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EUROPEAN COMMISSION

Brussels, XXX
C(2010) YYY final

Draft

COMMISSION REGULATION (EU) No ../..

of [...]

amending Commission Regulation (EC) No 245/2009 as regards the ecodesign requirements for fluorescent lamps without integrated ballast, for high intensity discharge lamps, and for ballasts and luminaires able to operate such lamps

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(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to the Treaty on the Functioning of the European Union, ,

Having regard to Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products, and in particular Article 15(1) thereof,

After consulting the Ecodesign Consultation Forum,

Whereas:

- (1) After the adoption of Regulation (EC) No 245/2009 it appeared that certain provisions of that Regulation should be amended in order to avoid unintended impacts on the availability and performance of the products covered by that Regulation.
- (2) In addition, it is necessary to improve coherence, as regards the requirements on product information, between on the one hand Commission Regulation (EC) No 245/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council 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 Council¹, and on the other hand Commission Regulation (EC) No 244/2009 of 18 March 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for non-directional household lamps².
- (3) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 19(1) of Directive 2009/125/EC,

¹ OJ L 76, 24.3.2009, p. 17.

² OJ L 285, 31.10.2009, p. 10.

HAS ADOPTED THIS REGULATION:

Article 1
Amendments to Regulation (EC) No 245/2009

Annexes I, II, III and IV to Regulation (EC) No 245/2009 are amended as set out in the Annex to this Regulation.

Article 2
Entry into force

This Regulation shall enter into force on the first day following that of its publication in the *Official Journal of the European Union*.

It shall apply from 13 April 2010.

This Regulation shall be binding in its entirety and directly applicable in all Member States in accordance with the Treaties.

Done at Brussels,

For the Commission
The President

ANNEX
Amendments in Annexes I, II, III and IV to Regulation (EC) No 245/2009

Annexes I, II, III and IV to Regulation (EC) No 245/2009 are amended as follows:

(1) Annex I is amended as follows:

(a) the title is replaced by the following:

"Exemptions";

(b) the introductory sentence in point 1 is replaced by the following:

"The following lamps shall be exempt from the provisions of Annex III, provided that the technical documentation file drawn up for the purposes of conformity assessment pursuant to Article 8 of Directive 2009/125/EC states which of the technical parameters listed hereunder provide(s) a basis for their exemption:";

(c) points 1(c) and 1(d) are replaced by the following:

"(c) blended high intensity discharge lamps having:

- 6% or more of total radiation of the range 250-780 nm in the range of 250-400 nm; and
- 11% or more of total radiation of the range 250-780 nm in the range of 630-780 nm; and
- 5% or more of total radiation of the range 250-780 nm in the range of 640-700 nm;

(d) blended high intensity discharge lamps having:

- the peak of the radiation between 315 - 400 nm (UVA) or 280 - 315 nm (UVB);";

(d) point 2 is replaced by the following:

"2. The following products shall be exempt from the provisions of Annex III, provided that in all forms of product information it is stated that they are not intended for general lighting use within the meaning of this Regulation, or that they are intended for use in applications listed in points (b) to (e):

(a) products intended for use in applications other than general lighting and products incorporated into products which do not provide a general lighting function;

- (b) lamps covered by the requirements of Directives 94/9/EC of the European Parliament and of the Council³ or Directive 1999/92/EC of the European Parliament and of the Council⁴;
- (c) emergency lighting luminaires and emergency sign luminaires within the meaning of Council Directive 2006/95/EC⁵;
- (d) ballasts intended for use in luminaires defined in paragraph (c) and designed to operate lamps in emergency conditions;
- (e) luminaires covered by the requirements of Directive 94/9/EC, Directive 1999/92/EC, Directive 2006/42/EC of the European Parliament and of the Council⁶, Council Directive 93/42/EEC⁷, Council Directive 88/378/EEC⁸ and luminaires integrated into equipment covered by these requirements.

The intended purpose shall be stated for each product in the product information, and the technical documentation file drawn up for the purposes of conformity assessment pursuant to Article 8 of Directive 2009/125/EC shall list the technical parameters that make the product design specific for the stated intended purpose."

(2) Annex II is amended as follows:

(a) the first sentence is deleted;

(b) The following sentence is added to point 1(c):

"For the purposes of Table 6 in Annex III, the LSF shall be measured in high frequency operating mode with a switching cycle of 11h/1h ."

(c) The following point (o) is added to point 3:

"(o) "Blended lamp" means a lamp containing a mercury vapour lamp and an incandescent lamp filament connected in series in the same bulb."

(3) Annex III is amended as follows:

(a) The following paragraph is added before Table 1:

"Spiral-shaped double capped fluorescent lamps of all diameters equal to or larger than 16 mm (T5) shall comply with the requirements set out in Table 5 for T9 circular lamps."

(b) Table 2 is replaced by the following:

³ OJ L 100, 19.4.1994, p. 1.

⁴ OJ L 23, 28.1.2000, p. 57.

⁵ OJ L 374, 27.12.2006, p. 10.

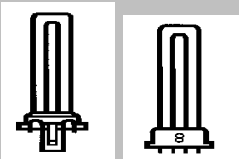
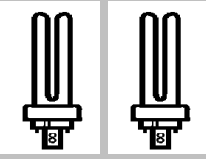
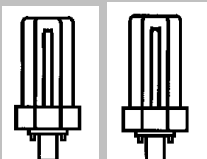
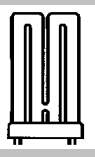
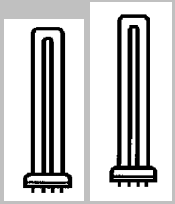
⁶ OJ L 157, 9.6.2006, p. 24.

⁷ OJ L 169, 12.7.1993, p. 1.

⁸ OJ L 187, 16.7.1988, p. 1.

"Table 2

Rated minimum efficacy values for single capped fluorescent lamps working on electromagnetic and electronic ballast

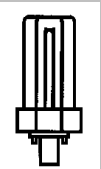
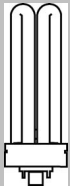
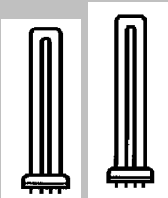
| Small single parallel tube, lamp cap G23 (2 pin) or 2G7 (4 pin)  | | Double parallel tubes, lamp cap G24d (2 pin) or G24q (4 pin)  | | Triple parallel tubes, lamp cap GX24d (2 pin) or GX24q (4 pin)  | |
|---|---|--|---|--|---|
| Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value | Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value | Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value |
| 5 | 48 | 10 | 60 | 13 | 62 |
| 7 | 57 | 13 | 69 | 18 | 67 |
| 9 | 67 | 18 | 67 | 26 | 66 |
| 11 | 76 | 26 | 66 | | |
| 4 legs in one plane, lamp cap 2G10 (4 pin)  | | Long single parallel tube, lamp cap 2G11 (4 pin)  | | | |
| Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value | Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value | | |
| 18 | 61 | 18 | 67 | | |
| 24 | 71 | 24 | 75 | | |
| 36 | 78 | 34 | 82 | | |
| | | 36 | 81 | | |

”;

(c) Table 3 is replaced by the following:

"Table 3

Rated minimum efficacy values for single capped fluorescent lamps, working only on electronic ballast

| Triple parallel tubes, lamp cap GX24q (4 pin) | | Four parallel tubes, lamp cap GX24q (4 pin) | | Long single parallel tube, lamp cap 2G11 (4 pin) | |
|---|---|---|---|---|---|
|  | |  | |  | |
| Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value | Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value | Nominal wattage (W) | Rated luminous efficacy (lm/W), 100 h initial value |
| 32 | 75 | 57 | 75 | 40 | 83 |
| 42 | 74 | 70 | 74 | 55 | 82 |
| 57 | 75 | | | 80 | 75 |
| 70 | 74 | | | | |

”;

(d) Table 6 is replaced by the following:

"Table 6

Deduction percentages for rated minimum efficacy values for fluorescent lamps with high colour temperature and/or high colour rendering and/or second lamp envelope and/or long life

| Lamp parameter | Deduction from luminous efficacy at 25°C |
|--|--|
| $T_c \geq 5000K$ | - 10% |
| $95 \geq Ra > 90$ | - 20% |
| $Ra > 95$ | - 30% |
| Second lamp envelope | - 10% |
| Lamp Survival Factor ≥ 0.50 after 40000 burning hours | - 5% |

";

- (e) In Annex III.1.1.B, the sentence

"The corrections defined for the first stage (Table 6) shall continue to apply."

is replaced by

"The corrections (Table 6) and the specific requirements for spiral-shaped double capped fluorescent lamps defined for the first stage shall continue to apply.";

- (f) The title of Table 7 is replaced by the following:

"Table 7

Rated minimum efficacy values for high pressure sodium lamps with $Ra \leq 60$ ";

- (g) The title of Table 8 is replaced by the following:

"Table 8

Rated minimum efficacy values for Metal Halide Lamps with $Ra \leq 80$ and for high pressure sodium lamps with $Ra > 60$ ";

- (h) The second paragraph of Annex III.1.1.C is replaced by the following:

"Fluorescent lamps without integrated ballast shall be able to operate with ballasts of energy efficiency class A2 or more efficient ballasts in accordance with point 2.2 of Annex III. In addition they may also operate with ballasts of less efficient classes than A2.";

- (i) Table 11 is replaced by the following:

"Table 11

Lamp lumen maintenance factors for single and double capped fluorescent lamps - Stage 2

| Lamp lumen maintenance factor | Burning hours | | | |
|--|-----------------------------|------|------|-------|
| | 2000 | 4000 | 8000 | 16000 |
| Lamp types | | | | |
| Double-Capped Fluorescent lamps operating on non-high frequency ballasts | 0.95 | 0.92 | 0.90 | - |
| T8 Double-Capped Fluorescent lamps on high frequency ballast with warmstart | 0.96 | 0.92 | 0.91 | 0.90 |
| Other Double-Capped Fluorescent lamps on high frequency ballast with warmstart | 0.95 | 0.92 | 0.90 | 0.90 |
| Circular Single-Capped Fluorescent lamps operating on non-high frequency ballasts, T8 U-shaped double-capped fluorescent lamps and spiral-shaped double capped fluorescent lamps of all diameters equal to or larger than 16 mm (T5) | 0.80 | 0.74 | - | - |
| | 0.72 at 5000 burning hours | | | |
| Circular Single-Capped Fluorescent lamps operating on high frequency ballasts | 0.85 | 0.83 | 0.80 | - |
| | 0.75 at 12000 burning hours | | | |
| Other Single-Capped Fluorescent lamps operating on non-high frequency ballasts | 0.85 | 0.78 | 0.75 | - |
| Other Single-Capped Fluorescent lamps on high frequency ballast with warmstart | 0.90 | 0.84 | 0.81 | 0.78 |

”;

(j) The following introductory phrase and Table 11a is added after Table 11:

”The following cumulative deductions shall be applied to the values in Table 11:

Table 11a – Deduction percentages for fluorescent lamp lumen maintenance requirements

| Lamp parameter | Deduction from lamp lumen maintenance requirement |
|--|---|
| Lamps with $95 \geq Ra > 90$ | At burning hours $\leq 8000h$: -5 % At burning hours $> 8000h$: -10 % |
| Lamps with $Ra > 95$ | At burning hours $\leq 4000h$: -10 % At burning hours $> 4000h$: -15 % |
| Lamps with a colour temperature $\geq 5000K$ | -10 % |

"
;

(k) Table 12 is replaced by the following:

"Table 12

Lamp survival factors for single and double capped fluorescent lamps – Stage 2

| Lamp survival factor | Burning hours | | | |
|---|-----------------------------|-------------|-------------|--------------|
| | 2000 | 4000 | 8000 | 16000 |
| Double-Capped Fluorescent lamps operating on non-high frequency ballasts | 0.99 | 0.97 | 0.90 | - |
| Double-Capped Fluorescent lamps on high frequency ballast with warmstart | 0.99 | 0.97 | 0.92 | 0.90 |
| Circular Single-Capped Fluorescent lamps operating on non-high frequency ballasts, T8 U-shaped double-capped fluorescent lamps and spiral-shaped double capped fluorescent lamps of all diameters equal to or larger than 16 mm (T5) | 0.98 | 0.77 | - | - |
| | 0.50 at 5000 burning hours | | | |
| Circular Single-Capped Fluorescent lamps operating on high frequency ballasts | 0.99 | 0.97 | 0.85 | - |
| | 0.50 at 12000 burning hours | | | |
| Other Single-Capped Fluorescent lamps operating on non-high frequency ballasts | 0.98 | 0.90 | 0.50 | - |
| Other Single-Capped Fluorescent lamps on high frequency ballast with warmstart | 0.99 | 0.98 | 0.88 | - |

"
;

- (l) Table 13 is replaced by the following:

"Table 13

Lamp lumen maintenance factors & lamp survival factors for high pressure sodium lamps - Stage 2

| High pressure sodium lamp category and burning hours for measurement | | Lamp lumen maintenance factor | Lamp survival factor |
|---|--|--|---------------------------------|
| P ≤ 75 W LLMF and LSF measured at 12000 burning hours | Ra ≤ 60 | > 0.80 | > 0.90 |
| | Ra > 60 | > 0.75 | > 0.75 |
| | all retrofit lamps designed to operate on high pressure mercury vapour lamp ballast | > 0.75 | > 0.80 |
| P > 75 W LLMF and LSF measured at 16000 burning hours | Ra ≤ 60 | > 0.85 | > 0.90 |
| | Ra > 60 | > 0.70 | > 0.65 |
| | all retrofit lamps designed to operate on high pressure mercury vapour lamp ballast | > 0.75 | > 0.55 |

The requirements in Table 13 for retrofit lamps designed to operate on high pressure mercury vapour lamp ballast shall be applicable until 6 years after the entry into force of this Regulation.";

- (m) Annex III.1.3(i) is replaced by the following:

"(i) Ambient temperature inside the luminaire at which the lamp was designed to maximise its luminous flux. If this temperature is equal to or lower than 0°C or equal to or higher than 50°C, it shall be stated that the lamp is not suitable for indoor use at standard room temperatures.";

- (n) The following point (j) is added to point 1.3 of Annex III:

"j) For fluorescent lamps without integrated ballast, the energy efficiency index(es) of ballasts as defined in Table 17 with which the lamp can operate.";

- (o) Table 17 is replaced by the following:

"Table 17 – Energy efficiency index requirements for non-dimmable ballasts for fluorescent lamps

| LAMP DATA | | | | | BALLAST EFFICIENCY (Plamp / Pinput) | | | | | |
|--------------|-----------------|-----------------------------|-----------------------|------|-------------------------------------|--------|--------|--------|--------|--------|
| | | | | | Non-dimmable | | | | | |
| Lamp type | Nominal Wattage | ILCOS CODE | Rated/typical wattage | | A2 BAT | A2 | A3 | B1 | B2 | |
| | | | 50Hz | HF | | | | | | |
| | W | | W | W | | | | | | |
| T8 | 15 | FD-15-E-G13-26/450 | 15 | 13.5 | 87.8 % | 84.4 % | 75.0 % | 67.9 % | 62.0 % | |
| T8 | 18 | FD-18-E-G13-26/600 | 18 | 16 | 87.7 % | 84.2 % | 76.2 % | 71.3 % | 65.8 % | |
| T8 | 30 | FD-30-E-G13-26/900 | 30 | 24 | 82.1 % | 77.4 % | 72.7 % | 79.2 % | 75.0 % | |
| T8 | 36 | FD-36-E-G13-26/1200 | 36 | 32 | 91.4 % | 88.9 % | 84.2 % | 83.4 % | 79.5 % | |
| T8 | 38 | FD-38-E-G13-26/1050 | 38.5 | 32 | 87.7 % | 84.2 % | 80.0 % | 84.1 % | 80.4 % | |
| T8 | 58 | FD-58-E-G13-26/1500 | 58 | 50 | 93.0 % | 90.9 % | 84.7 % | 86.1 % | 82.2 % | |
| T8 | 70 | FD-70-E-G13-26/1800 | 69.5 | 60 | 90.9 % | 88.2 % | 83.3 % | 86.3 % | 83.1 % | |
| TC-L | 18 | FSD-18-E-2G11 | 18 | 16 | 87.7 % | 84.2 % | 76.2 % | 71.3 % | 65.8 % | |
| TC-L | 24 | FSD-24-E-2G11 | 24 | 22 | 90.7 % | 88.0 % | 81.5 % | 76.0 % | 71.3 % | |
| TC-L | 36 | FSD-36-E-2G11 | 36 | 32 | 91.4 % | 88.9 % | 84.2 % | 83.4 % | 79.5 % | |
| TCF | 18 | FSS-18-E-2G10 | 18 | 16 | 87.7 % | 84.2 % | 76.2 % | 71.3 % | 65.8 % | |
| TCF | 24 | FSS-24-E-2G10 | 24 | 22 | 90.7 % | 88.0 % | 81.5 % | 76.0 % | 71.3 % | |
| TCF | 36 | FSS-36-E-2G10 | 36 | 32 | 91.4 % | 88.9 % | 84.2 % | 83.4 % | 79.5 % | |
| TC-D / DE | 10 | FSQ-10-E-G24q=1 G24d=1 | FSQ-10-I- | 10 | 9.5 | 89.4 % | 86.4 % | 73.1 % | 67.9 % | 59.4 % |
| TC-D / DE | 13 | FSQ-13-E-G24q=1 G24d=1 | FSQ-13-I- | 13 | 12.5 | 91.7 % | 89.3 % | 78.1 % | 72.6 % | 65.0 % |
| TC-D / DE | 18 | FSQ-18-E-G24q=2 G24d=2 | FSQ-18-I- | 18 | 16.5 | 89.8 % | 86.8 % | 78.6 % | 71.3 % | 65.8 % |
| TC-D / DE | 26 | FSQ-26-E-G24q=3 G24d=3 | FSQ-26-I- | 26 | 24 | 91.4 % | 88.9 % | 82.8 % | 77.2 % | 72.6 % |
| TC-T / TE | 13 | FSM-13-E-GX24q=1 GX24d=1 | FSM-13-I- | 13 | 12.5 | 91.7 % | 89.3 % | 78.1 % | 72.6 % | 65.0 % |
| TC-T / TE | 18 | FSM-18-E-GX24q=2 GX24d=2 | FSM-18-I- | 18 | 16.5 | 89.8 % | 86.8 % | 78.6 % | 71.3 % | 65.8 % |
| TC-T / TC-TE | 26 | FSM-26-E-GX24q=3 GX24d=3 | FSM-26-I- | 26.5 | 24 | 91.4 % | 88.9 % | 82.8 % | 77.5 % | 73.0 % |

| | | | | | | | | | |
|-------------|----|--|------|------|--------|--------|--------|--------|--------|
| TC-DD / DDE | 10 | FSS-10-E-GR10q FSS-10-L/P/H-GR10q | 10.5 | 9.5 | 86.4 % | 82.6 % | 70.4 % | 68.8 % | 60.5 % |
| TC-DD / DDE | 16 | FSS-16-E-GR10q FSS-16-L/P/H-GR10q FSS-16-I-GR8 | 16 | 15 | 87.0 % | 83.3 % | 75.0 % | 72.4 % | 66.1 % |
| TC-DD / DDE | 21 | FSS-21-E-GR10q FSS-21-L/P/H-GR10q | 21 | 19.5 | 89.7 % | 86.7 % | 78.0 % | 73.9 % | 68.8 % |
| TC-DD / DDE | 28 | FSS-28-E-GR10q FSS-28-L/P/H-GR10q FSS-28-I-GR8 | 28 | 24.5 | 89.1 % | 86.0 % | 80.3 % | 78.2 % | 73.9 % |
| TC-DD / DDE | 38 | FSS-38-E-GR10q FSS-38-L/P/H-GR10q | 38.5 | 34.5 | 92.0 % | 89.6 % | 85.2 % | 84.1 % | 80.4 % |
| TC | 5 | FSD-5-I-G23 FSD-5-E-2G7 | 5.4 | 5 | 72.7 % | 66.7 % | 58.8 % | 49.3 % | 41.4 % |
| TC | 7 | FSD-7-I-G23 FSD-7-E-2G7 | 7.1 | 6.5 | 77.6 % | 72.2 % | 65.0 % | 55.7 % | 47.8 % |
| TC | 9 | FSD-9-I-G23 FSD-9-E-2G7 | 8.7 | 8 | 78.0 % | 72.7 % | 66.7 % | 60.3 % | 52.6 % |
| TC | 11 | FSD-11-I-G23 FSD-11-E-2G7 | 11.8 | 11 | 83.0 % | 78.6 % | 73.3 % | 66.7 % | 59.6 % |
| T5 | 4 | FD-4-E-G5-16/150 | 4.5 | 3.6 | 64.9 % | 58.1 % | 50.0 % | 45.0 % | 37.2 % |
| T5 | 6 | FD-6-E-G5-16/225 | 6 | 5.4 | 71.3 % | 65.1 % | 58.1 % | 51.8 % | 43.8 % |
| T5 | 8 | FD-8-E-G5-16/300 | 7.1 | 7.5 | 69.9 % | 63.6 % | 58.6 % | 48.9 % | 42.7 % |
| T5 | 13 | FD-13-E-G5-16/525 | 13 | 12.8 | 84.2 % | 80.0 % | 75.3 % | 72.6 % | 65.0 % |
| T9-C | 22 | FSC-22-E-G10q-29/200 | 22 | 19 | 89.4 % | 86.4 % | 79.2 % | 74.6 % | 69.7 % |
| T9-C | 32 | FSC-32-E-G10q-29/300 | 32 | 30 | 88.9 % | 85.7 % | 81.1 % | 80.0 % | 76.0 % |
| T9-C | 40 | FSC-40-E-G10q-29/400 | 40 | 32 | 89.5 % | 86.5 % | 82.1 % | 82.6 % | 79.2 % |
| T2 | 6 | FDH-6-L/P-W4.3x8.5d-7/220 | | 5 | 72.7 % | 66.7 % | 58.8 % | | |
| T2 | 8 | FDH-8-L/P-W4.3x8.5d-7/320 | | 7.8 | 76.5 % | 70.9 % | 65.0 % | | |
| T2 | 11 | FDH-11-L/P-W4.3x8.5d-7/420 | | 10.8 | 81.8 % | 77.1 % | 72.0 % | | |
| T2 | 13 | FDH-13-L/P-W4.3x8.5d-7/520 | | 13.3 | 84.7 % | 80.6 % | 76.0 % | | |
| T2 | 21 | FDH-21-L/P-W4.3x8.5d-7/ | | 21 | 88.9 % | 85.7 % | 79.2 % | | |
| T2 | 23 | FDH-23-L/P-W4.3x8.5d-7/ | | 23 | 89.8 % | 86.8 % | 80.7 % | | |
| T5-E | 14 | FDH-14-G5-L/P-16/550 | | 13.7 | 84.7 % | 80.6 % | 72.1 % | | |
| T5-E | 21 | FDH-21-G5-L/P-16/850 | | 20.7 | 89.3 % | 86.3 % | 79.6 % | | |
| T5-E | 24 | FDH-24-G5-L/P-16/550 | | 22.5 | 89.6 % | 86.5 % | 80.4 % | | |
| T5-E | 28 | FDH-28-G5-L/P-16/1150 | | 27.8 | 89.8 % | 86.9 % | 81.8 % | | |
| T5-E | 35 | FDH-35-G5-L/P-16/1450 | | 34.7 | 91.5 % | 89.0 % | 82.6 % | | |
| T5-E | 39 | FDH-39-G5-L/P-16/850 | | 38 | 91.0 % | 88.4 % | 82.6 % | | |

| | | | | | | | | | |
|-------|-----|---|--|------|--------|--------|--------|--|--|
| T5-E | 49 | FDH-49-G5-L/P-16/1450 | | 49.3 | 91.6 % | 89.2 % | 84.6 % | | |
| T5-E | 54 | FDH-54-G5-L/P-16/1150 | | 53.8 | 92.0 % | 89.7 % | 85.4 % | | |
| T5-E | 80 | FDH-80-G5-L/P-16/1150 | | 80 | 93.0 % | 90.9 % | 87.0 % | | |
| T5-E | 95 | FDH-95-G5-L/P-16/1150 | | 95 | 92.7 % | 90.5 % | 84.1 % | | |
| T5-E | 120 | FDH-120-G5-L/P-16/1450 | | 120 | 92.5 % | 90.2 % | 84.5 % | | |
| T5-C | 22 | FSCH-22-L/P-2GX13-16/225 | | 22.3 | 88.1 % | 84.8 % | 78.8 % | | |
| T5-C | 40 | FSCH-40-L/P-2GX13-16/300 | | 39.9 | 91.4 % | 88.9 % | 83.3 % | | |
| T5-C | 55 | FSCH-55-L/P-2GX13-16/300 | | 55 | 92.4 % | 90.2 % | 84.6 % | | |
| T5-C | 60 | FSCH-60-L/P-2GX13-16/375 | | 60 | 93.0 % | 90.9 % | 85.7 % | | |
| TC-LE | 40 | FSDH-40-L/P-2G11 | | 40 | 91.4 % | 88.9 % | 83.3 % | | |
| TC-LE | 55 | FSDH-55-L/P-2G11 | | 55 | 92.4 % | 90.2 % | 84.6 % | | |
| TC-LE | 80 | FSDH-80-L/P-2G11 | | 80 | 93.0 % | 90.9 % | 87.0 % | | |
| TC-TE | 32 | FSMH-32-L/P-2GX24q=3 | | 32 | 91.4 % | 88.9 % | 82.1 % | | |
| TC-TE | 42 | FSMH-42-L/P-2GX24q=4 | | 43 | 93.5 % | 91.5 % | 86.0 % | | |
| TC-TE | 57 | FSM6H-57-L/P-2GX24q=5 FSM8H-57-L/P-2GX24q=5 | | 56 | 91.4 % | 88.9 % | 83.6 % | | |
| TC-TE | 70 | FSM6H-70-L/P-2GX24q=6 FSM8H-70-L/P-2GX24q=6 | | 70 | 93.0 % | 90.9 % | 85.4 % | | |
| TC-TE | 60 | FSM6H-60-L/P-2G8=1 | | 63 | 92.3 % | 90.0 % | 84.0 % | | |
| TC-TE | 62 | FSM8H-62-L/P-2G8=2 | | 62 | 92.2 % | 89.9 % | 83.8 % | | |
| TC-TE | 82 | FSM8H-82-L/P-2G8=2 | | 82 | 92.4 % | 90.1 % | 83.7 % | | |
| TC-TE | 85 | FSM6H-85-L/P-2G8=1 | | 87 | 92.8 % | 90.6 % | 84.5 % | | |
| TC-TE | 120 | FSM6H-120-L/P-2G8=1 FSM8H-120-L/P-2G8=1 | | 122 | 92.6 % | 90.4 % | 84.7 % | | |
| TC-DD | 55 | FSSH-55-L/P-GRY10q3 | | 55 | 92.4 % | 90.2 % | 84.6 % | | |

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(4) The following paragraph is added after the first paragraph of Annex IV:

"Member States 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 the reference numbers of which have been published for that purpose in the Official Journal of the European Union."