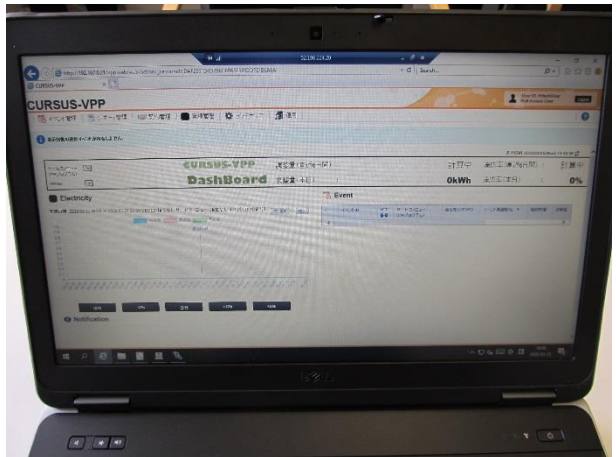


Prüfbericht-Nr.: Test Report No.:	50342721 002	Auftrags-Nr.: Order No.:	150126513	Seite 1 von of 16 Page 1 von of 16
Kunden Referenz-Nr.: Client Reference No.:	N/A	Auftragsdatum: Order date:	2020-02-07	
Auftraggeber: Client:	Hitachi, Ltd. Hitachi Omori 2nd Bldg.,27-18, Minami Oi 6-chome,Sinagawa-ku,Tokyo,140-8572 Japan			
Gegenstand der Prüfung: Test item:	Hitachi-VPP-VEN			
Bezeichnung / Typ-Nr.: Identification / Type No.:	Hitachi-VPP-VEN			
Auftrags-Inhalt: Order content:	OpenADR Certification Test			
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:	2020-03-16 ~ 2020-03-25			
Ort der Prüfung: Place of testing:	TÜV Rheinland Japan Ltd. 3-19-5 Shin-Yokohama, Kouhoku-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:			
2020-04-03	Atsuhiko Endo	2020-04-03	Tam Tran Thanh	
Datum Date	Name / Stellung Name / Position	Unterschrift Signature	Datum Date	Name / Stellung Name / Position
				Unterschrift Signature
Sonstiges / Other Aspects:				
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>				

Contents

1	General Product Information	3
1.1	Client Information	3
1.2	General SUT Information	3
1.3	General EUT Description	3
1.4	Profile	3
2	Testing Laboratory	4
2.1	Test Equipment	4
2.2	Test Setup	4
3	Information about Test Results	5
3.1	General	5
4	Test Results	6
4.1	Profile 2.0b	6
4.1.1	VEN Pull Tests	6
4.1.1.1	EiRegisterParty Service	6
4.1.1.2	EiOpt Service	6
4.1.1.3	EiReport Service	7
4.1.1.4	EiEvent Service	7
4.1.1.5	EiEvent Ported A Profile	8
4.1.1.6	General Tests	9
4.1.2	VEN Push Tests	10
4.1.2.1	EiRegisterParty Service	10
4.1.2.2	EiOpt Service	10
4.1.2.3	EiReport Service	11
4.1.2.4	EiEvent Service	11
4.1.2.5	EiEvent Ported A Profile	12
4.1.2.6	General Tests	13
4.1.2.7	XMPP Tests	13
5	Remarks and References	14
6	Photos	15

1 General Product Information

1.1 Client Information

Company Name: see page 1
Address: see page 1
Contact Person: Shumpei Yamashita
Phone: +81-70-7027-4302
E-mail: shumpei.yamashita.qm@hitachi.com

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: 02-01

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

Prüfbericht-Nr.:
Test Report No.:

50342721 002

Auftrags-Nr.:
Order No.:

150126513

Seite 4 von of 16
Page 4 von of 16

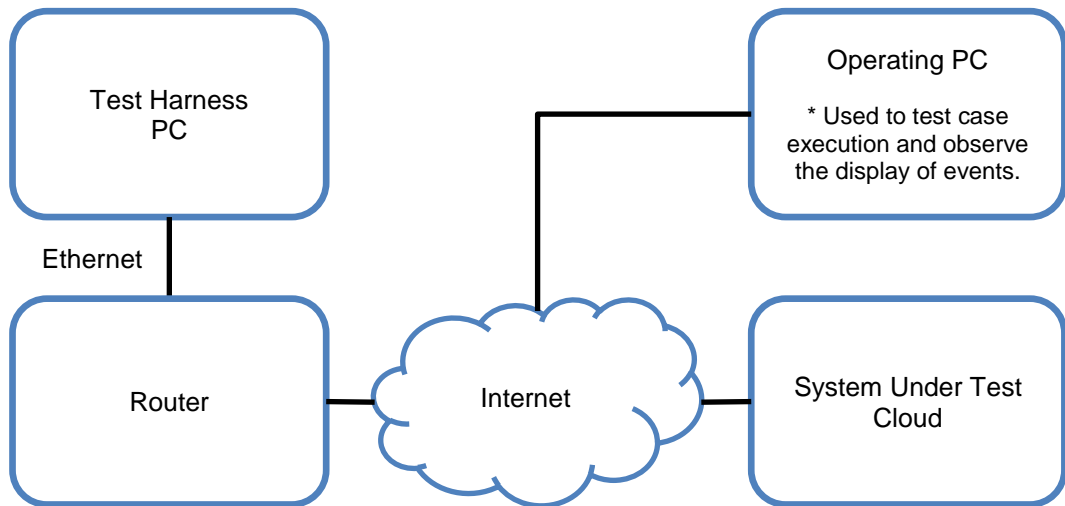
2 Testing Laboratory

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 Profile 2.0b

4.1.1 VEN Pull Tests

4.1.1.1 EiRegisterParty Service

No.	Test Case Name	Date	Result
01	N1_0010_TH_VTN_1	Mar 17 2020	PASS
02	N1_0015_TH_VTN_1	Mar 17 2020	PASS
03	N1_0020_TH_VTN_1	Mar 17 2020	PASS
04	N1_0025_TH_VTN_1	Mar 17 2020	PASS
05	N1_0030_TH_VTN_1	Mar 17 2020	PASS
06	N1_0040_TH_VTN_1	Mar 17 2020	PASS
07	N1_0050_TH_VTN_1	Mar 24 2020	PASS
08	N1_0060_TH_VTN_1	Mar 17 2020	PASS
09	N1_0065_TH_VTN_1	Mar 17 2020	PASS
10	N1_0070_TH_VTN_1	Mar 17 2020	PASS
11	N1_0080_TH_VTN_1	N/A	N/A

4.1.1.2 EiOpt Service

No.	Test Case Name	Date	Result
01	P1_2010_TH_VTN_1	Mar 18 2020	PASS
02	P1_2015_TH_VTN_1	Mar 18 2020	PASS
03	P1_2020_TH_VTN_1	Mar 18 2020	PASS
04	P1_2030_TH_VTN_1	Mar 18 2020	PASS
05	P1_2040_TH_VTN_1	Mar 18 2020	PASS
06	P1_2050_TH_VTN_1	N/A	N/A

Prüfbericht-Nr.:
Test Report No.:

50342721 002

Auftrags-Nr.:
Order No.: 150126513

Seite 7 von of 16
Page 7 von of 16

4.1.1.3 EiReport Service

No.	Test Case Name	Date	Result
01	R1_3010_TH_VTN_1	Mar 18 2020	PASS
02	R1_3020_TH_VTN_1	Mar 18 2020	PASS
03	R1_3025_TH_VTN_1	Mar 25 2020	PASS
04	R1_3027_TH_VTN_1	Mar 18 2020	PASS
05	R1_3030_TH_VTN_1	Mar 18 2020	PASS
06	R1_3040_TH_VTN_1	Mar 18 2020	PASS
07	R1_3045_TH_VTN_1	Mar 18 2020	PASS
08	R1_3050_TH_VTN_1	Mar 18 2020	PASS
09	R1_3060_TH_VTN_1	Mar 18 2020	PASS
10	R1_3070_TH_VTN_1	N/A	N/A
11	R1_3080_TH_VTN_1	N/A	N/A
12	R1_3090_TH_VTN_1	N/A	N/A
13	R1_3100_TH_VTN_1	N/A	N/A
14	R1_3120_TH_VTN_1	N/A	N/A
15	R1_3130_TH_VTN_1	Mar 18 2020	PASS
16	R1_3150_TH_VTN_1	Mar 18 2020	PASS
17	R1_3160_TH_VTN_1	Mar 18 2020	PASS
18	R1_3170_TH_VTN_1	Mar 18 2020	PASS
19	R1_3180_TH_VTN_1	Mar 18 2020	PASS
20	R1_3190_TH_VTN_1	Mar 18 2020	PASS

4.1.1.4 EiEvent Service

No.	Test Case Name	Date	Result
01	E1_1010_TH_VTN_1	Mar 18 2020	PASS
02	E1_1020_TH_VTN_1	Mar 18 2020	PASS
03	E1_1025_TH_VTN_1	Mar 18 2020	PASS
04	E1_1027_TH_VTN_1	Mar 18 2020	PASS
05	E1_1030_TH_VTN_1	Mar 18 2020	PASS
06	E1_1040_TH_VTN_1	Mar 18 2020	PASS
07	E1_1050_TH_VTN_1	N/A	N/A
08	E1_1055_TH_VTN_1	Mar 18 2020	PASS
09	E1_1060_TH_VTN_1	Mar 18 2020	PASS
10	E1_1065_TH_VTN_1	N/A	N/A
11	E1_1070_TH_VTN_1	Mar 18 2020	PASS
12	E1_1080_TH_VTN_1	Mar 18 2020	PASS
13	E1_1090_TH_VTN_1	Mar 18 2020	PASS

Prüfbericht-Nr.:
Test Report No.:

50342721 002

Auftrags-Nr.:
Order No.: 150126513

Seite 8 von of 16
Page 8 von of 16

4.1.1.5 EiEvent Ported A Profile

No.	Test Case Name	Date	Result
01	A_E1_0020_TH_VTN_1	Mar 18 2020	PASS
02	A_E1_0040_TH_VTN_1	Mar 18 2020	PASS
03	A_E1_0060_TH_VTN_1	Mar 18 2020	PASS
04	A_E1_0070_TH_VTN_1	Mar 18 2020	PASS
05	A_E1_0082_TH_VTN_1	Mar 18 2020	PASS
06	A_E1_0086_TH_VTN_1	Mar 18 2020	PASS
07	A_E1_0090_TH_VTN_1	Mar 18 2020	PASS
08	A_E1_0092_TH_VTN_1	Mar 18 2020	PASS
09	A_E1_0094_TH_VTN_1	Mar 18 2020	PASS
10	A_E1_0096_TH_VTN_1	Mar 18 2020	PASS
11	A_E1_0098_TH_VTN_1	Mar 18 2020	PASS
12	A_E1_0100_TH_VTN_1	Mar 18 2020	PASS
13	A_E1_0102_TH_VTN_1	Mar 18 2020	PASS
14	A_E1_0104_TH_VTN_1	Mar 18 2020	PASS
15	A_E1_0110_TH_VTN_1	Mar 18 2020	PASS
16	A_E1_0130_TH_VTN_1	Mar 18 2020	PASS
17	A_E1_0180_TH_VTN_1	Mar 18 2020	PASS
18	A_E1_0190_TH_VTN_1	Mar 18 2020	PASS
19	A_E1_0200_TH_VTN_1	Mar 18 2020	PASS
20	A_E1_0210_TH_VTN_1	Mar 18 2020	PASS
21	A_E1_0220_TH_VTN_1	Mar 18 2020	PASS
22	A_E1_0230_TH_VTN_1	Mar 18 2020	PASS
23	A_E1_0240_TH_VTN_1	Mar 18 2020	PASS
24	A_E1_0250_TH_VTN_1	Mar 18 2020	PASS
25	A_E1_0260_TH_VTN_1	Mar 18 2020	PASS
26	A_E1_0262_TH_VTN_1	Mar 18 2020	PASS
27	A_E1_0267_TH_VTN_1	Mar 18 2020	PASS
28	A_E1_0268_TH_VTN_1	Mar 18 2020	PASS
29	A_E1_0270_TH_VTN_1	Mar 19 2020	PASS
30	A_E1_0280_TH_VTN_1	Mar 19 2020	PASS
31	A_E1_0285_TH_VTN_1	Mar 19 2020	PASS
32	A_E1_0300_TH_VTN_1	Mar 19 2020	PASS
33	A_E1_0310_TH_VTN_1	Mar 19 2020	PASS
34	A_E1_0340_TH_VTN_1	Mar 19 2020	PASS
35	A_E1_0345_TH_VTN_1	Mar 19 2020	PASS
36	A_E1_0360_TH_VTN_1	Mar 19 2020	PASS
37	A_E1_0370_TH_VTN_1	Mar 19 2020	PASS
38	A_E1_0390_TH_VTN_1	Mar 19 2020	PASS
39	A_E1_0392_TH_VTN_1	Mar 19 2020	PASS

Prüfbericht-Nr.:
Test Report No.:

50342721 002

Auftrags-Nr.:
Order No.: 150126513

Seite 9 von of 16
Page 9 von of 16

4.1.1.6 General Tests

No.	Test Case Name	Date	Result
01	G1_4005_TH_VTN_1	Mar 19 2020	PASS
02	G1_4007_TH_VTN_1	Mar 19 2020	PASS
03	G1_4010_TH_VTN_1	Mar 19 2020	PASS
04	G1_4011_TH_VTN_1	N/A	N/A
05	G1_4012_TH_VTN_1	N/A	N/A
06	G1_4015_TH_VTN_1	Mar 19 2020	PASS
07	G1_4030_TH_VTN_1	Mar 19 2020	PASS

4.1.2 VEN Push Tests

4.1.2.1 EiRegisterParty Service

No.	Test Case Name	Date	Result
01	N0_5010_TH_VTN_1	Mar 16 2020	PASS
02	N0_5015_TH_VTN_1	Mar 16 2020	PASS
03	N0_5020_TH_VTN_1	Mar 16 2020	PASS
04	N0_5025_TH_VTN_1	Mar 16 2020	PASS
05	N0_5030_TH_VTN_1	Mar 16 2020	PASS
06	N0_5040_TH_VTN	Mar 16 2020	PASS
07	N0_5050_TH_VTN	Mar 16 2020	PASS
08	N0_5060_TH_VTN_1	Mar 16 2020	PASS
09	N0_5065_TH_VTN_1	Mar 16 2020	PASS
10	N0_5070_TH_VTN_1	Mar 16 2020	PASS
11	N0_5080_TH_VTN_1	Mar 16 2020	PASS

4.1.2.2 EiOpt Service

No.	Test Case Name	Date	Result
01	P0_7010_TH_VTN_1	Mar 16 2020	PASS
02	P0_7015_TH_VTN_1	Mar 16 2020	PASS
03	P0_7020_TH_VTN_1	Mar 16 2020	PASS
04	P0_7030_TH_VTN_1	Mar 16 2020	PASS
05	P0_7040_TH_VTN_1	Mar 16 2020	PASS
06	P0_7050_TH_VTN_1	N/A	N/A

4.1.2.3 EiReport Service

No.	Test Case Name	Date	Result
01	R0_8010_TH_VTN	Mar 16 2020	PASS
02	R0_8020_TH_VTN	Mar 16 2020	PASS
03	R0_8025_TH_VTN	Mar 16 2020	PASS
04	R0_8027_TH_VTN	Mar 16 2020	PASS
05	R0_8030_TH_VTN	Mar 16 2020	PASS
06	R0_8040_TH_VTN	Mar 16 2020	PASS
07	R0_8045_TH_VTN	Mar 16 2020	PASS
08	R0_8050_TH_VTN	Mar 16 2020	PASS
09	R0_8060_TH_VTN_1	Mar 16 2020	PASS
10	R0_8070_TH_VTN_1	N/A	N/A
11	R0_8080_TH_VTN_1	N/A	N/A
12	R0_8090_TH_VTN_1	N/A	N/A
13	R0_8100_TH_VTN_1	N/A	N/A
14	R0_8120_TH_VTN	N/A	N/A
15	R0_8130_TH_VTN	Mar 16 2020	PASS
16	R0_8150_TH_VTN	Mar 16 2020	PASS
17	R0_8160_TH_VTN	Mar 16 2020	PASS
18	R0_8170_TH_VTN	Mar 16 2020	PASS
19	R0_8180_TH_VTN	Mar 16 2020	PASS
20	R0_8190_TH_VTN	Mar 16 2020	PASS

4.1.2.4 EiEvent Service

No.	Test Case Name	Date	Result
01	E0_6010_TH_VTN	Mar 16 2020	PASS
02	E0_6020_TH_VTN	Mar 16 2020	PASS
03	E0_6025_TH_VTN	Mar 16 2020	PASS
04	E0_6027_TH_VTN	Mar 16 2020	PASS
05	E0_6030_TH_VTN	Mar 16 2020	PASS
06	E0_6040_TH_VTN	Mar 16 2020	PASS
07	E0_6050_TH_VTN_1	N/A	N/A
08	E0_6055_TH_VTN	Mar 16 2020	PASS
09	E0_6060_TH_VTN	Mar 16 2020	PASS
10	E0_6065_TH_VTN	N/A	N/A
11	E0_6070_TH_VTN	Mar 16 2020	PASS
12	E0_6080_TH_VTN	Mar 16 2020	PASS
13	E0_6090_TH_VTN	Mar 16 2020	PASS

Prüfbericht-Nr.:
Test Report No.:

50342721 002

Auftrags-Nr.:
Order No.: 150126513

Seite 12 von of 16
Page 12 von of 16

4.1.2.5 EiEvent Ported A Profile

No.	Test Case Name	Date	Result
01	A_E0_0020_TH_VTN_1	Mar 17 2020	PASS
02	A_E0_0040_TH_VTN	Mar 17 2020	PASS
03	A_E0_0060_TH_VTN_1	Mar 17 2020	PASS
04	A_E0_0070_TH_VTN_1	Mar 17 2020	PASS
05	A_E0_0082_TH_VTN_1	Mar 17 2020	PASS
06	A_E0_0086_TH_VTN_1	Mar 17 2020	PASS
07	A_E0_0090_TH_VTN_1	Mar 17 2020	PASS
08	A_E0_0092_TH_VTN_1	Mar 17 2020	PASS
09	A_E0_0094_TH_VTN_1	Mar 17 2020	PASS
10	A_E0_0096_TH_VTN	Mar 17 2020	PASS
11	A_E0_0098_TH_VTN_1	Mar 17 2020	PASS
12	A_E0_0100_TH_VTN_1	Mar 17 2020	PASS
13	A_E0_0102_TH_VTN_1	Mar 17 2020	PASS
14	A_E0_0104_TH_VTN_1	Mar 17 2020	PASS
15	A_E0_0110_TH_VTN_1	Mar 17 2020	PASS
16	A_E0_0130_TH_VTN_1	Mar 17 2020	PASS
17	A_E0_0180_TH_VTN_1	Mar 17 2020	PASS
18	A_E0_0185_TH_VTN_1	Mar 17 2020	PASS
19	A_E0_0190_TH_VTN_1	Mar 17 2020	PASS
20	A_E0_0200_TH_VTN_1	Mar 17 2020	PASS
21	A_E0_0210_TH_VTN_1	Mar 17 2020	PASS
22	A_E0_0220_TH_VTN_1	Mar 17 2020	PASS
23	A_E0_0230_TH_VTN	Mar 17 2020	PASS
24	A_E0_0240_TH_VTN	Mar 17 2020	PASS
25	A_E0_0250_TH_VTN_1	Mar 17 2020	PASS
26	A_E0_0260_TH_VTN_1	Mar 17 2020	PASS
27	A_E0_0262_TH_VTN_1	Mar 17 2020	PASS
28	A_E0_0267_TH_VTN_1	Mar 17 2020	PASS
29	A_E0_0268_TH_VTN_1	Mar 17 2020	PASS
30	A_E0_0270_TH_VTN_1	Mar 17 2020	PASS
31	A_E0_0280_TH_VTN_1	Mar 17 2020	PASS
32	A_E0_0285_TH_VTN_1	Mar 17 2020	PASS
33	A_E0_0300_TH_VTN_1	Mar 17 2020	PASS
34	A_E0_0310_TH_VTN_1	Mar 17 2020	PASS
35	A_E0_0340_TH_VTN_1	Mar 17 2020	PASS
36	A_E0_0345_TH_VTN_1	Mar 17 2020	PASS
37	A_E0_0360_TH_VTN_1	Mar 17 2020	PASS
38	A_E0_0370_TH_VTN_1	Mar 17 2020	PASS
39	A_E0_0390_TH_VTN_1	Mar 17 2020	PASS
40	A_E0_0392_TH_VTN_1	Mar 17 2020	PASS

Prüfbericht-Nr.:
Test Report No.:

50342721 002

Auftrags-Nr.:
Order No.: 150126513

Seite 13 von of 16
Page 13 von of 16

4.1.2.6 General Tests

No.	Test Case Name	Date	Result
01	G0_9005_TH_VTN	Mar 17 2020	PASS
02	G0_9010_TH_VTN	Mar 17 2020	PASS
03	G0_9030_TH_VTN	Mar 17 2020	PASS

4.1.2.7 XMPP Tests

No.	Test Case Name	Date	Result
01	N0_5020_TH_VTN_1	Mar 19 2020	PASS
02	N0_5030_TH_VTN_1	Mar 19 2020	PASS
03	P0_7040_TH_VTN_1	Mar 19 2020	PASS
04	R0_8030_TH_VTN	Mar 19 2020	PASS
05	E0_6030_TH_VTN	Mar 19 2020	PASS
06	G0_9005_TH_VTN	Mar 19 2020	PASS
07	G0_9010_TH_VTN	Mar 19 2020	PASS

Prüfbericht-Nr.:
Test Report No.:

50342721 002

Auftrags-Nr.:
Order No.:

150126513

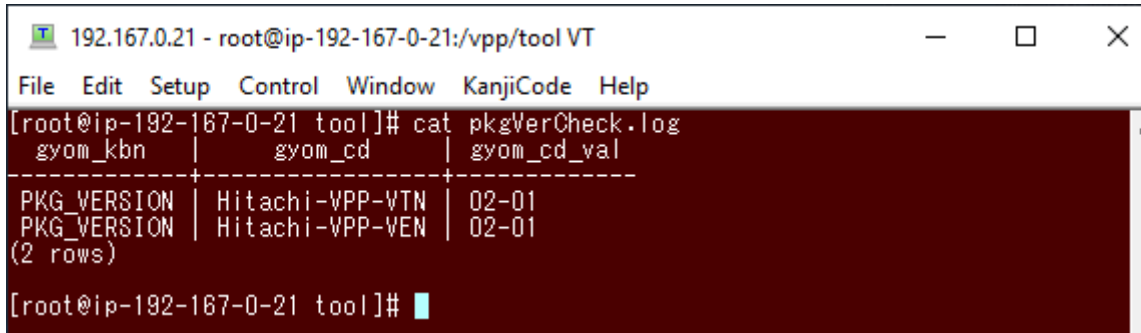
Seite 14 von of 16
Page 14 von of 16

5 Remarks and References

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.

6 Photos



```
192.167.0.21 - root@ip-192-167-0-21:/vpp/tool VT
File Edit Setup Control Window KanjiCode Help
[root@ip-192-167-0-21 tool]# cat pkgVerCheck.log
gyom_kbn | gyom_cd | gyom_cd_val
-----
PKG_VERSION | Hitachi-VPP-VTN | 02-01
PKG_VERSION | Hitachi-VPP-VEN | 02-01
(2 rows)
[root@ip-192-167-0-21 tool]#
```

Photo 1: FW Version



Photo 2: Operating PC



Photo 3: Test Setup