



Conformance Test Report

IEC 61851-1, DIN 70121 and ISO 15118 (SLAC & V2G message) test cases — SECC under test (VTB)

Report generated: 2026-10-11 07:59:30

Overall: PASS

System Under Test

Manufacturer	-
Model / type	-
Software / firmware	Everest testing/main @ 2e710bc8191bd5a29c16a4d0815c6bcd9318c51d
Serial / identification	-
Notes	Nightly CI, all SECC stacks Evse15118D20. SUT config: config-test-conformance-ac-basic.yaml (one of the nightly's rig cycles, each with its own report)
Transfer mode	AC

Black-box DUT: the internal software stack is not observable by the test system; the identification above was entered by the test operator.

Declared capability profile (PICS/PIXIT)

Capability	PICS/PIXIT	Declared
Energy transfer mode	PICS_CMN_CMN_ChargingMode	ac
Payment options offered	PIXIT_SECC_CMN_PaymentOption / PICS_CMN_CMN_IdentificationMode	ExternalPayment
Certificate services offered	PIXIT_SECC_CMN_CertificateHandling	none
Certificate validity checked against current time	PICS_SECC_CertificateValidationCheck	yes
Tester CSMS is the DUT's OCPP backend	PIXIT_SECC_TesterCSMS	yes
Transport security accepted	PIXIT_SECC_CMN_TLS	tcp
Value-added service list (VAS)	PIXIT_SECC_CMN_VAS == serviceDetail / PICS_SECC_VAS	no
Internet access service	PIXIT_SECC_CMN_InternetAccess == internetAccess	no
Metering receipts requested	PIXIT_SECC_CMN_ReceiptRequired	yes

Capability	PICS/PIXIT	Declared
MeterInfo in charge-loop responses	PIXIT_SECC_CMN_MeterInfo == meterInfo	yes
MeteringConfirmation requested (ISO 15118-20)	PICS_CMN_MeteringConfirmationRequested	no
SalesTariff in schedules	PIXIT_SECC_CMN_SalesTariff == salesTariff	no
Control modes offered (ISO 15118-20)	PICS_CMN_ControlMode	Dynamic
Schedule initially unavailable (ISO 15118-20)	PIXIT_SECC_ScheduleRetrievalSuspended	no
DepartureTime considered	PICS_SECC_CMN_DepartureTime	yes
MaxEntriesSAScheduleTuple considered	PICS_SECC_CMN_MaxEntriesSAScheduleTuple	yes
Renegotiation supported	PICS_CMN_CMN_Renegotiation	no
CP State D (ventilation) during charging	PICS_SECC_CMN_EvStateInChargeProgress == D	no
Pause / resume supported	PICS_SECC_CMN_Pause	no
Welding detection supported	PICS_SECC_DC_WeldingDetection	n/a (DC-only)
ISO 15118-2 supported	PICS_SECC_CMN_ISO15118_2	no
ISO 15118-20 supported	PICS_SECC_CMN_ISO15118_20	no
DIN SPEC 70121 supported (DC)	PICS_SECC_DC_DIN70121	n/a (DC-only)
DC energy transfer mode(s) advertised	PIXIT_SECC_DC_SupportedEnergyTransferMode	n/a (DC-only)
CableCheck answers Ongoing	PIXIT_SECC_DC_CableCheckOngoing == ongoing	n/a (DC-only)
Authorization answers Ongoing	PIXIT_SECC_CMN_AuthorizationOngoing == ongoing	no
ChargeParameterDiscovery answers Ongoing	PIXIT_SECC_CMN_ChargeParameterDiscoveryOngoing == ongoing	no
CM_VALIDATE (BCB-toggle validation)	PIXIT_SECC_CMN_CmValidate == cmValidate	no
Architecture makes validation unnecessary	PIXIT_SECC_CMN_ArchitectureValidationNotRequired	no
CM_AMP_MAP supported	PIXIT_CMN_CMN_CmAmpMap	no
SECC initiates CM_AMP_MAP	PICS_CMN_CMN_InitiateCmAmpMap	no
Self-initiated wake-up from pause	PIXIT_CMN_CMN_WakeUp < PICS_CMN_CMN_WakeUp	no
AC connection-loss handling	PIXIT_SECC_AC_ConnectionLossHandling	optionA
AC CP duty cycle after plug-in	PIXIT_SECC_AC_InitialDutyCycle	dc5

Capability	PICS/PIXIT	Declared
IEC 61851-1 basic charging (AC)	PIXIT_SECC_IEC61851_1_BasicCharging	yes
Identification modes supported	PICS_CMN_CMN_IdentificationMode	ExternalPayment
Certificate services used	PIXIT_EVCC_CMN_CertificateHandling	none
Renegotiation supported	PICS_CMN_CMN_Renegotiation	no
Pause / resume (sleep mode) supported	PIXIT_EVCC_CMN_Pause	no
Optimises the charging profile against sales tariffs	PIXIT_EVCC_CMN_ChargingProfileOptimization	unknown
States MaxNumberOfPhasesInUse (AC)	PIXIT_EVCC_AC_MaxNumberOfPhasesInUse	no
Queries value-added services (ServiceDetail)	PIXIT_EVCC_CMN_VAS	no
Transport security requested	PIXIT_EVCC_CMN_TLS	none_
Welding detection performed (DC)	PIXIT_EVCC_DC_WeldingDetection	weldingDetection
Reaction to a Pmax=0 W schedule	PICS_EVCC_CMN_PmaxSchedulewithZeroPow	noSleep
SLAC validation (CM_VALIDATE / BCB toggle)	PIXIT_EVCC_CMN_CmValidate	unknown
AC connection-loss handling	PIXIT_EVCC_AC_ConnectionLossHandling	optionA
CM_AMP_MAP supported	PIXIT_CMN_CMN_CmAmpMap	no
EV initiates CM_AMP_MAP	PICS_CMN_CMN_InitiateCmAmpMap	no

Declared by the test operator (profile v1); the test-case selection of this run was derived from this declaration, mirroring the ISO 15118-4 ATS control part ([V2G4-018]/[V2G4-019]). Test cases the declaration marks not applicable were deselected by default; any that were explicitly force-run are annotated "declared N/A (operator force-run)" at their result.

Test families & variants

IEC 61851-1 Ed.3 basic charging (Annex A)	DUT (dut)
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Test Environment

Test suite version	-
Test suite git SHA	-
Test suite branch	-
Mode	HW (CHARGEBRIDGE, BLACK-BOX DUT)
Host	CI runner
Kernel	6.8.0-86-generic
PLC taps (EVSE / EV)	- / cb_plc_ev

MQTT broker	/tmp/everest-conformance-mqtt.sock:1883
EVERest prefix	-
Pause between TCs	3 s
EV BSP module id	ev_bsp

Totals

IEC 61851-1 Ed.3 basic charging (Annex A)

DUT (dut)

15 pass

0 fail

0 not run

0 inconclusive

Verdict semantics: expected failures (author-flagged known deviations / non-deterministic cases) are reported as

FAIL EXPECTED — genuine reds that are not hidden and must be explicitly accepted by the operator. A FAIL (or FAIL

EXPECTED) accepted by the operator is reported as **ACCEPTED FAIL** with the mandatory justification and does not count

against the overall verdict. Overall verdict is PASS only if no test case FAILs (or is left FAIL EXPECTED without acceptance) on any variant.

Summary matrix — IEC 61851-1 Ed.3 basic charging (Annex A)

Test case	DUT (dut)	
	Verdict	Duration
Iec61851P1		
TC_SECC_AC_VTB_Iec61851P1_001	PASS	6.96 s
TC_SECC_AC_VTB_Iec61851P1_002	PASS	6.82 s
TC_SECC_AC_VTB_Iec61851P1_003	PASS	22.25 s
TC_SECC_AC_VTB_Iec61851P1_004	PASS	19.04 s
TC_SECC_AC_VTB_Iec61851P1_005	PASS	4.22 s
TC_SECC_AC_VTB_Iec61851P1_006	PASS	7.02 s
TC_SECC_AC_VTB_Iec61851P1_007	PASS	7.22 s
TC_SECC_AC_VTB_Iec61851P1_008	PASS	10.03 s
TC_SECC_AC_VTB_Iec61851P1_009	PASS	4.02 s
TC_SECC_AC_VTB_Iec61851P1_010	PASS	10.63 s
TC_SECC_AC_VTB_Iec61851P1_011	PASS	4.02 s
TC_SECC_AC_VTB_Iec61851P1_012	PASS	4.62 s
TC_SECC_AC_VTB_Iec61851P1_013	PASS	171.46 s
TC_SECC_AC_VTB_Iec61851P1_014	PASS	5.02 s
TC_SECC_AC_VTB_Iec61851P1_015	PASS	98.77 s

Test case details — IEC 61851-1 Ed.3 basic charging (Annex A)

TC_SECC_AC_VTB_Iec61851P1_001

TC_SECC_AC_VTB_Iec61851P1_001.

Test objective: IEC 61851-1:2017 Table A.6 sequence 1.1 (plug-in with S2): on the A→B transition the EVSE shall present a valid CP answer (state B1 X1 static +12 V, or B2 nominal PWM) and shall NOT energize the supply (energization is reserved to sequence 3.x/4). No max timing is defined for the first CP answer.

Checked at the CP/mains: a valid duty (100 X1 or nominal 8..96) appears within 30 s; no CP State F; the EV inlet stays de-energized over the whole window; the A→first-valid-duty latency is recorded informationally.

Not observable on this rig: connector latching/locking (mechanical), the EV-side S2 behaviour, PE continuity.

DUT (dut)

PASS

6.96 s

Conformance check	Observed	Result
no CP State F on plug-in (seq 1.1)		✓
EV inlet not energized during plug-in (seq 1.1)	end level 0 mV (limit 50000 mV)	✓

Measurement	Measured	Target / range	Result
seq 1.1 A→first valid CP duty (no max)	1.1 ms	-	info
seq 1.1 first CP answer	100.0 %	-	info

TC_SECC_AC_VTB_Iec61851P1_002

TC_SECC_AC_VTB_Iec61851P1_002.

Test objective: IEC 61851-1:2017 Table A.6 sequence 1.2 (simplified plug-in, no S2 / S2 always closed): the EV applies CP State C directly from A. An EVSE that supports the simplified pilot shall energize within $(t_7 - t_6) \leq 3$ s of the later of the nominal-duty start and the state-C command; supporting the simplified pilot is a "may" (permitted design choice), so an EVSE that withholds the nominal offer is also conformant.

Checked at the CP/mains: no CP State F; if a nominal duty is offered, the supply is energized within $3 + 0.25$ s; if withheld, no energization occurs.

Not observable on this rig: the presence/absence of S2 in the EV, mechanical latching.

DUT (dut) **PASS** 6.82 s

Conformance check	Observed	Result
no CP State F on simplified plug-in (seq 1.2)		✓
simplified-pilot energize within $(t_7 - t_6)$ 3 s (seq 1.2)	0.001s vs 3.0s + 0.25s	✓

Measurement	Measured	Target / range	Result
seq 1.2 energize after simplified plug-in (A→C)	1.0 ms	≤ 3000 ms (IEC61851_energize)	✓

TC_SECC_AC_VTB_Iec61851P1_003

TC_SECC_AC_VTB_Iec61851P1_003.

Test objective: IEC 61851-1:2017 Table A.6 sequence 2.1 (unplug from state Bx, not energized): on B→A the EVSE shall keep the supply off and return to a plug-out CP presentation -- state A2 (PWM still running) or A1/X1 (oscillator off) per A.5.2 are both permitted.

Checked at the CP/mains: the supply stays de-energized; no CP State F within ~3 s; within 10 s the duty is 100 (X1) or nominal (NOT 0 / E/F).

Not observable on this rig: connector unlatch ≤ 5 s (mechanical), the load-dependent A2 plateau (that is TC 014's job).

DUT (dut) **PASS** 22.25 s

Conformance check	Observed	Result
no CP State F on unplug (seq 2.1)		✓
EV inlet not energized during unplug at Bx (seq 2.1)	end level 0 mV (limit 50000 mV)	✓

Measurement	Measured	Target / range	Result
seq 2.1 CP after unplug (X1 or PWM, not E/F)	100.0 %	-	info
seq 2.1 connector unlatch ≤ 5 s [not observable]	not observable on this rig	-	info

TC_SECC_AC_VTB_Iec61851P1_004

TC_SECC_AC_VTB_Iec61851P1_004.

Test objective: IEC 61851-1:2017 Table A.6 sequence 2.2 (unplug while energized, Cx): on C→A the EVSE shall de-energize the supply within (t20-t19) ≤ 100 ms.

Checked at the CP/mains: the mains-off edge follows the C→A stimulus within 100 ms; no CP F.

Not observable on this rig: connector unlatch (mechanical).

DUT (dut) **PASS** 19.04 s

Conformance check	Observed	Result
supply de-energizes within (t20-t19) 100 ms of unplug under load (seq 2.2)	0.003s vs 0.100s	✓
no CP State F during unplug under load (seq 2.2)		✓

Measurement	Measured	Target / range	Result
seq 2.2 supply off after unplug-under-load (t20-t19)	3.5 ms	≤ 100 ms (IEC61851_deenergize)	✓
seq 2.2 connector unlatch [not observable]	not observable on this rig	-	info

TC_SECC_AC_VTB_Iec61851P1_005

TC_SECC_AC_VTB_Iec61851P1_005.

Test objective: IEC 61851-1:2017 Table A.6 sequence 3.2 (C1→C2): with the EV already in state C, the EVSE shall close the supply within (t7-t6) ≤ 3 s of applying the nominal duty (x2).

Checked at the CP/mains: the mains-on edge follows the start of the nominal duty period by ≤ 3 + 0.25 s (pure value recorded against the 3 s budget).

Not observable on this rig: EV-side current draw; the x1→x2 is EVSE-initiated (cannot be forced from the EV side).

DUT (dut) **PASS** 4.22 s

Conformance check	Observed	Result
supply closes within (t7-t6) 3 s of nominal duty x2 (seq 3.2)	0.001s vs 3.0s + 0.25s	✓

Measurement	Measured	Target / range	Result
seq 3.2 energize after x2 (t7-t6)	1.0 ms	≤ 3000 ms (IEC61851_energize)	✓

TC_SECC_AC_VTB_Iec61851P1_006

TC_SECC_AC_VTB_Iec61851P1_006.

Test objective: IEC 61851-1:2017 Table A.6 sequence 7 (EV stops charging, C2→B2): the EVSE shall keep a valid CP presentation in state B (nominal PWM, or X1 if it stops the oscillator -- both conformant) and shall not present E/F.

Checked at the CP/mains: the CP duty stays valid (X1 or nominal, never 0/F) for ~3 s; the supply turns off within 5 s (the de-energize TIMING is asserted by TC 007).

Not observable on this rig: the EV-side "< 1 A before S2 open" requirement (EV-side, not applicable to the EVSE DUT).

DUT (dut) **PASS** 7.02 s

Conformance check	Observed	Result
CP duty valid throughout state B after EV stop (seq 7)	all samples within range	✓
no CP State F during seq 7		✓

Measurement	Measured	Target / range	Result
seq 7 '< 1 A before S2 open' [not observable]	EV-side requirement (not applicable to the EVSE DUT)	-	info

TC_SECC_AC_VTB_Iec61851P1_007

TC_SECC_AC_VTB_Iec61851P1_007.

Test objective: IEC 61851-1:2017 Table A.6 sequence 8.1 (de-energize on S2 open, C2→B2): the EVSE shall open the supply within (t13-t12) ≤ 100 ms of the C→B transition and keep the PWM available (B2) or go to X1.

Checked at the CP/mains: the mains-off edge follows C→B within 100 ms; the CP stays valid (no 0/F) for ~3 s afterward.

Not observable on this rig: EV-side current.

DUT (dut) **PASS** 7.22 s

Conformance check	Observed	Result
supply de-energizes within (t13-t12) 100 ms of S2 open (seq 8.1)	0.003s vs 0.100s	✓
CP duty valid throughout state B after S2 open (seq 8.1)	all samples within range	✓
no CP State F during seq 8.1		✓

Measurement	Measured	Target / range	Result
seq 8.1 supply off after S2 open (t13-t12)	2.8 ms	≤ 100 ms (IEC61851_deenergize)	✓

TC_SECC_AC_VTB_Iec61851P1_008

TC_SECC_AC_VTB_Iec61851P1_008.

Test objective: IEC 61851-1:2017 Table A.6 sequence 10.2 (EVSE MAY open the supply under load ≥ 6 s after it stopped the PWM): if the EVSE opens, it shall not do so before 6 s after the X1 (oscillator stop).

Checked at the CP/mains: after the PWM stop reaches X1 (EV holds state C), if a mains-off edge occurs within 10 s it is ≥ 6 s after the X1 edge (pure minimum). If the supply never opens that is conformant ("may").

Not observable on this rig: real AC load -- the "load" here is only the S2-closed state (the rig draws 0 A), so the EVSE need not open at all.

The PWM stop is a CSMS RequestStopTransaction when the SUT declares its OCPP backend (PIXIT_SECC_TesterCSMS); otherwise an operator stops the session.

INCONCLUSIVE without either.

DUT (dut) **PASS** 10.03 s

Conformance check	Observed	Result
CSMS RequestStopTransaction accepted (seq 10.2 precondition)	{'status': 'Accepted'}	✓
if EVSE opens under load, it does so ≥ 6 s after X1 (seq 10.2)	opened 6.00s after X1 vs 6.0s min	✓

Measurement	Measured	Target / range	Result
seq 10.2 EVSE opens under load after PWM stop (≥ 6 s)	6002.8 ms	IEC61851_seq102_open_under_load (informational)	✓

OCPP (DUT ↔ tester CSMS)	Direction	Message	Payload
07:05:27.582	CSMS & rarr; CS	TransactionEvent (response)	{"idTokenInfo":{"status":"Accepted"}}
07:05:27.678	CS & rarr; CSMS	TransactionEvent	{"eventType":"Updated","offline":false,"seqNo":1,"timestamp":"2026-10-11T07:05:27.677Z","transactionInfo":{"chargingState":"Charging","transactionId":"1b65a74e-13be-443d-90db-dcf2fad728ae"},"triggerReason":"ChargingStateChanged"}
07:05:27.679	CSMS & rarr; CS	TransactionEvent (response)	{}
07:05:27.728	CSMS & rarr; CS	RequestStopTransaction	{"transactionId":"1b65a74e-13be-443d-90db-dcf2fad728ae"}
07:05:27.730	CS & rarr; CSMS	RequestStopTransaction (response)	{"status":"Accepted"}

OCPP (DUT ↔ tester CSMS)	Direction	Message	Payload
07:05:33.787	CS & rarr; CSMS	TransactionEvent	{ "eventType": "Ended", "meterValue": [{ "sampledValue": [{ "context": "Transaction.Begin", "location": "Outlet", "measurand": "Energy.Active.Import.Register", "unitOfMeasure": { "unit": "Wh", "value": 0.0 }, "timestamp": "2026-10-11T07:05:27.577Z", }], "sampledValue": [{ "context": "Transaction.End", "location": "Outlet", "measurand": "Energy.Active.Import.Register", "unitOfMeasure": { "unit": "Wh", "value": 0.0 }, "timestamp": "2026-10-11T07:05:33.784Z" }], "offline": false, "seqNo": 2, "timestamp": "2026-10-11T07:05:33.784Z", "transactionInfo": { "chargingState": "EVConnected", "stoppedReason": "Remote", "transactionId": "1b65a74e-13be-443d ..." } }] }
07:05:33.789	CSMS & rarr; CS	TransactionEvent (response)	{}

TC_SECC_AC_VTB_Iec61851P1_009

TC_SECC_AC_VTB_Iec61851P1_009.

Test objective: IEC 61851-1:2017 Table A.6 sequence 12 (error state E while energized, CP-PE short): the EVSE shall open the supply within ≤ 3 s of the fault, and recover on fault clearance (Table A.5: E → any state).

Checked at the CP/mains: the mains-off edge follows the CP short within $3 + 0.25$ s (pure value recorded against the 3 s budget); after E → B a valid CP answer (X1 or PWM) returns within 30 s.

Not observable on this rig: connector unlatch ≤ 30 s (mechanical); the CP short is applied as state E (duty 0), not a measured PE resistance.

DUT (dut) PASS 4.02 s

Conformance check	Observed	Result
supply opens within 3 s of CP short (seq 12, state E)	0.003s vs 3.0s + 0.25s	✓

Measurement	Measured	Target / range	Result
seq 12 supply off after CP short (state E)	2.9 ms	≤ 3000 ms (IEC61851_seq12_open)	✓
seq 12 CP recovery after E → B (X1 or PWM)	100.0 %	-	info
seq 12 connector unlatch ≤ 30 s [not observable]	not observable on this rig	-	info

TC_SECC_AC_VTB_Iec61851P1_010

TC_SECC_AC_VTB_Iec61851P1_010.

Test objective: IEC 61851-1:2017 Table A.4 note c / clause 6.3.1.4 (the EVSE shall verify the presence of the EV diode before closing the supply): with the EV diode failed (shorted) the EVSE shall NOT energize.

Checked at the CP/mains: with diode_fail set the EVSE does not energize across a state-C window; the CP low plateau (if telemetry present) is recorded to confirm the missing diode clamp; the EVSE fault reaction (F / duty 0 / refusing PWM) is recorded but not mandated -- only energization fails the TC.

Not observable on this rig: the exact diode-check timing (x1→x2 vs during x2); missing CP-level telemetry only skips the low-plateau sub-check.

DUT (dut) **PASS** 10.63 s

Conformance check	Observed	Result
EV inlet not energized during diode-presence check (A.4 note c / 6.3.1.4)	end level 0 mV (limit 50000 mV)	✓

Measurement	Measured	Target / range	Result
diode-fail CP low plateau	-12000 mV	-	info
diode-fail EVSE reaction (permitted, not mandated)	CP F event	-	info

TC_SECC_AC_VTB_Iec61851P1_011

TC_SECC_AC_VTB_Iec61851P1_011.

Test objective: IEC 61851-1:2017 Table A.7 (duty-cycle → available current): the offered nominal duty shall be a valid Table A.7 value and decode to a plausible current (6..80 A). Range check only (no comparison to a declared current, per operator decision).

Checked at the CP/mains: the offered duty is within the hard bounds 7.97 % (nominal 8..96 %, with +-1 pp slack at the edges); a duty in (96, 97] is flagged valid-per-A.8 but off-nominal; the decoded current is recorded against [6, 80] A.

Not observable on this rig: the actual EV current draw (Table A.8); the station's declared current setting.

DUT (dut) **PASS** 4.02 s

Conformance check	Observed	Result
offered duty within Table A.7/A.8 bounds 7.97%	26.7%	✓

Measurement	Measured	Target / range	Result
Table A.7 offered duty	26.7 %	[8, 96] %	✓
offered current (Table A.7 decode)	16.0 A	[6, 80] A	✓

TC_SECC_AC_VTB_Iec61851P1_012

TC_SECC_AC_VTB_Iec61851P1_012.

Test objective: IEC 61851-1:2017 Table A.5 (error state E while idle in state B): on a CP-PE short the EVSE shall withdraw its offer (the CP is physically at 0 V, reported as duty 0) and shall not energize; on fault clearance it shall recover without latch-up.

Checked at the CP/mains: within 3 + 0.25 s the duty goes to 0; the supply stays de-energized; after E→B a valid offer (X1 or PWM) returns within 30 s. Not observable on this rig: the CP short is applied as state E (duty 0) not a measured PE resistance; no CP F is required (state E is duty-0 only).

DUT (dut) **PASS** 4.62 s

Conformance check	Observed	Result
EV inlet not energized during state E while idle (TC 012)	end level 0 mV (limit 50000 mV)	✓

Measurement	Measured	Target / range	Result
state E recovery offer (E→B)	26.7 %	-	info

TC_SECC_AC_VTB_Iec61851P1_013

TC_SECC_AC_VTB_Iec61851P1_013.

Test objective: IEC 61851-1:2017 A.4.7.2 (typical charging cycle): the chain 1.1 → 3.1 → 4 → 7 → 8.1 → 4 → 7 → 8.1 → 2.1 → 9.3 with ≥ 20 s spacing between sequences (A.4.7). Seq 6 (change of the offered current) is omitted because it requires an operator action at the station, so the chain runs fully unattended. The EVSE fails if the cycle is not completed.

Checked at the CP/mains: each step re-uses the unit-TC assertions (valid CP answers, energize $\leq 3 + 0.25$ s, de-energize ≤ 100 ms, no F, no stray energization).

Not observable on this rig: EV-side current; mechanical latching. Expect ~3-4 min runtime.

DUT (dut) **PASS** 171.46 s

Conformance check	Observed	Result
no CP State F during chain seq 1.1		✓
EV inlet not energized during chain seq 1.1	end level 0 mV (limit 50000 mV)	✓
chain seq 4 energize within 3 s	0.003s vs 3.0s + 0.25s	✓
chain seq 8.1 de-energize within 100 ms	0.003s vs 0.100s	✓
CP duty valid throughout chain seq 7 (EV stop, C2→B2)	all samples within range	✓
no CP State F during chain seq 7		✓
chain seq 4 re-energize within 3 s	0.003s vs 3.0s + 0.25s	✓
chain seq 8.1 de-energize within 100 ms (2)	0.003s vs 0.100s	✓
CP duty valid throughout chain seq 7 (EV stop, C2→B2) (2)	all samples within range	✓
no CP State F during chain seq 7 (2)		✓
no CP State F during chain seq 2.1		✓
EV inlet not energized during chain seq 2.1	end level 0 mV (limit 50000 mV)	✓
no CP State F during chain seq 9.3		✓
EV inlet not energized during chain seq 9.3	end level 0 mV (limit 50000 mV)	✓

Measurement	Measured	Target / range	Result
chain seq 4 energize	3.0 ms	≤ 3000 ms (IEC61851_energize)	✓
chain seq 8.1 de-energize	2.7 ms	≤ 100 ms (IEC61851_deenergize)	✓
chain seq 2.1 CP after unplug (X1 or PWM, not E/F)	26.7 %	-	info

Measurement	Measured	Target / range	Result
A.4.7.2 typical charging cycle completed	1.1 → 3.1 → 4 → 7 → 8.1 → 4(2) → 7(2) → 8.1(2) → 2.1 → 9.3	-	info

TC_SECC_AC_VTB_Iec61851P1_014

TC_SECC_AC_VTB_Iec61851P1_014.

Test objective: IEC 61851-1:2017 Table A.10 / A.4.4 (CP voltage plateaus per state): state A [11400, 12600] mV, state B [8370, 9590] mV, state C [5470, 6530] mV (high plateau); during a PWM-on period the negative plateau is [-12600, -11400] mV (Table A.10 lists the negative range for A2/B2).

Checked at the CP/mains: the high plateau in states A, B, C; the B2 negative plateau while PWM is on (C2's negative plateau is recorded informationally).

Not observable on this rig: intermediate CP voltages; if the EVSE never turns PWM on in state B the B2 low-plateau check is recorded as not exercised; missing CP-level telemetry → INCONCLUSIVE (precondition).

DUT (dut) **PASS** 5.02 s

Conformance check	Observed	Result
state A CP high plateau (Table A.10)	12000 mV vs [11400, 12600] (Table A.10)	✓
state B CP high plateau (Table A.10)	9000 mV vs [8370, 9590] (Table A.10)	✓
state C CP high plateau (Table A.10)	6000 mV vs [5470, 6530] (Table A.10)	✓

Measurement	Measured	Target / range	Result
state A CP high plateau (Table A.10)	12000 mV	[11400, 12600] mV	✓
state B CP high plateau (Table A.10)	9000 mV	[8370, 9590] mV	✓
state B2 CP low plateau (PWM on)	not exercised (EVSE offered X1 only in state B)	-	info
state C CP high plateau (Table A.10)	6000 mV	[5470, 6530] mV	✓
state C2 CP low plateau (informational)	-12000 mV	-	info

TC_SECC_AC_VTB_Iec61851P1_015

TC_SECC_AC_VTB_Iec61851P1_015.

Test objective: legacy control-pilot wake-up (ISO 15118-3 $t_{\text{step_EF}}$, using the IEC 61851-1 CP State E/F of Table A.4/A.5). After B1→B2 the EVSE offers nominal PWM (X2); if the EV lingers in state B2 and never proceeds to C2 (never starts charging), the EVSE shall issue exactly ONE wake-up within 1 min: a $t_{\text{step_EF}}$ control-pilot pulse recovering as $X2 \rightarrow F \rightarrow X1 \rightarrow X2$, with the X1 (oscillator-off) step held ≥ 200 ms before the PWM restarts. Staying in B2 afterwards, the EVSE shall NOT repeat the wake-up. Checked at the CP/main: a first wake-up (an F duty-0 step, then an X1 (100%) dwell ≥ 200 ms, then a nominal X2 offer) appears within 1 min -- its ABSENCE is a FAIL; the supply stays de-energized throughout; over a further 1 min no second wake-up (F step) occurs. Not observable on this rig: the EV-side HLC restart the wake-up would trigger (EV-side); the idle time before the attempt and the F-step duration are recorded, not asserted. (Reaching the initial B2 offer is still a precondition → INCONCLUSIVE if the DUT has no basic-charging path.)

DUT (dut) **PASS** 98.77 s

Conformance check	Observed	Result
EVSE issues one legacy wake-up (F→X1→X2) within 60s of an idle B2 dwell		✓
EV inlet not energized during idle B2 during legacy wakeup	end level 0 mV (limit 50000 mV)	✓
legacy wakeup X1 (PWM-off) dwell ≥ 200 ms between F and X2 restart	0.797s vs 0.200s min	✓
EVSE does not repeat the legacy wake-up while the EV stays idle in B2		✓
EV inlet not energized during idle B2 across the full wakeup observation	end level 0 mV (limit 50000 mV)	✓

Measurement	Measured	Target / range	Result
legacy wakeup: idle B2 time before the F step	29.94 s	-	info
legacy wakeup: F ($t_{\text{step_EF}}$) step duration	4.008 s	-	info
legacy wakeup: X1 dwell between F and X2 (≥ 200 ms)	797.1 ms	IEC61851_wakeup_x1 (informational)	✓
no second legacy wakeup within 60s of the first	no repeat observed	-	info

Appendix

Codec self-tests

No codec self-tests were included in this run.

Toolchain / report metadata

pytest version	unknown
Report created	2026-10-11 07:10:35
pytest exit code	0
Report generator	Pionix conformance tester report generator
Generation timestamp	2026-10-11 07:59:30