

DIN SPEC 70122:2018-11 (E)

Electromobility - Conformance tests for digital communication between a d.c. EV charging station and an electric vehicle for control of d.c. charging in the Combined Charging System; Text in English, only on CD-ROM

Inhalt		Seite
1	Scope.....	7
2	Normative references	7
3	Terms and definitions.....	8
4	Symbols (and abbreviated terms)	13
5	Conventions.....	14
5.1	Requirement structure.....	14
5.2	Test system description	14
6	Test architecture reference model.....	14
6.1	General information.....	14
6.2	Platform adapter interface.....	15
6.3	SUT adapter interfaces	15
6.4	Codecs	16
7	Test suite conventions	17
7.1	General information.....	17
7.2	Test suite structure (TSS)	17
7.3	Test profiles	19
7.3.1	Test configurations.....	20
7.3.2	Components and ports.....	20
7.3.3	Protocol Implementation Conformance Statement (PICS) Definition	23
7.3.4	Protocol Implementation extra Information for Testing (PIXIT) Definition	24
7.3.5	Test control	26
7.4	Test suite identifiers	28
7.4.1	Module identifiers.....	29
7.4.2	Test case identifiers.....	29
7.4.3	Template identifiers.....	30
7.4.4	Function identifiers	31
7.4.5	Timer identifiers	32
7.4.6	PICS/PIXIT identifiers.....	33
7.4.7	Verdict identifiers	34
7.5	Test suite coverage	34
7.6	Test case description.....	88
7.7	Test case specification	90
7.7.1	Data types	90
7.7.2	Templates	90
7.7.3	Timeouts and timers	91
7.7.4	Library functions	91
7.7.5	Common behavior.....	91
7.7.6	Test case modelling	91
7.7.7	Message handling depending on SUT type.....	92
7.7.8	IEC 61851-1 PWM event handling and control.....	92
7.7.9	Data link status control functionality	94
7.7.10	EIM status control functionality	94
7.7.11	Transmission power limitation functionality.....	95

8	Test case descriptions for Physical and Data Link Layer	96
8.1	General information	96
8.2	SECC + PLC bridge test cases	96
8.3	EVCC + PLC bridge test cases.....	96
9	Test case descriptions for DIN SPEC 70121 SLAC messages.....	97
9.1	General information.....	97
9.2	SECC + PLC bridge test cases	98
9.2.1	SECC test cases for CmSlacParm	98
9.2.2	SECC test cases for AttenuationCharacterization.....	100
9.2.3	SECC test cases for CmValidate	114
9.2.4	SECC test cases for CmSlacMatch.....	122
9.2.5	SECC test cases for PLCLinkStatus.....	136
9.2.6	SECC test cases for CmAmpMap	140
9.3	EVCC + PLC bridge test cases.....	144
9.3.1	EVCC test cases for CmSlacParm.....	144
9.3.2	EVCC test cases for AttenuationCharacterization	151
9.3.3	EVCC test cases for CmValidate	162
9.3.4	EVCC test cases for CmValidateOrCmSlacMatch.....	174
9.3.5	EVCC test cases for CmSlacMatch	174
9.3.6	EVCC test cases for PLCLinkStatus	184
9.3.7	EVCC test cases for CmAmpMap.....	186
10	Test case descriptions for DIN SPEC 70121 V2GTP	191
10.1	General information.....	191
10.2	SECC + PLC bridge test cases	191
10.3	EVCC + PLC bridge test cases.....	194
11	Test case descriptions for DIN SPEC 70121 SDP messages.....	198
11.1	General information.....	198
11.2	SECC + PLC bridge test cases	198
11.3	EVCC + PLC bridge test cases.....	199
12	Test case descriptions for DIN SPEC 70121 V2G application layer messages	203
12.1	General information.....	203
12.2	SECC + PLC bridge test cases	203
12.2.1	V2G protocol handshake.....	203
12.2.2	V2G messages	206
12.3	EVCC + PLC bridge test cases.....	283
12.3.1	V2G protocol handshake	283
12.3.2	V2G messages	285
13	Modifications for ISO 15118 Interoperability.....	392
13.1	General information.....	392
13.2	Requirements revision.....	392
13.3	PIXIT Definition for ISO 15118 Interoperability.....	392
13.4	Test suite identifiers for ISO 15118 Interoperability.....	393
13.4.1	Test case identifiers	393
13.4.2	Function identifiers.....	394
13.4.3	PIXIT identifiers	394
13.5	Test case descriptions for DIN SPEC 70121 SLAC messages.....	395
13.5.1	General information.....	395
13.5.2	SECC + PLC bridge test cases	395
13.5.3	EVCC + PLC bridge test cases.....	400
13.6	Test case descriptions for DIN SPEC 70121 SDP messages.....	408
13.6.1	General information.....	408
13.6.2	SECC + PLC bridge test cases	408
13.6.3	EVCC + PLC bridge test cases.....	410
13.7	Test case descriptions for DIN SPEC 70121 V2G application layer messages	415
13.7.1	General information.....	415

13.7.2	SECC + PLC bridge test cases	415
Annex A	(normative) Configuration specifications.....	418
A.1	Timer configuration	418
A.2	PICS configuration.....	419
A.3	PIXIT configuration	421
Annex B	(normative) Control part specification.....	422
B.1	SECC control parts	422
B.2	EVCC control parts	431
Annex C	(normative) Test-case specifications for DIN SPEC 70121 SLAC messages	443
C.1	SECC + PLC bridge test cases	443
C.1.1	SECC test cases for CmSlacParm	443
C.1.2	SECC test cases for AttenuationCharacterization.....	446
C.1.3	SECC test cases for CmValidate.....	453
C.1.4	SECC test cases for CmSlacMatch	458
C.1.5	SECC test cases for PLCLinkStatus.....	465
C.1.6	SECC test cases for CmAmpMap	468
C.2	EVCC + PLC bridge test cases.....	470
C.2.1	EVCC test cases for CmSlacParm.....	470
C.2.2	EVCC test cases for AttenuationCharacterization	474
C.2.3	EVCC test cases for CmValidate	481
C.2.4	EVCC test cases for CmValidateOrCmSlacMatch	489
C.2.5	EVCC test cases for CmSlacMatch.....	489
C.2.6	EVCC test cases for PLCLinkStatus	495
C.2.7	EVCC test cases for CmAmpMap.....	497
Annex D	(normative) Test-case specifications for DIN SPEC 70121 V2GTP.....	500
D.1	SECC + PLC bridge test cases	500
D.2	EVCC + PLC bridge test cases.....	502
Annex E	(normative) Test-case specifications for DIN SPEC 70121 SDP messages	505
E.1	SECC + PLC bridge test cases	505
E.2	EVCC + PLC bridge test cases.....	507
Annex F	(normative) Test-case specifications for DIN SPEC 70121 V2G application layer	
	messages	511
F.1	SECC + PLC bridge test cases	511
F.1.1	V2G protocol handshake.....	511
F.1.2	V2G messages	514
F.2	EVCC + PLC bridge test cases.....	548
F.2.1	V2G protocol handshake	548
F.2.2	V2G messages	549
Annex G	(normative) Function specifications for supporting test execution.....	597
G.1	Configuration functions.....	597
G.2	Pre-condition functions.....	601
G.2.1	SECC + PLC bridge functions.....	601
G.2.2	EVCC + PLC bridge functions	607
G.3	Post-condition functions.....	613
G.3.1	SECC + PLC bridge functions.....	613
G.3.2	EVCC + PLC bridge functions	614
G.4	Common behavior functions.....	614
G.4.1	SECC + PLC bridge functions.....	614
G.4.2	EVCC + PLC bridge functions	616
G.5	Library functions	619
Annex H	(normative) Function specifications for DIN SPEC 70121SLAC messages	622
H.1	SECC + PLC bridge functions.....	622
H.1.1	SECC functions for CmSlacParm.....	622
H.1.2	SECC functions for AttenuationCharacterization	625

H.1.3	SECC functions for CmValidate	640
H.1.4	SECC functions for CmSlacMatch	657
H.1.5	SECC functions for CmSetKey	663
H.1.6	SECC functions for PLCLinkStatus	664
H.1.7	SECC functions for CmAmpMap	667
H.2	EVCC + PLC bridge functions	672
H.2.1	EVCC functions for CmSlacParm	672
H.2.2	EVCC functions for AttenuationCharacterization	675
H.2.3	EVCC functions for CmValidate	704
H.2.4	EVCC functions for CmValidateOrCmSlacMatch	728
H.2.5	EVCC functions for CmSlacMatch	730
H.2.6	EVCC functions for CmSetKey	733
H.2.7	EVCC functions for PLCLinkStatus	734
H.2.8	EVCC functions for CmAmpMap	736
Annex I (normative) Function specifications for DIN SPEC 70121 V2GTP		742
I.1	SECC + PLC bridge functions	742
I.2	EVCC + PLC bridge functions	744
Annex J (normative) Function specifications for DIN SPEC 70121 SDP messages		746
J.1	SECC + PLC bridge functions	746
J.2	EVCC + PLC bridge functions	747
Annex K (normative) Function specifications for DIN SPEC 70121 V2G application layer messages		751
K.1	SECC + PLC bridge functions	751
K.1.1	V2G protocol handshake	751
K.1.2	V2G messages	755
K.2	EVCC + PLC bridge functions	840
K.2.1	V2G protocol handshake	840
K.2.2	V2G messages	843
Annex L (normative) Template specifications for DIN SPEC 70121 SLAC messages		924
L.1	Common + PLC bridge templates	924
L.1.1	CMN templates for CmSlacParm	925
L.1.2	CMN templates for CmStartAttenCharInd	926
L.1.3	CMN templates for CmMnbcSoundInd	926
L.1.4	CMN templates for CmAttenCharRsp	927
L.1.5	CMN templates for CmValidate	927
L.1.6	CMN templates for CmSlacMatch	929
L.1.7	CMN templates for CmSetKey	931
L.1.8	CMN templates for CmAmpMap	931
L.1.9	CMN templates for CmNwStats	933
L.2	SECC + PLC bridge templates	934
L.2.1	SECC templates for CmAttenCharInd	934
L.3	EVCC + PLC bridge templates	934
L.3.1	EVCC templates for CmAttenProfileInd	934
L.3.2	EVCC templates for CmAttenCharInd	935
Annex M (normative) Template specifications for V2G TCP Port Control		937
Annex N (normative) Template specifications for DIN SPEC 70121 V2GTP		938
N.1	Common + PLC bridge templates	938
Annex O (normative) Template specifications for DIN SPEC 70121 SDP messages		940
O.1	Common + PLC bridge templates	940
Annex P (normative) Template specifications for DIN SPEC 70121 V2G application layer messages		941
P.1	Common + PLC bridge templates	941
P.1.1	V2G protocol handshake	941
P.1.2	V2G messages	942

P.2	SECC + PLC bridge templates	949
P.2.1	V2G protocol handshake	949
P.2.2	V2G messages	949
P.3	EVCC + PLC bridge templates	953
P.3.1	V2G protocol handshake	953
P.3.2	V2G messages	953
Annex Q (normative)	Data type definitions.....	956
Q.1	Data types for PICS.....	956
Q.2	Data types for PIXIT.....	956
Q.3	Data types for SLAC.....	957
Q.4	Data types for V2G TCP Port Control.....	961
Q.5	Data types for V2GTP	962
Q.6	Data types for SDP messages	963
Q.7	Data types for V2G messages	963