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STN	**Verejná doprava. Komunikácia medzi bezkontaktnými čítačkami a cestovným médiom. Časť 1: Požiadavky na implementáciu ISO/IEC 14443.**	**STN P CEN/TS 16794-1** 01 8565

Public transport - Communication between contactless readers and fare media - Part 1: Implementation requirements 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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TECHNICAL SPECIFICATION

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English Version

Public transport - Communication between contactless readers and fare media - Part 1: Implementation requirements for ISO/IEC 14443

Transport Public - Système billettique interopérable - Communication entre terminaux et objets sans contact - Partie 1: Exigences d'implémentation pour l'ISO/IEC 14443

Öffentlicher Verkehr - Kommunikation zwischen berührungslosen Ladegeräten und Fahrscheinmedien - Teil 1: Implementierungsanforderungen 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
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Foreword

This document (CEN/TS 16794-1:2015) 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

These implementation requirements represent the first step in a process designed to ensure contactless communication interoperability between fare management system terminals and any fare media liable to be accepted by them. The end-purpose of this document is therefore to prepare the ground for European deployment of a certification process on contactless communication protocols guaranteeing technical interoperability between fare management system terminals and fare media.

These implementation requirements set out the requirements related to the use of ISO/IEC 14443 to ensure interoperability between fare management system terminals and multiple-form-factor contactless fare media (smartcards, e-tickets, mobile phones, USB keys, tablets, etc.).

These implementation requirements are not designed to repeat or duplicate the referenced specifications (essentially standards ISO/IEC 14443 and ISO/IEC 10373-6) but to finalize some specific points and to define their testing and use conditions, and thus ultimately to improve overall interoperability.

These implementation requirements have been built to facilitate co-compliance of a given fare management system terminal or fare media on both these implementation requirements and one or more other standard specifications like EMVCo Book D or NFC Forum Analog and Digital Technical specifications.

These implementation requirements include the following key clauses:

— Clause 6 presents general considerations applicable to fare management system terminals and fare media.

— Clause 7 sets out the requirements specific to contactless fare management system terminals.

— Clause 8 sets out the requirements specific to contactless fare media.

— Clause 9 sets out the test conditions for the certification of contactless fare management system terminals and contactless fare media under these implementation requirements. It also lists the implementation characteristics to be provided by fare management system terminal manufacturers and contactless fare media manufacturers as a prerequisite to the certification process.

— Various possible polling sequences are given in Annex A for information purposes.

1 Scope

This Technical Specification sets out the technical requirements to be met by contactless fare management system terminals and contactless fare media hosting a transport ticketing application in order to be able to interface together using the ISO/IEC 14443 standard contactless communications protocol.

This Technical Specification applies to:

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

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

The purpose of these implementation requirements is to ensure contactless communications interoperability between contactless fare management system terminals and any contactless fare media liable to be accepted by them, once both terminal and fare media have been certified as meeting the requirements of these implementation requirements. An interface–oriented test approach will be used to evaluate the interoperability of relevant components and is defined in CEN/TS 16794-2*, Public transport — Communication between contactless readers and fare media — Part 2: Test plan for ISO/IEC 14443*.

Application-to-application exchanges executed once contactless communication has been established at RF level fall outside the scope of these implementation requirements. In line with the rules on independency between OSI protocol layers, these implementation requirements work on the assumption that application-to-application exchanges are not contingent on the type of contactless communication established or by the parameters used for the low-level protocol layers that serve as the platform for these application-to-application exchanges.

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.

CEN/TS 16794-2, *Public transport — Communication between contactless readers and fare media — Part 2: Test plan for ISO/IEC 14443*

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.1:2013, *Identification cards — Test methods — Part 6: Proximity cards / Technical Corrigendum 1: 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 — 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*

ISO/IEC 15693-2:2006, *Identification cards — Contactless integrated circuit cards — Vicinity cards — Part 2: Air interface and initialization*

ISO/IEC 18092:2013, *Information technology — Telecommunications and information exchange between systems — Near Field Communication — Interface and Protocol (NFCIP-1)*

EMV Contactless Communication Protocol Specification (2014), *EMV Contactless Specifications for Payment Systems — Book D — EMV Contactless Communication Protocol Specification — Version 2.4 February 2014*

NFC Forum™ - NFC Analog Specification (2012), *Technical Specification - NFC Forum™- ANALOG 1.0 - NFCForum-TS-Analog-1.0 - 2012-07-11*

NFC Forum™ - NFC Digital Specification (2014), *Technical Specification - NFC Forum™- DIGITAL 1.1 - NFCForum-TS-Digital-1.1 - 2014-05-20*