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

**Title: ExTAG/635A/CD – Draft ExTAG Decision Sheet -** **Field modular approach for Ex Equipment**

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

**INTRODUCTION**

This document, ExTAG/635A/CD – Draft ExTAG Decision Sheet - Field modular approach for Ex Equipment has been prepared by UL/PTB. It is based on comments received and includes track changes. It is now listed for discussion during the 2021 ExTAG Remote Meeting.

A Compilation of Comments on ExTAG/635/CD along with originator observations, are contained in ExTAG/648/CC.

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**COLLECTION OF IECEx / ExTAG DECISIONS**

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| Standard: IEC 60079-0:2011IEC 60079-0:2017 | **Clauses:** 13, 29, 3013, 29, 30 | **Draft Decision Sheet:**ExTAG/635/CD |
| **Subject:** Field modular approach for Ex Equipment**Status of document:** Draft | **Key words:** Parts, Ex equipment, Field Modular Approach, System, Separate shipment  | Date: (date) **Originator of proposal:** UL/PTB**TC/SC involved:** WG 22 |

**Background:**

Ex Equipment consisting of various parts or modules (typically certified as Ex components or Ex Equipment), may be evaluated based on worst case representative combinations of these parts or modules. There are instances where products can have multiple functions with the same base design, where the manufacturer have a high number of variations. Because of the high number of variations it would be a difficult task to maintain the quantity of finished products in warehouses versus keeping parts that could be assembled on stock.

Please consider as an example: Ex Equipment, which will consist of a base module, providing field wiring connection facilities and which in order to be completed must be combined with one or more function modules, e.g. each would serve various purposes for the assembled product. Neither the base module(s), nor the function modules are suitable to be installed alone in the field. The modules must be assembled by the end-user or the installer in accordance with the manufacturers detailed instructions. The base module(s) in combination with the function modules will create a complete Ex Equipment, meeting the requirements of the involved types of protection as described in the Ex Equipment certificate e.g. “Increased safety” or “Flameproof enclosure”.

The modules may be purchased/shipped individually from the manufacturer to allow for the end-user or the installer to configure the equipment for the specific application.

The device becomes a complete product only at the time of installation or assembly.

Example of the concept:

 **Bases Module, in type of protection Ex eb IIC:**

|  |  |
| --- | --- |
|  | Ethernet |
| Nameplate content | **Manufacturer XYZ Ltd.** **Model ABC** **IECEx 20.1234X****Ser. No.** **Date code****-20 ≤ Tamb ≤ 60°C** **To be used only with Model 1, 2 or 3.** **Ex db eb mb IIB Gb T4** |

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**Choice of various optional Function Modules:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Volume | Camera | Radio microphone |
| Nameplate content | Manufacturer XYZ Ltd. Model 1 | Manufacturer XYZ Ltd. Model 2 | Manufacturer XYZ Ltd. Model 3 |

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**One possible combination of completed equipment with marking plate content:**

|  |  |  |
| --- | --- | --- |
| Volume | Ethernet | Radio microphone |

**QUESTION:** Is such Field Modular approach permitted for Ex Equipment or is it mandatory for the final assembly to occur for the complete Ex Equipment prior to its shipment from the manufacturing location?

**ANSWER:** Yes, this approach is permitted when the manufacturer is able to demonstrate that all of the following conditions are met, as applicable:

* An overall evaluation of all possible combinations or an evaluation of all those combinations being permitted is conducted by the ExTL/ExCB, in particular taking into account worst-case arrangements for heating of components;
* Detailed instructions are provided and controlled by the certification;
* The modules produced are interchangeable with no risk of becoming an unsafe product, or designed so that they are not interchangeable;
* The parts are able to be assembled such that there is no need of measurement, repair work or testing; and
* All openings are closed with the appropriate means in the appropriate type of protection as specified in the installation instructions.

Certified Ex Equipment is assured by the single certificate with controlled installation instructions and markings.

See also OD210 for guidance on Modular Concept.