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

**Title: ExTAG/663A/CD** – **Draft ExTAG Decision Sheet – IEC 60079-6 High Voltage Testing**

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

**INTRODUCTION**

This revised document, ExTAG/663A/CD, Draft ExTAG Decision Sheet – IEC 60079-6 High Voltage Testing, has been prepared jointly by the ExTAG Chair and ExAG Convener to address High Voltage testing associated with equipment covered by IEC 60079-6 Ed 4.1, taking into account discussion from the 2021 ExTAG Remote Meeting.

During the Remote Meeting it was agreed that the Revised Draft Decision Sheet be circulated for comment, in accordance with IECEx OD 035 *A procedure to generate, discuss, report and publish ExTAG Decision Sheets Ed. 2.3.*

Changes to the original version are shown via tracking.

*Please submit comments on this new Draft DS using the comments table, a separate document, by –*

***2021 11 09***

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**COLLECTION OF IECEx / ExTAG DECISIONS**

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| **Standard:** OD 003-2 [for scope extensions to IEC 60079-6:2015Amendment 1:2020 (Edition 4.1)] | **Clauses:** 1, Annex D of IEC 60079-6 Edition 4.1 | **Decision Sheet:** DS 2021/-xx |
| **Subject:**High voltage amendment**Status of document:** Draft3 | **Key words:*** Liquid immersion “o”
* High voltage
 | **Date:** 2021 0823**Originator of proposal:** Convenor ExAG in conjunction with Chair of ExTAG**TC/SC involved:** IEC/TC 31 WG22 and WG 43 |
| **Background**: IEC 60079-6 Edition 4, Amendment 1 shows in the scope a significant increase in voltage allowed for Ex o Level of Protection “oc” from 15 kV AC RMS or DC and up to 245 kV AC RMS or DC. Associated with this, it introduces additional standards such as IEC 60071 (all parts) *Insulation co-ordination* and IEC 60076-3 *Power transformers – Part 3: Insulation levels, dielectric tests and external clearances in air.* The requirements for equipment affected by this voltage change are included in a normative Annex D which as stated in the scope “applies specifically to liquid immersed transformers and reactors, and other liquid immersed equipment such as swivels for off-shore platforms, power regulators, tap changers and earthing/switching resistors”.Annex D introduces changes to the requirements, that may override those in the body of the standard, for example, liquid immersion depth. It also introduces new requirements. But it does not introduce any new type tests, other than ones that may be associated with other types for protection also used, or that might be introduced if Type of Protection special protection “s” is also used. It does introduce new routine tests, including dielectric tests relevant to the higher voltages and sealed enclosure tests. **Question**: What will be the process for ExCBs and ExTLs with IEC 60079-6 Edition 4.0 in their scope to have their scope extended to Edition 4.1? **Answer**: ExCBs and ExTLs shall make the usual application for a scope change. Form F-011 *ExTL/ExCB Capability Declaration* is the form now used for this purpose (superseding form ExMC/251B/Q). This form requires bodies to declare that they have put in place all necessary requirements to ensure they have the capability and competence for the scope extension.This amendment for IEC 60079-6 will require a significant addition to the competence required for this standard, for example with the introduction of IEC 60071 and IEC 60076-3. So, bodies shall ensure staff are provided with appropriate training and assessment of competence to the new requirements and associated standards. No new test facilities will be required, but staff must have the competence to review the manufacturer’s capability to carry out the routine tests. ExCB assessors must have the competence to review the manufacturing capabilities. Edition 8.0 of the TCD provides additional guidance on expected competence as follows:Are you aware of the requirements of normative Annex D Supplementary requirements for electrical equipment with Level of Protection “oc” for voltages greater than 15 kV and up to and including 245 kV? * What maximum voltage is allowed by the annex?
* Give examples for some the additional requirements specified
* What routine tests may be required, and how can you demonstrate the competence of your assessors to assess the manufacturer’s capabilities to do those tests?
* What standard is applicable for the above tests?
* At what liquid depth are tests to be carried out?
* Are you aware of the possible application of IEC 60079-33 and the need to consider this at contract review in the event it is not in your scope?
* Are you aware that although this is for EPL “oc”, some requirements for “ob” may apply – can you give examples?

Bodies shall have appropriate records showing how they have established the competence of staff. Bodies seeking this scope change will not be required to undergo an onsite (or remote) assessment before receiving this addition of Amendment 1 to their scope and will not be subject to a vote by ExMC. However, each body shall be subject to an onsite or online assessment at the next opportunity, for example, surveillance assessment, scope extension visit (for another standard), mid-term assessment or re-assessment. **Additional information:**It is common for routine tests to be based on type tests that have been carried out as part of the process of establishing compliance of the equipment with a standard. This gives confidence that the production samples of the equipment will also pass the routine test. Since this is not the case in this amendment of IEC 60079-6, some IECEx ExCBx/ExTLs may elect to witness the routine tests during compilation of the ExTR with a view to providing confidence, prior to issue of the IECEx CoC, that the product will pass the routine tests. It would also provide a check of the manufacturer’s competence to do these routine tests which will be required for the QAR. |
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