UL Verification Services Inc.
3020 1st Ave E
Newton IA 50208 USA

TEST REPORT
PN14653
Wevo OpenADR 2.0b Test

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1. Client Information

Customer company name:	Wevo Energy Ltd
Contact person:	Adi Baron
Address:	Ha-Saifan St 9, Ein Vered, 4069600, Israel
Telephone:	+972 52 6334593
Email:	adib@wevo.energy

2. Test Information

Title of test:	OpenADR 2.0b Verification Test
Test procedure	OpenADR 2.0b Test Specification v1.1
Project number:	PN14653
Test conducted by:	John Gross
Report Issue date:	09/19/2024

3. Lab Information

Testing Laboratory:	UL Solutions
Testing Laboratory Address:	3020 1st Ave. E, Newton, IA 50208

4. Objective

OpenADR 2.0b evaluation and submission of this report, Protocol Implementation Conformance Statement, and Declaration of Conformity to the OpenADR Alliance.

5. Product Information

Brand(s):	Wevo Energy
Manufacturer:	Wevo Energy Ltd
Version Number(s):	OpenADR v1.0.0
Serial Number(s):	N/A
Type (s):	Software
Condition as Received:	N/A (Software Based Verification)
Sample Tracking #'s:	N/A (Software Based Verification)

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6. Summary

UL Solutions performed testing to establish the compliance of Wevo Energy's Charging Station Management System VEN software against all applicable test cases. The device that was tested passed all required tests necessary for OpenADR 2.0b certification, thus is eligible for certification and listing on the OpenADR Alliance list of software/hardware compliant with OpenADR 2.0b. The Declaration of Conformity, Protocol Implementation Conformance Statement, and this report will be submitted by UL Solutions to the OpenADR Alliance for approval.

7. Test Setup and Procedure

The official OpenADR Alliance Test Harness produced by QualityLogic was used to simulate a VTN and run applicable test cases against the VEN according to the OpenADR 2.0b Certification Test Harness User's Manual v1.1.7. Test cases that required manual actions to be performed on the VEN side were completed by sending requests to a Swagger API provided by the client.

8. Test Results

Results Guide:

"PASS" – Device has conformed with a test scenario for compliance that has been established by the OpenADR Alliance.

"FAIL" – Device has not conformed with a test scenario for compliance that has been established by the OpenADR Alliance.

"N/A" – Device conformance to this test scenario for compliance is not applicable as established by the OpenADR Alliance.

"SKIP" – Device was not tested with a test scenario for compliance because conformance to the test scenario is optional as established by the OpenADR Alliance and was asserted to be skipped by the client.

Test Case, Result (Pull)		Description
N1_0010_TH_VTN_1	PASS	VEN Registration - Query
N1_0015_TH_VTN_1	PASS	VEN Registration - Query While Registered
N1_0020_TH_VTN_1	PASS	VEN Registration - Bootstrap Sequence
N1_0025_TH_VTN_1	PASS	VEN Registration - Pre-allocated VEN ID
N1_0030_TH_VTN_1	PASS	VEN Registration - Cancel Registration
N1_0040_TH_VTN_1	PASS	VTN Registration - Cancel Registration
N1_0050_TH_VTN_1	PASS	VTN Registration - Request Re-Registration
N1_0060_TH_VTN_1	PASS	VEN Registration - New Registration while Registered
N1_0065_TH_VTN_1	PASS	VEN Registration - Re-Registration
N1_0070_TH_VTN_1	PASS	VTN_VEN Registration - Negative Test Scenarios
N1_0080_TH_VTN_1	N/A	VEN Registration - Payload While Unregistered
P1_2010_TH_VTN_1	PASS	VEN Opt - New Opt Schedule
P1_2015_TH_VTN_1	PASS	VEN Opt - Open Ended Opt Schedule

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Test Case, Result (Pull)		Description
P1_2020_TH_VTN_1	PASS	VEN Opt - Cancel Opt Schedule
P1_2030_TH_VTN_1	PASS	VEN Opt - Multiple Opt Schedules, Targeting
P1_2040_TH_VTN_1	PASS	VEN Opt - Multiple Opt Scheduled with Cancel
P1_2050_TH_VTN_1	N/A	VEN Opt - Negative Test Scenarios
R1_3010_TH_VTN_1	PASS	VEN Reporting - One Shot Report
R1_3020_TH_VTN_1	PASS	VEN Reporting - Periodic Report
R1_3025_TH_VTN_1	PASS	VEN Reporting - Delayed Periodic Report, loadControlState
R1_3027_TH_VTN_1	PASS	VEN Reporting - Short duration
R1_3030_TH_VTN_1	PASS	VEN Reporting - Multiple Report Request Payloads
R1_3040_TH_VTN_1	PASS	VEN Reporting - Cancel Report
R1_3045_TH_VTN_1	PASS	VEN Reporting - Cancel Open Ended Report, reportToFollow
R1_3050_TH_VTN_1	SKIP	VEN Reporting - Piggy Back Cancellation
R1_3060_TH_VTN_1	SKIP	VEN Reporting - Piggy Back Request
R1_3070_TH_VTN_1	SKIP	VTN Reporting - One Shot Report
R1_3080_TH_VTN_1	SKIP	VTN Reporting - Periodic Report
R1_3090_TH_VTN_1	SKIP	VTN Reporting - Multiple Report Request Payloads
R1_3100_TH_VTN_1	SKIP	VTN Reporting - Cancel Report
R1_3120_TH_VTN_1	SKIP	VTN Reporting - Piggy Back Request
R1_3130_TH_VTN_1	SKIP	VEN Reporting - History Usage Report
R1_3150_TH_VTN_1	PASS	VEN Reporting - Telemetry Usage, One Shot
R1_3160_TH_VTN_1	PASS	VEN Reporting - Telemetry Usage, Periodic
R1_3170_TH_VTN_1	PASS	VEN Reporting - Metadata Report Request
R1_3180_TH_VTN_1	PASS	VEN Reporting - Same Payload, Multiple Requests and Updates
R1_3190_TH_VTN_1	PASS	VEN Reporting - Negative Test Scenarios
E1_1010_TH_VTN_1	PASS	VTN Event - Empty
E1_1020_TH_VTN_1	PASS	VTN Event - Electricity Price Event
E1_1025_TH_VTN_1	PASS	VTN Event - Load Dispatch Event
E1_1027_TH_VTN_1	PASS	VTN Event - Event with Baseline
E1_1030_TH_VTN_1	PASS	VTN Event - Two Dist Event Sequences
E1_1040_TH_VTN_1	PASS	VTN Event - x Created Events, Mixed Simple/Complex
E1_1050_TH_VTN_1	PASS	VEN Event - Use of oadrRequestEvent
E1_1055_TH_VTN_1	PASS	VEN Event – Multiple Signals in an Event
E1_1060_TH_VTN_1	PASS	VEN CreateOpt Qualification
E1_1065_TH_VTN_1	N/A	VTN Ignore oadrCreatedEvent
E1_1070_TH_VTN_1	PASS	VTN Event -Negative Test, Custom Event Signal
E1_1080_TH_VTN_1	PASS	VTN/VEN Event -Negative Test, Case Sensitivity
E1_1090_TH_VTN_1	PASS	Adjacent Event Execution
A_E1_0020_TH_VTN_1	PASS	No Events, VEN
A_E1_0040_TH_VTN_1	PASS	Send 24_Prices Event, VEN
A_E1_0060_TH_VTN_1	PASS	Send Event with Optional Elements, VEN
A_E1_0070_TH_VTN_1	PASS	Send Event with EiTarget subElements, VEN
A_E1_0082_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Pending, 0, always
A_E1_0086_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Pending, 0, never
A_E1_0090_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Pending, 1, always
A_E1_0092_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Pending, 1, never

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Test Case, Result (Pull)		Description
A_E1_0094_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Active, 0, always
A_E1_0096_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Active, 0, never
A_E1_0098_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Active, 1, always
A_E1_0100_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Cancelled-Pend, 1, always
A_E1_0102_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Cancelled-Act, 1, always
A_E1_0104_TH_VTN_1	PASS	Event State Sequence Tests, VEN - Cancelled-Pend, 1, never
A_E1_0110_TH_VTN_1	PASS	Send new event with modificationNumber >0, VEN
A_E1_0130_TH_VTN_1	PASS	Send test event, VEN
A_E1_0180_TH_VTN_1	PASS	New, modified, Cancelled in one payload, VEN
A_E1_0190_TH_VTN_1	PASS	Static requestID, VEN
A_E1_0200_TH_VTN_1	PASS	Limit Values, VEN
A_E1_0210_TH_VTN_1	PASS	Observation 1: Simple Event, VEN
A_E1_0220_TH_VTN_1	PASS	Observation 2: Modify Pending Event, VEN
A_E1_0230_TH_VTN_1	PASS	Observation 3: Modify Active Event, VEN
A_E1_0240_TH_VTN_1	PASS	Observation 4: Cancel Event, VEN
A_E1_0250_TH_VTN_1	PASS	Observation 5: Dispatch Event, VEN
A_E1_0260_TH_VTN_1	PASS	Observation 6: Randomization, VEN
A_E1_0262_TH_VTN_1	PASS	Observation 10: Modified Event Randomization, VEN
A_E1_0267_TH_VTN_1	PASS	Observation 8: Explicit Cancel Randomization, VEN
A_E1_0268_TH_VTN_1	PASS	Observation 9: Implicit Cancel Randomization, VEN
A_E1_0270_TH_VTN_1	PASS	Observation, Multiple Event Execution, VEN
A_E1_0280_TH_VTN_1	PASS	Observation 7: Async Opt Out, VEN
A_E1_0285_TH_VTN_1	PASS	Multiple Market Contexts, VEN
A_E1_0300_TH_VTN_1	PASS	Send Event with non-matching EiTarget subElements, VEN
A_E1_0310_TH_VTN_1	PASS	Application Error Code, VEN
A_E1_0340_TH_VTN_1	PASS	Mixed Current/Expired Event, VEN
A_E1_0345_TH_VTN_1	PASS	Unknown Cancelled Event, VEN
A_E1_0360_TH_VTN_1	PASS	Unknown Market Context Event, VEN
A_E1_0370_TH_VTN_1	PASS	Observation 8: Inconsistent returned events, VEN
A_E1_0390_TH_VTN_1	PASS	Unrecognized VTN ID, VEN
A_E1_0392_TH_VTN_1	PASS	Lower Modification Number, VEN
G1_4005_TH_VTN_1	PASS	Security - Cipher and X.509 Cert support - RSA
G1_4007_TH_VTN_1	PASS	Security - Cipher and X.509 Expired Certificate
G1_4010_TH_VTN_1	PASS	Security - Cipher and X.509 Cert support - ECC
G1_4011_TH_VTN_1	N/A	VEN - Empty oadrPoll
G1_4012_TH_VTN_1	PASS	VEN – Event followed by oadrPoll
G1_4015_TH_VTN_1	PASS	VEN - De-Queue using oadrPoll
G1_4030_TH_VTN_1	PASS	Omitted vs Empty Element Equivalent

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9. Equipment Used

Instrument Type	Brand	Version #	Accuracy	Date of last calibration	Calibration due date
OpenADR 2.0b Test Harness	QualityLogic	1.1.7	N/A	N/A	N/A
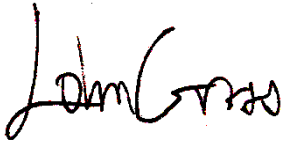
10.   Status

Testing Started:	09/17/2024
Testing Done:	09/18/2024
Report Completed:	09/19/2024

11.   Report Version History:

Version	Staff approving amendment	Date:	Description
1	John Gross	09/19/2024	Initial version
2	John Gross	09/24/2024	Corrected product name

12.   Authorizing Signatures

Report Prepared By:	Tests Reviewed By:
Name: John Gross	Name: Casey Schrock
Title: Engineering Project Handler	Title: Engineering Leader

13.   Intended Use of This Test Report

This report is confidential and is intended for the exclusive use of the client named above.
UL Verification Services did not select the samples, determine whether the samples were representative of production samples, witness the production of the test samples, nor were we provided with information relative to the formulation or identification of component materials used in the test samples. The test results apply only to the actual samples tested. UL Verification Services has no vested interest in the results of this testing and hereby certifies the impartial manner in which the testing was performed.

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****************************END OF TEST REPORT*************************