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Public transport - Communication between contactless readers and fare media - Part 2: Test plan for ISO/IEC 14443

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/15

Táto predbežná STN je určená na overenie. Pripomienky zasielajte ÚNMS SR najneskôr do 30.04.2017.

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English Version

Public transport - Communication between contactless readers and fare media - Part 2: Test plan for ISO/IEC 14443

Transport Public - Système billettique interopérable - Communication entre terminaux et objets sans contact - Partie 2: Plan de test pour l'ISO/IEC 14443

Öffentlicher Verkehr - Kommunikation zwischen berührungslosen Ladegeräten und Fahrscheinmedien - Teil 2: Prüfplan zur ISO/IEC 14443

This Technical Specification (CEN/TS) was approved by CEN on 24 February 2015 for provisional application.

The period of validity of this CEN/TS is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the CEN/TS can be converted into a European Standard.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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Foreword

This document (CEN/TS 16794-2:2015) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

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Introduction

This test plan represents a necessary step in a process designed to ensure contactless communications interoperability between fare management system terminals and any fare media liable to be accepted by them. The end-purpose of this document is to provide the test conformance plan that needs to be performed to ensure compliancy of fare management system terminals and any fare media in accordance to CEN/TS 16794-1, *Public transport - Communication between contactless readers and fare media - Part 1: Implementation requirements for* ISO/IEC 14443.

This test plan is not designed to repeat or duplicate the referenced specifications and associated test method (essentially ISO/IEC 14443 and ISO/IEC 10373-6 standards) but to list the test conditions to be performed in addition to the ones already described in the ISO/IEC 10373-6 standard and to define their testing and use conditions.

This test plan includes the following key clauses:

— Clause 5 describes the test environment;

— Clause 6 sets out the analog test plan for fare management system terminals;

— Clause 7 sets out the analog test plan for contactless fare media;

— Clause 8 sets out the protocol and digital test plan for fare management system terminals;

— Clause 9 sets out the protocol and digital test plan for contactless fare media.

1 Scope

This Technical Specification comes as a complement to the technical requirements expressed in CEN/TS 16794-1, *Public transport - Communication between contactless readers and fare media - Part 1: Implementation requirements for* ISO/IEC 14443*,* for ensuring contactless communication interoperability between contactless fare management system terminals and contactless fare media hosting a transport ticketing application.

This test plan lists all the test conditions to be performed on a contactless reader or a contactless fare media in order to ensure that all the requirements specified in CEN/TS 16794-1 are met for the device under test.

This Technical Specification is then applicable to:

— any **contactless fare management system terminals** acting as a PCD **contactless reader** based on ISO/IEC 14443-series standards;

— any **contactless fare media** acting as a PICC **contactless object** based on ISO/IEC 14443-series standards.

This test plan applies solely to the contactless communication layers described in parts 1 to 4 of the ISO/IEC 14443- series of standards. Application-to-application exchanges executed once contactless communication has been established at RF level fall outside the scope of this test plan. However, a transport ticketing application will need to be used so as to make end-to-end transactions during tests on the RF communication layer.

This test plan does not duplicate the contents of ISO/IEC 14443- series or ISO/IEC 10373-6 standards. It makes reference to the ISO/IEC 10373-6 applicable tests methods, specifies the test conditions to be used and describes the additional specific test conditions that may be run.

The list of test conditions applicable to the device under test will be conditioned by the Information Conformance Statement (ICS) declaration made by the device manufacturer. For each test case, the test conditions are clearly specified in order to determine the pertinence to run or not the test case in accordance with the device capabilities or in accordance with the device manufacturer’s choice.

In order to facilitate the test report issuance, a test report template is included in Annex A of the present test plan.

Although the present test plan aims at becoming the primary basis for certification of contactless communication protocol between contactless reader and contactless object, it does not describe any certification or qualification processes as such processes should be defined between local or global transit industry stakeholders and not within this CEN work group.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 10373-6:2011, *Identification cards — Test methods — Part 6: Proximity cards*

ISO/IEC 10373-6:2011/Amd.1:2012, *Identification cards — Test methods — Part 6: Proximity cards / Amendment 1: Additional PICC classes*

ISO/IEC 10373-6:2011/Amd.2:2012, *Identification cards — Test methods — Part 6: Proximity cards / Amendment 2: Test methods for electromagnetic disturbance*

ISO/IEC 10373-6:2011/Amd.3:2012, *Identification cards — Test methods — Part 6: Proximity cards / Amendment 3: Exchange of additional parameters, block numbering, unmatched AFI and TR2*

ISO/IEC 10373-6:2011/Amd.4:2012, *Identification cards — Test methods — Part 6: Proximity cards / Amendment 4: Bit rates of fc/8, fc/4 and fc/2 and frame size from 512 to 4096 bytes*

ISO/IEC 10373-6:2011/Cor:2013, *Identification cards — Test methods — Part 6: Proximity cards / R2 value range, start of PICC transmission and program for EMD level measurement*

ISO/IEC 14443-1:2008, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 1: Physical characteristics*

ISO/IEC 14443-1:2008/Amd.1:2012, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 1: Physical characteristics / Amendment 1: Additional PICC classes*

ISO/IEC 14443-2:2010, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 2: Radio frequency power and signal interface*

ISO/IEC 14443-2:2010/Amd.1:2011, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 2: Radio frequency power and signal interface / Amendment 1: Limits of electromagnetic disturbance levels parasitically generated by the PICC*

ISO/IEC 14443-2:2010/Amd.2:2012, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 2: Radio frequency power and signal interface / Amendment 2: Additional PICC classes*

ISO/IEC 14443-2/Amd.3:2012, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 2: Radio frequency power and signal interface / Amendment 3: Bits rates of fc/8, fc/4 and fc/2*

ISO/IEC 14443-3:2011, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 3: Initialization and anticollision*

ISO/IEC 14443-3:2011/Amd.1:2011, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 3: Initialization and anticollision / Amendment 1: Electromagnetic disturbance handling and single-size unique identifier*

ISO/IEC 14443-3:2011/Amd.2:2012, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 3: Initialization and anticollision / Amendment 2: Bit rates of fc/8, fc/4 and fc/2, frame size from 512 bytes to 4 096 bytes and minimum TR0*

ISO/IEC 14443-4:2008, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 4: Transmission protocol*

ISO/IEC 14443-4:2008/Amd.1:2012, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 4: Transmission protocol / Amendment 1: Exchange of additional parameters*

ISO/IEC 14443-4:2008/Amd.2:2012, *Identification cards — Contactless integrated circuit cards — Proximity cards — Part 4: Transmission protocol / Amendment 2: Bit rates of fc/8, fc/4 and fc/2, protocol activation of PICC Type A and frame size from 512 bytes to 4 096 bytes*

CEN/TS 16794-1:2015, *Public transport — Communication between contactless readers and fare media — Part 1: Implementation requirements for ISO/IEC 14443*