

Contents

	Foreword
	Introduction
1	Scope
2	Normative references
3	Terms and definitions
3.1	General terms
3.2	Control modes
3.3	Architecture channel
3.4	Forward and reverse power transfer
3.5	Minimum and maximum energy request limits
3.6	Source generator modes
4	Abbreviated terms
5	Requirements
5.1	List of requirements
5.2	General communication requirements
5.3	User-specific requirements
5.3.1	Reliability, availability, error handling and error reporting
5.3.2	Private data protection
5.3.3	Ease of use
5.4	OEM-specific requirements
5.5	Utility-specific requirements
5.5.1	Power limiting for grid control or local energy control
5.5.2	Current and voltage limits for EV supply equipment protection
5.5.3	Current and voltage limits for EV protection
5.5.4	Authorization of charging services
5.5.5	Authorization of energy transfer from the EV to the EV supply equipment
5.5.6	Retrofitting
5.6	Wireless communication requirements
5.6.1	General
5.6.2	Communication infrastructure requirements
5.7	RPT description
5.7.1	General
5.7.2	General information and requirements
5.8	Traceability requirements
6	Actors
7	Use case elements
7.1	General
7.2	Task groups
7.3	Task groups description
7.3.1	Start of communication process [A]
7.3.1.1	General
7.3.1.2	Combinations and communication capabilities
7.3.2	Plug-in and forced HLC
7.3.3	WA1: discovery with reservation
7.3.4	Plug-in with concurrent IEC 61851-1 and HLC

- 7.3.5 WA2: discovery without reservation
- 7.4 Communication set-up [B]
- 7.4.1 EVCC/SECC conductive communication set-up
- 7.4.2 WB1: EVCC/SECC wireless communication set-up
- 7.5 Certificate handling [C]
- 7.5.1 Certificate update
- 7.5.2 Certificate installation
- 7.6 Identification and authorization [D]
- 7.6.1 Overview
- 7.6.2 Authorization using contract certificates performed at the EV supply equipment
- 7.6.3 Authorization using contract certificates performed with the help of an SA
- 7.6.4 Authorization at the EV supply equipment using external credentials performed at the EV supply equipment
- 7.6.5 Authorization at the EV supply equipment using external credentials performed with the help of an SA
- 7.6.6 WD1: Authentication with prior reservation
- 7.7 Pairing and fine positioning
- 7.7.1 WP1: WPT fine positioning
- 7.7.2 WP2: WPT fine positioning without communication support
- 7.7.3 WP3: Conductive energy transfer pairing
- 7.7.4 WP4: WPT pairing
- 7.8 Target setting and energy transfer scheduling [E]
- 7.8.1 AC charging with load levelling based on HLC
- 7.8.2 WE1: WPT target setting and charge scheduling
- 7.8.3 Optimized charging with scheduling from secondary actors
- 7.8.4 DC charging with load levelling based on HLC
- 7.8.5 Resume to authorized charging schedule
- 7.8.6 Reverse power transfer with load levelling based on HLC
- 7.8.7 Reverse power transfer on stand-alone operation
- 7.8.8 Fast responding energy transfer services based on dynamic control mode
- 7.8.9 Managed bidirectional power transfer into the grid and/or into the home
- 7.9 Energy transfer controlling and re-scheduling [F]
- 7.9.1 Energy transfer loop
- 7.9.2 Energy transfer loop with metering information exchange
- 7.9.3 WF1: WPT charging loop
- 7.9.4 Energy transfer loop with interrupt from the SECC
- 7.9.5 Energy transfer loop with interrupt from the EVCC or USER
- 7.9.6 Energy transfer control based on dynamic control mode
- 7.10 Value-added services [G]
- 7.10.1 Value-added services
- 7.10.2 WG1: ACD system status check
- 7.10.3 Energy transfer details
- 7.11 End of energy transfer process [H]
- 7.11.1 General
- 7.11.2 End of energy transfer process
- 7.12 WPT end of charge WH1
- 7.12.1 General
- 7.12.2 WPT end of charge WH1
- 7.13 ACD connect/disconnect WI
- 7.13.1 ACD connect/disconnect WI

Annex A (informative) Conductive charging infrastructure architecture

- A.1 Overview
- A.1.1 General information
- A.1.2 Assumptions
- A.1.3 Applicable symbols
- A.1.4 Network characteristics
- A.2 Variations of the SECC and EVCC set-ups
- A.3 Location of charging process related elements

Annex B (informative) Security

- B.1 Analysis of target use cases
- B.1.1 General
- B.1.2 Entities

- B.1.2.1 General
- B.1.2.2 Customer-related
- B.1.2.3 EMSPs
- B.1.3 Trust relationships
- B.1.4 Threats for transmission information

Annex C (informative) Examples of charging scenarios derived from the use case elements

- C.1 General
- C.2 Fleet operation/car park charging
- C.3 Public charging at kerb side
- C.4 Private charging
- C.5 Mobility application using a specific fleet and information transmitted between the EV and the EV supply equipment (charging only)
- C.6 Wireless communication sequence examples
 - C.6.1 General
 - C.6.2 Wireless communication used with conductive power transfer
 - C.6.3 Wireless communication used with WPT
 - C.6.4 In case of ACD
 - C.6.5 Example of wireless implementation general use case
 - C.6.5.1 Name of the use case
 - C.6.5.2 Scope and objectives of the use case
 - C.6.5.3 Narrative of the use case
 - C.6.5.4 General remark
 - C.6.5.5 Triggering event, preconditions, assumptions
 - C.6.5.6 Example of flow chart using wireless communication
 - C.7 Example of mobile EV supply equipment use case
 - C.7.1 General description
 - C.7.2 Name of the use case
 - C.7.3 Scope and objectives of the use case
 - C.7.4 Context of the use case
 - C.7.5 Narrative of the use case
 - C.7.6 Actors: people, systems, applications, databases, the power system and other stakeholders — Example of actors
 - C.7.7 Issues: legal contracts, legal regulations, constraints and others — Example of issues
 - C.7.8 Preconditions, assumptions, post condition and events — Example of conditions
 - C.7.9 Referenced standards and/or standardization committees (if available)
 - C.7.10 Diagram of the use case

Annex D (informative) Typical RPT system

Annex E (normative) Requirement list

Page count: 117