| | |
|---|---|
| **Certificate Holder:** | **RAB LIGHTING INC** |
| **Certificate Number:** | **OCA.0016.1128.CS** |
| **Product Type:** | **Charging Station** |
| **Product Designation:** | **EVC48-V2** |
| **Firmware Version:** | **1.02** |
| **Certification Date:** | **October 9, 2025** |

This certificate attests that the above mentioned product successfully completed certification testing in conformance with the reference specification OCPP 1.6 (Edition 2 FINAL, 2017-09-28 including Errata 2025-04) and Security Whitepaper Edition 3 (Improved security for OCPP 1.6-J v1.3, 2022-02-17). 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 Singapore Pte. Ltd. September 26, 2025 | PRJ_10575402_AC |

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 1.6 Certification

| Test laboratory: | DNV Singapore Pte. Ltd. |
|---|---|
| Location: | DNV Lab, Singapore, Singapore |
| Test Report Reference: | PRJ_10575402_AC |
| Test Location | Singapore |

| Product Designation: | EVC48-V2 |
|---|---|
| Vendor name: | RAB LIGHTING INC |
| Device Under Test: | Charging Station |
| Firmware Version: | 1.02 |
| Config ID: | 24927F18-F08C6E75 |

### 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. |
| Firmware Management | Pass | Support for firmware update management and diagnostic log file download. |
| Local Authorization List Management | Pass | Features to manage a local list in the charging station containing authorization data for whitelisting users. |
| Smart Charging | Pass | Support for Smart Charging, to control charging. |
| Remote Trigger | Pass | Support for remotely triggering messages that originate from a Charging Station. This can be used for resending messages or for getting the latest information from the Charging Station. |
| Reservation | Pass | Support for reservation of a connector of a Charging Station. |

| Certification Extension | Test Result | Description |
|---|---|---|
| Security extension | Pass | Implementation of the whitepaper: Improved security for OCPP 1.6-J |

## 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 | Yes |
| HFS-4 | Has DC support | No |
| HFS-5 | Has 1 phase support | Yes |
| HFS-6 | Has 2 phase support | No |
| HFS-7 | Has 3 phase support | No |
| HFS-8 | No. Connectors | 1 |
| HFS-9 | Communication technology | WiFi, Ethernet, Mobile Network |
| HFS-10 | RFID readers | Single |

| Connector | Current | Phases | Type | Cable Type |
|---|---|---|---|---|
| 1 | AC | 1 | cType1 | 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.

| Core | | |
|---|---|---|
| **ID** | **Core Features** | **Supported / Present** |
| C-01 | Support for offline authorization of transactions | Yes |
| C-02 | Support for allowing Offline Authorization for Unknown Ids | Yes |
| C-03 | Support for maximizing energy for invalid ids | No |
| C-04 | Authorization Cache | Yes |
| C-05 | Support to limit StatusNotifications | Yes |
| C-06 | Authorization status after cable disconnected on EV side | |
| C-06.1 | Support for maintaining authorization when cable disconnected on EV side | No |
| C-06.2 | Support for not maintaining authorization when cable disconnected on EV side | Yes |
| C-07 | Support for local start | Yes |
| C-08 | Support for local stop | Yes |
| C-10 | Unlocking of connector when cable disconnected on EV side | |
| C-10.1 | Support for unlocking connector when cable disconnected on EV side | No |
| C-10.2 | Support for not unlocking when cable disconnected on EV side | Yes |

| ID | Metervalues | Tested During Certification | Supported According to Vendor |
|---|---|---|---|
| C-09 | Supported MeterValue Measurands | | |
| C-09.1 | MeterValuesSampled Data | Voltage<br>Power.Active.Import<br>Current.Import<br>Temperature<br>Energy.Active.Import.Register | Energy.Active.Import.Register<br>Current.Import<br>Power.Active.Import,<br>Voltage<br>Temperature |

| ID | Metervalues | Tested During Certification | Supported According to Vendor |
|---|---|---|---|
| C-09.2 | MeterValuesAligned Data | Voltage<br>Power.Active.Import<br>Current.Import<br>Temperature<br>Energy.Active.Import.Register | Energy.Active.Import.Register<br>Current.Import,<br>Power.Active.Import,<br>Voltage<br>Temperature |

## Smart Charging

| ID | Certification Profile: Smart Charging | Supported / Present |
|---|---|---|
| SC-1 | Supported charging rate units | |
| SC-1.1 | A | Yes |
| SC-1.2 | W | Yes |

## Reservation

| ID | Certification Profile: Reservation | Supported / Present |
|---|---|---|
| R-1 | Support reservations of entire Charging Station | Yes |

## Firmware Management

| ID | Certification Profile: Firmware Management | Supported / Present |
|---|---|---|
| F-1 | Support for Secure Firmware Updates | Yes |

## Security

| ID | Security Extension | Supported / Present |
|---|---|---|
| SEC-1 | Security Profile 1: Unsecured Transport with Basic Authentication | Yes |
| SEC-2 | Security Profile 2: TLS with Basic Authentication | Yes |
| SEC-3 | Security Profile 3: TLS with Client Side Certificates | Yes |

## Security Cipher Suites

| ID | Security Extension : Cipher Suites | Supported / Present |
|---|---|---|
| SEC-4 | Supported Cipher Suites | TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256,TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384 |

## 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 CentralSystemRootCertificate can 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? | Yes |
| AQ-3 | Can the last ChargePointCertificate be removed? | Yes |
| AQ-4 | Is your Charging Station able to download firmware while there is an ongoing transaction? | No |
| AQ-5 | Does your Charging Station enforce a selection of EVSE prior to authorization? | No |
| AQ-6 | Does your Charging Station support charging an EV using IEC 61851-1? | Yes |
| AQ-7 | Reporting of StopTransaction after power loss | |
| AQ-7.1 | Charge Point configured to report StopTransaction before going down. | Yes |
| AQ-7.2 | Charge Point configured to report StopTransaction after going down and being back online again. | 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 | GetConfigurationMaxKeys | 5 |
| ORS-2 | MeterValuesAlignedDataMaxLength | 800 |
| ORS-3 | MeterValuesSampledDataMaxLength | 800 |
| ORS-4 | Minimum MeterValueSampleInterval supported | 1 |
| ORS-5 | Maximum MeterValueSampleInterval supported | 65535 |
| ORS-6 | Minimum HeartbeatInterval supported | 1 |
| ORS-7 | Maximum HeartbeatInterval supported | 65535 |
| ORS-8 | StopTransactionMaxMeterValues | 3 |
| ORS-9 | StopTxnAlignedDataMaxLength | 500 |
| ORS-10 | StopTxnSampledDataMaxLength | 500 |
| ORS-11 | WebSocketPingInterval | 20 |

| ID | Certification Profile: Local Authorization List Management | Value |
|---|---|---|
| ORS-12 | LocalAuthListMaxLength | 16 |
| ORS-13 | SendLocalListMaxLength | 16 |

| ID | Certification Profile: Smart Charging | Value |
|---|---|---|
| ORS-14 | ChargingProfileMaxStackLevel | 2 |
| ORS-15 | ChargingScheduleMaxPeriods | 10 |
| ORS-19 | MaxChargingProfilesInstalled | 4 |

| ID | Firmware Management Settings | Value |
|---|---|---|
| ORS-16 | Supported file transfer protocols | FTP |

| ID | Security Extension | Value |
|---|---|---|
| ORS-17 | CertificateSignedMaxChainSize | 100 |
| ORS-18 | CertificateStoreMaxLength | 256 |

## Additional Network Communication Ports

| Description | Protocol | Network Port | Direction | Secured |
|---|---|---|---|---|
| Firmware Download Port | FTP | 21 | Inbound | No |

## Vendor Specific Settings

The table below should contain all relevant non-OCPP settings of the System Under Test that are relevant for the test laboratory and for the correct OCPP-compliant functioning :

| Configuration Setting | Configured Value | Description |
|---|---|---|
| FreeVend | False | Set free charging mode |
| CustomDisplayCostAndPrice | False | Obtain consumption amount |
| MaxAmperageFWSetting | 48 | Set the maximum charging current of the charger |
| FreeVendIdtag | FreeVendIdtag | Set free charging mode idtag |

## Performance Measurement Result

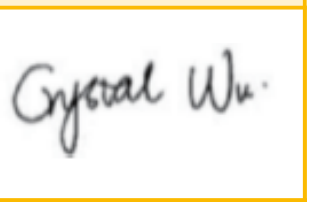
The tables below shows the list of key performance indicators that are measured during the conformance test. The first table indicates the values that the vendor indicates that are valid maximum values for this product. The second table lists the actual performance measurements during the tests performed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

| Name | Max Value | Unit | Description |
|---|---|---|---|
| OCPP response timeout | 20 | seconds | The timeout used for exchanging OCPP response messages. Messages to the DUT can be handled within this timeout. |
| OCPP triggered function timeout | 5 | seconds | The timeout used for when waiting for an OCPP function with its corresponding request message. Messages to the DUT can be handled within this timeout.<br>This value excludes firmware, diagnostics and rebooting |
| Transaction authorization time by RemoteStartTransaction | 5 | seconds | The time between the RemoteStartTransaction.req message and the corresponding StartTransaction.req. Only cases where the RemoteStartTransaction immediately results in an authorization followed by a StartTransaction.req are included. |
| Transaction authorization end time by RemoteStopTransaction | 5 | seconds | The time between the RemoteStopTransaction.req message and the corresponding StopTransaction.req. Only cases where the RemoteStopTransaction immediately results in an end of the authorization followed by a StopTransaction.req are included. |

| Name | Min Value | Max Value | Average Value | Unit |
|---|---|---|---|---|
| OCPP response timeout | 0.69 | 14.96 | 1.84 | seconds |
| OCPP triggered function timeout | 2.36 | 3.88 | 2.75 | seconds |
| Transaction authorization time by RemoteStartTransaction | not measurable | not measurable | not measurable | seconds |
| Transaction authorization end time by RemoteStopTransaction | 3.55 | 3.55 | 3.55 | seconds |

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

## Statement of Approval

| Vendor | | |
|---|---|---|
| Name | Crystal.Wu | Date: 2025-10-09 |
| Company | RAB LIGHTING INC | Signature: |
| Department | Certification Department |  |
| Position | Compliance Manager | |
| Location | China | |

| Test Laboratory | | |
|---|---|---|
| Name | Liu Xinyang | Date: 2025-10-09 |
| Company | DNV Singapore Pte. Ltd. | Signature: |
| Department | Energy Systems |  |
| Position | Consultant | |
| Location | DNV Lab, Singapore, Singapore | |

| | |
|---|---|
| OCTT Version | Release_2025-06 |
| OCTT Instance ID | b550db2a00e69ba6cfcdd31bc3aa9cda |
| Firmware image hash | e2ebfe91f589375367c731feb9cd606a70e5006d2e91686f23e0695db4a7d85d |