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Intelligent transport systems — Automated valet parking systems (AVPS)

Part 2: Security integration for type 3 AVP

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National foreword

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

A list of all parts in the ISO 23374 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user’s national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Introduction

An automated valet parking system (AVPS) automatically operates unoccupied vehicles from the drop off area where the driver and passengers leave the vehicle, and returns the vehicle to a pickup area upon the user's request to retrieve the vehicle.

AVPS is expected to contribute to:

— enhanced user experience,

— a reduction in accidents,

— the lowering of energy consumption and CO_2 emissions whilst vehicles search for available parking spaces, and

— the effective use of land through parking of vehicles in dense spaces.

As for any kind of automated traffic, AVPS is susceptible to attacks and malfunctioning, which can affect the safety of human life and other properties. Thus, security is an essential prerequisite for deployment of AVPS. Furthermore, it is essential to avoid the proliferation of security means in order to ensure that the overall C-ITS/CCAM (cooperative, connected and automated mobility) security systems remain manageable, and to ensure interoperability.

The aim of this document is to contribute to the realization of secure level 4 driverless operation of vehicles within parking facilities, and to support a fast and smooth market introduction by achieving interoperability among vehicles provided by different manufactures and within different parking facilities.

Clause 6 of this document addresses specifications of basic security requirements for AVPS related to identified operation interfaces and management interfaces. This is complemented by the information in Clause 5 and three informative annexes.

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Intelligent transport systems — Automated valet parking systems (AVPS) —

Part 2: Security integration for type 3 AVP

1 Scope

This document specifies security means and procedures for AVPS Type 3 as specified in ISO 23374-1. It focuses on operation interfaces and management interfaces as defined in ISO 23374-1.

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 23374-1:2023, *Intelligent transport systems — Automated valet parking systems (AVPS) — Part 1: System framework, requirements for automated driving and for communications interface*

ISO/SAE 21434, *Road vehicles — Cybersecurity engineering*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 23374-1 and the following apply.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
subject vehicle
SV
light vehicle which is equipped with the vehicle operation sub-system of an automated valet parking system (AVPS)

[SOURCE: ISO 23374-1:2023, 3.4]

3.2
parking facility
public or private car park in which an automated valet parking system (AVPS) is available

Note 1 to entry: An AVPS does not necessarily have to be available in the entire favility in order to achieve conformance to this document. For example, it is possible for only a certain floor within a multi-story parking facility to be dedicated to an AVPS.

[SOURCE: ISO 23374-1:2023, 3.5, modified — Note 2 to entry removed.]

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