**INTERNATIONAL ELECTROTECHNICAL COMMISSION SYSTEM FOR CERTIFICATION TO STANDARDS RELATING TO EQUIPMENT FOR USE IN EXPLOSIVE ATMOSPHERES (IECEx SYSTEM)**

**TITLE: Compilation of comments on– ExTAG/678/CD Draft ExTAG Decision Sheet –** **Two independent types of protection Gb to meet Ga requirements.**

**Circulated to: ExTAG – IECEx Testing and Assessment Group**

**INTRODUCTION**

This document contains a compilation of comments received on ExTAG/678/CD Draft ExTAG Decision Sheet – Two independent types of protection Gb to meet Ga requirements.

On the basis of comments received on *ExTAG/678/CD Draft DS Two independent types of protection Gb to meet Ga requirements*, the originator, Andrew Holmes, on behalf of Eurofins E&E CML Limited, has advised the wish that this Draft DS be withdrawn.

***Please inform the Secretariat immediately of any omissions or errors at-***

***Christine Kane***

***ExTAG Secretariat***

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| **Address:****IECEx Secretariat****Level 33 Australia Square****264 George Street****Sydney NSW 2000****Australia****Web:** [**www.iecex.com**](file:///C%3A%5CUsers%5Cjugauthier%5CAppData%5CLocal%5CTemp%5CnotesC9812B%5Cwww.iecex.com) |

| **ExCB/****ExTL** | **Clause/ Sub-clause** | **Paragraph Figure/****Table** | **Type of****comment****General/****technical/****editorial** | **COMMENTS** | **Proposed change** | **Observation****(to be completed by the originator)** |
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| **CMD****IN**In consultation withIntertek India, Karandikar Laboratories Pvt. Ltd., and KL Certification Services |  |  |  | We have 'no comments' on draft ExTAG/678/CD |  |  |
| **CNEX-Global BV** | **-** | **-** | **t** | We do not support this DS.This DS seeks to allow a normal Group II Ex eb terminal box with Group II Ex eb terminals, to be used in Group I, both relying on the same enclosure protection and the enclosure having been tested with only 7 Joule.**With the current text of the DS, most Group II Ex eb terminal boxes with Ex eb terminals, could then be certified for** **Group I without any further impact safety factor applied**.We believe that this was not the intention of the standard, when they allowed the use of only one enclosure as long as the enclosure and cable glands meet ‘the impact test requirements’ for Group I.**The reference to ‘the impact test requirements’ was intended to mean the ‘normal’ 20 Joule impact tests required for Group II.** (‘low risk’ values being the not-normal way, requiring the ‘X’)   | Either withdraw this DS, or continue it with the below modification to require the 20 J impact tests:New text:Yes, provided that the enclosure also meets IEC 60079-0, IP54 enclosure requirements and appropriate creepage and clearances – if a failure of the increased safety terminals, providing two independent types of protection relying on one enclosure. The Group I impact values that the junction box and the cable glands must meet shall be the High impact values (20 Joules) as defined in IEC 60079-0 Table 15. |  |
| **CQM****CN** | **IEC 60079-26 cl. 4.2** |  | **technical** | Not support. The example given in the 79-26 only specify the requirement of impact test of the only one enclosure. For each type of protection, other performance shall be tested. So it is not reasonable to accept test result of Group I for Group II equipment. However, the sample given in the DS, other common mode of failure of types of protection shall be considered before conclusion. For example, in case of failure of fastener, both the flameproof and increased safety property will be affected.  |  |  |
| **DEK****NL** |  |  |  | 4.1 requires two independent Types of Protection each of EPL Gb.The case in the questions does not specify the type of protection of the junction box and glands, so also Ex e is assumed.Ex e IIC Gb terminals in an Ex e IIC Gb and/or Ex e I junction box do not comply with 4.1.The standard is clear about this, no clarification needed | Withdraw this sheet |  |
| **FIDITAS****HR** | **-** | **-** | T | Fiditas disagree with answer and clarification provided in the proposal.We consider that IEC 60079-26 is not applicable for increased safety terminal box intended for EPL Ga since no “other type of protection applied”.There are several issues that were not clarified in the document, even more the document bring new questions and doubts.  | Withdrawn ExTAG DS and ask MT60079-26 regarding application of IEC 60079-26  |  |
| **FME****GB** |  |  | Technical | For the scenario mentioned, what type of protection can be used for a junction box apart from Ex d? Increased safety could not be used as this would then not meet the two independent types of protection requirement. The gas mixtures used for Group I Ex db are not the same as those used for Group II and use of a Group I Ex d junction box may not achieve an equivalent level of safety as a junction box specifically tested for Group II. Additionally some of the constructional requirements for Group II are more onerous than those for Group I (e.g. light metals).Enclosures protected by Type of Protection pxb or pyb with a suitable purge system could be used, but the additional requirements for Group I might make this cost prohibitive. Similarly, the construction (e.g. light metal) requirements for Group I and II are not identical.The draft DS does not provide clarification but defines a situation which could be potentially unsafe and further detail giving specifics would be needed. | Do not issue this DS as written. Further information on the exact scenario being considered is necessary. |  |
| **FMG****US** |  |  | te | From IEC 60079-26, Ed 4:*“If two Types of Protection are combined which both rely on the enclosure, one of the following**shall be met:**…..**b) if only one enclosure is used, the enclosure and the Cable Glands shall meet the impact**test requirements of IEC 60079-0, using the Group I values.”*The proposal only lists one Type of Protection, Increased Safety. What is the second Type of Protection that would also need to rely on the enclosure? Without a second Type of Protection specified, there is no path forward. | Do not issue the Decision Sheet. |  |
| **ITL****IL** | Clause: 4.2: IEC 60079-26Table 15: IEC 60079-0 |  |  | N/A | N/A | **Agree** |
| **KR Hellas****KR** |  |  |  | KR Hellas reviewed New ExTAG/678/CD We do not have any comments for Draft ExTAG DS |  |  |
| **NANIO CCVE****RU** | **Answer** |  | **General** | 1. **BACKGROUND** is drawn up incorrectly, as it doesn’t cover the type of protection and level of protection of the certified terminal box. For example, if the latter is designed as Ex eb, then whether or not it was certified for Group II, the assembly of Ex eb enclosure and Ex eb Ex component isn’t allowed to provide EPL Ga. It follows from the following limitation of IEC 60079-26: «Combined Types of protection of EPL Gb shall depend on different physical protection principles».2. Although in this case the enclosure and cable glands of equipment according to IEC 60079-26 are subject to the impact test according to IEC 60079-0 using the Group I impact test values, other tests of this equipment must be carried out according to the requirements for Group II. For example, IEC 60079-1 test methods for Group I and Group II equipment differ significantly. Therefore, Group I certified enclosure won’t necessarily pass test for non- transmission of an internal ignition with test mixture for Group IIC. Accordingly, the terminal box and cable glands of Group I can be allowed to be used in zone II and in equipment where EPL Ga is supposed to be achieved using two independent types (levels) of explosion protection EPL Gb, only after certification of the specified terminal box and cable glands for Group II. | The following wording of the answer is proposed: «No, increased safety terminals (certified as an Ex component) inside of a Group I certified junction box and fitted with Group I certificated cable glands are not allowed to be used without additional Group II certification of the junction box and the cable glands to achieve EPL Ga. |  |
| **NEPSI****CN** |  |  | G | We don’t support the draft ExTAG decision sheet, because the description of the Q&A seems to be imprecise relative to the standard requirements of IEC 60079-26. | It is recommended to revise the draft, especially being aware that Group I certified equipment generally can’t fulfill all the requirements for Group II applications.One possible scenario corresponding to Clause 4.2 b) of IEC 60079-26 can be as follows:Considering combined types of protection of EPL Gb, if a certified Ex eb junction box (enclosure) with qualified Ex eb terminals (Ex components) and cable gland(s), simultaneously complies with the Ex db requirements relative to the enclosure and cable gland(s) according to IEC 60079-1, then the assembly achieves the requirements of EPL Ga applications once the enclosure and cable gland(s) additionally meet the impact test requirements of IEC 60079-0, using the Group I values.Furthermore, if the enclosure and cable glands can only pass the impact test with lower-level value of Group I, the certificate number of the product for EPL Ga application shall include the suffix “X” to indicate specific conditions of use according to item e) of 29.3, IEC 60079-0. |  |
| **QPSCA** | **-** | **-** | **General** | **IEC 60079-26 only deals with Ga/Gb but the ExTAG is referencing Group I which would be Ma/Mb and is not in the scope.****It is not clear to QPS how an Ex Mb enclosure meets the requirements of Ex Gb and can be used in an Ex Ga combined equipment.****Clause 4.2 refers to impact test requirements and to my knowledge does not authorize the use of Ex Mb enclosures as one of the EPL levels that can be used to combine with another Gb into Ga** | **Add more clarification about where the use of Ex Mb enclosures can be used for Ex Gb and add references to where that is noted in 60079-26** |  |
| **SGS Baseefa****GB** |  |  | **Te** | **Although we have sympathy with the simplicity of the stated approach, we consider that the proposed answer completely ignores an important requirement in the standard; that the enclosure also needs to meet the requirements of another form of protection.****Since the primary form of protection is Ex eb, this presumably leaves either Ex db or Ex pb for the second form of protection. An otherwise unspecified Group I enclosure, although meeting the enhanced impact requirements for the enclosure, would presumably not necessarily meet the requirements for Group II as either Ex db or Ex pb. (Ex pb being an unlikely choice in practice.)****SGS Baseefa will also be interested in the view that the Maintenance Team will take on the suggestion that the impact values for a low risk of mechanical damage might be employed, as the standard is silent on this, and possibly did not intend that this reduction in requirement might be employed.** | **Change the answer to:****No. This is not sufficient. A Group I certified enclosure would also have to meet the requirements for the appropriate sub-group of Group II for Ex db, or alternatively meet the requirements of Group II for Ex pb.****A Group I enclosure only meeting the requirements for Ex eb is not acceptable as this does not provide the two independent means of protection required by the standard.****Alternatively, delete the draft DS.** |  |
| **Simtars****AU** |  |  |  | **No comments for this DS.** |  |  |
| **SIQSI** |  |  |  | **We agree with the document** |  |  |
| **TC 31** |  |  |  | **Clause 4.2 of 60079-26 sets the basic requirements for a combination of two independent Types of Protection each of EPL Gb, to achieve EPL Ga. In case the two Types of Protection to be combined rely on the enclosure, the Type of Protection of EPL Ga can be achieved by only one enclosure, if this enclosure meets the impact test requirements of IEC 60079-0, using the Group I values.****The conditions for applying the requirements for Group I enclosures according 4.2 of the standard are not given. The Type of Protection of the increased safety terminals does not rely on an enclosure (they are components) and therefore the two combined Types of Protection do not rely on the (same) enclosure.** | **Reject the DS.**  |  |
| **TestSafe****AU** | **Clause: 4.2: IEC 60079-26** |  | **Technical** | **We do not support proposed** **Decision sheet due to following:****1. Construction requirements and testing (methane gas mixture) of enclosure for Ex d Group I may not satisfy the requirements for construction requirements and testing of enclosure for Ex d Group IIA or IIB or IIC Therefore Ex d Group I only certified enclosure cannot be enough.****2. As two independent types of protections should be applied, the equipment ( enclosure and internal components) should satisfy a full requirements of Ex e** **3. Cable gland must comply with Ex eb and Ex db for the applicable Group and additionally tested with impact of 20 J during evaluation for compliance for these standards** | **Possible solution:****Equipment needs to meet the following:*** **Fully comply and tested to Ex eb II with application of 20 J impact test instead of 7 J during evaluation, or comply with Ex eb I**
* **Fully comply and tested to Ex db and the applicable Group with application of 20 J impact test instead of 7 J during evaluation, or comply with Ex db I/IIC**

**Cable gland must comply fully with Ex eb I/II and at the same time with Ex db I/IIC**  |  |
| **TIIS****JP** |  |  | **Te** | **We do not support the draft DS.** **Regardless of two enclosures option or one enclosure option, two independent Types of Protection would be required. The situation of Question and Answer contains only one Type of Protection (eb).** | **Modify Answer as follows.****No. When clause 4 in IEC 60079-26 applies it must be a combination of one Type of Protection of EPL Gb and another Type of Protection of EPL Gb. Group I certified junction box and cable glands are not considered any Type of Protection of EPL Gb.** |  |
| **TUVR****DE** |  | **QUESTION:****Is it possible to use increased safety terminals (certified as an Ex component) inside of a Group I certified junction box and fitted with Group I certificated cable glands to achieve EPL Ga?** |  | **If we use this question as it is, we don’t have the required “Two independent types of protection Gb to meet Ga requirements”.** | **Is it possible to use increased safety terminals (certified as an Ex component) inside of a Group I certified flameproof junction box and fitted with Group I certificated cable glands to achieve EPL Ga?** |  |
| **UL LLC****US** | **ExTAG DS** | **Answer** | **Technical** | **The proposed configuration of increased safety terminals inside of a certified junction box is not considered two independent protection methods as defined by IEC 60079-26.** | **Change the answer to “No” with the following supporting rationale:****“No. Increased safety terminals must be installed in an increased safety enclosure to fulfill the requirements for their type of protection. Therefore, a certified enclosure is not an independent protection method and this combination does not fulfill the requirements for EPL Ga.”** |  |
| **ULBR****BR** | **ExTAG DS** | **Answer** | **Technical** | **The proposed configuration of increased safety terminals inside of a certified junction box is not considered two independent protection methods as defined by IEC 60079-26.** | **Change the answer to “No” with the following supporting rationale:****“No. Increased safety terminals must be installed in an increased safety enclosure to fulfill the requirements for their type of protection. Therefore, a certified enclosure is not an independent protection method and this combination does not fulfill the requirements for EPL Ga.”** |  |