UTC-274

USB-C Tester

4K UHD

4K USB-C Automation Test Tool

UTC-274 is a test automation tool for testing two USB-C products in production line and R&D environments. UTC-274 features a versatile and reliable way of testing connector pins of the USB-C interface. UTC-274 test coverage includes video, audio, DisplayPort Alternate Mode, Power Delivery 3.1, USB 2.0 & USB 3.2, USB4 mode check and EPR test functionalities. UTC-274 is delivered with an SDK with a set of automatic test script samples and support for Python scripting.

Unique Electrical Tests

UTC-274's Electrical Test can verify whole USB-C connector with a single cable insertion. Electrical Test verifies that all connector pins are properly soldered. With Electrical Test you can make sure that components in the DUT are functional and soldering and assembly of the components is done properly.
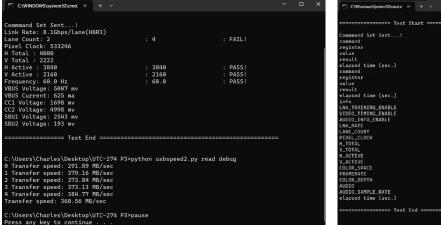
DUT as Command Console

DFP (Downstream Facing Port) DUT can directly control UTC-274 through SDK, eliminating the need and cost of a control PC in the production line. UTC-274 SDK supports Windows, Linux, and MacOS operating systems.

Highlights

- Test DP Alt Mode, Power Delivery and USB speed

- 2 upstream USB-C test ports for testing 2 DUTs or 2 ports on a DUT with a single test instrument

- DP Reference Sink support up to 4K@60Hz and 8K@30Hz (4:2:0)

- Internal Power Delivery Sink 15W and Source 65W capability

- Support USB 2.0, USB 3.2 (5Gbps/10Gbps) enumeration.

- Test USB-C connector pins soldering and assembly quality with a single cable insertion

- High level API for easy integration

- Automated tests for USB-C™

- Support EPR function test up to 240W Source and Sink

- USB4 mode check function

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UTC-274 USB-C Tester

```
C:\WINDOWS\system32\cmd.    ×    +    ∨                                    —    □    ×

Commmand Set Sent...!
Link Rate: 8.1Gbps/lane(HBR3)
Lane Count: 2                        : 4                : FAIL!
Pixel Clock: 533246
H Total : 4000
V Total : 2222
H Active : 3840                      : 3840             : PASS!
V Active : 2160                      : 2160             : PASS!
Frequency: 60.0 Hz                   : 60.0             : PASS!
VBUS Voltage: 5007 mv
VBUS Current: 625 ma
CC1 Voltage: 1698 mv
CC2 Voltage: 4998 mv
SBU1 Voltage: 2543 mv
SBU2 Voltage: 193 mv

=============== Test End ========================================

C:\Users\Charles\Desktop\UTC-274 P3>python usbspeed2.py read debug
0 Transfer speed: 291.89 MB/sec
1 Transfer speed: 379.16 MB/sec
2 Transfer speed: 373.84 MB/sec
3 Transfer speed: 373.13 MB/sec
4 Transfer speed: 384.77 MB/sec
Transfer speed: 360.56 MB/sec

C:\Users\Charles\Desktop\UTC-274 P3>pause
Press any key to continue . . .
```

```
C:\Windows\System32\cmd.e    ×    +    ∨                                    —    □    ×

=============== Test Start ===============
Commmand Set Sent...!
command                              : SET_USB3_HS_CHAN
register                             : 20
value                                : 1
result                               : OK
elapsed time (sec.)                  : 0.01
command                              : SELECT_DP_PIN
register                             : 25
value                                : 0
result                               : OK
elapsed time (sec.)                  : 0.51
info                                 : DP_VIDEO_INFO
LNK_TRAINING_ENABLE                  : 1
VIDEO_TIMING_ENABLE                  : 1
AUDIO_INFO_ENABLE                    : 1
LNK_RATE                             : 8.1Gbps/lane(HBR3)
LANE_COUNT                           : 4
PIXEL_CLOCK                          : 533244
H_TOTAL                              : 4000
V_TOTAL                              : 2222
H_ACTIVE                             : 3840
V_ACTIVE                             : 2160
COLOR_SPACE                          : RGB
FRAMERATE                            : 60.0
COLOR_DEPTH                          : 8bit
AUDIO                                : OUT
AUDIO_SAMPLE_RATE                    : 48
elapsed time (sec.)                  : 6.33

=============== Test End ===============
```

DisplayPort Alternate Mode Test

UTC-274 supports DisplayPort 1.4 Reference Sink role which can test input video resolution, frame rate (Hz), pixel clock (MHz) and DP link training status to ensure that the DUT video output meets the expected specifications.

Power Delivery & EPR Test

UTC-274 supports PD 3.1 protocol, capable of providing a maximum power output of 65W (20V/3.25A) when acting as a Power Source and capable of requesting a maximum 15W (5V/3A) load when acting as a Power Sink. UTC-274 also supports latest PD 3.1 EPR (Extended Power Range) functionality, allowing to test maximum 240W (48V/5A) with an EPU (External Power Unit) both as Source and Sink.

USB Enumeration Test

UTC-274 can take on the role of UFP (Upstream Facing Port) which has built-in USB 2.0 and USB 3.2 Gen 1 (5Gbps) storage capabilities and also support testing USB 3.2 Gen 2 (10Gbps) capability by connecting an external USB Storage Device. With the UTC-274 SDK, user could test USB data read and write speed (MB/s).

Specifications

Test Connections	USB Type-C x 2 (Dual Role Port) USB Type-A x 1 pass thru (USB 3.2 Gen2) External Power Source / Sink Connector
DP Over USB-C	Resolution up to 4096x2160p60 Support up to HBR3 rate and 4 lanes Maximum support 600MHz pixel clock
USB Over USB-C	Built-in USB 2.0 (480 Mbps) storage Built-in USB 3.2 Gen 1 (5Gbps) storage Support USB 3.2 Gen 2 (10Gbps) with external USB device
	USB Read & Write speed test (MB/s) USB4 mode check function
Power Delivery	Source 65W (20V/3.25A) Sink 15W (5V/3A)
	Support EPR (Extended Power Range) function up to 240W Source and Sink with external power unit (Sold separately)
Electrical Test	Verify functionality of USB-C interface signals (VBUS, CC1/2, SBU1/2, GND) Cable flip (straight / flipped)
Operating System	Windows 11, 10, Linux and MacOS
Software	Python API with sample code Easy-to-use GUI
Power Input	+12 Vdc (AC/DC converter included)
Module Size	130x130x30mm
Warranty	12 months

All specifications subject to change without notice.

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