
Digitalni potni list izdelka - Nosilci podatkov

Digital product passport - Data carriers

Digitaler Produktpass - Datenträger

Passeport numérique des produits - Supports de données

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35.240.63	Uporabniške rešitve IT v trgovini	IT applications in trade

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English version

Digital product passport - Data carriers

Passeport numérique des produits - Supports de données

Digitaler Produktpass - Datenträger

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European foreword

This document (EN 18220:2026) has been prepared by Technical Committee CEN/CLC/JTC 24 “Digital product passport – Framework and systems”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2026, and conflicting national standards shall be withdrawn at the latest by November 2026.

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.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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

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Introduction

0.1 Background

In 2019 the European Commission set out the European Green Deal as the EU's strategic framework for sustainable growth. A central legislative instrument in that framework is the Ecodesign for Sustainable Products Regulation (ESPR), which aims to support the Union's transition to a circular, resource-efficient economy and long-term climate neutrality.

The ESPR promotes production and consumption patterns that reduce environmental impact and improve product performance across the lifecycle. To support these objectives, the ESPR sets out ecodesign requirements that improve product durability, reliability, repairability, upgradability, reusability and recyclability and that seek to reduce waste, minimize harmful substances and improve resource and energy efficiency.

Digital product passports (DPPs) are identified in the ESPR as a key enabling mechanism to make product information traceable and accessible across value chains - supporting economic operators, manufacturers, distributors, repairers, recyclers and consumers to make informed decisions. The implementation of digital product passports will be carried out progressively. Sector-specific legislation will determine the precise DPP content and requirements for individual product groups.

This staged approach enables regulatory requirements to be refined according to sectoral characteristics while maintaining coherence with the EU's environmental policy objectives and stakeholder considerations. Where applicable, DPP requirements will be consistent with other EU legislation, such as the Construction Products Regulation and the Batteries Regulation.

To support the implementation of DPPs, 8 standards have been developed:

- EN 18219 – Digital product passport – Unique identifiers
- EN 18220 – Digital product passport – Data carriers (this document)
- EN 18222 [1] – Digital Product Passport – Application Programming Interfaces (APIs) for the product passport lifecycle management and searchability
- EN 18216 [2] – Digital Product Passport – Data exchange protocols
- EN 18221 [3] – Digital product passport – data storage, archiving, and data persistence
- EN 18223 [4] – Digital Product Passport – System interoperability
- EN 18239¹ [5] – Digital Product Passport – access rights management, information system security, and business confidentiality
- EN 18246² [6] – Digital Product Passport – Data authentication, reliability and integrity

0.2 Overview

This document addresses suitable data carriers and shows how they meet the requirements. ESPR [7] defines 'data carrier' as a linear barcode symbol, a two-dimensional symbol or other automatic identification data capture medium that can be read by a device. It further stipulates that delegated acts could specify one or more data carriers to be used. This document specifies common rules for how to construct automatic identification and data capture (AIDC) media to be used as data carrier to provide a link to a DPP. These rules are based on the requirements derived from the ESPR and from the subsequent

¹ Under preparation. Stage at the time of publication: prEN 18239:2025.

² Under preparation. Stage at the time of publication: prEN 18246:2025.

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standardization request issued by the European Commission. The requirements relate to the encoding capability, the dimensional characteristics, quality, persistence and durability as applicable. This document includes data carriers and shows how they meet the requirements.

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1 Scope

This document specifies requirements for data carriers used in a digital product passport system. This covers: symbology characteristics, format, error correction codes, encoding methods, printing and production quality, and durability.

This document also specifies requirements on graphical or other indicators for easy recognition of DPP data carriers and the indication on the data carrier placement, machine readability, quality checking, links between physical product and digital representation.

The following aspects are out of scope: architecture and use cases, secure elements and any other cryptographic security features.

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.

ISO/IEC 14443-1:2018, *Cards and security devices for personal identification — Contactless proximity objects — Part 1: Physical characteristics*

ISO/IEC 14443-2:2020, *Cards and security devices for personal identification — Contactless proximity objects — Part 2: Radio frequency power and signal interface*

ISO/IEC 14443-3:2018, *Cards and security devices for personal identification — Contactless proximity objects — Part 3: Initialization and anticollision*

ISO/IEC 14443-4:2018, *Cards and security devices for personal identification — Contactless proximity objects — Part 4: Transmission protocol*

ISO/IEC 15415:2024, *Automatic identification and data capture techniques — Bar code symbol print quality test specification — Two-dimensional symbols*

ISO/IEC 15426-2:2023, *Information technology — Automatic identification and data capture techniques — Bar code verifier conformance specification — Part 2: Two-dimensional symbols*

ISO/IEC 15693-1:2018, *Cards and security devices for personal identification — Contactless vicinity objects — Part 1: Physical characteristics*

ISO/IEC 15693-2:2019, *Cards and security devices for personal identification — Contactless vicinity objects — Part 2: Air interface and initialization*

ISO/IEC 15693-3:2019, *Cards and security devices for personal identification — Contactless vicinity objects — Part 3: Anticollision and transmission protocol*

ISO/IEC 15961-2:2019, *Information technology — Data protocol for radio frequency identification (RFID) for item management — Part 2: Registration of RFID data constructs*

ISO/IEC 15962:2022, *Information technology — Radio frequency identification (RFID) for item management — Data protocol: data encoding rules and logical memory functions*

ISO/IEC 16022:2024, *Information technology — Automatic identification and data capture techniques — Data Matrix bar code symbology specification*

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ISO/IEC 18000-3:2010, *Information technology — Radio frequency identification for item management — Part 3: Parameters for air interface communications at 13,56 MHz*

ISO/IEC 18000-63:2021, *Information technology — Radio frequency identification for item management — Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C*

ISO/IEC 18004:2024, *Information technology — Automatic identification and data capture techniques — QR code bar code symbology specification*

ISO/IEC 18046-1:2011, *Information technology — Radio frequency identification device performance test methods — Part 1: Test methods for system performance*

ISO/IEC 18046-2:2020, *Information technology — Radio frequency identification device performance test methods — Part 2: Test methods for interrogator performance*

ISO/IEC 18046-3:2020, *Information technology — Radio frequency identification device performance test methods — Part 3: Test methods for tag performance*

ISO/IEC 18047-63:2023, *Information technology — Radio frequency identification device conformance test methods — Part 63: Test methods for air interface communications at 860 MHz to 960 MHz*

ISO/IEC 18092:2023, *Telecommunications and information exchange between systems — Near Field Communication Interface and Protocol 1 (NFCIP-1)*

ISO/IEC 19762:2025, *Information technology — Automatic identification and data capture (AIDC) techniques — Vocabulary*

ISO/IEC 21481:2021, *Information technology — Telecommunications and information exchange between systems — Near field communication interface and protocol 2 (NFCIP-2)*

ISO/IEC 29158, *Automatic identification and data capture techniques — Bar code symbol quality test specification — Direct part mark (DPM)*

EN 18219:2026, *Digital product passport — Unique identifiers*

EPC Tag Data Standard V2. 3, <https://ref.gs1.org/standards/tds/>

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 19762:2025 and the following apply.

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

3.1 additional software

additional application, program, or tool that a user will install or access separately from the default setup of most smartphones or similar devices to interact with the digital product passport

EXAMPLE Proprietary applications, plugins or extensions, dedicated apps, specialized middleware, or customized software readers.

Note 1 to entry: Standard functionalities, such as web browsers, camera-based QR readers, and universal communication protocols (e.g. DNS, HTTP, HTTPS), are not considered as additional software.

3.2

barcode

printed data carrier indicating either a reference to a linear or a 2D matrix

Note 1 to entry: It excludes RFID data carriers.

3.3

batch

subset of a *model* (3.10) that is grouped by an economic operator based on common characteristics

3.4

consumer

individual member of the general public purchasing or using goods, property or services for private purposes

[SOURCE: EN ISO 14025:2010, 3.16]

3.5

data carrier

device or medium used to store data as a relay mechanism in an automatic identification and data capture system

3.6

digital product passport DPP

digital record of product characteristics throughout its life cycle that is accessible via electronic means through a data carrier

Note 1 to entry: Example characteristics include environmental sustainability, environmental impact, and recyclability

3.7

economic operator

manufacturer, authorized representative, importer, distributor, dealer or fulfilment service provider that places the product onto the market

3.8

item

single unit of a *model* (3.10)

3.9

life cycle

consecutive and interlinked stages of a product system, from raw material acquisition or generation from natural resources to final disposal

[SOURCE: EN ISO 14040:2006, 3.1]

3.10

model

version of a product of which all units share the same technical characteristics and the same model identifier

EN 18220:2026 (EN)**3.11****NFC****near field communication**

subset of HF passive radio-frequency identification with low range

3.12**persistence**

process to keep a unique identifier associated with an identified object throughout its life cycle

3.13**PIA**

RFID Privacy Impact Assessment Process

3.14**product**

any physical good that is placed on the market or put into service

3.15**radio-frequency identification****RFID**

identification technology that uses electromagnetic fields to automatically identify and track tags attached to objects

3.16**RAIN RFID (UHF RFID) per ISO/IEC 18000-63**

passive UHF *radio-frequency identification* (3.15)

3.17**two-dimensional symbol**

code representing data in machine-readable form by a collection of polygonal or circular cells in a regular pattern which are read optically by scanning

3.18**unique identifier**

string of characters that is required to be unique among all identifiers used for all objects for a specific purpose

Note 1 to entry: A unique identifier refers to unique product identifier, unique economic operator identifier and unique facility identifier.

[SOURCE: ISO 29404:2015, 3.26, modified — “identifier” replaced by “string of characters”, Note 1 to entry removed and a new Note 1 to entry added]

3.19**X dimension**

specified width of the narrow in a bar code symbol or the specified width of a single element in a two-dimensional symbol

[SOURCE: ISO/IEC 19762:2025, 3.2.1.10]