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Electronic fee collection – Evaluation of implementation for conformity to CEN/TS 16986

Part 2: Abstract test suite

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National foreword

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Contents

Page

European foreword **4**

Introduction **5**

1 Scope **6**

2 Normative references **6**

3 Terms and definitions **6**

4 Symbols and abbreviations **9**

5 Abstract Test Method (ATM) **10**
5.1 Introduction **10**
5.2 Test architecture **10**
5.3 Protocol Implementation Extra Information for Testing (PIXIT) **10**

6 Untestable Test Purposes (TP) **10**

7 Triggering the IUT **11**

8 Security functions **16**

9 ATS data structures **17**
9.1 ASN.1 definitions **17**
9.2 Parameterized support **17**
9.3 TTCN-3 modules **19**

10 Message filtering **20**

11 Module parameter data **20**
11.1 Introduction **20**
11.2 Tester data **21**
11.3 ICS-parameters **21**
11.4 Interoperability statement parameters **21**
11.5 Pixit data **22**

12 Test case timing **22**

13 ATS naming conventions **22**
13.1 Introduction **22**
13.2 TTCN-3 identifiers **22**
13.3 Test case identifiers **23**

Annex A (normative) **Abstract Test Suite (ATS) for the central equipment of the toll chargers and toll service providers** **24**
A.1 Introduction **24**
A.2 TTCN Graphical form (TTCN.GR) **24**
A.3 TTCN Machine Processable form (TTCN.MP) **24**

Annex B (informative) **PIXIT proforma for toll charger and toll service provider** **25**
B.1 Introduction **25**
B.2 Identification summary **25**
B.3 ATS summary **25**
B.4 Test laboratory **25**
B.5 Client identification **26**

B.6 IUT identification **26**
B.7 Protocol layer information **26**
B.7.1 Protocol identification **26**
B.7.2 IUT information **27**
B.7.3 Trust object support **27**

Bibliography **28**

European foreword

This document (CEN/TS 17154-2:2019) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

CEN/TS 17154, *Electronic fee collection — Evaluation of implementation for conformity to CEN/TS 16986*, consists of two parts:

— *Part 1: Test suite structure and purposes*; and

— *Part 2: Abstract test suite* (this document).

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this Technical Specification: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The Standard on information exchange between service provision and toll charging (i.e. EN ISO 12855) is a so-called toolbox standard. It provides the foundation for interoperability but is not sufficient to achieve full technical interoperability. The interoperable application profile specified in CEN/TS 16986 makes useful choices amongst the options which EN ISO 12855 provides and defines a coherent set of transactions, triggers and data elements for an interoperable data exchange at the interface between the central system equipment of toll service providers and toll chargers. The interoperable application profile supports in both:

— dedicated short-range communication (DSRC)-based systems; and

— global navigation satellite systems /cellular network (GNSS/CN)- based – autonomous systems.

This document provides the specification for testing the conformity of technical implementations to CEN/TS 16986. Technical implementations which can be tested using the specifications included in this Standard are:

— central equipment of toll chargers; and

— central equipment of toll service providers.

While CEN/TS 17154-1 describes the tests on a higher abstract level which is human readable, this Part 2 uses the test notation TTCN-3 to provide a test specification that can be used and executed in state-of-the-art test environments.

The associated requirements specifications CEN/TS 16986 support the implementation of interoperability in general and European electronic toll service (EETS) in particular. The technical requirements defined in CEN/TS 16986 correspond to requirements listed in Commission Decision 2009/750/EC. CEN/TS 16986:2016, Table D.1 provides a list that outlines how requirements in CEN/TS 16986:2016 relate to essential requirements in European legislation. Consequently, the CEN/TS 17154 series supports EETS in terms of providing a set of standardized test specifications to evaluate conformance of implementation of toll chargers and toll service providers – including implementations that provide interoperability and the EETS.

1 Scope

This document provides a suite of tests in order to assess the central equipment of toll chargers and toll service providers for compliancy towards the requirements listed in CEN/TS 16986. This document contains the definition of such tests in the form of test cases, reflecting the required individual steps listed in specific Test Purposes defined in CEN/TS 17154-1. The test cases are written in Testing and Test Control Notation version 3 (TTCN v3).

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.

CEN/TS 16986:2016, *Electronic Fee Collection — Interoperable application profiles for information exchange between Service Provision and Toll Charging*

ETSI ES 201 873-1 (V3.4.1:2008-09), *Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 1: TTCN-3 Core Language*

ETSI ES 201 873-4 (V4.6.1:2017-05), *Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; Part 4: TTCN-3 Operational Semantics*

ETSI ES 201 873-7 (V4.7.1:2018-05), *Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3, Part 7: Using ASN.1 with TTCN-3*

ETSI ES 202 784 (V1.6.1:2017-04), *Methods for Testing and Specification (MTS); The Testing and Test Control Notation version 3; TTCN-3 Language Extensions: Advanced Parameterization*

EN ISO 12855:2015, *Electronic fee collection — Information exchange between service provision and toll charging (ISO 12855:2015)*

EN ISO 17575-1:2016, *Electronic fee collection — Application interface definition for autonomous systems — Part 1: Charging (ISO 17575-1:2016)*

EN ISO 17575-2, *Electronic fee collection — Application interface definition for autonomous systems — Part 2: Communication and connection to the lower layers (ISO 17575-2)*

EN ISO 17575-3, *Electronic fee collection — Application interface definition for autonomous systems — Part 3: Context data (ISO 17575-3)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at http://www.electropedia.org/
- ISO Online browsing platform: available at http://www.iso.org/obp