

# OpenADR 2.0b

## Protocol Implementation

### Conformance Statement (PICS)

Version 1.1.2

Valid for Certification as of February 22, 2016

|  |                             |
|--|-----------------------------|
| Manufacturer:                                    | Lutron Electronics Co., Inc |
| Product Type:                                    | VEN                         |
| Product Name:                                    | Vive Hub                    |
| Firmware Revision:                               | 1.9.7+                      |
| <i>Tested OpenADR 2.0b Profile Spec version:</i> | 1.1                         |


#### Disclaimer:

The information provided in this document can be made available to the general public in order to identify the tested versions, features and options.

By signing this document, the manufacturer confirms that all information provided in this document is correct and the applicable features have been tested.

Manufacturer Name: Lutron Electronics Co., Inc

Representative Name and Title: Jackson Burlew, Software Developer

Signature: 

Date: 20 March 2019

## Revisions:

| Version | Changes   | Date/Editor      |
|---------|---|------------------|
| 1.0.0   | <ul style="list-style-type: none"> <li>Released Version</li> </ul>  | 06/28/13         |
| 1.0.1   | <ul style="list-style-type: none"> <li>Added additional optional test case conditions</li> </ul>  | 07/28/13         |
| 1.0.2   | <ul style="list-style-type: none"> <li>Added test case A_E1_0285 and A_E0_0285 to optional list</li> </ul>  | 08/15/13         |
| 1.0.4   | <ul style="list-style-type: none"> <li>Added test case A_E3_0680 to optional list</li> </ul>  | 08/20/13         |
| 1.0.5   | <ul style="list-style-type: none"> <li>Added the following test cases to optional list.<br/>A_E2_0435, A_E3_0435, A_E2_0685, A_E3_0685, R1_3070_TH_VTN_1, R0_8070_TH_VTN_1, R1_3080_TH_VTN_1, R0_8080_TH_VTN_1, R1_3090_TH_VTN_1, R0_8090_TH_VTN_1, R1_3100_TH_VTN_1, R0_8100_TH_VTN_1, R1_3120_TH_VTN_1, R0_8120_TH_VTN, R1_3050_TH_VEN, R0_8050_TH_VEN_1, R1_3060_TH_VEN, R0_8060_TH_VEN, R1_3120_TH_VTN_1 and R0_8120_TH_VTN.</li> </ul> | 09/09/13         |
| 1.0.6   | <ul style="list-style-type: none"> <li>Corrected typo.</li> <li>Removed test case A_E0_0295.</li> <li>Mentioned GO_9005.</li> </ul>   | 2/11/2014 EP, BD |
| 1.0.7   | <ul style="list-style-type: none"> <li>Corrections</li> </ul>   | 11/7/2015 JZ     |
| 1.1.2   | <ul style="list-style-type: none"> <li>Revision incremented</li> </ul>  | 4/25/17 JZ       |

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## Introduction

The purpose of this PICS document is to provide a mechanism whereby a supplier of an implementation based on the following requirements may provide information about the implementation in a standardized manner.

These requirements are drawn from the OASIS Energy Interoperation standard and related schemas. With the exception of OpenADR Alliance schema extensions, payloads generated by OpenADR 2.0b implementations should validate against the Energy Interop schemas.

Information provided by the supplier will be used to assess the implementation's compliance to the requirements, as well as to configure the certification tests performed on the implementation.

## References

- OpenADR 2.0b Profile Specification 1.1
- OpenADR 2.0b Test Spec V1.0.7
- OpenADR 2.0b Schema

## Abbreviations and Conventions

The PICS information comprises information in a tabular format as follows:

- **Item Column** – A number which identifies the item in the table
- **Capability Column** – A brief description of the requirement
- **Reference Column or Section Header** – A reference to a specific requirement in the specification
- **Status Column** – Contains notations regarding the requirements
  - M – Mandatory
  - O – Optional
  - N/A – Not applicable
  - X – Prohibited
  - O-i – Qualified Optional (mutually exclusive or selectable options from a set identified with the same “i” value)
  - C-i – Conditional (status dependent on support of other optional requirements , identified in footnotes at bottom of table with “i” being a reference integer for the footnote(s))
- **Support Column** – Yes or No answer is required. If feature is not applicable, answer No.
- **Values Allowed Column** – Optional column representing set of values allowed.
- **Values Supported Column** – Optional column where supplier can indicate a set of values supported by the implementation.

Note that all requirement references in the tables on the following pages are with respect to the OpenADR 2.0b Profile Specification, Version 1.1.

## Instructions for Completing the PICS

The first part of the PICS document, System Identification, is to be completed as indicated with the information necessary to fully identify both the supplier and the implementation.

The main part of the PICS document is a fixed format questionnaire. Answers to questionnaire items are to be provided in the rightmost column by simply marking an answer to indicate a choice, typically Yes or No.

If an implementation fails to support a mandatory item, or supports a prohibited item, the supplier should provide supplementary information with the PICS document explaining the rationale for the exception.

**Note: The burden of interoperability falls to the VTN implementation. Therefore any certified VTN must support the 2.0A profile and the 2.0B profile including the applicable schemas.**

## Documents required for final certification

- This PICS document
- Manufacturers Declaration of Conformity
- Completed Test Report from appointed test house
- Product marketing description for website (50 words)
- Product picture or logo if applicable
- Web link to product

**If you would like to postpone posting your product on the OpenADR Alliance website for a period of time (maximum 3 months), please fill out the following section.**

\_\_\_\_\_ (Manufacturer) herewith requests that the submitted product shall not be posted on the OpenADR Alliance product web page until \_\_\_\_\_ (date, max 3 months from submittal).

Name: \_\_\_\_\_

Signature: \_\_\_\_\_

## Implementation and Supplier Information

|  |  |
|--|--|
| Date of Statement                        | 20 March 2019  |
| Product Name                             | Vive Hub   |
| Product Model Number                     | HXS-X-XX   |
| Version Number(s)                        | 1.9.7+   |
| Non-Default Hardware Configuration       | Must be connected via ethernet to the Internet.  |
| Non-Default Software Configuration       | User must enable/configure OpenADR through the web interface.                          |
| Supplier Name, Address, Phone, Email     | Lutron Electronics Co., Inc<br>7200 Suter Rd., Coopersburg, PA 18036<br>1-800-523-9466 |
| Contact name, email, phone for questions | Jackson Burlew<br>jburlew@lutron.com<br>610-282-7223                                   |

## Global Statement of Conformance

| Requirement  | Support   |
|--|---|
| Are all mandatory capabilities supported for the indicated roles supported by this implementation? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

## Roles

| Item | Role                        | Status | Support   |
|------|-----------------------------|--------|---|
| 1    | VEN - Full Function         | O-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 3    | VEN - Energy Reporting Only | O-1    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 3    | VTN                         | O-1    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

O-1) Must answer Yes to one Role. Note that if an implementation supports both VEN and VTN functionality, two separate PICS documents should be submitted, one for each role.

## Profile Support

Requirements Reference: Conformance rule 506

| Item | Role    | Profile     | Status | Support   |
|------|---------|-------------|--------|---|
| 1    | VEN/VTN | "A" Profile | C -1   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 2    | VEN/VTN | "B" Profile | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

C-1) VTNs must support the A and B Profile

C-1) VENs may support ONLY the B profile

## Transports /Exchange Pattern Support

Requirements Reference: Figure 1, OpenADR 2.0 Certification Levels and conformance rule 37

| Item | Role    | Transport         | Status | Support   |
|------|---------|-------------------|--------|---|
| 1    | VEN/VTN | SimpleHTTP - Pull | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2    | VEN/VTN | SimpleHTTP - Push | C-1    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 3    | VEN/VTN | XMPP - Push       | C-1    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

C-1) VTNs must support all transports and exchange patterns.

C-1) VENs must support at least one item from the list. If SimpleHTTP items are selected this must include the "SimpleHTTP-Pull" option from the list.

## Service Support

Requirements Reference: Section 7.2.2 and conformance rules 501 and 507

| Item | Role    | Service         | Status | Support   |
|------|---------|-----------------|--------|---|
| 1    | VEN/VTN | EiEvent         | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2    | VEN/VTN | EiOpt           | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 3    | VEN/VTN | EiReport        | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 4    | VEN/VTN | RiRegisterParty | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 5    | VEN/VTN | OadrPoll        | C-2    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

C-1) VTNs and Full Function VENs must support these Services, but are not supported by Report Only VENs.

C-2) VTNs must support; VENs must support if simpleHTTP transport is supported.

## Security Support

Requirements Reference: Conformance rules 67, 68, and 514

| Item | Role    | Security  | Status | Support   |
|------|---------|---|--------|---|
| 1    | VEN     | SHA2 Security<br>-TLS 1.2<br>-Client and server x.509 certs with SHA2<br>-Alliance RSA <b>or</b> ECC SHA2 Ciphers<br>-SASL_EXTERNAL (XMPP Only)               | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2    | VTN     | SHA2 Security<br>-TLS 1.2<br>-Client and server x.509 certs with SHA2<br>-Alliance RSA <b>and</b> ECC SHA2 Ciphers<br>-SASL_EXTERNAL (XMPP Only if supported) | M      | <input type="checkbox"/> Yes <input type="checkbox"/> No<br>NA      |
| 3    | VEN/VTN | XML Signatures  | O      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |



## Payload Schema Conformance

For each payload generated by a VEN or VTN, indicate if it conforms to the OpenADR B Profile schema. Note that the Status is relative to the Role listed.

| Item | Role     | Payload                       | Status for Role | Validates Against B Schema |
|------|----------|-------------------------------|-----------------|----------------------------|
| 1    | VEN-Pull | oadrPoll                      | C-1             | [x]Yes [ ]No               |
| 2    | VEN      | oadrRequestEvent              | C-2             | [x]Yes [ ]No               |
| 3    | VEN      | oadrCreatedEvent              | C-2             | [x]Yes [ ]No               |
| 4    | VEN      | oadrCreateOpt                 | C-2             | [x]Yes [ ]No               |
| 5    | VEN      | oadrCancelOpt                 | C-2             | [x]Yes [ ]No               |
| 6    | VTN      | oadrCanceledOpt               | C-2             | [ ]Yes [ ]No NA            |
| 7    | VEN      | oadrQueryRegistration         | M               | [x]Yes [ ]No               |
| 8    | VEN      | oadrCreatePartyRegistration   | M               | [x]Yes [ ]No               |
| 9    | VEN/VTN  | oadrResponse                  | M               | [x]Yes [ ]No               |
| 10   | VEN/VTN  | oadrCancelPartyRegistration   | M               | [x]Yes [ ]No               |
| 11   | VEN/VTN  | oadrCanceledPartyRegistration | M               | [x]Yes [ ]No               |
| 12   | VEN/VTN  | oadrRegisterReport            | M               | [x]Yes [ ]No               |
| 13   | VEN/VTN  | oadrRegisteredReport          | M               | [x]Yes [ ]No               |
| 14   | VEN/VTN  | oadrCreateReport              | C-3             | [ ]Yes [x]No               |
| 15   | VEN/VTN  | oadrCreatedReport             | C-3             | [ ]Yes [x]No               |
| 16   | VEN/VTN  | oadrUpdateReport              | C-4             | [x]Yes [ ]No               |
| 17   | VEN/VTN  | oadrUpdatedReport             | C-4             | [ ]Yes [x]No               |
| 18   | VEN/VTN  | oadrCancelReport              | C-3             | [ ]Yes [x]No               |
| 19   | VEN/VTN  | oadrCanceledReport            | C-3             | [ ]Yes [x]No               |
| 20   | VTN      | oadrCreatedOpt                | C-2             | [ ]Yes [ ]No NA            |
| 21   | VTN      | oadrDistributeEvent           | C-2             | [ ]Yes [ ]No NA            |
| 22   | VTN      | oadrCreatedPartyRegistration  | M               | [ ]Yes [ ]No NA            |
| 23   | VTN      | oadrRequestReregistration     | M               | [ ]Yes [ ]No NA            |

C-1) VENs with SimpleHTTP pull support must support oadrPoll, other implementations must not.

C-2) All implementations must support these options except for Report Only VENs.

C-3) VENs are not required to implement requesting reports from VTNs, so these payloads are not mandatory

C-4) VTNs are not required to offer reports, so delivering reports other than metadata is not mandatory

## Operational Sequence Support

The table below demonstrates the operational sequences and the conditional behavior for each of the services. The push HTTP acknowledgement (empty payload) of oadrDistributeEvent is not shown in the table. Indicate if all of the behavior shown in each section is supported by the implementation. Brackets are used to indicate conditional behavior which must be supported. Requirements reference: All figures in the B profile specification with interaction diagrams

| Item | Service         | App Level Exchange Sequence   | Status | Support      |
|------|-----------------|---|--------|--------------|
| 1    | EiEvent         | {VEN: RequestEvent {Reply Limit}}<br>VTN: oadrDistributeEvent {Response Required, baseline}<br>{VEN: oadrCreatedEvent {Opt State}<br>VTN: oadrResponse }  | C-1    | [x]Yes [ ]No |
| 2    | EiOpt           | VEN: oadrCreateOpt {Availability schedule}<br>VTN: oadrCreatedOpt<br>----<br>VEN: oadrCancelOpt<br>VTN: oadrCanceledOpt<br>---<br>VEN: oadrCreateOpt - {Event Opt State}<br>VTN: oadrCreatedOpt   | C-1    | [x]Yes [ ]No |
| 3    | EiRegisterParty | VEN: oadrQueryRegistration<br>VTN: oadrCreatedPartyRegistration<br>----<br>VEN: oadrCreatePartyRegistration<br>VTN: oadrCreatedPartyRegistration<br>----<br>VEN/VTN: oadrCancelPartyRegistration<br>VTN/VEN: oadrCanceledPartyRegistration<br>---<br>VTN: oadrRequestReregistration<br>VEN: oadrResponse<br>VEN: oadrCreatePartyRegistration<br>VTN: oadrCreatedPartyRegistration | M      | [x]Yes [ ]No |
| 4    | EiReport        | VEN/VTN: oadrRegisterReport<br>VTN/VEN: oadrRegisteredReport {Create Report *}<br>----<br>VEN/VTN: oadrCreateReport {Once or Periodic}<br>VTN/VEN: oadrCreatedReport<br>----<br>VEN/VTN: oadrUpdateReport<br>VTN/VEN: oadrUpdatedReport {Cancel Report *}<br>----<br>VEN/VTN: oadrCancelReport<br>VTN/VEN: oadrCanceledReport {Report to Follow}                                  | C-3    | [x]Yes [ ]No |
| 5    | OadrPoll        | VEN: oadrPoll<br>VTN: Any payload sent by VTN   | C-2    | [x]Yes [ ]No |

C-1) All implementations must support these options, except for Report Only VENS.

C-2) Required for SimpleHTTP Pull VENS only.

C-3) VENS and VTNs are not required to demonstrate initiating piggyback report requests and report cancellations (\*), but must understand them and act upon them if received from the other party. As noted in the prior Payload Schema Conformance section, VENS are not required to demonstrate requesting reports from VTNs and VTNs are not required to deliver reports other than metadata..

## Standard Event Signal Support

Indicate which of the following Alliance-defined standard signals are supported by the VEN or VTN .

Requirements Reference: Conformance rule 510

| Item | Role    | Signal Name       | SignalType | Status | Support   |
|------|---------|-------------------|------------|--------|---|
| 1    | VEN/VTN | SIMPLE            |            | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2    | VEN/VTN | ELECTRICITY_PRICE | Price      | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 3    | VEN/VTN | LOAD_DISPATCH     | setpoint   | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

## Standard Report Support

Indicate which of the following Alliance-defined standard reports are offered as part of report registration by the VEN or VTN. Requirements Reference: Conformance rule 510

| Item | Role | Report Name      | Status | Support   |
|------|------|------------------|--------|---|
| 1    | VEN  | METADATA         | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2    | VEN  | TELEMETRY_UASGE  | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 3    | VEN  | TELEMETRY_STATUS | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 4    | VEN  | HISTORY_USAGE    | C-1    | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 5    | VTN  | METADATA         | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

C-1) Optional for full function VENs; mandatory for Report Only VENs.

## Alliance “B” Profile Detailed Requirements

In addition to the requirements defined by the schema, the OpenADR 2.0b Profile has a detailed set of conformance rules that define the expected behavior of VTN and VEN implementations. As these rules already reflect the testable requirements, there is no need to relist them here. Please refer to the OpenADR 2.0b Profile Specification while indicating which of the following conformance rules are supported by the implementation.

| Item (Rule) | Role    | Status | Support   |
|-------------|---------|--------|---|
| 1           | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2           | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 3           | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 4           | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 5           | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 6           | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 8           | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 9           | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 10          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 12          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 13          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 14          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 15          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 16          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 17          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 18          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 19          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 20          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 21          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 22          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 23          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 25          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 27          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 29          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 30          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 31          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 32          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 33          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 35          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 36          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 37          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 38          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 40          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 41          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 42          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 43          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 45          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 46          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 47          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 48          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 50          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 51          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 52          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |

| Item (Rule) | Role    | Status | Support   |
|-------------|---------|--------|---|
| 53          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 56          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 57          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 58          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 59          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 60          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 61          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 62          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 63          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 65          | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 66          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 67          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 68          | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 70          | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 100         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 101         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 102         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 103         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 104         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 105         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 106         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 107         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 108         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 109         | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 110         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 111         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 112         | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 113         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 114         | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 115         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 116         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 200         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 201         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 202         | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 203         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 204         | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 205         | VTN     | C-1    | <input type="checkbox"/> Yes <input type="checkbox"/> No NA         |
| 206         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 207         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 208         | VEN     | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 209         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 210         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 211         | VEN/VTN | C-1    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 300         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 301         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 302         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 303         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 304         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 305         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 306         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 307         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 308         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 309         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

| Item (Rule) | Role    | Status | Support   |
|-------------|---------|--------|---|
| 311         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 312         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 313         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 314         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 315         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 316         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 317         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 318         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 319         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 321         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 322         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 324         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 325         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 327         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 328         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 329         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 330         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 331         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 333         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 334         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 335         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 336         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 337         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 338         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 339         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 340         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 341         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 342         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 343         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 344         | VEN/VTN | O      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 345         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 346         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 400         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 401         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 402         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 403         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 404         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 405         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 406         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 407         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 500         | VEN/VTN | C-2    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 501         | VEN/VTN | C-2    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 502         | VEN/VTN | C-2    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 506         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 507         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 508         | VEN     | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 509         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 510         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 511         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 512         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 514         | VEN/VTN | O      | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 515         | VEN/VTN | M      | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |

C-1) Required for all but Report Only VENs.

C-2) All VTNs and Simple HTTP VENs must support this requirement.

## Implementation Capabilities and Configuration

For each of the questions below, indicate if the implementation has the necessary functionality, configurability, and documentation to successfully complete the certification testing process.

| Item | Description   | Support   |
|------|---|---|
| 1    | Does the implementation being submitted for certification support the capabilities outlined in the DUT Implementation Limits section of the OpenADR 2.0b Test Specification documentation? Note that these limits do not imply minimum market needs for a “b” profile implementation. | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 2    | Does the implementation being submitted for certification support methodologies necessary to trigger specific actions during test execution as outlined in the DUT Configuration Requirements section of the OpenADR 2.0b Test Specification documentation?                           | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 3    | Have you attached documentation to this PICS statement regarding how to configure the implementation as outlined in Appendix A of the OpenADR Certification Test Harness User Guide?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 4    | Does the implementation being submitted for certification have pre-installed x.509 certificates from the OpenADR/NetworkFX portal?  | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 5    | Does the VEN's being submitted for certification must have host authentication of the X.509 client certificate CN field disabled in order to avoid complex reconfiguration of the test harness and Openfire server? Answer No if not testing a VEN                                    | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No |
| 6    | Does the VTN being submitted for certification have the XMPP Server per-configured for the user name of 111111111111 which the test harness uses to connect to the implementation's VTN XMPP server. Answer No if not testing a VTN or XMPP is not supported                          | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |
| 7)   | Does the VTN being offer reports as part of its metadata report. If so, periodic reporting will be tested. Answer No if not testing a VTN or no reports are supported   | <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No |

## Optional Test Case Guidelines

Following test cases may be skipped if the criterion noted is met.

| Item | Criteria  |                        |
|------|---|------------------------|
| 1    | Implementations will support either a push and/or pull exchange model. XMPP is always push, whereas HTTP may be either push or pull. Test cases are listed within Eclipse in a tree with branches labels Push or Pull. Only test cases appropriate to the exchange models supported should be run on the implementation.  | Http pull is supported |
| 2    | If the implementation supports multiple transport and exchange model combinations, the full test suite shall be run across at least one push and one pull configuration. If there is more than one push configuration, then at least 4 non-negative randomly selected test cases shall be run across each service, with execution of the G0_9005_TH_xxx/G0_9010_TH_xxx security test being mandatory as part of the test cases run. | Not supported          |
| 3    | The following test cases may be skipped if HISTORY_USAGE reporting is not supported by a full function VEN. However, Report Only VENs must pass these test cases.<br><br>_R1_3130_TH_VTN<br>_R0_8130_TH_VTN<br>_R1_3140_TH_VTN<br>_R0_8140_TH_VTN   | Not supported          |
| 4    | If the implementation is a Report Only VEN, then all of the tests under the EiEvent and EiOpt service headings may be skipped as these services are not required.   | Not supported          |
| 5    | If the answer to question 7 in the Implementation Capabilities and Configuration section is No and the implementation is a VTN, the following test cases may be skipped:<br><br>R1_3080_TH_VEN<br>R1_3090_TH_VEN<br>R1_3100_TH_VEN<br>R1_3120_TH_VEN<br>R1_8080_TH_VEN<br>R1_8090_TH_VEN<br>R1_8100_TH_VEN<br>R1_8120_TH_VEN  | Not supported          |
| 6    | If the VTN cannot send an Empty oadrDistributeEvent skip test case E0_6010_TH_VEN   | Not supported          |
| 7    | If the VTN cannot be configured to set oadrResponseRequired to never skip test cases A_E2_0468, A_E2_0480, A_E2_0498,   | Not supported          |



|    |   |                  |
|----|---|------------------|
|    | A_E3_0468, A_E3_0480, and A_E3_0498   |                  |
| 8  | If VEN cannot be configure with multiple Market Context, skip test case A_E1_0285 and A_E0_0285   | <b>Supported</b> |
| 9  | If the VTN cannot set a ramp up period skip test cases A_E2_0527 and A_E3_0527  | Not supported    |
| 10 | If the VTN cannot configure multiple intervals in an event skip test case A_E2_0432 and A_E3_0432   | Not supported    |
| 11 | If a VTN cannot set an event's priority skip test case A_E2_0510, A_E3_0510, A_E2_0520, and A_E3_0520   | Not supported    |
| 12 | If the VTN does not support configuration of eiTarget subelements, skip test case A_E3_0435 and A_E2_0435.  | Not supported    |
| 13 | If the VTN does not support configuration of randomization with a startafter element skip test cases A_E2_0685 and A_E3_0685.   | Not supported    |
| 14 | If the VEN cannot be configured to request reports from VTN skip test case R1_3070_TH_VTN_1, R0_8070_TH_VTN_1, R1_3080_TH_VTN_1, R0_8080_TH_VTN_1, R1_3090_TH_VTN_1, R0_8090_TH_VTN_1, R1_3100_TH_VTN_1, R0_8100_TH_VTN_1, R1_3120_TH_VTN_1 and R0_8120_TH_VTN. | Not supported    |
| 15 | If the VTN or VEN cannot be configured to send piggy back report requests and report cancellation payloads skip test cases R1_3050_TH_VEN, R0_8050_TH_VEN_1, R1_3060_TH_VEN, R0_8060_TH_VEN, R1_3120_TH_VTN_1 and R0_8120_TH_VTN.                               | Not supported    |
| 16 | Test cases E1_1050_TH_VTN and E1_6050_TH_VTN may be skipped the VEN cannot configured to send an async oadrRequestEvent as required by this test case.  | Not supported    |