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NORME INTERNATIONALE

AMENDMENT 2
AMENDEMENT 2

Electrical supply track systems for luminaires

Systèmes d'alimentation électrique par rail pour luminaires

IEC 60570:2003-01/AMD2:2019-12(en-fr)

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Electrical supply track systems for luminaires

Systèmes d'alimentation électrique par rail pour luminaires

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FOREWORD

This amendment has been prepared by subcommittee 34D: Luminaires, of IEC technical committee 34: Lamps and related equipment.

The text of this amendment is based on the following documents:

FDIS	Report on voting
34D/1502/FDIS	34D/1517/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

1 Scope

Replace the second dashed list item, modified by Amendment 1, with the following new dashed item:

– a SELV system without provision for protective earthing (class III) and a rated current not exceeding 25 A per conductor, or

At the end of the scope, add the following new text:

This document does not cover operational or performance compatibility between different track systems. Protection against unsafe compatibility between Class I and Class III circuit is covered by this document.

The track system can be provided with auxiliary circuits for the purpose of a control or audio signal other than supply.

NOTE 1 At present, the following types of control systems are available on the market:

– control signal, with basic insulation to LV supply (e.g. digital addressable lighting interface, 1 V to 10 V DC signal);

– control signal, SELV/PELV insulated to LV supply (e.g. DMX);

– control signal, not insulated to LV supply (e.g. push button control/phase cut/step dim).

Track systems can also be provided with conductors specifically identified for emergency lighting luminaires.

NOTE 2 Requirements for PELV are under consideration, pending modification in IEC 60598-1.

2 Normative references

Replace the reference to IEC 60598-1:1999 with the following new reference and note:

IEC 60598-1:2014, *Luminaires – Part 1: General requirements and tests*
IEC 60598-1:2014/AMD1:2017

NOTE The 9th edition of IEC 60598-1 is under preparation. Stage at the time of publication IEC PRVC 60598-1:2019. This 9th edition provides a cross link between IEC 60598-1 and IEC 60570 for track mounted luminaires.

Add the following new reference:

IEC 60598-2-22:2014, *Luminaires – Part 2-22: Particular requirements – Luminaires for emergency lighting*
IEC 60598-2-22:2014/AMD1:2017

3 Terms and definitions

3.1
luminaire track system

Add the following notes to entry:

Note 1 to entry: The track system may be provided with auxiliary circuits for the purpose of a control or audio signal other than supply; the track system may be used to supply luminaires where the control signals are injected via supply conductors or a circuit connected to the supply via separated conductors (e.g. powerline).

Note 2 to entry: The track system may be provided with circuits identified to ensure battery recharge (for self-contained emergency luminaires).

3.10
class I track

Add the following notes to entry:

Note 1 to entry: The track can be provided with auxiliary circuits for control or audio signals. These auxiliary circuits can use conductors originally designed for mains supply.

Note 2 to entry: The track system can be provided with circuits identified to ensure battery recharge (for self-contained emergency luminaires).

3.11
class III track

Replace the existing note with the following new note to entry:

Note 1 to entry: The track can be provided with auxiliary circuits for a SELV control or audio signals. These auxiliary circuits can use separate auxiliary conductors or conductors originally designed for a SELV supply.

5 General test requirements

5.3

In the second paragraph, replace "the following items" *with* "items a) to i) as follows*." and replace the colon ":" after "*class III sectors:*" with a full stop. then add, before list item a), the following new paragraph:*

For track systems with control interface and/or additional circuits, it is necessary to provide samples of the different constructions (both with and without additional circuits); the same is applicable for tracks designed to be used together with emergency luminaires.

6 Marking

In the first paragraph, replace "6.7" *with* "6.9".

6.1

In the second paragraph, replace "symbol for class III" *with* "graphical symbol IEC 60417-5180 for class III".

6.3

At the end of the second paragraph, add the following new text:

All terminals shall be marked with their identification; the mounting instructions shall explain the meaning of identification and the relevant circuit connections and/or functions.

NOTE Some track and adaptor terminals can be identified with a dual function such as for supply or audio signal connection.

6.5

At the end of list item a), add the following new text:

If the track is intended to be wall mounted, or has similar non-horizontal mounting, the instructions shall contain information regarding any limitations of the track positioning, and the maximum specified mechanical loadings.

6.6

Replace list item b) with the following new item b):

b) where there is an associated safety isolating transformer or lamp controlgear, instructions regarding the correct method of connection of the transformer or lamp controlgear terminals to avoid misinterpretation of the primary and secondary terminals;

In list item d), delete the note.

At the end of list item e), add the following new item f):

f) a warning that for Class III track systems any connected control or audio signals shall only be provided by a SELV source.

6.7

At the end of Subclause 6.7, add the following new Subclauses 6.8 and 6.9:

6.8 Marking for tracks using other circuits

In addition to the above markings and information, the following details shall be given in the manufacturer's instructions supplied with tracks using control signals via conductors originally designed for mains supply:

- Instructions for the safe connection of control signal conductors if any misconnection could inadvertently reduce the required electrical insulation between circuits.

6.9 Marking for track suitable for supplying emergency luminaires

In addition to the above markings and information, the following details shall be given in the manufacturer's instructions:

- for track systems designed to operate centrally supplied emergency luminaires: a warning that the track and components shall be connected to a system designed to supply emergency luminaires, to ensure the correct operating of emergency luminaires on the whole system;
- for track systems used to supply a self-contained emergency luminaire: information that the supply line for battery recharging shall be un-switched.

7 General requirements and ratings

Replace the first sentence of the third paragraph, modified by Amendment 1, with the following new text:

The rated voltage between poles for a class I track system shall not exceed 440 V and for a class III system the rated voltage shall not exceed SELV voltage limits as specified in IEC 60598-1.

8 Construction

Replace the first paragraph with the following new text:

The provisions of section four of IEC 60598-1 apply together with the requirements in 8.1 to 8.13 with the exception of 4.11.6 which is replaced by 8.9.

Annex A provides details regarding the test to be carried out on luminaires supplied by track systems using control signals via conductors designed for supply voltage.

Compliance shall be checked by carrying out the tests in Annex A as applicable.

8.6

Replace the third paragraph starting with "To test the suspension…" with the following new text:

To test the suspension of both track and luminaires, suspension devices for luminaires, including adaptors, are mounted on the track as in normal use specified by the track manufacturer and are subjected for 1 h to a load equal to 5 times the specified load as claimed by the manufacturer. The minimum claimed load value for adaptor and for suspension devices for luminaires shall be:

– *50 N for class I and class II;*
– *10 N for class III;*
– *the weight of the luminaire for adaptors which are integrated in the luminaire.*

NOTE The adaptors according to the third bullet are intended for use by luminaire manufacturers only and are not for retail sale.

This test shall be made at a temperature of t_a of the track +15 °C.

Replace the fourth paragraph with the following new text:

After the test, the components, the track and its fixing devices shall not be deformed to such an extent that safety would be impaired and the components shall not have become detached from the track.

Replace the seventh and eighth paragraphs with the following new paragraphs:

A bending moment of 2,5 Nm is then applied to the luminaire suspension/fixing device, the force being applied for 1 min in a direction parallel to the track axis and for 1 min in a direction perpendicular to this axis.

After the test, the luminaire suspension/fixing device and other parts of the track system shall not be deformed to such an extent that safety would be impaired and the suspension device shall not have become loose.

8.11

Replace existing Subclause 8.11 with the following new Subclause 8.11:

8.11 Interchangeability

8.11.1 Care shall be taken in the design and manufacture of adaptors for use with a particular track system to ensure interchangeability and safety in use. In particular, no connections between live conductors and earth conductors shall be possible.

Tests shall be conducted with approved track samples retained by the test house or samples of the approved track provided by the manufacturer.

The minimum insulation between supply circuits (LV, SELV) and the housing and control/signal interface shall be at least those specified in IEC 60598-1.

SELV circuits shall not use conductors designed for mains supply; this restriction also applies to control signal and audio circuits which may be provided from a SELV source.

SELV circuits shall comply with the requirements for Class III track.

Track conductors designed for the supply connection to luminaires may be used for other than SELV control signal purposes if the insulation for those conductors meets the requirements for relevant mains supply voltages.

It shall not be possible to reduce the minimum creepage distances and clearances between different circuits, as specified in IEC 60598-1, neither along the track, nor inside the components. This requirement shall be ensured even in the case of connection of different adaptors/components with different purposes of the same manufacturer in the track body, with the only exception of track using control signals via conductors originally designed for mains supply and marked accordingly.

The track and adaptor shall comply with all appropriate parts of IEC 60598-1.

8.11.2 The opening in the insulating liner of a class I track/track sector giving access to the conductor shall have a maximum dimension of 3,0 mm and the conductor shall be recessed into the insulating liner by at least 1,7 mm.

The contacts of class III adaptors shall either:

- have a minimum dimension of 3,5 mm in any orientation that can be presented to the conductor opening in the insulating liner of any class I track sector, or

- the contacts shall not protrude by more than 1 mm from a surface that has a minimum dimension of 3,5 mm in any orientation that can be presented to the conductor opening in the insulating liner of any class I track/track sector (see example in Figure 4).

NOTE 1 This second requirement ensures, by requiring maximum protruding dimension of 1 mm, that there is no electrical contact between the contacts of class III adaptors and the mains voltage conductors (being recessed by at least 1,7 mm).

NOTE 2 For clarity, the dimensions of the class I tracks and the class III adaptor contacts are measured in the positions shown in Figures 2, 3 and 4.

Compliance is checked by measurements.

The opening in the insulation liner of the track system giving access to the control interface conductor of the following type:

– control signal, with basic insulation to LV supply,

– control signal, not insulated to LV supply

shall comply with the requirements of 8.11.2 for Class I tracks.

The opening in the insulation liner of the track system giving access to the SELV control interface conductor shall comply with the requirements of 8.11.1 for Class III tracks with the exception of the minimum dimension that can be reduced.

NOTE 3 For clarity, the dimensions of the class I tracks and the class III adaptor contacts are measured in the positions shown in Figures 2 and 3.

Compliance is checked by inspection and measurements.

8.12

Replace existing Subclause 8.12 with the following new Subclause 8.12:

8.12 Track systems designed to supply emergency lighting luminaires shall prevent any accidental disconnection (in accordance with 22.11.1 of IEC 60598-2-22:2014 and IEC 60598-2-22:2014/AMD1:2017).

Track adaptors and luminaire suspension devices to be used with emergency luminaires which are intended to be used for a display lighting application, shall include a system for locking the luminaire in a fixed aiming direction and fixed position on the track. The locking system shall ensure that the luminaire can be locked in its final aiming position and location and that it cannot be adjusted or moved without the aid of a tool, and the emergency lighting function of the luminaire cannot be switched off without the aid of a tool.

NOTE A display lighting application is normally within arm reach.

Add, at the end of 8.12, the following new Subclause 8.13:

8.13 A track system used for centrally supplied emergency lighting shall provide double or reinforced insulation between the conductors of the emergency lighting circuit and the normal mains circuit.

The working voltage to be used to design the insulation between different circuits shall be the higher rated voltage of the different circuits.

In a track system for centrally supplied emergency lighting, terminals identification shall always be consistent within the entire system.

9 Creepage distances and clearances

In the first paragraph, replace "9.1 and 9.2" with "9.1 to 9.3".

At the end of Subclause 9.2, add the following new Subclause 9.3:

9.3 For Class I track systems it shall be ensured, by design, that any access to live parts closer than the values given in Table 11.1A of IEC 60598-1 for reinforced insulation is prevented.

Compliance is checked by measuring the distance between live parts and a metal foil pressed into any openings of the fully assembled track system with the probe 1 of IEC 61032:1997 (50 mm sphere) in every possible direction.

11 External and internal wiring

Replace the second and third paragraphs with the following new paragraph:

If a supply cable is provided, the cross-sectional area of the conductors shall be compatible with the rated current of the track system.

13 Protection against electric shock

In the first paragraph, delete the text: ", except where the track system/sector openings is classified class III for operation from a SELV supply".

13.1

Add, between the first and second paragraphs, the following new text:

The test shall not be carried out on:

- SELV circuits;
- circuits with at least basic insulation to LV.

15 Insulation resistance and electric strength

15.2

Replace the existing text with the following new text:

Track systems that comply with the requirements of this document, are deemed to comply with the provisions in 10.3 of IEC 60598-1 without testing.

18 Terminals and connections for external wiring

In the first paragraph, correct the cross references to IEC 60598-1 as follows:

*Replace "*15.9.1" *with* "15.6.3.1", *and replace* "15.9.2" *with* "15.6.3.2".

For the subsequent sub-headings of Clause 18 correct the cross references to IEC 60598-1 as follows:

Replace "15.9.1.1" *with* "15.6.3.1.1"

Replace "15.9.1.3" *with* "15.6.3.1.3"

Replace "15.9.2.3" *with* "15.6.3.2.3"

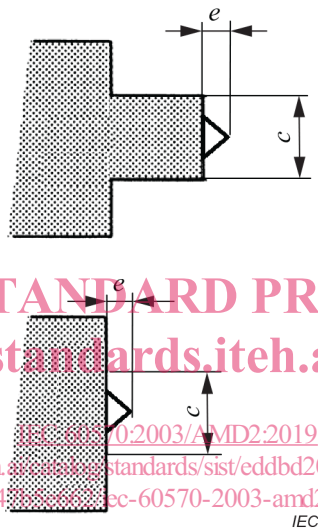
Replace "15.9.2.4" *with* "15.6.3.2.4"

Figure 3

Replace the title of Figure 3, modified by Amendment 1, with the following new title:

Figure 3 – Measurement positions for typical class I tracks (not to scale)

Add, after Figure 3, the following new Figure 4:



e ≤ 1 mm

c ≥ 3,5 mm

Figure 4 – Measurement positions for typical class III adaptor contacts with protruding contacts

Add, after Figure 4, the following new Annex A