INTERNATIONAL STANDARD

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Telecontrol equipment and systems –

Part 5-6:
Guidelines for conformance testing for the IEC 60870-5 companion standards

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

TELECONTROL EQUIPMENT AND SYSTEMS –

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FOREWORD

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International Standard IEC 60870-5-6 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this part of IEC 60870-5 is based on the following documents:

FDIS	Report on voting
57/792/FDIS	57/807/RVD

Full information on the voting for the approval of this part of IEC 60870-5 can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

IEC 60870-5 consists of the following parts, under the general title *Telecontrol equipment and systems – Part 5: Transmission protocols:*

Part 5-1: Transmission frame formats

Part 5-2: Link transmission procedures

Part 5-3: General structure of application data

Part 5-4: Definition and coding of application information elements

Part 5-5: Basic application functions

Part 5-6: Guidelines for conformance testing for the IEC 60870-5 companion standards

Part 5-101: Companion standard for basic telecontrol tasks

Part 5-102 Companion standard for the transmission of integrated totals in electric power systems

Part 5-103: Companion standard for the informative interface of protection equipment

Part 5-104: Network access for IEC 60870-5-101 using standard transport profiles

Part 5-601: Conformance test cases for the IEC 60870-5-101 companion standard

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This part of IEC 60870-5 specifies methods and procedures for conformance testing of Telecontrol equipment or systems using IEC 60870-5 standard(s).

This part of IEC 60870-5 contains general subjects and guidelines for the test environment. Detailed test cases, mandatory and optional mandatory test cases for the companion standards will become available as technical specifications (IEC 60870-5-60x).

Tests according to EMC requirements or related to environmental and organisational conditions are beyond the scope of this part of IEC 60870-5. This part of IEC 60870-5 only focuses on the protocol implementation and the related system functionality necessary to validate the protocol implementation.

TELECONTROL EQUIPMENT AND SYSTEMS –

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1 Scope

This part of the IEC 60870-5 series specifies methods for conformance testing of telecontrol equipment, amongst Substation Automation Systems (SAS) and telecontrol systems, including front-end functions of SCADA.

The use of this part of IEC 60870-5 facilitates interoperability by providing a standard method of testing protocol implementations, but it does not guarantee interoperability of devices. It is expected that using this part of IEC 60870-5 during testing will minimize the risk of non-interoperability.

The goal of this part of IEC 60870-5 is to enable unambiguous and standardised evaluation of IEC 60870-5 companion standard protocol implementations. The guidelines and conditions for the testing environment are described in this part of IEC 60870-5. The detailed test cases per companion standard, containing among others mandatory and optional mandatory test cases per Basic Application Function, ASDU and transmission procedure, will become available as technical specifications (IEC 60870-5-60x). Other functionalities may need test cases, but this is beyond the scope of this part of IEC 60870-5.

This part of IEC 60870-5 deals mainly with communication conformance testing; therefore other requirements, such as safety or EMC are not covered. These requirements are covered by other standards (if applicable) and the proof of compliance for these topics should be done according to those standards.

2 Normative references

The following referenced documents are indispensable for the application 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 60870-5-1, *Telecontrol equipment and systems – Part 5: Transmission protocols – Section One: Transmission frame formats*

IEC 60870-5-2, *Telecontrol equipment and systems – Part 5: Transmission protocols – Section 2: Link transmission procedures*

IEC 60870-5-3, *Telecontrol equipment and systems – Part 5: Transmission protocols – Section 3: General structure of application data*

IEC 60870-5-4, *Telecontrol equipment and systems – Part 5: Transmission protocols – Section 4: Definition and coding of application information elements*

IEC 60870-5-5, *Telecontrol equipment and systems – Part 5: Transmission protocols – Section 5: Basic application functions*

ISO/IEC 9646 (all parts), *Information technology – Open Systems Interconnection – Conformance testing methodology and framework*