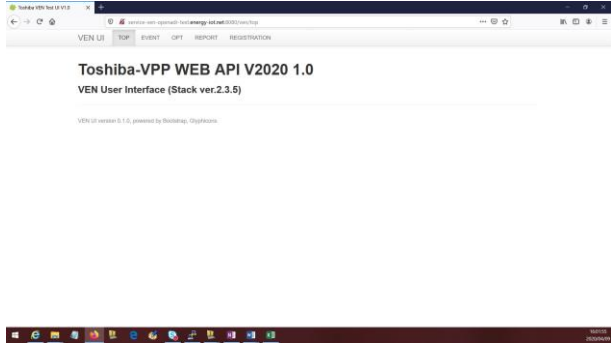


| | | | | | |
|---|--|---|--|---|----------------------------------|
| Prüfbericht-Nr.: Test Report No.: | 50349634 001 | Auftrags-Nr.: Order No.: | 150128691 | Seite 1 von of 11 Page 1 von of 11 | |
| Kunden Referenz-Nr.: Client Reference No.: | N/A | Auftragsdatum: Order date: | 2020-03-05 | | |
| Auftraggeber: Client: | Toshiba Energy Systems & Solutions Corporation 72-34, Horikawa-cho, Saiwai-ku, Kawasaki 212-8585, Japan | | | | |
| Gegenstand der Prüfung: Test item: | TOSHIBA-VPP WEB API | | | | |
| Bezeichnung / Typ-Nr.: Identification / Type No.: | V2020 | | | | |
| Auftrags-Inhalt: Order content: | OpenADR Certification Test (Pickup test for similar products) | | | | |
| Prüfgrundlage: Test specification: | OpenADR 2.0b Certification Test Specification Version 1.1.4 | | | | |
| Wareneingangsdatum: Date of receipt: | N/A |  | | | |
| Prüfmuster-Nr.: Test sample No.: | N/A | | | | |
| Prüfzeitraum: Testing period: | 2020-04-09 | | | | |
| Ort der Prüfung: Place of testing: | TÜV Rheinland Japan Ltd. 3-19-5 Shin-Yokohama, Kohoku-ku Yokohama 222-0033, Japan | | | | |
| Prüflaboratorium: Testing laboratory: | TÜV Rheinland Japan Ltd. | | | | |
| Prüfergebnis: Test results: | The test item passed the test specification(s). | | | | |
| Geprüft von Tested by: | Kontrolliert von Reviewed by: | | | | |
| 2020-04-14 Atsuhiko Endo | 2020-04-14 Tam Tran Thanh | | | | |
| Datum Date | Name / Stellung Name / Position | Unterschrift Signature | Datum Date | Name / Stellung Name / Position | Unterschrift Signature |
| Sonstiges / Other Aspects: | | | | | |
| A pickup test was performed because the customer declared that TOSHIBA-VPP WEB API was a similar product to the TOSHIBA-VPP. The standard test report is 50194211 001. | | | | | |
| Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery: | | | Prüfmuster vollständig und unbeschädigt Test item complete and undamaged | | |
| <p>*Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specification(s) F(ail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested</p> | | | | | |
| <p>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark</p> | | | | | |

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1 General Product Information

1.1 Client Information

Company Name: see page 1
Address: see page 1
Contact Person: Takuya Hongu
Phone: +81-44-331-1531
E-mail: takuya.hongu@toshiba.co.jp

1.2 General SUT Information

The system under test is software implementation of OpenADR protocol installed on Cloud.

Serial Number: N/A
Hardware Version: N/A
Firmware version: 1.0

1.3 General EUT Description

Equipment under test: see page 1

1.4 Profile

Product type: VEN
OpenADR profile: 2.0b
Mode: Pull, Push
Transport: Simple HTTP, XMPP
Security: Standard Security

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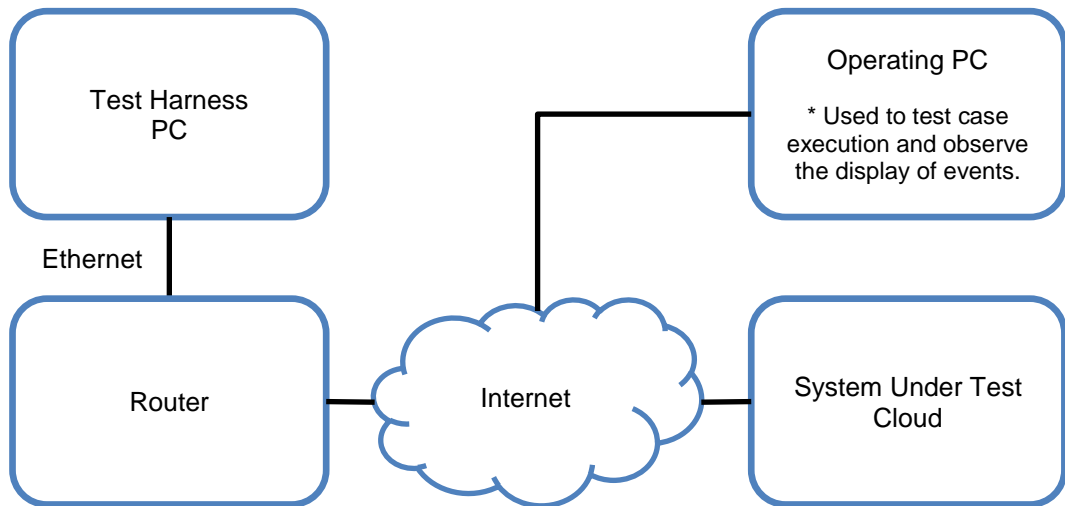
2 Testing Laboratory

Company name: TÜV Rheinland Japan Ltd.
Address: see page 1

2.1 Test Equipment

| Equipment ID | Model Product name | Manufacture | Category | Version |
|--------------|-------------------------------|--------------|----------|---------|
| 1800528 | OpenADR Test Harness for 2.0b | QualityLogic | Software | 1.1.4 |

2.2 Test Setup



3 Information about Test Results

3.1 General

Documentation of tested devices and results:

The complete set of measurement results is stored at the TÜV Rheinland Japan Ltd. test laboratory and is available on demand.

Interpretation of test results:

The results of the inspection are described on the following pages. "Pass" in the test result list of this test report means the performed test according to the test specification was verified and that the tested device is conformant to the specification. "Fail" means that the performed test according to the test specification was verified and the tested device is not conformant to the specification or that test didn't run to completion because the tested device is not conformant to the specification. "N/A" means the test cases are optional and/or not applicable to the tested device.

4 Test Results

4.1 VEN Pull Pickup Tests

4.1.1 EiRegisterParty Service

| No. | Test Case Name | Date | Result |
|-----|------------------|-------------|--------|
| 01 | N1_0020_TH_VTN_1 | Apr 09 2020 | PASS |
| 02 | N1_0030_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | N1_0040_TH_VTN_1 | Apr 09 2020 | PASS |

4.1.2 EiOpt Service

| No. | Test Case Name | Date | Result |
|-----|---------------------|-------------|--------|
| 01 | P1_2020_TH_VTN_1(*) | Apr 09 2020 | PASS |
| 02 | P1_2040_TH_VTN_1 | Apr 09 2020 | PASS |

(*) See "5 Remarks and References"

4.1.3 EiReport Service

| No. | Test Case Name | Date | Result |
|-----|------------------|-------------|--------|
| 01 | R1_3030_TH_VTN_1 | Apr 09 2020 | PASS |
| 02 | R1_3040_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | R1_3045_TH_VTN_1 | Apr 09 2020 | PASS |
| 04 | R1_3130_TH_VTN_1 | Apr 09 2020 | PASS |
| 05 | R1_3160_TH_VTN_1 | Apr 09 2020 | PASS |
| 06 | R1_3170_TH_VTN_1 | Apr 09 2020 | PASS |
| 07 | R1_3180_TH_VTN_1 | Apr 09 2020 | PASS |

4.1.4 EiEvent Service

| No. | Test Case Name | Date | Result |
|-----|---------------------|-------------|--------|
| 01 | E1_1020_TH_VTN_1(*) | Apr 09 2020 | PASS |
| 02 | E1_1025_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | E1_1030_TH_VTN_1 | Apr 09 2020 | PASS |
| 04 | E1_1055_TH_VTN_1 | Apr 09 2020 | PASS |
| 05 | E1_1060_TH_VTN_1 | Apr 09 2020 | PASS |
| 06 | E1_1090_TH_VTN_1 | Apr 09 2020 | PASS |

(*) See "5 Remarks and References"

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4.1.5 EiEvent Ported A Profile

| No. | Test Case Name | Date | Result |
|-----|--------------------|-------------|--------|
| 01 | A_E1_0180_TH_VTN_1 | Apr 09 2020 | PASS |
| 02 | A_E1_0262_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | A_E1_0267_TH_VTN_1 | Apr 09 2020 | PASS |
| 04 | A_E1_0270_TH_VTN_1 | Apr 09 2020 | PASS |

4.1.6 General Tests

| No. | Test Case Name | Date | Result |
|-----|------------------|-------------|--------|
| 01 | G1_4005_TH_VTN_1 | Apr 09 2020 | PASS |
| 02 | G1_4007_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | G1_4010_TH_VTN_1 | Apr 09 2020 | PASS |
| 04 | G1_4030_TH_VTN_1 | Apr 09 2020 | PASS |

4.2 VEN Push Pickup Tests

4.2.1 EiRegisterParty Service

| No. | Test Case Name | Date | Result |
|-----|------------------|-------------|--------|
| 01 | N0_5020_TH_VTN_1 | Apr 09 2020 | PASS |
| 02 | N0_5030_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | N0_5040_TH_VTN | Apr 09 2020 | PASS |

4.2.2 EiOpt Service

| No. | Test Case Name | Date | Result |
|-----|---------------------|-------------|--------|
| 01 | P0_7020_TH_VTN_1(*) | Apr 09 2020 | PASS |
| 02 | P0_7040_TH_VTN_1 | Apr 09 2020 | PASS |

(*) See "5 Remarks and References"

4.2.3 EiReport Service

| No. | Test Case Name | Date | Result |
|-----|----------------|-------------|--------|
| 01 | R0_8030_TH_VTN | Apr 09 2020 | PASS |
| 02 | R0_8040_TH_VTN | Apr 09 2020 | PASS |
| 03 | R0_8045_TH_VTN | Apr 09 2020 | PASS |
| 04 | R0_8130_TH_VTN | Apr 09 2020 | PASS |
| 05 | R0_8160_TH_VTN | Apr 09 2020 | PASS |
| 06 | R0_8170_TH_VTN | Apr 09 2020 | PASS |
| 07 | R0_8180_TH_VTN | Apr 09 2020 | PASS |

4.2.4 EiEvent Service

| No. | Test Case Name | Date | Result |
|-----|-------------------|-------------|--------|
| 01 | E0_6020_TH_VTN(*) | Apr 09 2020 | PASS |
| 02 | E0_6025_TH_VTN | Apr 09 2020 | PASS |
| 03 | E0_6030_TH_VTN | Apr 09 2020 | PASS |
| 04 | E0_6055_TH_VTN | Apr 09 2020 | PASS |
| 05 | E0_6060_TH_VTN | Apr 09 2020 | PASS |
| 06 | E0_6090_TH_VTN | Apr 09 2020 | PASS |

(*) See "5 Remarks and References"

4.2.5 EiEvent Ported A Profile

| No. | Test Case Name | Date | Result |
|-----|--------------------|-------------|--------|
| 01 | A_E0_0180_TH_VTN_1 | Apr 09 2020 | PASS |
| 02 | A_E0_0262_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | A_E0_0267_TH_VTN_1 | Apr 09 2020 | PASS |
| 04 | A_E0_0270_TH_VTN_1 | Apr 09 2020 | PASS |

4.2.6 General Tests

| No. | Test Case Name | Date | Result |
|-----|----------------|-------------|--------|
| 01 | G0_9005_TH_VTN | Apr 09 2020 | PASS |
| 02 | G0_9010_TH_VTN | Apr 09 2020 | PASS |
| 03 | G0_9030_TH_VTN | Apr 09 2020 | PASS |

4.2.7 XMPP Tests

| No. | Test Case Name | Date | Result |
|-----|------------------|-------------|--------|
| 01 | N0_5020_TH_VTN_1 | Apr 09 2020 | PASS |
| 02 | N0_5030_TH_VTN_1 | Apr 09 2020 | PASS |
| 03 | P0_7040_TH_VTN_1 | Apr 09 2020 | PASS |
| 04 | R0_8030_TH_VTN | Apr 09 2020 | PASS |
| 05 | E0_6030_TH_VTN | Apr 09 2020 | PASS |
| 06 | G0_9005_TH_VTN | Apr 09 2020 | PASS |
| 07 | G0_9010_TH_VTN | Apr 09 2020 | PASS |

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5 Remarks and References

Test Items (P0_7020, P1_2020, E0_6020, E1_1020) are tested in G0_9030 / G1_4030. (not tested separately)

Log files for the executed test cases are provided in the electronic format.

List of all executed tests with links to the log files is located in the "logfile.html" which could be opened in any web-browser.

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6 Photos

VEN UI TOP EVENT OPT REPORT REGISTRATION

Toshiba-VPP WEB API V2020 1.0

VEN User Interface (Stack ver.2.3.5)

Photo 1: FW Version

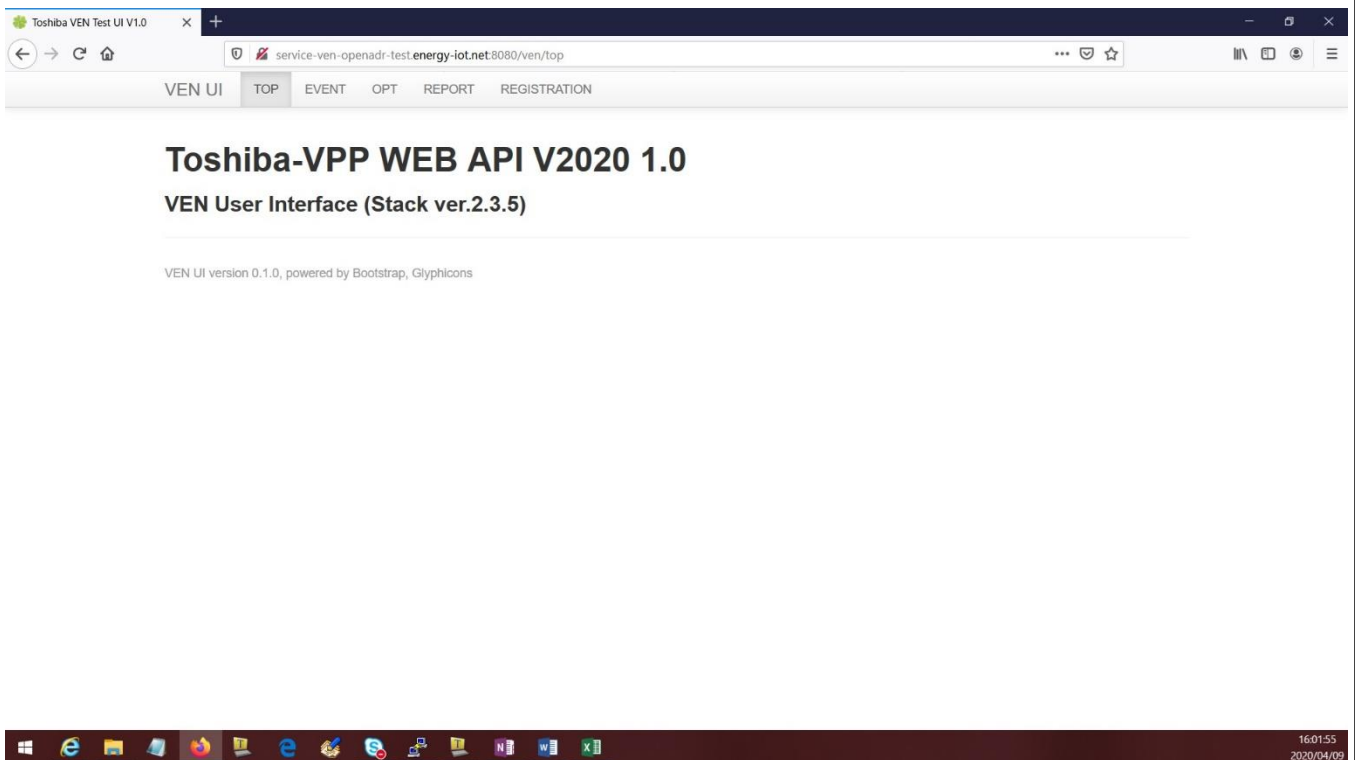


Photo 2: System screen capture