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INTERNATIONAL ELECTROTECHNICAL COMMISSION

TECHNICAL COMMITTEE 31 EQUIPMENT FOR EXPLOSIVE ATMOSPHERES

DRAFT INTERPRETATION SHEET

IEC 60079-28:2015 (Ed.2) Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation

This draft for an interpretation sheet has been prepared by IEC technical committee 31: Equipment for explosive atmospheres in accordance with Administrative Circular AC/42/2004 new procedures for Interpretation of standards Annex 2: New text for ISO/IEC Directives (IEC Supplement).

Comments / proposals should be submitted using the IEC Electronic voting system by the National Committees. (See AC/3/2011).

Comments/ proposals to be returned by 2019-01-04

Yours sincerely

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Interpretation sheet to the 6th paragraph of the Scope of IEC 60079-28 Ed. 2

Various interpretations are being made by IECEx ExCB -and ExTL staff regarding the consideration of the risk of ignition from optical sources, and the applicability of IEC 60079-28 in the context of Clause 6.6.4 of IEC 60079-0:2017. In addition to assistance provided to date on IECEx Decision Sheet DS2018/004, the Liaison with IECEx has indicated that an interpretation sheet addressing the applicability of IEC 60079-28 is required to clarify which equipment that falls into the scope and what does not.

This interpretation is made available for Edition 2 of this standard due to the current use of that standard by manufacturers, conformity assessment schemes and national bodies by means of this “Interpretation Sheet” as follows:

Details of interpretation:

IEC 60079-28:2015 (Ed.2) Explosive atmospheres - Part 28: Protection of equipment and transmission systems using optical radiation

Interpretation of the 6th paragraph of the Scope:

Question: The 6th paragraph including the items 1) to 5) describes the equipment excepted from the Scope of this standard. The understanding of the listed exceptions is ambiguous. Therefore, it is possible that IEC 60079-28 is not applied in all situations where it is relevant. In addition, the potential confusion can be compounded by the wording of the exceptions.

When should the requirements of IEC 60079-28 be applied to Ex Equipment, including Equipment assemblies and Ex Components that include an optical radiation source based on the calling Clause 6.6.4 “Lasers, luminaries, and other non-divergent continuous wave optical sources” in IEC 60079-0:2017 (Ed. 7)?

Interpretation:

This standard applies to

a) laser equipment for other than EPL Mb, Gb or Gc and Db or Dc applications which comply with Class 1 limits in accordance with IEC 60825-1; and

NOTE 2 The referenced Class 1 limits are those that involve emission limits below 15 mW measured at a distance from the optical radiation source in accordance with IEC 60825-1, with this measured distance reflected in the Ex application.

b) optical fibre equipment; and

c) any other convergent light sources or beams where light is focussed in one single point within the hazardous area.

NOTE 3 Some optical elements such as lenses and reflectors are able to convert divergent light into a convergent beam.

This standard does not apply to:

1. *Single or multiple optical fibre cables not part of optical fibre equipment if the cables:*

   comply with the relevant industrial standards, along with additional protective means, e.g. robust cabling, conduit or raceway (for EPL Gb, Db, Mb, Gc or Dc); or

   comply with the relevant industrial standards (for EPL Gc or Dc).

2. *Optical radiation sources as defined in a) to c) above where the optical radiation is fully contained in an enclosure complying with a suitable Type of Protection as required by the involved EPL, as follows:*

   flameproof "db" enclosures (IEC 60079-1); or

   NOTE 4 A flameproof “db” enclosure is suitable because an ignition due to optical radiation in combination with absorbers inside the enclosure is contained.

   pressurized "p" enclosures (IEC 60079-2); or

   NOTE 5 A pressurized “p” enclosure is suitable because there is protection against ingress of an explosive atmosphere.

   restricted breathing “nR” enclosure (IEC 60079-15); or

   NOTE 6 A restricted breathing “nR” enclosure is suitable because there is protection against ingress of an explosive atmosphere.

   dust protection "t" enclosures" (IEC 60079-31); or

   NOTE 7 A dust protection “t” enclosure is suitable because there is protection against ingress of an explosive dust atmosphere.

   An enclosure that provides a minimum ingress protection of IP 6X and complying with “Tests of enclosures” in IEC 60079-0.

   NOTE 8 An enclosure of a minimum ingress protection of IP 6X and complying with “Tests of enclosures” in IEC 60079-0 is suitable because there is protection against the ingress of absorbers. It is anticipated that when the enclosures are opened, entrance of any absorbers is avoided.