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

**Title: Compilation of Comments and observations on** **ExTAG/671/CD – Draft ExTAG Decision Sheet – Protecting electrical ignition sources that are part of electromechanical equipment**

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

**INTRODUCTION**

This document contains the Compilation of Comments and Observations from the originators, UL LLC, US on Draft ExTAG Decision Sheet – Protecting electrical ignition sources that are part of electromechanical equipment

As a result of comments received, and considered, Decision Sheet ExTAG DS 2022/003 has now been published

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

***Christine Kane***

|  |
| --- |
| **Address:****IECEx Secretariat****Level 33 Australia Square****264 George Street****Sydney NSW 2000****Australia****Web:** [**www.iecex.com**](file:///C%3A%5CUsers%5Cchristine.kane%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CTemporary%20Internet%20Files%5Cchristine.kane%5CAppData%5CLocal%5CMicrosoft%5CWindows%5Cchristine.kane%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CTemporary%20Internet%20Files%5CContent.Outlook%5CAppData%5CLocal%5CUsers%5Chorn02%5CAppData%5CLocal%5Cchristine.kane%5CAppData%5CLocal%5CMicrosoft%5Cchristine.kane%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CTemporary%20Internet%20Files%5CChristine.Kane%5CAppData%5CLocal%5CMicrosoft%5CWindows%5CTemporary%20Internet%20Files%5CAppData%5CLocal%5Cjugauthier%5CAppData%5CLocal%5CTemp%5CnotesC9812B%5Cwww.iecex.com) |

| **ExCB/****ExTL****671** | **Clause/ Sub-clause** | **Paragraph Figure/****Table** | **Type of****comment****General/****technical/****editorial** | **COMMENTS** | **Proposed change** | **Observation****(to be completed by the originator)** |
| --- | --- | --- | --- | --- | --- | --- |
| **CMD****IN**In consultation with Intertek India Private Limited, Karandikar Laboratories Pvt. Ltd., and KL Certification Services |  |  |  | **we have 'no comments' on draft ExTAG/670/CD** |  |  **Noted** |
| **CNEX-Global BV** | **-** | **-** | **g** | **We agree with this draft DS** | **None** | **Noted** |
| **CQMCN** |  |  |  | **The requirement has been specified clearly in clause 6.5 “Where electrical equipment is used in conjunction with mechanical equipment, the electrical equipment shall comply with the relevant parts from the IEC 60079 series.”****There is no need to make a restatement via DS.** | **No support to publish.** | **Accepted in Principle. While it is agreed that we consider the text of the standard as being clear, there is at least one other ExCB that may be applying the text differently. Therefore, the DS is needed to ensure consistency across ExCBs.** |
| **DEK****NL** |  |  |  | We think the standard is clear and see no added value of issuing this sheet.  | withdraw this sheet | **Accepted in Principle. While it is agreed that we consider the text of the standard as being clear, there is at least one other ExCB that may be applying the text differently. Therefore, the DS is needed for consistency across ExCBs.** |
| **FIDITASHR** |  |  | **G** | **We support Decision Sheet ExTAG/671/CD and no further comments** | **None** | **Noted** |
| **FMEGB** |  |  | **ge** | **We have no objection to the proposed DS** | **None** | **Noted** |
| **FMG****USA** |  |  | **ge** | **Support as drafted.** | **None**  | **Noted** |
| **FTZUCZ** |  |  | **G** | **We agree with this draft ExTAG Decision Sheet.** |  | **Noted** |
| **IBExU****DE** |  |  |  | **There are no comments from our side on these two decision sheets.** |  | **Noted** |
| **IMQ****IT1** |  |  | **G** | The question and answer in principle and by intentions are correct, but appears “forced” respect to the text, INTRODUCTION, SCOPE and requirements written as they are in Part 36. | Please, kindly consider the following proposals. | **Not Accepted. See Action on IMQT2.** |
| **IMQ****IT2** | **Question** |  | **G/T** | The question proposed would be misleading and it “force” to interpret and apply differently the scope of ISO 80079-36. The part 36 has different and wider scope than “type of protection”. See the INTRODUCTION, SCOPE and DEFINITIONS of Part 36.Should be better clarify where is the problem we are talking.So before to go to the question, the explanation of what ISO 80079-36 stands for and had been developed for, to avoid roles and field of application. | Please add a **BACKGROUND** as follows possibly and adapt.***Part 36*** *of ISO/IEC 80079 series, specifies the basic method and requirements for design, construction, testing and marking of non-electrical Ex equipment, Ex Components, protective systems, devices and assemblies of these products that have their own potential ignition sources and are intended for use in explosive atmospheres.**It addresses basic requirements and protection concepts for mechanical explosion protected equipment and assemblies intended for the generation, transfer, storage, measurement, control and conversion of energy and/or the processing of material and which are capable of causing an explosion through their own potential sources of ignition, (including electrical obviously) as defined in* ***SCOPE*** *and* ***3.1.1*** *and* ***3.7*** *of the International Standard.**Equipment above addressed can be driven by any kind of energy including electrical equipment, as well as pneumatic or oleo-dynamic power, any kind of hydrokinetic et cetera.**Potential ignition sources are not limited to those created by the equipment but* ***include any******ignition sources created by the operation of the equipment****.**Many but not all explosion protected equipment machine use explosion protected electric motor for motive power.**The measures needed to reduce the hazard of ignition in mechanical equipment as**part of the machine may be different to those applied to electrical equipment.**Part 36 is supplemented or modified by the following standards concerning specific non-electrical****types of protection****:**– ISO 80079-37, Explosive atmospheres – Part 37: Non-electrical equipment for explosive**atmospheres – Non-electrical type of protection constructional safety "****c****", control of**ignition source "****b****", liquid immersion "****k****"*The **QUESTION** therefore would become clear and pertinent:*Can Type of Protections from ISO 80079-37 which supplemented Part 36, be used to protect electrical ignition sources that are part of electromechanical equipment (for example, the application of* ***Type of Protection “b”*** *to the rotor of an electric machine) when determined as mitigation measure documented into the IHA – Ignition Hazards Assessment done according Part 36 ?* | **Not Accepted. What is being proposed by the Commenter is beyond the intent of this Decision Sheet. A subsequent revision could be submitted by the Commenter for consideration by ExTAG after publication of this Decision Sheet.** |
| **IMQ****IT3** | **Answer** |  | **G/T** | The ANSWER proposed still be misleading and is “forced”.The part 36 refer to three type of protection but is not a type of protection by itself as basic method and requirements (end since 1997 probably when was named EN 13463).The marking clause 11.2 requires as by written actually (nowadays):d) letter “h”; *and later on* m) any additional marking prescribed in the specific standards for the Types of Protectionconcerned, as listed in Clause 1;…which are from Part 37 (“c”, “b” and “k”), the Parts 1, 2, 31 etc of IEC 60079 series etc. Part 37 “b” is then applied as “b1” or “b2”. | The **ANSWER** therefore would become clear and pertinent:*No –* ***Type of Protection “b”****, then declined in “b1” or “b2” according the integrity level as determined by the IHA – Ignition Hazards Assessment documented as per ISO 80079-36 and as recalled by the ISO 80079-37****, is used to protect non-electrical ignition sources that are part of electromechanical equipment*** *or machines.**For example, friction or heat generated by the machine or**process from a rotor of an electric machine, by determination of the safety critical values; the value above or below which a potential ignition source may become effective. This value it can be the set point relevant for the control of ignition source referred to.**Type of protection “b1” or “b2” cannot be used to protect electrical ignition sources (for example, the induced voltage and resulting current on a rotor of an electric machine).* *This position is based on* ***6.5*** *of ISO 80079-36:2016 on “****Electrical ignition sources except stray current****” which reads:**“Where electrical equipment is used in conjunction with mechanical equipment, the electrical equipment shall comply with the relevant parts from the IEC 60079 series.* *NOTE Radio frequency (RF), electromagnetic waves including optical radiation, ionizing radiation and ultrasonic radiation are also considered in IEC 60079-0.”* | **Not Accepted. See Action on IMQT2.** |
| **KOSHA****KR** |  |  | **G** | **We agree with this draft. The Type of Protection "b" in the QUESTION seems to be "h", and it seems to be a simple editing error.** |  | **Noted. Use of “b” in the example was intentional as a reference to one of the Types of Protection in ISO 80079-37 that are marked “h” per ISO 80079-36.** |
| **KR Hellas****GR** |  | **6.5** |  | **Noted** **We do not have any comments for those Draft ExTAG DS.** |  | **Noted** |
| **LCIE****FR** |  |  | **G** | **We agree with this Draft ExTAG Decision Sheet.** |  | **Noted** |
| **NANIO CCVE (RU)** |  |  | **Technical** | **The wording of the question in the draft shall be clarified as it does not split the approaches to the following assessment of the electrical ignition sources that:****- from one side related to the equipment and Ex components that are part of electromechanical installations and are subject to the application of the particular types of the protection according to IEC 60079 series, and** **- from other side to the hazard assessment related to electrical assemblies of the electromechanical installations that do not have separate explosion protection techniques according to the IEC 60079 series.****So we consider necessary to split the questions into two separate questions with their own answers.****The stated point of view is based on the experience of conformity assessment of the electromechanical installations and the list of the ignition sources that are subject to the assessment according to Annex B and table B.1 in ISO 80079-36:2016.** | **The question and answer of the draft shall be stated in the following edition:****Question 1: "Is it possible to avoid occurrence of potential electrical ignition sources related to the operation of electrical equipment and (or) Ex-components as part of electromechanical installations, by applying to this electrical equipment and (or) Ex-components the requirements established by the type of explosion protection" h" according to ISO 80079-36?"** **Answer 1: "Electrical equipment intended for use in explosive atmospheres, which incorporates non-electrical equipment for explosive atmospheres, is subject to assessment solely according to the requirements of IEC 60079 and the requirements of ISO 80079-36 is not applicable to it"** **Question 2: Is it allowed to use the type of explosion protection “h” according to ISO 80079-36 to avoid occurrence of ignition sources on a non-electrical part of electromechanical equipment** | **Not Accepted. What is being proposed, changes the intent of this Decision Sheet. A subsequent revision could be submitted by the Commenter for consideration by ExTAG after publication of this Decision Sheet.** |
|  |  |  |  | **The specified list includes electrical sparks, stray electric current and cathodic corrosion protection. For example, the Type of Protection “b” can be applied to avoid heating parts of the non-electrical equipment up to ignition temperatures of the appropriate explosive atmosphere regardless of this heating occurs from internal or external heating sources and whether the latter is generated by mechanical sparks and frictional heating or thermal development of the electrical energy** | **associated with a malfunction of its electrical components, which, among other things, can be mounted outside the hazardous zone and do not have means to ensure explosion protection, which does not allow them to be evaluated according to the IEC 60079 series?”****Answer 2: It is proposed to allow the use of the type of protection “h” according to ISO 80079-36 to avoid occurrence of any potential ignition sources of non-electrical equipment intended to use in explosive atmospheres, regardless of whether these sources belong to own ignition sources of the non-electrical** **parts of electromechanical equipment, or they are indirectly caused by the emergency operation of its electrical components, not subject to assessment according to the standards of the IEC 60079 series"** |  |
| **NCCBR** |  | **6.5** |  | **We Agree** |  | **Noted** |
| **NEPSI****CN** |  |  | **G** | **We support the draft decision sheet ExTAG/671/CD.** |  | **Noted** |
| **PTB DE** |  | **Answer** |  | **The example implies that ISO 80079-36 would also apply to mechanical ignition sources in electrical equipment. On the one hand, this is excluded by the scope of part 36 and, on the other hand, such ignition hazards are already considered in the electrical type of protection (e.g. "e"). The example could raise the question of whether an "e"-motor also requires an ignition hazard assessment for potential mechanical ignition hazards. Is that intentional?** | **Replace “(for example, mechanically generated sparks from a rotor of an electric machine)” by "(for example, mechanically generated sparks from gears of an electric gearmotor)".** | **Accepted. See Action on TC 31 comment.** |
| **QPSCA** |  |  |  | **QPS supports both proposed DS’s as is and has no further comments.** |  | **Noted** |
| **RISE****SE** |  |  |  | **We agree with the draft Decision Sheet in principle. However, we do not agree with applying type of protection “h” for non-electrical ignition sources in electrical equipment (e.g. electrical motor) where both electrical and non-electrical ignition sources already are addressed in, and covered by, the electrical equipment standards.**  | **To be clarified accordingly in the draft Decision Sheet.** | **Accepted. See Action on TC 31 comment.** |
| **SGS BaseefaGB** |  |  |  | **SGS Baseefa accepts the document as written.****However, we would be interested to know why the document was created, as the answer should be obvious.** |  | **Noted. While it is agreed that we consider the text of the standard as being clear, there is at least one other ExCB that may be applying the text differently. Therefore, the DS is needed for consistency across ExCBs.** |
| **Simtars****AU** |  |  |  | **Simtars has no comments.** |  | **Noted** |
| **SIQSI** |  |  |  | **We agree with prepared proposal.** |  | **Noted** |
| **TC 31** |  |  |  | **The QUESTION might be read to suggest that Part 36 would also apply to mechanical ignition sources in electrical equipment. However, this is excluded by the scope of 36 and such ignition hazards are already covered in the electrical type of protection (e.g. "e"). The example may raise the question of whether an "e" motor also requires an ignition hazard assessment for potential mechanical ignition hazards. Is that intentional?** | **In the answer replace “(for example, mechanically generated sparks from a rotor of an electric machine)” by "(for example, mechanically generated sparks from gears of an electric gearmotor)".****Also, add to the end of the ANSWER: “Note that electrical machine ignition sources such as bearing temperature are covered under the electrical machine requirements in IEC 60079-7.”.** | **Accepted in Part.  Revised the example as proposed but there was not considered the need to add the Note.** |
| **TIIS****JP** |  |  | **ge** | We have no specific comment on the draft DS. However, we are not sure what the main purpose of issuing the DS is. Question seems the principle scope of non-electrical equipment and electrical equipment.More words as background should be added to help understanding the purpose of the DS. | Withdraw the draft DS,orAdd some sentences as background to explain about why the DS is needed. | **Accepted in Principle. While it is agreed that we consider the text of the standard as being clear, there is at least one other ExCB that may be applying the text differently. Therefore, the DS is needed for consistency across ExCBs.** |
| **TURTÜV Rheinland****DE**  |  |  |  | **Fully support** | **NONE** | **Noted** |
| **ULDDK** |  |  | **General** | **We support this draft ExTAG DS without comments.** |  | **Noted** |
| **UL do BR****BR** |  |  | **General** | **We support this draft ExTAG DS without comments** |  | **Noted** |