OCPP 1.6
CORE CERTIFIED

Certificate Holder: BUMHAN UNISOLUTIONS

Certificate Number: OCA.0016.1156.CS

Product Type: Charging Station

Product Designation: ZM-240-DP

Firmware Version: 0.2.0.1

Certification Date: November 25, 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	Korea Testing Certification institute November 24, 2025	KTC2025-00555_OCPP-1.6-PICS-CS-3.0.1_251203

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

Abstract of the Test Report

Test Report OCPP 1.6 Certification	
Test laboratory:	**Korea Testing Certification institute**
Location:	Gyeonggi-do, Korea
Test Report Reference:	KTC2025-00555
Test Location	KTC Lab, Gyeonggi-do, Korea
Product Designation:	**ZM-240-DP**
Vendor name:	BUMHAN UNISOLUTIONS
Device Under Test:	Charging Station
Firmware Version:	0.2.0.1
Config ID:	4F8FCA36-B3A5E8B1

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, secure firmware updates and Security Profile 2.
Advanced Security	Not Tested	Support for TLS with client authentication.
Smart Charging	Not Tested	Support for Smart Charging, to control charging.

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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. Connectors	2
HFS-9	Communication technology	ethernet
HFS-10	RFID readers	Single
HFS-11	DC power level	240

Connector	Current	Phases	Type	Cable Type
1	DC		cCCS2	Fixed Cable
2	DC		cCCS2	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	No
C-05	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	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
C-11	Support for Security Profile 1: Unsecured Transport with Basic Authentication	No

ID	Metervalues	Tested During Certification	Supported According to Vendor
C-09	Supported MeterValue Measurands		
C-09.1	MeterValuesSampled Data	Voltage Energy.Active.Import.Register Current.Import SoC	Energy.Active.Import.Register, Voltage, Current.Import, SoC

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ID	Metervalues	Tested During Certification	Supported According to Vendor
C-09.2	MeterValuesAligned Data	Voltage Energy.Active.Import.Register Current.Import SoC	Energy.Active.Import.Register, Voltage, Current.Import, SoC

ID	Cipher Suites	Supported / Present
C-12	Supported Cipher Suites	TLS_ECDHE_ECDSA_WITH_AES_128_GCM_SHA256 TLS_ECDHE_ECDSA_WITH_AES_256_GCM_SHA384

ID	Local Authorisation List Management	Supported / Present
LA-0	Support for Local Authorization List Management	No

ID	Remote Trigger	Supported / Present
RT-0	Support for Remote Trigger	No

ID	Reservations	Supported / Present
R-0	Support for Reservations	No
R-1	Support reservations of entire Charging Station	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 CentralSystemRootCertificate can be removed?	No
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 ChargePointCertificate be removed?	No

ID	Additional Questions for Lab Testing	Answer
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?	No
AQ-7	Reporting of StopTransaction after power loss	
AQ-7.1	Charge Point configured to report StopTransaction before going down.	No
AQ-7.2	Charge Point configured to report StopTransaction after going down and being back online again.	Yes
AQ-9	Does your Charging Station have at least one connector with an mechanized locking mechanism on Charging Station side?	No
AQ-11	Does your Charging Station support an authorization method that does not rely on the communication between EV and Charging Station?	Yes

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	20
ORS-2	MeterValuesAlignedDataMaxLength	10000
ORS-3	MeterValuesSampledDataMaxLength	10000
ORS-4	Minimum MeterValueSampleInterval supported	20
ORS-5	Maximum MeterValueSampleInterval supported	604800
ORS-6	Minimum HeartbeatInterval supported	20
ORS-7	Maximum HeartbeatInterval supported	604800
ORS-8	StopTransactionMaxMeterValues	100000
ORS-9	StopTxnAlignedDataMaxLength	4
ORS-10	StopTxnSampledDataMaxLength	4
ORS-11	WebSocketPingInterval	60

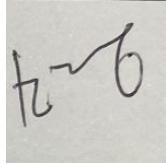| ID	Firmware Management Settings	Value
ORS-16	Supported file transfer protocols	HTTP

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	60	seconds	The timeout used for exchanging OCPP response messages. Messages to the DUT can be handled within this timeout.
OCPP triggered function timeout	10	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. This value excludes firmware, diagnostics and rebooting
Transaction authorization time by RemoteStartTransaction	90	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	90	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	0.50	1.37	0.66	seconds
OCPP triggered function timeout	1.02	1.42	1.27	seconds
Transaction authorization time by RemoteStartTransaction	50.20	50.20	50.20	seconds
Transaction authorization end time by RemoteStopTransaction	9.92	9.92	9.92	seconds

Communication technology used during performance measurement	Ethernet

Statement of Approval

Vendor		
Name	Jisang Song	Date: 2025-11-24
Company	BUMHAN UNISOLUTIONS	Signature:
Department	R&D Center	
Position	General Manager	
Location	YoungIn, Korea	

Test Laboratory		
Name	Hye Min Kwon	Date: 2025-11-25
Name reviewer	SOL CHO	Signature:
Company	Korea Testing Certification institute	
Department	EV Charging&Power Transfer Center	
Position	Research engineer	
Location	Gyeonggi-do, Korea	

OCTT Version	Release_2025-09_v4
OCTT Instance ID	0e2f65a9747856acf86effe09b501107
Firmware image hash	521605e896e834ee75d7a2059e6280742eb96415a7b3b043a8ba3808521ee410