PD IEC TS 62351-100-3:2020

BSI Standards Publication

Power systems management and associated information exchange — Data and communications security

Part 100-3: Conformance test cases for the IEC 62351-3, the secure communication extension for profiles including TCP/IP

bsi.

National foreword

This Published Document is the UK implementation of IEC TS 62351-100-3:2020.

The UK participation in its preparation was entrusted to Technical Committee PEL/57, Power systems management and associated information exchange.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2020

ISBN 978 0 580 99847 8

ICS 33.200

Compliance with a British Standard cannot confer immunity from legal obligations.

This Published Document was published under the authority of the Standards Policy and Strategy Committee on 31 January 2020.

Amendments/corrigenda issued since publication

Date	Text affected

IEC TS 62351-100-3

Edition 1.0 2020-01

TECHNICAL SPECIFICATION

colour inside

Power systems management and associated information exchange – Data and communications security – Part 100-3: Conformance test cases for IEC 62351-3, the secure communication extension for profiles including TCP/IP

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ICS 33.200

ISBN 978-2-8322-7644-0

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

_____

POWER SYSTEMS MANAGEMENT AND ASSOCIATED INFORMATION EXCHANGE – DATA AND COMMUNICATIONS SECURITY –

Part 100-3: Conformance test cases for IEC 62351-3, the secure communication extension for profiles including TCP/IP

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this publication.
7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. In exceptional circumstances, a technical committee may propose the publication of a technical specification when

- the required support cannot be obtained for the publication of an International Standard, despite repeated efforts, or
- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

IEC TS 62351-100-3, which is a technical specification, has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
57/2090/DTS	57/2130/RVDTS

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

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

This document is to be read in conjunction with IEC 62351-3:2014, IEC 62351-3/AMD1:2018 and IEC62351-3/AMD2:2019.

A list of all parts in the IEC 62351 series, published under the general title *Power systems management and associated information exchange – Data and communications security*, can be found on the IEC website.

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

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This technical specification describes test cases for conformance testing of telecontrol equipment or systems integrating the IEC 62351-3 security extension for profiles including TCP/IP.

POWER SYSTEMS MANAGEMENT AND ASSOCIATED INFORMATION EXCHANGE – DATA AND COMMUNICATIONS SECURITY –

Part 100-3: Conformance test cases for IEC 62351-3, the secure communication extension for profiles including TCP/IP

1 Scope

This part of IEC 62351, which is a technical specification, describes test cases of data and communication security for telecontrol equipment, Substation Automation Systems [SAS] and telecontrol systems, including front-end functions of SCADA.

The goal of this document is to enable interoperability by providing a standard method of testing protocol implementations to verify that a device fulfils the requirement of IEC 62351-3. Note that conformity to IEC 62351-3 does not guarantee interoperability between devices using different implementations. It is expected that using this specification during testing will minimize the risk of non-interoperability. A basic condition for this interoperability is a passed conformance test of both devices.

The scope of this document is the specification of common available procedures and definitions for conformance and/or interoperability testing to ensure conformity to IEC 62351-3. The conformance test cases defined here are focused to verify the conformant integration of the underlying authentication/encryption protocol (TLS), as specified in IEC 62351-3, to protect TCP/IP based communications.

This document is not intended to test the underlying authentication/encryption protocol required by IEC 62351-3 to be implemented over TCP/IP (TLS). The conformance testing of the authentication/encryption protocol over TCP/IP is outside the scope of this document.

This document deals with data and communication security 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 is done according to these standards.

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.[1]

IEC TS 62351-2:2008, *Power systems management and associated information exchange - Data and communications security - Part 2: Glossary of terms*

IEC 62351-3:2014, *Power systems management and associated information exchange – Data and communications security – Part 3: Communication network and system security – Profiles*

---

[1] The base standard always takes precedence. In case of ambiguity between this technical specification and the base standards (IEC 62351-3), this part of IEC 62351 needs to be clarified or amended.

When testing, negative behavior is not described in the base standard, the behavior described in this document prevails and should be observed. The conformance statement produced after testing indicates any lack of conformance to either the test plan or the base standard.