(d\)](#) by [S.I. 2020/1528 reg. 6\(3\)reg. 6\(4\)\(b\)\(xv\)](#)
- Annex 4 s. 2 words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(e\)\(i\)](#) by [S.I. 2020/1528 reg. 6\(3\)reg. 6\(4\)\(b\)\(xv\)](#)
- Annex 4 s. 2 words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(e\)\(ii\)](#) by [S.I. 2020/1528 reg. 6\(3\)reg. 6\(4\)\(b\)\(xv\)](#)
- Annex 4 s. 2(3) words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(e\)\(iii\)\(aa\)](#) by [S.I. 2020/1528 reg. 6\(1\)reg. 6\(2\)\(b\)\(xv\)](#)
- Annex 4 s. 2(3) words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(e\)\(iii\)\(bb\)](#) by [S.I. 2020/1528 reg. 6\(1\)reg. 6\(2\)\(b\)\(xv\)](#)
- Annex 4 s. 2(4) words substituted in earlier amending provision [S.I. 2019/539, Sch. 2 para. 16\(9\)\(e\)\(iv\)](#) by [S.I. 2020/1528 reg. 6\(1\)reg. 6\(2\)\(b\)\(xv\)](#)