OCPP 1.6
Full Certificate

OCPP 1.6 Fully Certified

Certificate holder:	Klinelex Co., Ltd
Certificate number:	OCA.0016.0106.CS
Product type:	Charging Station
Product designation:	KL60
	OCPP Software version: 1.0.0
	Hardware feature set as stated below
Certification date:	April 19, 2022

This certificate attests that the above mentioned product successfully completed certification testing in conformance with the reference specification OCPP 1.6 – Edition 2 with OCPP 1.6 Errata sheet (v4.0 Release, 2019-10-23). The optional features of the protocol are also covered by this certification.

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

Applied tests	Performed by / on	Document evidence
Conformance testing according to the test specification referenced by the test report	*Korea Smart Grid Association,* April 19, 2022	*KSGA_Test Report_20220419_Klinelex_KL60*

The abstract of test report in the Annex 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 test report

Test Result Summary

<table>
<tr><td colspan="2" align="center">Test Report OCPP 1.6 Certification</td></tr>
<tr><td>Test laboratory:</td><td>Korea Smart Grid Association</td></tr>
<tr><td>Location:</td><td>Seoul , Korea</td></tr>
<tr><td>Test Report Reference:</td><td>KSGA-OCPP1.6TEST-052-2022</td></tr>
<tr><td>Vendor name:</td><td>Klinelex Co., Ltd.</td></tr>
<tr><td>Device Under Test:</td><td>Charging Station</td></tr>
<tr><td>Communication:</td><td>JSON</td></tr>
<tr><td>OCPP Software version:</td><td>1.0.0</td></tr>
</table>

Test Result Summary for the certified functionalities

Functionalities	OCPP 1.6 Certification Test Results	Description
Core	**Pass**	Basic Charging Station functionality for booting, authorization (incl. cache if available), configuration, transactions, remote control.
Optional features		
Firmware Management	**Pass**	Support for (remote) firmware update management and diagnostic log file download.
Smart Charging	**Pass**	Support for Smart Charging (all profile types, including stacking), to control charging.
Reservation	**Pass**	Support for reservation of a connector of a Charging Station.
Local Authorization List Management	**Pass**	Features to manage a local list in the charging station containing authorization data for whitelisting users.
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.

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Performance Measurement Results

Performance Measurement Results			
Name	PICS value	Measured value	Description
OCPP triggered function timeout:	60s	00:00:21	The response time for when waiting for an OCPP function with its corresponding request message. (Firmware update, Diagnostics and Reboot are excluded from this measurement.)
OCPP response timeout:	10s	00:00:06	The response time for when waiting for an OCPP response message.
Response time RemoteStartTransaction:	5s	00:00:00	The response time for the RemoteStartTransaction message.

Test Configuration

Test Configuration	
Vendor	Klinelex Co., Ltd.
DUT / SUT	Charging Station
Communication	JSON
Type	KL60
OCPP Software version	1.0.0
OCTT version	OCTT 1.6 v1.4.3

Hardware feature set	
Feature	Configuration
Socket(s) / connector(s)	Single
Fixed cable	<Yes>
Communication technology	Mobile network
RFID readers	Single

Non-OCPP Charge Point Configuration	
Configuration key	Value
<>	<>

All other relevant limits and non-OCPP settings that are relevant for the test laboratory and for the correct functioning of the CSMS:	
Limit / setting	Value
Device supports sending milliseconds in timestamps.	Yes

OCPP Charging Station Configuration

Configuration key	Value
AllowOfflineTxForUnknownId	TRUE
AuthorizationCacheEnabled	FALSE
AuthorizeRemoteTxRequests	FALSE
BlinkRepeat	1
ClockAlignedDataInterval	20
ConnectionTimeOut	60
ConnectorPhaseRotation	RST
ConnectorPhaseRotationMaxLength	1
GetConfigurationMaxKeys	27
HeartbeatInterval	300(default)
LightIntensity	50
LocalAuthorizeOffline	TRUE
LocalPreAuthorize	FALSE
MaxEnergyOnInvalidId	7000
MessageTimeout	-
MeterValuesAlignedData	Energy.Active.Import.Register
MeterValuesAlignedDataMaxLength	100
MeterValuesSampledData	Energy.Active.Import.Register
MeterValuesSampledDataMaxLength	100
MeterValueSampleInterval	10
MinimumStatusDuration	2
NumberOfConnectors	1
ResetRetries	1
StopTransactionMaxMeterValues	-
StopTransactionOnEVSideDisconnect	TRUE
StopTransactionOnInvalidId	FALSE
StopTxnAlignedData	Energy.Active.Import.Register
StopTxnAlignedDataMaxLength	1
StopTxnSampledData	Energy.Active.Import.Register
StopTxnSampledDataMaxLength	1
SupportedFeatureProfiles	Core,FirmwareManagement,LocalAuthListManagement,Reservation,SmartCharging,RemoteTrigger
SupportedFeatureProfilesMaxLength	6
TransactionMessageAttempts	1
TransactionMessageRetryInterval	5
UnlockConnectorOnEVSideDisconnect	FALSE
WebSocketPingInterval	60
LocalAuthListEnabled	FALSE
LocalAuthListMaxLength	500
SendLocalListMaxLength	500
ReserveConnectorZeroSupported	FALSE
ChargeProfileMaxStackLevel	5
ChargingScheduleAllowedChargingRateUnit	Ampère & Watt
ChargingScheduleMaxPeriods	10
ConnectorSwitch3to1PhaseSupported	FALSE
MaxChargingProfilesInstalled	10
SupportedFileTransferProtocols	ftp, ftps

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Statement of Approval

Vendor		Date: 2022.04.19	
Name	Lee Hyo Young	Signature	
Company	Klinelex Co., Ltd.		
Department	Headquarters		
Position	CEO		
Location	Korea		

Test laboratory		Date: 2022.04.19	
Name	Philip YANG	Signature	
Company	Korea Smart Grid Association		
Department	Quality Certification Center		
Position	Senior Researcher		
Location	Seoul, Korea		