

VESA DisplayPort Alternate Mode Compliance Suite

Overview

The Voyager USB DP Alt Mode Compliance Suite allows developers to verify devices conform to the VESA [DisplayPort Alt-Mode 2.1 compliance test specification](#). Teledyne LeCroy's Voyager M310e / M310P / M4x analyzer/exerciser platform is approved by VESA and provides 100% coverage of the required tests which are defined in Chapter 10 of the VESA DP Alt Mode CTS:

DisplayPort Alt-Mode CTS:	Supported Test Equipment
▪ Ch:3 Physical Layer	Teledyne LeCroy LabMaster 10Zi A or similar
▪ Ch:4 Cables	Teledyne LeCroy LabMaster 10Zi A or similar
▪ Ch:5 Type-C-to-DP Plug Connector	Teledyne LeCroy LabMaster 10Zi A or similar
▪ Ch:6 DP Alt Mode Protocol Converter	VESA Interop tests
▪ Ch:7 DP Alt Mode Type-C Source	Teledyne LeCroy M42de Analyzer Generator
▪ Ch:8 DP Alt Mode Type-C Sink	Teledyne LeCroy M42de Analyzer Generator
▪ Ch:9 AUX and HPD	Teledyne LeCroy LabMaster 10Zi A or similar
▪ Ch:10 Discovery and USB PD	Teledyne LeCroy Voyager M310e/M310P/M4x
▪ Ch:11 VBUS and VCONN	Multimeter

Theory of Operation

The DP Alt Mode Compliance is an optional feature based on the Voyager M310e / M310P / M4x test platform and is integrated in Teledyne LeCroy's Compliance Suite application. The Voyager hardware platform uses emulation scripts to mimic CC-based DP Alt-Mode configuration messages.

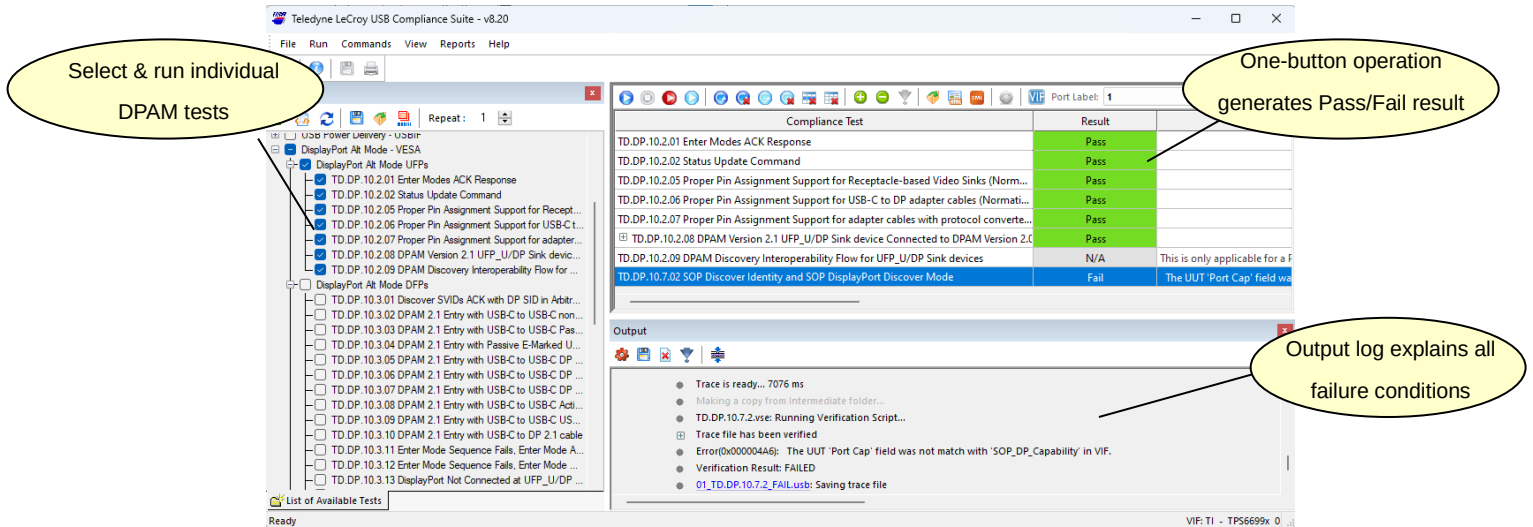


The Voyager M310e initiates and responds to Alt-Mode transactions like a real source or sink while recording the response from the device-under-test to verify proper protocol messaging. There are currently 41 test cases defined in chapter 10 covering the areas below:

DisplayPort Alt-Mode CTS Coverage:	Description
Ch 10.1 DP Alt Mode VCONN Tests	Tests Response to VCONN Swap after DP Alt Mode Entry
Ch 10.2 DP Alt Mode UFP Tests	Tests All DPAM entry / exit behaviors for UFPs (sink)
Ch 10.3 DP Alt Mode DFP Tests	Tests All DPAM entry / exit behaviors for DFPs (source)
Ch 10.4 DP Alt Mode Cable Tests	Tests All DPAM entry / exit behaviors for cables
Ch 10.5 DP Alt Mode Low Power Tests	Tests All DPAM entry / exit behaviors for UFPs (sink) during low power
Ch 10.6 DP Alt Mode C-to-DP Adapter Tests	Tests All DPAM entry / exit behaviors for DP Adapters
Ch 10.7 DP Alt Mode Consistency Checks	Tests Discover Mode response is consistent with DPAM Capabilities

Compliance Software Graphical Interface

The DP Alt Mode Compliance option provides access to the DP Alt Mode Compliance tests and the automated test application (below). The test suite automatically saves detailed trace logs and provides HTML & XML summary report.



Vendor Information File (VIF) for DP Alt Mode

Successful operation of the DP Alt Mode Compliance tests requires a valid USB VIF.xml file that has been *augmented* with the DP Alt Mode supplemental fields. The DPAM Compliance Suite uses the VIF to define the test criteria (Pin Configurations, etc...) which are verified during testing. Use the latest USB-IF VIF Generator.exe to create the base USB VIF then use the import button in the VESA DPAM Generator.exe to add the DP Alt mode fields. Use the VIF button in the USB Suite application to open the updated USB – DPAM VIF.xml.



The DPAM VIF Generator is available on the VESA.org web site: <https://groups.vesa.org/wg/DPUSB/document/22745>

VESA DP Alt Mode Compliance Suite Ordering Information

The DP Alt-Mode option will automatically test both DP Alt Mode 2.0 and DP Alt Mode 2.1 devices.

Part Number	Description
USB-AC21-V06-A	DP Alt Mode 2.1 Compliance option (Adds support for VESA DP Alt Mode Ch-10 tests for M310e, M310P & M4x)

- DP Alt Mode Compliance Suite will operate on the Voyager M310P / M310e / M4x
- Power Tracker license is required to operate the DP Alt Mode Compliance tests
- DP Alt Mode Compliance Suite is an approved test platform by VESA for testing the DP Alt Mode 2.1 CTS.
- DP Alt Mode Compliance customers will receive new and revised DP Alt Mode Compliance tests as released (no additional cost)