

## 1. Client Information

Customer company name:	Matcha Labs, Inc.
Contact person:	Jonathan Sobin
Address:	52 Gates St, South Boston, MA 02127
Email:	jon@matchaelectric.com

## 2. Test Information

Title of test:	OpenADR 2.0b Verification Test
Title of associated project:	OpenADR Testing
Test procedure	OpenADR 2.0b Test Specification v1.1
Project number:	PN15257
Test conducted by:	John Gross
Report Issue date:	2025-10-29

## 3. Lab Information

Testing Laboratory:	UL Verification Services Inc.
Testing Laboratory Address:	3020 1st Ave. E, Newton, IA 50208

## 4. Objective

Determine the compliance of Matcha Labs' EV charging platform with the OpenADR 2.0b standard in the following configurations and submit a certification request to the OpenADR Alliance.

- VEN, HTTP Pull

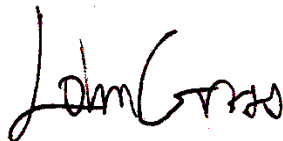

## 5. Product Information

Brand:	Matcha Labs
Software Name:	MatchaOS
Software Version Number:	1.0
Type:	EV charging platform

## 6. Summary

UL Solutions performed testing to establish the compliance of the OpenADR component of Matcha Labs' EV charging platform with the OpenADR 2.0b standard. UL Solutions determined that the product passed all applicable tests required by the test specification and is eligible for certification.

## 7. Authorizing Signatures

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

## 8. Test Setup and Procedure

The official OpenADR Alliance Test Harness software produced by QualityLogic was used to simulate a VTN and run applicable test cases against the device under test according to the OpenADR 2.0b Certification Test Harness User's Manual v1.1.7 and prompts displayed by the test harness software.

Some test cases encountered transient errors unrelated to the device under test's implementation of the OpenADR 2.0b standard and were repeated until the result was considered to accurately reflect the behavior of the device under test.

## 9. Test Results

### Results Guide:

Value	Meaning
PASS	The test harness software indicated a passing result and all observation requirements defined in the test specification were satisfied.
FAIL	The test harness software indicated a failing result or an observation requirement defined in the test specification was not satisfied.
N/A	The test harness software indicated the test case is not applicable.
SKIP	The test case was not executed according to the "Optional Test Case Guidelines" in the Protocol Implementation Conformance Statement.

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

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**Matcha Labs, Inc.**  
**OpenADR Testing**

Test Case, Result (Pull)		Description
P1_2010_TH_VTN_1	PASS	VEN Opt - New Opt Schedule
P1_2015_TH_VTN_1	PASS	VEN Opt - Open Ended Opt Schedule
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	SKIP	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

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Test Case, Result (Pull)		Description
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
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
N/A	N/A	oadrCreatedEvent Response, 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	SKIP	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	PASS	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

## 10. 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

## 11. Status

Testing Started:	2025-10-28
Testing Done:	2025-10-28
Report Completed:	2025-10-29

## 12. Report Version History:

Version	Staff approving amendment	Date:	Description
1	John Gross	2025-10-29	Original version

## 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**\*\*\*\*\*