OCPP 2.0.1 CORE CERTIFIED

| | |
|---|---|
| **Certificate Holder:** | **ABB E-mobility** |
| **Certificate Number:** | **OCA.0201.0129.CS** |
| **Product Type:** | **Charging Station** |
| **Product Designation:** | **C50S0 NA 1CC** |
| **Firmware Version:** | **2.3.0.71** |
| **Certification Date:** | **February 16, 2026** |

This certificate attests that the above mentioned product successfully completed certification testing in conformance with the reference specification OCPP 2.0.1 (Edition 3 FINAL, 2024-05-06 including Errata 2025-09). The optional OCPP protocol features that are covered by this certificate can be found in the Abstract of the Test Report that is part of this certificate.

Test cases have been performed as described in the test report referred to below. The results and remarks can be found in this complete test report.

| Applied | Performed by / On | Document Evidence |
|---|---|---|
| Conformance testing according to the test specification referenced by the test report | DNV Energy USA, Inc. December 3, 2025 | OCPP-2.0.1-PICS-CS-2.2.0 _ABB_C50_2.3.0.71_2025-12-03 |

The abstract of test report is an integral part of this certificate. This certificate is valid from the Certification Date specified above. This certificate is only applicable to the product designation described above and permits the use of the OCPP logo as laid down in the OCA certification logo license agreement on this product only.

This certificate shall neither be tendered nor accepted by any party as a guarantee covering quality of a product which includes OCPP. The Open Charge Alliance, and/or its agents, including, inter-alia, test laboratories, disclaim liability for any damages or losses incurred by the certified company or by any other party resulting from reliance on the results of OCPP certification testing.

For the Open Charge Alliance:

ONOPH CARON
*Chairman*

Authenticity of this certificate can be verified at www.openchargealliance.org

# Abstract of the Test Report

## Test Report OCPP 2.0.1 Certification

| Test laboratory: | DNV Energy USA, Inc. |
|---|---|
| Location: | Rochester, New York, USA |
| Test Report Reference: | 10526709-HOU-R-03-B |
| Test Location | Bloomfield, Connecticut, USA |

| Product Designation: | C50S0 NA 1CC |
|---|---|
| Vendor name: | ABB E-mobility |
| Device Under Test: | Charging Station |
| Firmware Version: | 2.3.0.71 |
| Config ID: | D71596B6-DA617C45 |

## Test Result Summary for the Certified Functionalities

| Certification Profile | Test Result | Description |
|---|---|---|
| Core | Pass | Basic Charging Station functionality for booting, authorization, configuration, transactions, remote control, including basic security. |
| Advanced Security | Pass | Support for TLS with client authentication. |
| Local Authorization List Management | Not Tested | Support for local authorization list management and optionally of an authorization cache. |
| Smart Charging | Not Tested | Support for Smart Charging, to control charging. |
| Advanced Device Management | Not Tested | Support for the OCPP Device Model and advanced logging and monitoring. |
| Reservation | Not Tested | Support for reservation of a connector of a Charging Station. |
| Advanced User Interface | Not Tested | Support for tariff & cost and DisplayMessage functionality. |
| ISO 15118 Support | Not Tested | Support for ISO 15118 Smart Charging and Plug and Charge authorization. |

## Hardware Feature Set

The Hardware Feature set is the actual set of relevant hardware properties of the product tested, that influence the OCPP messaging behavior. In the table below you can see for each hardware feature relevant for OCPP whether this is applicable for this product.

| ID | Feature | Supported / Present |
|---|---|---|
| HFS-1 | Has a detachable cable | No |
| HFS-2 | Has a fixed cable | Yes |
| HFS-3 | Has AC support | No |
| HFS-4 | Has DC support | Yes |
| HFS-5 | Has 1 phase support | No |
| HFS-6 | Has 2 phase support | No |
| HFS-7 | Has 3 phase support | No |
| HFS-8 | No. EVSEs | 2 |
| HFS-9 | Communication technology | Cellular, Ethernet |
| HFS-10 | RFID readers | Single |
| HFS-11 | DC power level | 50 |
| HFS-12 | Number of displays | 1 |

| EVSE | Current | Phases | Connector | Type | Cable Type |
|---|---|---|---|---|---|
| 1 | DC | | 1 | cCCS1 | Fixed Cable |
| 2 | DC | | 1 | cCCS1 | Fixed Cable |



## Optional Features

The OCPP specification contains many implementation options that can be selected by a vendor, often in the form of optional message fields or configuration variables, that can be used to support advanced functions. Whereas the certification profiles determine which OCPP functionality is implemented, the features describe how much of a certain functionality in a profile has been implemented. The tables below indicate per certification profiles, for each available optional feature within this profile, whether this has been implemented in this product and tested for conformance or not. Please refer to part 5 of the OCPP specification for the list of optional features and the reference to the relevant use cases in part 2 of the OCPP specification.

### Core

| ID | Core Features | Supported / Present |
|---|---|---|
| C-01 | Support for offline authorization of transactions | No |
| C-02 | Support for allowing Offline Authorization for Unknown Ids | No |
| C-03 | Support for maximizing energy for invalid ids | No |
| C-04 | Support to limit StatusNotifications | No |
| C-06 | Authorization status after cable disconnected on EV side | |
| C-06.1 | Support for maintaining authorization when cable disconnected on EV side | Yes |
| C-06.2 | Support for not maintaining authorization when cable disconnected on EV side | Yes |
| C-07 | Support for using a Master Pass for charging stations with UI | No |
| C-08 | Support for using a Master Pass for charging stations without UI | No |
| C-09 | Supported Transaction Start points | |
| C-09.1 | Start transaction options - EVConnected | Yes |
| C-09.2 | Start transaction options - Authorized | Yes |
| C-09.3 | Start transaction options - DataSigned | No |
| C-09.4 | Start transaction options - PowerPathClosed | No |
| C-09.5 | Start transaction options - EnergyTransfer | No |
| C-09.6 | Start transaction options - ParkingBayOccupancy | No |
| C-10 | Supported Transaction Stop points | |
| C-10.1 | Stop transaction options - EVConnected | Yes |
| C-10.2 | Stop transaction options - Authorized | Yes |
| C-10.3 | Stop transaction options - PowerPathClosed | No |
| C-10.4 | Stop transaction options - EnergyTransfer | No |
| C-10.5 | Stop transaction options - ParkingBayOccupancy | No |
| C-12 | Unlocking of connector when cable disconnected on EV side | |

| ID | Core Features | Supported / Present |
|---|---|---|
| C-12.1 | Support for unlocking connector when cable disconnected on EV side | No |
| C-12.2 | Support for not unlocking when cable disconnected on EV side | Yes |
| C-13 | Support for Reset per EVSE | No |
| C-14 | Support for retrieving / deleting CustomerInformation - CustomerIdentifier | No |
| C-20 | Allowing New Sessions Pending a FirmwareUpdate | No |
| C-21 | Support for queuing all or only Transaction related messages until they are delivered to the CSMS | No |
| C-23 | Supported time sources | Heartbeat |
| C-25 | Support for setting a TimeOffset | No |
| C-26 | Support for setting the TimeZone | No |
| C-28 | Toggle sending clock aligned meter values when a transaction is ongoing / Idle | No |
| C-29 | TriggerMessage | |
| C-29.1 | Trigger message - MeterValues | No |
| C-29.2 | Trigger message - TransactionEvent | No |
| C-29.3 | Trigger message - LogStatusNotification | No |
| C-29.4 | Trigger message - FirmwareStatusNotification | No |
| C-29.5 | Trigger message - StatusNotification | No |
| C-29.6 | Trigger message - BootNotification | No |

| ID | Authorization Options for Local Start | Tested During Certification |
|---|---|---|
| C-30 | Authorization - using RFID ISO14443 | Yes |
| C-31 | Authorization - using RFID ISO15693 | No |
| C-32 | Authorization - using KeyCode | No |
| C-33 | Authorization - using locally generated id | No |
| C-34 | Authorization - MacAddress | No |
| C-35 | Authorization - NoAuthorization | No |

| ID | Authorization Options for Local Stop | Tested During Certification |
|---|---|---|
| C-70 | Authorization - using RFID ISO14443 | Yes |
| C-71 | Authorization - using RFID ISO15693 | No |
| C-72 | Authorization - using KeyCode | No |
| C-75 | Authorization - NoAuthorization | No |

| ID | Authorization Options for Remote Start | Tested During Certification |
|---|---|---|
| C-36 | Authorization - using RFID ISO14443 | Yes |
| C-37 | Authorization - using RFID ISO15693 | No |
| C-38 | Authorization - using centrally, in the CSMS generated id | Yes |
| C-39 | Authorization - NoAuthorization | No |

| ID | Metervalues | Tested During Certification | Supported According to Vendor |
|---|---|---|---|
| C-40 | Supported MeterValue Measurands | | |
| C-40.1 | SampledTxStarted Measurands | Energy.Active.Import.Register | Energy.Active.Import.Register |
| C-40.2 | SampledTxUpdated Measurands | Energy.Active.Import.Register | Energy.Active.Import.Register |
| C-40.3 | SampledTxEnded Measurands | Energy.Active.Import.Register | Energy.Active.Import.Register |
| C-40.4 | AlignedData Measurands | Energy.Active.Import.Register | Energy.Active.Import.Register |
| C-40.5 | AlignedDataTxEnded Measurands | Energy.Active.Import.Register | Energy.Active.Import.Register |

| ID | Cipher Suites | Supported / Present |
|---|---|---|
| C-41 | Supported Cipher Suites | TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256<br>TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 |

| ID | Core Features | Supported / Present |
|---|---|---|
| C-42 | Signed Metervalues | No |
| C-43 | Install Firmware with ongoing transaction | No |
| C-47 | Support for falling back to default OCPP reconnection mechanism when NetworkConnection profile connection has failed | No |
| C-48 | Authorization of remote start | |
| C-48.1 | Option for authorization in case of a remote start | No |
| C-48.2 | Option for no authorization in case of a remote start | Yes |
| C-58 | Option for disabling remote authorization | No |

| ID | Core Features | Supported / Present |
|---|---|---|
| C-49 | Authorization Cache | No |
| C-59 | Option for disabling remote authorization for cached invalid idTokens | No |
| C-51 | Configurable TxStartPoint | Yes |
| C-52 | Configurable TxStopPoint | Yes |
| C-53 | Support for lifetime cached token | No |
| C-54 | Supported policies for replacing cached entries | No |
| C-56 | Support for providing the SummaryInventory | Yes |
| C-57 | Support for cancelling ongoing log file upload | No |
| C-60 | Support for cancelling ongoing firmware update | No |
| C-61 | Security Profile 1 - Unsecured Transport with Basic Authentication | Yes |

## Advanced Security

| ID | Certification Profile: Advanced Security | Supported / Present |
|---|---|---|
| AS-2 | Additional root certificate check mechanism implemented | No |
| AS-3 | Update Charging Station Certificate - CertificateSignedRequest Timeout | No |

## Additional Questions

The table below lists a number of questions that are needed for determining the complete list of conformance test for this product.

| ID | Additional Questions for Lab Testing | Answer |
|---|---|---|
| AQ-1 | Can the last CSMSRootCertificate be removed? | Yes |
| AQ-2 | Does the Charging Station have a cable lock, which prevents the EV driver to connect the EV and EVSE before authorization? | No |
| AQ-3 | Can the last ChargingStationCertificate be removed? | Yes |
| AQ-4 | Is there at least one unsupported NumberOfPhases? | No |
| AQ-5 | Does the Charging Station have at least one hardWired monitor? | No |
| AQ-6 | Does the Charging Station have a pre-configured monitor? | No |

| ID | Additional Questions for Lab Testing | Answer |
|---|---|---|
| AQ-7 | Is your Charging Station able to download firmware while there is an ongoing transaction? | Yes |
| AQ-8 | Does your Charging Station enforce a selection of EVSE prior to authorization? | Yes |
| AQ-9 | Does your Charging Station support charging an EV using IEC 61851-1? | No |
| AQ-10 | Does your Charging Station support setting a Delta monitor on the WriteOnly component.variable SecurityCtrlr.BasicAuthPassword? | No |
| AQ-11 | Does your Charging Station support a combined charging station Certificate | No |
| AQ-18 | Does your Charging Station have at least one connector with an mechanized locking mechanism on Charging Station side? | No |

## Other Relevant Settings

The table below lists a number of settings that are needed for configuring the test setup for the conformance test for this product.

| ID | Limit / Setting | Value |
|---|---|---|
| ORS-1 | ItemsPerMessageGetReport | 100 |
| ORS-2 | ItemsPerMessageGetVariables | 100 |
| ORS-3 | ItemsPerMessageSetVariables | 100 |
| ORS-4 | BytesPerMessageGetReport | 10000 |
| ORS-5 | BytesPerMessageGetVariables | 10000 |
| ORS-6 | BytesPerMessageSetVariables | 10000 |
| ORS-16 | WebSocketPingInterval | 20 |

| ID | Security Related Settings | Value |
|---|---|---|
| ORS-17 | Maximum CertificateEntries supported | 200 |
| ORS-18 | MaxCertificateChainSize | 10000 |

| ID | Firmware Management Settings | Value |
|---|---|---|
| ORS-24 | Supported file transfer protocols | HTTP<br>HTTPS<br>SFTP<br>FTP<br>FTPS |

## Additional Network Communication Ports

| Description | Protocol | Network Port | Direction | Secured |
|---|---|---|---|---|
| ABB Service Portal | TCP | 5222 | Outbound | Yes |

## Performance Measurement Result

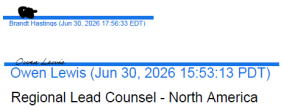
The tables below shows the list of key performance indicators that are measured during the conformance test. The first table indicates the values that the vendor indicates that are valid maximum values for this product. The second table lists the actual performance measurements during the tests performed in a controlled environment.

| Name | Max Value | Unit | Description |
|---|---|---|---|
| OCPP response time | 10 | seconds | The response time for when waiting for an OCPP response message after sending an OCPP request message. This entails all OCPP messages. Messages to the DUT can be handled within this timeout. |
| OCPP triggered function response time | 5 | seconds | The response time used when waiting for an asynchronous OCPP report after requesting this report. |
| Transaction authorization time by RequestStartTransactionRequest | 5 | seconds | The time between a RequestStartTransactionRequest and the corresponding TransactionEventRequest. Only cases where the RequestStartTransactionRequest immediately results in an authorization followed by a TransactionEventRequest, without the need of any additional manual actions or chargingState transitions inbetween are included. |
| Transaction authorization end time by RequestStopTransactionRequest | 5 | seconds | The time between a RequestStopTransactionRequest and the corresponding TransactionEventRequest Only cases where the RequestStopTransactionRequest immediately results in an end of the authorization followed by a TransactionEventRequest, that do not contain transactionInfo.chargingState = EVConnected are included. |

| Name | Min Value | Max Value | Average Value | Unit |
|---|---|---|---|---|
| OCPP response time | 0.13 | 6.10 | 0.30 | seconds |
| OCPP triggered function response time | 0.18 | 4.32 | 2.99 | seconds |
| Transaction authorization time by RequestStartTransactionRequest | 0.44 | 4.40 | 1.98 | seconds |
| Transaction authorization end time by RequestStopTransactionRequest | not measurable | not measurable | not measurable | seconds |

| | |
|---|---|
| Communication technology used during performance measurement | Ethernet |

## Statement of Approval

| Vendor | | |
|---|---|---|
| Name | Brandt Hastings | Date: 2026-06-30 |
| Company | ABB E-mobility | Signature: |
| Department | Global Public Car Charging & Sales Operations |  |
| Position | President | |
| Location | Charlotte, North Carolina, USA | |



| Test Laboratory | | |
|---|---|---|
| Name | John Watts | Date: 2026-07-06 |
| Company | DNV Energy USA, Inc. | Signature: |
| Department | SAGE Intelligence |  |
| Position | Senior Engineer | |
| Location | Rochester, New York, USA | |

| | |
|---|---|
| OCTT Version | Release_2025-09_v4 |
| OCTT Instance ID | 57705d1d142e805573db8c1afb27f4ab |
| Firmware image hash | b2c8e3fae652dd91544eafca154a364e8be6b6d8b42af2bf9a2316a20ae0920b |