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Switchgear and controlgear and their assemblies for low voltage – Integration of radiocommunication device above 380 MHz into equipment

Appareillages et ensembles d'appareillages à basse tension – Intégration d'un dispositif de radiocommunication de plus de 380 MHz à un équipement

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SWITCHGEAR AND CONTROLGEAR AND THEIR ASSEMBLIES FOR LOW VOLTAGE – INTEGRATION OF RADIOCOMMUNICATION DEVICE ABOVE 380 MHZ INTO AN EQUIPMENT

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IEC 63404 has been prepared by IEC technical committee 121: Switchgear and controlgear and their assemblies for low voltage. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
121/151/FDIS	121/158/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

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INTRODUCTION

In the context of the fast evolution of radiocommunication technologies and the long lifetime of low voltage equipment, this document proposes the evaluation and verification of the initial integration and update of radiocommunication devices within host equipment, including the hardware or the software.

The aim of this document is to define the tasks of testing the host equipment when integrating and updating the radiocommunication device into low voltage equipment (e.g. circuit-breaker, sensor, electric actuator, etc.). In general, this document gives requirements for components hosting a radiocommunication device in order to facilitate their integration into an assembly.

This document is intended to be referenced by product standards as conformity radiocommunication requirements (see Annex C).

The test program has been elaborated based on the result of actual IEC 61000-4-39 testing by equipment manufacturers and test laboratories. This test allows the characterisation of radiofrequency band(s) and amplitude(s) which is called a capability profile. This capability profile can be used to demonstrate the capability of an equipment to host various radiocommunication devices when their characteristics are within the limits given by the capability profile.

The integration of a pre-evaluated radiocommunication device according to its radiotechnology standard into a host equipment can affect its radio transmitter performances. This document includes the verification of the radiocommunication functions after integration following the main guidance from ETSI EG 203 367, FCC KDB 996369 D04, MIIT No.129:2021 and GRFC N 07-20-03-001:2007.

SWITCHGEAR AND CONTROLGEAR AND THEIR ASSEMBLIES FOR LOW VOLTAGE – INTEGRATION OF RADIOCOMMUNICATION DEVICE ABOVE 380 MHZ INTO AN EQUIPMENT

1 Scope

This document defines radiocommunication related requirements for equipment intended to integrate a radiocommunication device. It includes the initial integration and update of the radiocommunication device, having a carrier frequency greater than 380 MHz, into new or updated host equipment with:

– The classification of integration categories;
– The EMC immunity verification using a capability profile approach;
– The verification of the unwanted emission level of the radio transceiver.

This document also provides typical radiocommunication device integration use cases (see Annex A).

The object of this document is to define the required evaluation when incorporating a radiocommunication device into a new or updated host equipment.

This document is intended to be referred by the product standard of the host equipment for providing additional characteristics, performance, and evaluation regarding the integration and update of a radiocommunication device (see Annex C). It can also be used by the manufacturer of the host equipment when no applicable product standard exists.

In addition, this document provides guidance on considerations to be addressed in product standards including safety and security matters.

This document does not cover:

– The test of the radiocommunication device according to its radiotechnology standard or specification (e.g. IEEE 802.11, IEEE 802.15.4);
– Allocation of radio frequencies;
– The impact on the application of the equipment;
– The safety related requirements of the host equipment (see the applicable product standard)
– Hazards related to remote control operations (see the applicable product standard);
– Over the air software updates (under consideration for the next revision).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60417, *Graphical symbols for use on equipment*, available at http://www.graphical-symbols.info/equipment

IEC 61000-4-39:2017, *Electromagnetic compatibility (EMC) – Part 4-39: Testing and measurement techniques – Radiated fields in close proximity – Immunity test*