

<Readme for PROFINET Tests

The goal of this test bundle is to have all the necessary documents and test systems for RT and IRT, device and controller and Security Level 1 (Net Load) combined in one bundle with all the electronic test cases to be performed during a certification test. It covers PROFInergy, too.

The specification and test tool for GSDML, the ART/ETS tester, test description and tester for net load / security level 1 and also the PI Guidelines shall be used for all versions of the test.

The name of the folder in which the test case specification can be found shall be interpreted in the following way.

- **automated:** here the tests are described that are fully automated within the test system.
- **not automated:** here the test case specifications can be found that have to be executed and checked manually. These manual tests shall be done in the following way: you use the log file or the network recordings and check it according to the standard, the TCS, the relevant guidelines and the GSD entries.
- **future:** here the test case specifications can be found that will get automated in a future test system and needs not to be tested with this version of the test system.

Certification test in a PITL shall be done with an official released version of the test bundle (see “Versions for Certification”). If there is found a problem in the test system and a Beta, Release Candidate (RC) or a weekly build has solved this problem, you do the (re-)test of the **affected test cases (and only the affected ones!)** with the new Beta, Release Candidate or weekly build.

This bundle is intended to be used for development support. It does not substitute a certification test and a certificate!

There is no certification test for CC-D / TSN / RSI available with this bundle. These functionalities are only available for TRIAL purposes / development support.

Important Hints:

For preparation of a certification test please read the document “How to get a PN certificate”.

The usage of software and/or documentation of this bundle implies the agreement to the license conditions (see “**Disclaimer PN Test Bundle.pdf**”).

Support and Bug Report:

If you have any question, please contact the test lab (PITL) where you intend to perform the certification test or the supplier of the PROFINET ASIC/stack you are using. If you are still faced with severe problems of the installation and execution of the test tools out of the test system, please send an e-mail to:

PN-TS-Support@oth-aw.de

How to apply for the Certification Test:

Please read the test specification for applying a certification test.

To obtain an application contract please contact the test lab (PITL). The actual list of PITLs with the internet addresses is available on

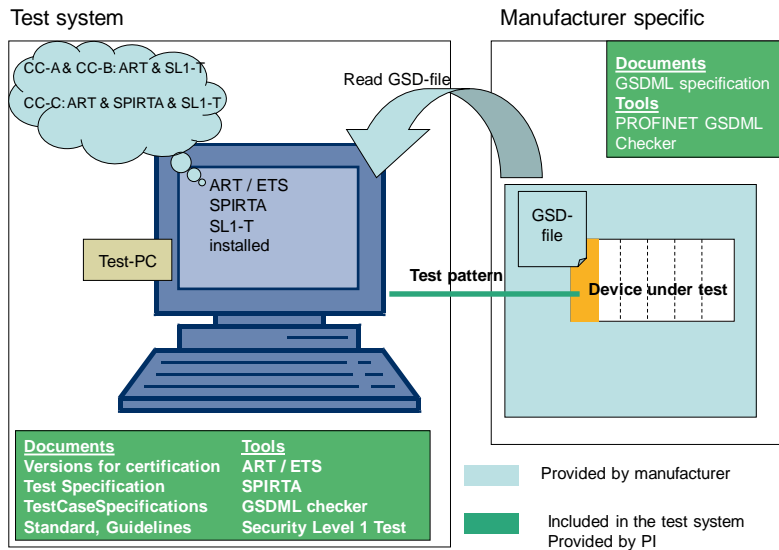
www.profinet.com

Versions for Certification

Type of bundle	Name of bundle	Version Testspec	Version Testcases	tested area	Tester electronic TCs	Version Standard/ Guideline (PNO/PI)	tested functionality	BOT (first day for "application for certification test")	EOT (last day for "application for certification test")	Real stop for certification	GSD-Version
Certification Bundle	Yearly release of certification bundle	V2.44 June 2023	included in Test bundle August 2023	RT, IRT, device & controller	ETS/ART V2.44.1.2 Spirta V2.44.1.0001	V2.4 MU4	PNIO_Version V2.42, V2.43, V2.44 CC-D & RSI not tested, no IRT controller tests	2023-08-24	2024-11-30	31.05.2025 EOT + 6 months	V2.42 / V2.43 / V2.44
				Net Load SL 1 T	Installer test system V2.43.0.0 and TIA V18 engineering	Netload Robustness (Security Level 1) V2.0	NetLoadClass I, II and III				
				energy saving	integrated in ETS/ART	PROFenergy V1.3 MU1	PROFenergy V1.2, V1.3 MU1				
Innovation Bundle	APL Device	V2.43.3 March 2023	included in innovation bundle May 2023	RT device over APL	ETS/ART V2.44.0.2	V2.4 MU3	PNIO_Version V2.43 for APL devices (single port)	2023-05-10	2023-08-23	2023-11-30 EOT + 3 months	V2.43

Certification Bundle	Yearly release of certification bundle	V2.43 Feb. 2022	included in Test bundle July 2022	RT, IRT, device & controller	ETS/ART V2.43.1.2 Spirta V2.43.1.0002	V2.4 MU3	PNIO_Version V2.41, V2.42, V2.43 <u>CC-D & RSI not tested, no IRT controller tests no APL test, no PA V4 test</u>	2022-08-17	2023-11-30	31.05.2024 EOT + 6 months	V2.41 / V2.42 / V2.43
				Net Load SL 1 T	Installer test system V2.43.0.0 and TIA V17 engineering	Netload Robustness (Security Level 1) V2.0	NetLoadClass I, II and III				
				energy saving	integrated in ETS/ART	PROFenergy V1.3 MU1	PROFenergy V1.2, V1.3 MU1				

Overview test strategy:



Helpful Tools:

PRONETA you can download at: <http://support.automation.siemens.com/WW/view/en/67460624>

Use of the PROFINET trademark, test and certification

PNO is entitled to grant licenses in respect of the trademark "PROFINET" (word formation trademark) applied for in the Federal Republic of Germany and in respect of all corresponding applications and/or registrations outside Germany (referred to hereinafter collectively as "TRADEMARK").

The Member is entitled, following certification of its equipment by PNO, to use the TRADEMARK on such certified equipment, relevant documentation, promotional material etc.

In order to obtain such a certificate, the Member must have its equipment put through a certification test at a test laboratory accredited by PNO.

Once the certification test has been passed to the satisfaction of PNO, PNO shall issue certification to the Member.

The Member shall not in any country initiate any applications in respect of the TRADEMARK or any other trademarks that might be mistaken for it.

If the Member is intending to sell his certified products in countries in which PNO has no trademark application or registration, the parties shall agree upon which party shall bear the costs arising from such applications.

It is understood that this agreement does not provide the Member with any right in respect of the Trademark other than that of using the TRADEMARK in accordance with the provisions of this agreement, and that the Member shall not, out of use of the TRADEMARK, derive any claims against PNO.

Numbering Ranges of Test Case Specifications

00000001 to 00001023 for RT device testing and common testing, including PE and PS profile tests.

00001024 to 00002047 for IRT device testing.

00002048 to 00003071 for Topology check.

00003072 to 00004095 for TSN testing.

00004096 to 00005119 for RT controller testing.

00005120 to 00006143 for IRT controller testing.

00006144 to 00007167 for Topology controller testing.

00007168 to 00008191 for TSN controller testing.

00008192 to 00009215 for PA profile testing.

00009216 to 00010239 for additional PA profile testing.

00010240 to 00065535 for later use.

Log of the test bundle (to last official release):

Version / Name of main folder	Information
Beta 2.43.2	<i>internal version</i>
2022-09-22	<p>new or updated files and documents: Updated TCS_00000001_DiffAccessWays Updated UpgradeGSDML tool Updated SPIRTA Updated ART with “add_ons”</p> <p>Removed files and documents: Removed pn_upgrade_gsdml_V2.43_Readme</p>
V 2.43.2	<i>release version</i>
2022-10-27	<p>new or updated files and documents: Updated SPIRTA Updated ART with “add_ons” Updated engineerings to TIA V17 Updated File: TS-CRs_2022-10-26 Updated File: TCS_00003100_CIM Updated File: TCS_00000014_DHt Updated File: TCS_00000021_Behavior Updated File: TCS_00008192_Addressing_Mapping_PA Updated File: TCS_00008193_Parameter_Attributes_PA Updated File: TCS_00008194_Diagnosis_PA Updated File: TCS_00008195_Startup_PA Updated File: TCS_00008196_Physical_Block_PA Updated File: TCS_00008197_Manual_PA Updated File: TCS_00008198_Analog_Input_FB_PA Updated File: TCS_00008199_Totalizer_FB_PA Updated File: TCS_00008200_Analog_Output_FB_PA Updated File: TCS_00008201_Temperature_TB_PA Updated File: TCS_00008202_Pressure_TB_PA Updated File: TCS_00008203_Flow_TB_PA Updated File: TCS_00008204_Level_TB_PA Updated File: TCS_00008210_Binary_Output_FB_PA Updated File: TCS_00008211_Enumerate Updated File: TCS_00008214_Binary_Input_FB_PA Updated File: TCS_00008205_Analyzer_TB_PA Updated File: TCS_00008206_Actuator_Output_FB_PA Updated File: TCS_00008207_Actuator_TB_PA Updated File: TCS_00008208_Discrete_Output_FB_PA Updated File: TCS_00008209_Discrete_Output_TB_PA Updated File: TCS_00008212_Discrete_Input_FB_PA Updated File: TCS_00008213_Discrete_Input_TB_PA Updated File: TCS_00008215_Enumerated_Input_FB_PA Updated structure of directories for PA testcases</p> <p>Removed files and documents: -none-</p>
Beta 2.43.3	<i>internal version</i>
2022-12-08	<p>new or updated files and documents: Updated File: Ethernet-APL Data Tests Method of Implementation v1.0.5.pdf Updated File: Ethernet-APL Power CTS Method of Instruction_V1_2.pdf Updated File: CDML-Description_v2.43.3.pdf Updated File: CDML_2.43.3_example.xml Updated File: AutomatedRtTester_v2.43.3.1.zip Updated File: TCS_00000040_SecClass1_V2.43.3.pdf Updated File: TCS_00003100_CIM_V2.43.3.pdf Updated File: TCS_00000016_DCP_V2.43.3.pdf Updated File: TCS_00008195_Startup_PA_V2.43.3.00011.pdf Updated File: TS-CRs_2022-12-08.pdf Updated File: Ethernet-APL Port Profile Specification v1.2.pdf</p>

	<p>Updated File: Ethernet-APL_DATA_Test Specification_v1.5.4.pdf Updated File: Ethernet-APL_Power_Test_Specification_v1.4.pdf Updated File: APL_Engineering_Guideline_8122_V114_Sep22-EN.pdf Updated File: Readme_d2.43.3.docx</p>
V 2.43.3 2023-01-26	<p>release version new or updated files and documents:</p> <p>Updated ART with “add_ons” Updated File: Readme_V2.43.3.docx Updated File: TS-CRs_2023-01-26.pdf Updated File: TCS_00001054_PermanentData_V2.43.3.pdf Updated File: TCS_00000021_Behavior_V2.43.3.pdf Updated File: TCS_00001000_APL_V2.43.3.pdf</p> <p>Removed files and documents: Removed Ethernet-APL Port Profile Specification v1.1.pdf</p>
Beta 2.44.0 2023-03-30	<p>internal version new or updated files and documents:</p> <p>New File: APLiot_Pf.zip New File: APLiotC_So.zip New File: TCS_00001001_InteropAPL_V2.44.0.00001.pdf Updated File: Readme_d2.44.0.pdf Updated SPIRTA Updated ART with “add_ons” Updated File: TCS_00002048_TEDcheck_V2.44.0.pdf Updated File: TCS_00004100_GSD_Handling_d2.44.0.pdf Updated File: TCS_00004200_Devicelist_d2.44.0.pdf Updated File: TCS_00000001_DiffAccessWays_d2.44.0.pdf Updated File: TCS_00000014_DHt_d2.44.0.pdf Updated File: TCS_00000016_DCP_V2.44.0.pdf Updated File: TCS_00000024_SM_Legacy_V2.44.0.pdf Updated File: TCS_00000013_Interop_d2.44.0.pdf Updated File: TCS_00000013_Interop_SysRed_AddOn_d2.44.0.pdf Updated File: TCS_00000014_DHt_d2.44.0.pdf Updated File: TCS_00000015_Interop-Controller_d2.44.0.pdf Updated File: TCS_00000015_Interop-Controller_SysRed_AddOn_d2.44.0.pdf Updated File: TCS_00001000_APL_d2.44.0.pdf Updated File: Testspec-PN_2572_d2433_Feb23.pdf Updated File: TS-CRs_2023-04-06.pdf Updated File: PROFIsafe_3192_V26MU2_Feb23.pdf</p> <p>Removed files and documents: -none-</p>
V 2.44.0	<p>release version new or updated files and documents:</p> <p>Updated File: Readme_V2.44.0.pdf Updated ART with “add_ons” Updated File: APLiot_Pf.zip Updated File: APLiotC_So.zip Updated File: StandardTestSetupFO_V18.zap18 Updated File: TestProject_IRT_V18.zap18 Updated File: TestProject_manual_MAUType_V18.zap18 Updated File: TestProject_MRP_V18.zap18 Updated File: TestProject_RT_V18.zap18 Updated File: AutomatedRtTester_v2.44.0.3.zip Updated File: TCS_00004100_GSD_Handling_v2.44.0.pdf Updated File: TCS_00004200_Devicelist_v2.44.0.pdf Updated File: TCS_00000001_DiffAccessWays_V2.44.0.pdf Updated File: TCS_00000014_DHt_v2.44.0.pdf Updated File: TCS_00000013_Interop_SysRed_AddOn_V2.44.0.pdf</p>

	<p>Updated File: TCS_00000013_Interop_V2.44.0.pdf Updated File: TCS_00000014_DHT_v2.44.0.pdf Updated File: TCS_00000015_Interop-Controller_SysRed_AddOn_V2.44.0.pdf Updated File: TCS_00000015_Interop-Controller_v2.44.0.pdf Updated File: TCS_00001000_APL_v2.44.0.pdf Updated File: TCS_00008215_Enumerated_Input_FB_PA_V2.43.2.00005.pdf Updated File: Testspec-PN_2572_d2433_Apr23.pdf Updated File: TS-CRs_2023-05-10.pdf Updated File: normal_d_V2.43.0_IRT_CU_V18.zap18 Updated File: normal_d_V2.43.0_IRT_POF_V18.zap18 Updated File: normal_d_V2.43.0_RT_CU_POF_V18.zap18</p>
Beta 2.44.1	<p>internal version</p> <p>new or updated files and documents:</p> <p>Updated File: AutomatedRtTester_v2.44.1.1.zip Updated File: Spirta_V2_44_1_0001.zip Updated File: TCS_00000020_IP_UDP_RPC_I&M_EPM_V2.44.1.pdf Updated File: TCS_00000021_Behavior_V2.44.1.pdf Updated File: Readme_d2.44.1.pdf Updated File: Testspec-PN_2572_d244_Jun23.pdf Updated File: TS-CRs_2023-07-21.pdf Updated File: PN_Sec_Class1_7312_V11_Mar23.pdf Updated File: PROFIsafe_PiR_3202_V11_Apr23.pdf Updated File: PN-AL-protocol_2722_V24MU4_May23.pdf Updated File: PN-AL-services_2712_V24MU4_May23.pdf Updated File: PN-Profiles_2742_V24MU4_May23.pdf Updated File: 2023-06-21_Siemens_Controller_Test_ManualDHT_V18.7z Updated File: 2023-06-21_Siemens_Controller_Test_ManualTestcases_V18.7z Updated File: 2023-06-21_Siemens_Controller_Test_TopologyRead_V18.7z Updated File: 2023-06-21_Siemens_Controller_Test_V18.7z New File: TCS_00001074_ReductionRatio01_v2.44.1.pdf</p>
V 2.44.1	<p>release</p> <p>new or updated files and documents:</p> <p>Updated File: AutomatedRtTester_v2.44.1.2.zip Updated File: Spirta_V2_44_1_0001.zip Updated File: GSDML-Spec_2352_V244_Jul23.zip Updated File: PN-Cabling-Guide_2252_V53_May23.pdf Updated File: GSDML-V2.44-CT-Device-20230817.xml Updated File: TCS_00000001_DiffAccessWays-SysRed-addOn_V2.44.1.pdf Updated File: TCS_00000019_AR-ASE_SysRed_AddOn_V2.44.1.pdf Updated File: TCS_00000021_Behavior_V2.44.1.pdf Updated File: TCS_00000025_FSU_V2.44.1.pdf Updated File: TCS_00000027_SysRed_V2.44.1.pdf Updated File: TCS_00008206_Actuator_Output_FB_PA_V2.44.1.00005.pdf Updated File: Readme_V2.44.1.pdf Updated File: Testspec-PN_2572_V244_Jun23.pdf Updated File: TS-CRs_2023-08-24.pdf</p>

File Structure of this Bundle:

Main Folder: 2023-08-24_PN-Test

- File:** Disclaimer PN Test Bundle.pdf
- File:** Framework-for-testing_2912_V25_Jun19.pdf
- File:** How-to-get-PN-certificate_2922n_V110_Dec21.pdf
- File:** Readme_V2.44.1.pdf
- File:** Testspec-PN_2572_V244_Jun23.pdf
- File:** TS-CRs_2023-08-24.pdf
- Folder:** APL-test-info
 - File:** Ethernet-APL Data Tests Method of Implementation v1.0.5.pdf
 - File:** Ethernet-APL EMC Test Specification v1.1.pdf
 - File:** Ethernet-APL Installation Drawing - Device End Users v1.0.pdf
 - File:** Ethernet-APL Installation Drawing - Device Vendors v1.0.pdf
 - File:** Ethernet-APL Port Profile Specification v1.2.pdf
 - File:** Ethernet-APL Power CTS Method of Instruction_V1_2.pdf
 - File:** Ethernet-APL Test Equipment v1.1.pdf
 - File:** Ethernet-APL_DATA_Test Specification_v1.5.4.pdf
 - File:** Ethernet-APL_Power_Test_Specification_v1.4.pdf
- Folder:** CDML
 - File:** CDML-Description_v2.43.3.pdf
 - File:** CDML_2.43.3_example.xml
- Folder:** GSDML
 - File:** GSDML-Spec_2352_V244_Jul23.zip
 - File:** PROFINET_GSD_Checker_V2.43.zip
 - File:** UpgradeGSDML_2.43.zip
- Folder:** Guidelines
 - Folder:** PA-Profile
 - File:** PA-Profile-LabelDefinition_20220404.xlsx
 - File:** Profile-PA-Devices_3042_V402MU1_Mar22.pdf
 - Folder:** PN-Media-Red
 - File:** IEC-62439-2-MGMT-MIB-20140509.mib
 - File:** IEC-62439-2-MON-MIB-20140509.mib
 - File:** PN-Media-Red-7212-V103-Apr18.pdf
 - File:** APL_Engineering_Guideline_8122_V114_Sep22-EN.pdf
 - File:** IsoM_7192_V13_Jan22.pdf
 - File:** PE_3802_V13Mu1_Oct21.pdf
 - File:** PN-Cabling-Guide_2252_V53_May23.pdf
 - File:** PN-Diagnosis_7142_V15_Feb20.pdf
 - File:** PN-High-Availability-7242-V12-Feb20.pdf
 - File:** PN-IRT-Engineering_7172_V135_Feb17.pdf
 - File:** PN-SoE_7222_v10_Sep17.pdf
 - File:** PN-Time-Sync_7232_V10_Nov20.pdf
 - File:** PN-Topology_7182_V21_Jun20.pdf
 - File:** PN-TSN_7252_V131_Jul21.pdf
 - File:** PN_Netload_Robustness_for_Security_7302_V20_May22.pdf
 - File:** PN_Sec_Class1_7312_V11_Mar23.pdf
 - File:** POF-PCF_2432_V10_Jan08.pdf
 - File:** Profile-Guideline-I_M_3502_V21_May16.pdf
 - File:** PROFINET_Field_Devices_eng_2018.pdf
 - File:** PROFIsafe_3192_V26MU2_Feb23.pdf
 - File:** PROFIsafe_PiR_3202_V11_Apr23.pdf
- Folder:** PADataDML
 - File:** PADataDML-Description_V2.42.2.00002.pdf
- Folder:** PN-Spec
 - File:** LLDP-EXT-IEC61158-TYPE10-MIB.mib
 - File:** MIBs.7z
 - File:** Overview-for-PI-specs_2702_V23_Oct10.pdf
 - File:** PN-AL-protocol_2722_V24MU4_May23.pdf
 - File:** PN-AL-services_2712_V24MU4_May23.pdf
 - File:** PN-Profiles_2742_V24MU4_May23.pdf
- Folder:** PN-Test
 - Folder:** add_on_NON-PN-configuration-files
 - File:** non-pn switch configurations.zip
 - Folder:** add_on_power-outlet
 - File:** NP05B.cs
 - File:** README.txt
 - File:** synaccess.dll
 - Folder:** add_on_Testcases
 - File:** readme.txt
 - File:** ReadOutInformation.cs
 - File:** ReadOutInformation.dll
 - Folder:** engineering
 - Folder:** controller_test
 - Folder:** CT-Device GSDs
 - File:** GSDML-V2.42-CT-Device-20220316.xml
 - File:** GSDML-V2.43-CT-Device-20220727.xml
 - File:** GSDML-V2.44-CT-Device-20230817.xml
 - File:** GSDML-V3.9-CT-EngineeringTest-20200511.xml

- File:** 2021-12-21_BoschRexroth_Controller Test Manual-DHT.xiwp
- File:** 2021-12-21_Phoenix_Controller Test Manual-DHT.pcwex
- File:** 2022-04-26_BoschRexroth_Controller Test.xiwp
- File:** 2022-07-04_Phoenix_Controller Test.pcwex
- File:** 2023-06-21_Siemens_Controller_Test_ManualDHT_V18.7z
- File:** 2023-06-21_Siemens_Controller_Test_ManualTestcases_V18.7z
- File:** 2023-06-21_Siemens_Controller_Test_TopologyRead_V18.7z
- File:** 2023-06-21_Siemens_Controller_Test_V18.7z
- Folder:** Interop
 - File:** Cpu319-iDevice.zip
 - File:** et200mp_im155-5.zip
 - File:** et200sp_im155-6.zip
 - File:** GSDML-V2.25-#Siemens-PreConf_R0S2.3-20160429.zip
 - File:** GSDML-V2.31-wago-series750_753-20150831.zip
 - File:** GSDML_V225_V234_SINAMICS_S_CU3x0-20181115.zip
- Folder:** device_test
 - Folder:** APL
 - File:** APLiot_Pf.zip
 - File:** APLIotC_So.zip
 - File:** Description_of_SR_Project.pdf
 - File:** SR_Project.zip
 - File:** StandardTestSetupFO_V18.zap18
 - File:** TestProject_IRT_V18.zap18
 - File:** TestProject_manual_MAUType_V18.zap18
 - File:** TestProject_MRP_V18.zap18
 - File:** TestProject_RT_V18.zap18
- Folder:** SecurityLevel1-Test
 - File:** normal_d_V2.43.0_IRT_CU_V18.zap18
 - File:** normal_d_V2.43.0_IRT_POF_V18.zap18
 - File:** normal_d_V2.43.0_RT_CU_POF_V18.zap18
 - File:** TIA example program for Net Load Test V2.43.0.pdf
- Folder:** SecurityLevel1-Tester
 - File:** How to install and to run the security level 1 tester V2.43.0.0_V1.0.pdf
 - File:** pinetload_2.43.0.0_all.deb
- File:** AutomatedRtTester_v2.44.1.2.zip
- File:** Controller_Engineering_V2.42.2.pdf
- File:** Spirta_V2_44_1_0001.zip
- Folder:** TestCaseSpec
 - Folder:** common
 - Folder:** automated
 - File:** TCS_00000026_MRP_Pdev_V2.42.3.pdf
 - File:** TCS_00000040_SecClass1_V2.43.3.pdf
 - File:** TCS_00000041_MC-Pruning_V2.43.1.pdf
 - File:** TCS_00000110_SL1_V2.42.0.pdf
 - File:** TCS_00002048_TEDcheck_V2.44.0.pdf
 - Folder:** future
 - File:** TCS_00000017_DHCP_V2.35.2.pdf
 - File:** TCS_00000043_VLAN-fwd_V2.42.3.pdf
 - File:** TCS_00000800_Converter-Test_V2.43.1.pdf
 - File:** TCS_00003100_CIM_V2.43.3.pdf
 - Folder:** not_automated
 - File:** TCS_00000100_Hardware_V2.42.3.pdf
 - Folder:** controller
 - Folder:** automated
 - File:** ART-C_TFPC_V2.41.1.pdf
 - File:** Concept_Controller_Test_V2.35.pdf
 - File:** TCS_00004097_DHT_Ctrl_V2.41.1.pdf
 - File:** TCS_00004098_Behavior_Ctrl_V2.41.2.pdf
 - File:** TCS_00004099_Error_Checks_V2.42.0.2.pdf
 - File:** TCS_00004101_Read_Write_V2.42.0.1.pdf
 - File:** TCS_00004102_RTC_Ctrl_V_2.35.2.pdf
 - File:** TCS_00004103_Alarm_Handling_V2.41.0.pdf
 - File:** TCS_00004104_RPC_IP_UDP_EPM_V2.41.2.pdf
 - File:** TCS_00004105_Legacy_Ctrl_V2.41.3.pdf
 - File:** TCS_00004106_Topology_Read_V2.41.1.pdf
 - File:** TCS_00004107_FSU_Ctrl_V2.41.1.pdf
 - File:** TCS_00004116_DCP-Ctrl_V2.41.0.pdf
 - Folder:** future
 - File:** TCS_00004201_RSI-Ctrl_V2.41.0.pdf
 - Folder:** not_automated
 - File:** TCS_00004096_Interop_Ctrl_V2.41.1.pdf
 - File:** TCS_00004100_GSD_Handling_v2.44.0.pdf
 - File:** TCS_00004126_MRP_Pdev_ctrl_not_automated_V2.42.3.pdf
 - File:** TCS_00004200_Devicelist_v2.44.0.pdf
- Folder:** device_IRT
 - Folder:** automated
 - File:** TCS_00001024_CMDEV_V2.34.2.2.pdf
 - File:** TCS_00001025_CMDEV_Legacy_V2.34.2.2.pdf
 - File:** TCS_00001026_COD_CYCLIC_V2.34.2.2.pdf
 - File:** TCS_00001027_COD_LLDP_V2.34.2.2.pdf

File: TCS_00001028_COD_PTCP_V2.34.2.2.pdf
File: TCS_00001029_COD_RPC_V2.34.2.2.pdf
File: TCS_00001030_CPM_V2.34.2.2.pdf
File: TCS_00001031_Delay01_V2.35.0.2.pdf
File: TCS_00001032_Delay02_V2.34.2.2.pdf
File: TCS_00001033_Delay03_V2.35.0.2.pdf
File: TCS_00001034_DHT_V2.34.2.2.pdf
File: TCS_00001035_RedRelay01_V2.34.2.2.pdf
File: TCS_00001036_MUXDEMUXScheduler01_V2.34.2.2.pdf
File: TCS_00001037_MUXDEMUXScheduler02_V2.34.2.2.pdf
File: TCS_00001038_MUXDEMUXScheduler03_V2.34.2.2.pdf
File: TCS_00001039_RedRelay02_V2.34.2.2.pdf
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File: TCS_00001041_RedRelay04_V2.34.2.2.pdf
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