SLOVENSKI STANDARD
oSIST prEN ISO 15118-2:2022

01-december-2022

Cestna vozila - Komunikacijski vmesnik med vozilom in omrežjem - 2. del: Zahteve za protokol omrežja in uporabe (ISO/DIS 15118-2:2022)

Road vehicles - Vehicle-to-grid communication interface - Part 2: Network and application protocol requirements (ISO/DIS 15118-2:2022)

Straßenfahrzeuge - Kommunikationsschnittstelle zwischen Fahrzeug und Ladestation - Teil 2: Anforderungen an das Netzwerk- und Anwendungsprotokoll (ISO/DIS 15118-2:2022)

Véhicules routiers - Interface de communication entre véhicule et réseau électrique - Partie 2: Exigences du protocole d'application et du réseau (ISO/DIS 15118-2:2022)

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/26ca713e6f9d/osist-pren-iso-15118-2-2022

Ta slovenski standard je istoveten z: **prEN ISO 15118-2**

ICS:

35.100.05	Večslojne uporabniške rešitve	Multilayer applications
43.040.15	Avtomobilska informatika. Vgrajeni računalniški sistemi	Car informatics. On board computer systems

oSIST prEN ISO 15118-2:2022 **en,fr,de**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-26ea713c6f9d/osist-pren-iso-15118-2-2022

oSIST prEN ISO 15118-2:2022

DRAFT INTERNATIONAL STANDARD

ISO/DIS 15118-2

ISO/TC **22**/SC **31**

Secretariat: **DIN**

Voting begins on:
2022-10-10

Voting terminates on:
2023-01-02

Road vehicles — Vehicle-to-grid communication interface —

Part 2:
Network and application protocol requirements

Véhicules routiers — Interface de communication entre véhicule et réseau électrique —

Partie 2: Exigences du protocole d'application et du réseau

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ICS: 43.120

oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-26ea713c6f9d/osist-pren-iso-15118-2-2022

This document is circulated as received from the committee secretariat.

This draft is submitted to a parallel vote in ISO and in IEC.

ISO/CEN PARALLEL PROCESSING

THIS DOCUMENT IS A DRAFT CIRCULATED FOR COMMENT AND APPROVAL. IT IS THEREFORE SUBJECT TO CHANGE AND MAY NOT BE REFERRED TO AS AN INTERNATIONAL STANDARD UNTIL PUBLISHED AS SUCH.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

Reference number
ISO/DIS 15118-2:2022(E)

© ISO 2022

oSIST prEN ISO 15118-2:2022

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-26ea713c6f9d/osist-pren-iso-15118-2-2022

COPYRIGHT PROTECTED DOCUMENT

© ISO 2022

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

© ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

Contents

Foreword vii

Introduction viii

1 Scope 1

2 Normative references 1

3 Terms and definitions 3

4 Symbols and abbreviated terms 6

5 Conventions 7
5.1 Definition of OSI based services 7
5.2 Requirement structure 8
5.3 Usage of RFC references 8
5.4 Notation used for XML schema diagrams 8

6 Document overview 8

7 Basic requirements for V2G communication 9
7.1 General information 9
7.2 Service primitive concept of OSI layered architecture 10
7.2.1 Overview 10
7.2.2 Syntax of service primitives 10
7.3 Security concept 11
7.3.1 Call flows (flow charts) 11
7.3.2 Certificate and key management 15
7.3.3 Number of root certificates and root validity, certificate depth and size 17
7.3.4 Support and application of TLS 18
7.4 V2G communication states and data link handling 20
7.5 Data link layer 25
7.6 Network layer 25
7.6.1 General 25
7.6.2 Applicable RFCs and limitations and protocol parameter settings 25
7.6.3 IP addressing 26
7.7 Transport layer 27
7.7.1 Transmission control protocol (TCP) 27
7.7.2 User datagram protocol (UDP) 28
7.7.3 Transport layer security (TLS) 28
7.8 V2G transfer protocol 31
7.8.1 General 31
7.8.2 Supported ports 31
7.8.3 Protocol data unit 33
7.9 Presentation layer 36
7.9.1 XML and efficient XML interchange (EXI) 36
7.9.2 Message security 39
7.10 Application layer 46
7.10.1 SECC discovery protocol 46
7.10.2 Vehicle to grid application layer messages 51
7.10.3 Application layer service primitives 51

8 Application layer messages 55
8.1 General 55
8.2 Protocol handshake definition 56
8.2.1 Handshake sequence 56

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8eaf9d7d-8616-42ad-8a21-2bea713c619d/osist-pren-iso-15118-2-2022

© ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

8.2.2 Message definition supportedAppProtocolReq and supportedAppProtocolRes 57
8.2.3 Semantics description supportedAppProtocol messages 57
8.2.4 Message examples 58
8.3 V2G message definition 60
8.3.1 General 60
8.3.2 Message definition 60
8.3.3 Message header definition 61
8.3.4 Message body definition 62
8.4 V2G communication session and BodyElement definitions 63
8.4.1 General 63
8.4.2 Session handling 63
8.4.3 Common messages 66
8.4.4 AC messages 96
8.4.5 DC messages 98
8.5 Complex data types 107
8.5.1 Overview 107
8.5.2 Common 107
8.5.3 AC 132
8.5.4 DC 136
8.6 Identification modes and message set definitions 142
8.6.1 Overview 142
8.6.2 Supported message sets 145
8.6.3 Selection of message sets 172
8.7 V2G communication timing 177
8.7.1 Overview 177
8.7.2 Message sequence and communication session 178
8.7.3 Session setup and ready to charge 183
8.7.4 V2G message synchronization with IEC 61851-1 signalling 186
8.8 Message sequencing and error handling 191
8.8.1 Overview 191
8.8.2 Basic Definitions for Error Handling 192
8.8.3 ResponseCode handling 192
8.8.4 Request-response message sequence requirements 196
8.9 Request-response message sequence examples 215
8.9.1 AC 215
8.9.2 DC 218

Annex A (normative) Schema definition 223

A.1 Overview 223

A.2 V2G_CI_AppProtocol.xsd 224

A.3 V2G_CI_MsgDef.xsd 224

A.4 V2G_CI_MsgHeader.xsd 225

A.5 V2G_CI_MsgBody.xsd 225

A.6 V2G_CI_MsgDataTypes.xsd 232

A.7 xmldsig-core-schema.xsd 242

Annex B (normative) Certificate profiles 247

B.1 Overview 247

Annex C (normative) Specification of identifiers 253

C.1 e-Mobility account identifier (EMAID) 253

iTeh STANDARD PREVIEW
(standards.iteh.ai)

 © ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

C.1.1 EMAID syntax 253
C.1.2 EMAID Semantics 253
C.1.3 Calculation of the check digit 254
C.2 Electric vehicle supply equipment ID (EVSEID) 254
C.2.1 EVSEID syntax 254
C.2.2 EVSEID semantics 254
Annex D (informative) Mapping of ISO 15118-1 use case elements 256
D.1 Relation of identification modes and use case elements 256
Annex E (informative) Mapping of ISO 15118 message element names to SAE J2847/2 terms 309
E.1 SAE J2847/2 status codes 309
E.2 SAE J2847/2 energy transfer types 310
E.3 SAE J2847/2 signals 311
Annex F (informative) Message examples 313
F.1 Value added service selection 313
F.2 EXI encoded message examples 315
F.2.1 SessionSetupRes message 315
F.2.2 ChargeParameterDiscoveryReq message (AC-based) 315
F.2.3 CurrentDemandReq message 316
F.3 Schedules and tariff information 317
F.3.1 Overview 317
F.3.2 Dynamic GridSchedule w/o SalesTariff over ISO 15118 V2G CI 317
F.3.3 “Time Of Use”-based SalesTariff with constant value for GridSchedule 319
F.3.4 “Time Of Use”-based SalesTariff with dynamic GridSchedule 320
F.3.5 “Consumption”-based SalesTariff with constant value for GridSchedule 322
F.3.6 Multiple SalesTariffs with different demand Limits in GridSchedule 323
F.3.7 Time of Use-based SalesTariffs including relativePricePercentage 325
Annex G (informative) Application of certificates 333
G.1 General information 333
G.1.1 Overview 333
G.1.2 Demands of the OEM 334
G.1.3 Demands of the secondary actors 334
G.1.4 Rationale for decisions in this document 335
G.1.5 Overview of the resulting certificate structure 337
G.2 Simplified certificate management in private environment 338
G.2.1 Overview (motivation) 338
G.2.2 Solution for private environments 338

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-26ea713c619d/osist-pren-iso-15118-2-2022

© ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

G.2.2.1 General 338
G.2.2.2 Installation of a private root certificate into a vehicle 339
G.2.2.3 Charging in a private environment 339
G.2.2.4 Compromised certificate of a wall box 339
G.3 Use of OEM provisioning certificates 340
G.3.1 Introduction 340
G.3.2 Processes 341
G.3.2.1 Vehicle production 341
G.3.2.2 Vehicle Hand-Over 341
G.3.2.3 Contract Conclusion 342
G.3.2.4 Certificate installation 342
G.3.2.5 Certificate update 342
G.3.2.6 Component replacement 342
G.4 Security appliances and their associated certificates 343
Annex H (informative) Encryption for the distribution of secret keys 346
H.1 Overview 346
H.2 Ephemeral-static Diffie-Hellman key agreement 346
H.3 Key pairs 347
Annex I (informative) Message sequencing for renegotiation 348
I.1 Overview 348
I.2 Renegotiation after resuming a V2G communication session 351
Annex J (informative) Overview on XML signatures 352
J.1 Overview 352
J.2 Signature generation 352
J.3 Signature generation for secondary actors 355
J.4 Signature validation 355
Annex K (informative) Summary of requirements 356
Bibliography 362

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8ca19d7d-8616-42ad-8a21-

 © ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

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 documents 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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 31, *Data communication*.

oSIST prEN ISO 15118-2:2022

This second edition cancels and replaces the first edition (ISO 15118-2:2014), which has been technically revised.

https://standards.iteh.ai/catalog/standards/sist/26ea713c6f9d/osist-pren-iso-15118-2-2022

The main changes compared to the previous edition are as follows:

— General corrections identified and resolved by the “ISO 15118-2 User Group” (most, if not all, of these corrections are already included in existing implementations in the field, since the underlying issues were identified during the various Testing Symposium events);

— Clarifications, to make the intended functionality more clear:

  — How to properly use the ChargingProfile;

  — Interaction between ISO 15118-2 and IEC 61851;

  — How to use multiple Contract Certificates.

— Other improvements:

  — Remove definition of certificate lifetimes, should be defined by PKI;

  — Align TCP behaviour (timeouts, retries, …) with ISO 15118-20.

A list of all parts in the ISO 15118 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.

© ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

Introduction

The pending energy crisis and necessity to reduce greenhouse gas emissions has led the vehicle manufacturers to a very significant effort to reduce the energy consumption of their vehicles. They are presently developing vehicles partly or completely propelled by electric energy. Those vehicles will reduce the dependency on oil, improve the global energy efficiency and reduce the total CO_2 emissions for road transportation if the electricity is produced from renewable sources. To charge the batteries of such vehicles, specific charging infra-structure is required.

Much of the standardization work on dimensional and electrical specifications of the charging infrastructure and the vehicle interface is already treated in the relevant ISO or IEC groups. However, the question of information transfer between the EV and the EVSE has not been treated sufficiently.

Such communication is necessary for the optimization of energy resources and energy production systems so that vehicles can recharge in the most economical or most energy efficient way. It is also required to develop efficient and convenient billing systems to cover the resulting micro-payments. The necessary communication channel may serve in the future to contribute to the stabilization of the electrical grid as well as to support additional information services required to operate electric vehicles efficiently and economically.

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-26ea713c6f9d/osist-pren-iso-15118-2-2022

 © ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

Road vehicles — Vehicle-to-grid communication interface — Part 2: Network and application protocol requirements

1 Scope

This document specifies the communication between battery electric vehicles (BEV) or plug-in hybrid electric vehicles (PHEV) and the Electric Vehicle Supply Equipment. The application layer message set defined in this document is designed to support the energy transfer from an EVSE to an EV. ISO 15118-1 contains additional use case elements (Use Case Element IDs: F4 and F5) describing the bidirectional energy transfer. The implementation of these use cases requires enhancements of the application layer message set defined herein.

The purpose of this document is to detail the communication between an EV (BEV or a PHEV) and an EVSE. Aspects are specified to detect a vehicle in a communication network and enable an Internet Protocol (IP) based communication between EVCC and SECC.

Key

1 In scope of this document

2 Message definition considers use cases defined for communication between SECC to SA

Figure 1 — Communication relationship among EVCC, SECC and secondary actor

This document defines messages, data model, XML/EXI based data representation format, usage of V2GTP, TLS, TCP and IPv6. In addition, it describes how data link layer services can be accessed from an OSI-layer 3 perspective.

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 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

IEC 61851-1, *Electric vehicle conductive charging system — Part 1: General requirements (Ed 2.0 2010)*

IEC 61851-22, *Electric vehicle conductive charging system — Part 22: AC electric vehicle charging station*

IEC 61851-23, *Electric vehicle conductive charging system - Part 23: D.C. electric vehicle charging station*

IEC 62196-2, *Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 2: Dimensional compatibility and interchangeability requirements for A.C. pin and contact-tube accessories*

IEC 62196-3, *Plugs, socket-outlets, vehicle connectors and vehicle inlets – Conductive charging of electric vehicles – Part 3: Dimensional compatibility and interchangeability requirements for D.C. and A.C./D.C. pin and contact-tube vehicle couplers*

W3C EXI 1.0, *Efficient XML Interchange (EXI) Format 1.0, W3C Recommendation (March 2011)*

IETF RFC 768, *User Datagram Protocol (August 1980)*

iTeh STANDARD PREVIEW
(standards.iteh.ai)
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-26ea713c6f9d/osist-pren-iso-15118-2-2022

© ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

IETF RFC 793, *Transmission Control Protocol - DARPA Internet Program - Protocol Specification (September 1981)*

IETF RFC 1630, Universal Resource Identifiers in WWW (June 1994)

IETF RFC 1981, *Path MTU Discovery for IP version 6 (August 1996)*

IETF RFC 2460, *Internet Protocol, Version 6 (IPv6) Specification (December 1998)*

IETF RFC 6960, X.509 Internet Public Key Infrastructure Online Certificate Status Protocol - OCSP (June 2013)

IETF RFC 3122, Extensions to IPv6 Neighbor Discovery for Inverse Discovery Specification (June 2001)

IETF RFC 3315, Dynamic Host Configuration Protocol for IPv6 (DHCPv6) (July 2003)

IETF RFC 3484, Default Address Selection for Internet Protocol version 6 (IPv6) (February 2003)

IETF RFC 6582, The NewReno Modification to TCP's Fast Recovery Algorithm (April 2012)

IETF RFC 4050, Using the Elliptic Curve Signature Algorithm (ECDSA) for XML Digital Signatures (April 2005)

IETF RFC 4291, IP Version 6 Addressing Architecture (February 2006)

IETF RFC 4429, Optimistic Duplicate Address Detection (DAD) for IPv6 (April 2006)

IETF RFC 4443, Internet Control Message Protocol (ICMP v6) for the Internet Protocol version 6 (IPv6) specification (March 2006)

IETF RFC 4514, Lightweight Directory Access Protocol (LDAP): String Representation of Distinguished Names (June 2006)

IETF RFC 4861, Neighbor Discovery for IP version 6 (IPv6) (September 2007)

IETF RFC 4862, IPv6 Stateless Address Autoconfiguration (September 2007)

IETF RFC 5095, Deprecation of Type 0 Routing Headers in IPv6 (December 2007)

IETF RFC 5234, Augmented BNF for Syntax Specifications: ABNF (January 2008)

IETF RFC 5246, The Transport Layer Security (TLS) Protocol Version 1.2 (August 2008)

IETF RFC 5289, TLS Elliptic Curve Cipher Suites with SHA-256/384 and AES Galois Counter Mode (GCM) (August 2008)

IETF RFC 5480, Elliptic Curve Cryptography Subject Public Key Information (March 2009)

IETF RFC 5722, Handling of Overlapping IPv6 Fragments (December 2009)

IETF RFC 6066, Transport Layer Security (TLS) Extensions: Extension Definitions (January 2011)

IETF RFC 6106, IPv6 Router Advertisement Options for DNS Configuration (November 2010)

IETF RFC 6961, The Transport Layer Security (TLS) Multiple Certificate Status Request Extension (June 2013)

W3C EXI Profile, *Efficient XML Interchange (EXI) Profile, W3C Candidate Recommendation* (July 2013)

IANA Service&PortRegistry, Service Name and Transport Protocol Port Number Registry [viewed 2011-01-16], Available from: http://www.iana.org/assignments/service-names-port-numbers/service-names-port-numbers.xml

NIST FIPS PUB 180-4, Secure Hash Standard (SHS) (March 2012)

NIST Special Publication 800-56A, Recommendation for Pair-Wise Key Establishment Schemes Using Discrete Logarithm Cryptography (Revised) (March 2007)

NIST Special Publication 800-38A, Recommendation for Block Cipher Modes of Operation - Methods and Techniques (2001)

iTeh STANDARD PREVIEW
(standards.iteh.ai)
oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/...42ad-8a21-26ea713c6f9d/osist-pren-iso-15118-2-2022

 © ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15118-1 and the following apply.

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

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

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

3.1
basic charging
BC
charging phase during a charging session controlled by IEC 61851-1 only

3.1
charging limits
set of physical constraints (e.g. voltage, current, energy, power) that is negotiated during a *V2G Communication Session* (3.36) for a charging session

3.2
communication setup timer
timer monitoring the time LINK_READY.indication (DLINKSTATUS=LinkEstablished) until the Session Setup message

3.3
contract certificate
certificate issued to EVCC either by *V2G root CA* (3.42) or by *Sub-CA* (3.29), which is used in XML signatures in application layer so that SECC or secondary actor can verify the contract issued to the EVCC and signatures issued by the EVCC

3.4
CP state
control pilot (vehicle) state according to IEC 61851-1 signalled on control pilot line

3.5
credentials
anything that provides the basis for confidence, belief, credit, etc.

EXAMPLE certificates, passwords, user names, etc.

3.6
data link setup
setup phase for establishing the data link

Note 1 to entry: Entry condition: Any valid control pilot signal according to IEC 61851-1; Exit Condition: D-LINK_READY.indication(DLINKSTATUS=LinkEstablished).

3.7
distinguished encoding rules
DER
method for encoding a data object, such as an X.509 certificate, to be digitally signed or to have its signature verified

3.8
global address
IP address with unlimited scope

© ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

3.9
high level communication charging
HLC-C
charging phase during a charging session controlled by ISO 15118

3.10
link local address
IP address with link-only scope that can be used to reach neighbouring interfaces attached to the same link

3.11
identification mode
mandatory and optional messages and parameters with respect to charging scenarios using external identification means (EIM) and charging scenarios using plug and charge (PnC) for identification

Note 1 to entry: An identification mode covers a set of similar charging scenarios for a specific identification means.

3.12
IP address
IP-layer identifier for an interface or a set of interfaces

3.13
maximum transfer unit
MTU
maximum size (in bytes) of the largest protocol data unit that the data link layer that is passed onwards

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.14
message set
set of mandatory *V2G messages* (3.38) and parameters for the EVCC or SECC covering one or multiple use case elements

oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-

3.15
message timer
timer monitoring the exchange of a *request-response-message-pair* (3.23)

3.16
OEM provisioning certificate
certificate issued to the EVCC, so that a *contract certificate* (3.3) can be securely requested and received from a secondary actor

3.17
performance time
non-functional timing requirement defining the time a *V2G entity* (3.37) shall not exceed when executing or processing certain functionality

Note 1 to entry: This is a fixed time value.

3.18
private environment
area with (physical) access limited to a small number of vehicles (EVs), which may be a private parking garage or a garage/parking lot of a company with its own EV fleet, where one or several private wall-box(es) are used instead of public charging stations as EVSE, and where in order to keep the private wall-box simple and cheap in production and operation it is allowed to stay offline permanently, which allows a private wall-box to use leaf certificates with a longer maximum validity than allowed for public charging stations and using a private root certificate which is different to the *V2G root certificates* (3.43) and which has to be installed into each EV that is allowed to charge within this specific private environment, resulting in a limited number of EVs belonging to one private environment, the difference to a “trusted environment” being that in a (pure; i.e. not additionally “trusted”) private environment TLS and the corresponding data encryption at connection level is always used, and solely certificate handling is

 © ISO 2022 – All rights reserved

oSIST prEN ISO 15118-2:2022

simplified for the private wall-box (EVSE) since it may stay offline permanently, resulting in unrestricted certificate validity periods, shorter certificate chain length, omitting OCSP, and an additional “pairing mode”

3.19
renegotiation
messaging for updating the agreement on the charging schedule between EV and EVSE during a *V2G communication session* (3.36) by retransmitting the parameters SASchedule and ChargingProfile

3.20
request-response message pair
request message and the corresponding response message

3.21
request-response message sequence
predefined sequence of *request-response message pairs* (3.23)

3.22
SDP client
V2G entity (3.37) that uses the *SDP server* (3.26) to get configuration information about the SECC to be able to access the SECC

3.23
SDP server
V2G entity (3.37) providing configuration information for accessing the SECC

iTeh STANDARD PREVIEW
(standards.iteh.ai)

3.24
SECC certificate
certificate issued to SECC either by *V2G root CA* (3.42) or by *Sub-CA* (3.29), which is used in TLS so that the EVCC can verify the authenticity of the SECC

oSIST prEN ISO 15118-2:2022
https://standards.iteh.ai/catalog/standards/sist/8caf9d7d-861b-42ad-8a21-2e8f1e8e8ee2/osist-pren-iso-15118-2-2022

3.25
sequence timer
timer monitoring a *request-response message sequence* (3.24)

3.26
Sub-CA
subordinate certificate authority who issues *SECC certificates* (3.27) and/or *contract certificates* (3.3) on behalf of the *V2G root CA* (3.42)

Note 1 to entry: The ability of issuing the certificates are delegated from V2G root CA, and V2G root CA can revoke the Sub-CA at any time.

3.27
Sub-CA certificate
certificate issued to *Sub-CA* (3.29)

3.28
TCP_DATA
socket/interface for data transfer based on TCP connection

3.29
timeout
timing requirement defining the time a *V2G entity* (3.37) monitors the communication system for a certain event to occur

Note 1 to entry: If the specified time is exceeded the respective *V2G entity* (3.37) initiates the related error handling. This is a fixed time value.

© ISO 2022 – All rights reserved