



COMPLIANCE PROGRAM

TEST REPORT

USB 2.0 Test Report For Peripheral

Company Name: TUV SUD

VID (Dec or Hex): _____ The VID for the company who apply the USB-IF logo.

Model Name: IsatPhone 2.w

Product Type: Mobile phone

Report Date: 2017/12/15

Test Result: **FAIL**

Tester: Alex Huang

Authorized Signature: Howard Chang



Legal Disclaimer

1. TEST RESULT IS VALID ONLY TO THE ORIGINAL TESTED DEVICE MODEL. ALLION RESERVES THE RIGHT TO PROHIBIT OTHERS TO DISTORT, ISOLATE, FALSIFY, COPIED AND/OR BY ANY PROCESS TO CHANGE THE CONTENT OF THIS TEST REPORT UNLESS IT IS PRIOR APPROVED BY ALLION.



Company Information:

Company

Company Name: _____
Company Address: _____

Technical Contact

Name: _____
Phone Number: _____
E-Mail: _____
FAX Number: _____

Marketing Contact

Name: _____
Phone Number: _____
E-Mail: _____
FAX Number: _____



High Speed & Basic Speed Compliance Tests

A4.4: Device High-speed Signal Quality Pass Fail N/A

These tests measure the ability of transmitters to do valid high speed signaling. High speed signal quality is measured on upstream ports. A high speed scope with differential probes is used. Signaling data is captured with the scope and then translated to an eye pattern. The signal quality eye patterns obtained from the measurements must agree with the transmit eye patterns in the USB 2.0 Specification.

Connector Type: Untethered (Tethered means no standard B or special B connector)

EL_2: Transmitter Data Rate	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_4: Eye Pattern (Template 1)	<input type="checkbox"/> Pass	<input checked="" type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_5: Eye Pattern (Template 2)	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input checked="" type="checkbox"/> N/A
EL_6: Rising and Falling Time	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_7: Monotonic Data Transition	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A

A4.5: Device Packet Parameters Pass Fail N/A

This test measures the amount of time it takes hosts and devices to respond. It also verifies device generated SYNCs and EOPs.

EL_21: (32bit)	32bit	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_22-Step1: (>=8bit and <=192bit)	109bit	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_22-Step2: (>=8bit and <=192bit)	110bit	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_25: (8bit)	8bit	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A

A4.6: Device CHIRP Timing Pass Fail N/A

This test examines the basic timings and voltages of both upstream ports during the speed detection protocol. (Device reset from Full Speed)

EL_28: (>=2.5us and <=6ms)	6us	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_29: (>=1ms and <=7ms)	1.10ms	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
EL_31: (<=500us)	49us	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A



A4.7: Device Suspend/Resume/Reset timing **Pass** **Fail** **N/A**

This test verifies that a device can be suspended and resumed while operating in high speed and also that the device can be reset from the suspended state.

EL_38: **3.00ms** **Pass** **Fail** **N/A**
(>=3ms and <=3.125ms)

EL_39: **Pass** **Fail** **N/A**

EL_40: **Pass** **Fail** **N/A**

EL_27: **3.10ms** **Pass** **Fail** **N/A**
(>=3.1ms and <=6ms)

EL_28: **6us** **Pass** **Fail** **N/A**
(>=2.5us and <=6ms)

A4.8: Device Test J/K, SE0 NAK **Pass** **Fail** **N/A**

The USB-IF no longer requires EL_8: Test_J and Test_K to be performed as a condition for USB Certification. Measurement of EL_9: Test_J, Test_K and SE0 are still a requirement for certification. EL_9 is defined in the USB 2.0 Test Specification and measures the data line voltage when not driven. For detail information please reference as below link:

EL_9

Test Mode	Voltage (mV)
SE0_NAK D+	0
SE0_NAK D-	0
Test J D-	15
Test K D+	16

(-20mV to 20mV)



A4.9: Device Receiver Sensitivity

Pass Fail N/A

These tests check the receive characteristics of upstream ports

EL_18 Pass Fail N/A

EL_17 Positive: +153mV Pass Fail N/A
($\leq +200\text{mV}$)

EL_17 Negative: -151mV Pass Fail N/A
($\geq -200\text{mV}$)

EL_16 Positive: +137mV Pass Fail N/A
($\geq +100\text{mV}$)

EL_16 Negative: -135mV Pass Fail N/A
($\leq -100\text{mV}$)

Basic Speed Signal Quality Test Result

Pass Fail

Connector Type: Untethered (Tethered means no standard B or special B connector)

Basic Speed Upstream Signal Quality: Pass Fail

Inrush Current Test: Pass Fail

Back Voltage Test Result

Pass Fail

Enumerate before / after

Pin	Voltage (mV)	
D+	0	0
D-	0	0
V _{Bus}	0	0

(All values $\leq 400\text{mV}$)

Miscellaneous:

Pass Fail

Bypass Capacitance Check: Pass Fail

BC 1.2 Implemented Check: Support N/A

If the upstream port has BC 1.2 capability, all items of BC 1.2 Portable Device category should be tested under this port for USB-IF certification.



Frameworks Test Result (USB20CV)

Pass **Fail**

This test primarily covers USB-IF testing of devices and hubs for compliance with the standard commands in Chapters 9 and 11 of the USB 2.0 specification. This specification does not describe the full set of USB-IF tests and assertions for these devices.

High-Speed:

VID: 1f58 PID: 1f20

Chapter 9 Test: **Pass** **Fail** **N/A**

Interface: 8 MAX Power: 500 mA Remote Wakeup: N/A

MSC Class Test: **Pass** **Fail** **N/A**

UVC Class Test: **Pass** **Fail** **N/A**

HID Class Test: **Pass** **Fail** **N/A**

Basic-Speed:

VID: 1f58 PID: 1f20

Chapter 9 Test: **Pass** **Fail**

Interface: 8 MAX Power: 500 mA Remote Wakeup: N/A

MSC Class Test: **Pass** **Fail** **N/A**

UVC Class Test: **Pass** **Fail** **N/A**

HID Class Test: **Pass** **Fail** **N/A**



Frameworks Test Result (USB30CV)

Pass Fail

All USB peripherals are required to enumerate on a SuperSpeed host controller and pass all applicable tests within USB30CV. Failure framework test in USB30CV will prevent certification.

High-Speed:

VID: 1f58 PID: 1f20

Chapter 9 Test: Pass Fail N/A

Interface: 8 MAX Power: 500 mA Remote Wakeup: N/A

MSC Class Test: Pass Fail N/A

UVC Class Test: Pass Fail N/A

HID Class Test: Pass Fail N/A

Basic -Speed:

VID: 1f58 PID: 1f20

Chapter 9 Test: Pass Fail

Interface: 8 MAX Power: 500 mA Remote Wakeup: N/A

MSC Class Test: Pass Fail N/A

UVC Class Test: Pass Fail N/A

HID Class Test: Pass Fail N/A



Power Current Test Result

Pass Fail

High-Speed: High Powered Device

Pass Fail N/A

Unconfiguration Power: 474 mA
($\leq 100\text{mA}$)

Configuration Power: 475 mA
($\leq \text{Max Power} \leq 100\text{mA}$ for Low Power)
($\leq \text{Max Power} \leq 500\text{mA}$ for High Power)

Suspend Mode Power without Remote Wakeup: 1204 uA
Suspend Mode Power with Remote Wakeup Enabled: N/A uA
Suspend Mode Power with Remote Wakeup Disabled: N/A uA
($\leq 2500\text{uA}$ for Self Power Hub or Non Compound Device)
($\leq 12500\text{uA}$ for Bus Power Hub or Compound Device)

Powered' State Suspend Mode Power: 62870 uA
($\leq 2500\text{uA}$ for not Supporting USB Battery Charging)
($\leq 100\text{mA}$ for Supporting USB Battery Charging)

Operating Power: 475 mA
($\leq \text{Max Power} \leq 100\text{mA}$ for Low Power)
($\leq \text{Max Power} \leq 100\text{mA}$ for Self Power)
($\leq \text{Max Power} \leq 500\text{mA}$ for High Power)

Basic -Speed: High Powered Device

Pass Fail

Unconfiguration Power: 475 mA
($\leq 100\text{mA}$)

Configuration Power: 475 mA
($\leq \text{Max Power} \leq 100\text{mA}$ for Low Power)
($\leq \text{Max Power} \leq 500\text{mA}$ for High Power)

Suspend Mode Power without Remote Wakeup: 1300 uA
Suspend Mode Power with Remote Wakeup Enabled: N/A uA
Suspend Mode Power with Remote Wakeup Disabled: N/A uA
($\leq 2500\text{uA}$ for Self Power Hub or Non Compound Device)
($\leq 12500\text{uA}$ for Bus Power Hub or Compound Device)

Powered' State Suspend Mode Power: 62800 uA
($\leq 2500\text{uA}$ for not Supporting USB Battery Charging)
($\leq 100\text{mA}$ for Supporting USB Battery Charging)

Operating Power: 475.2 mA
($\leq \text{Max Power} \leq 100\text{mA}$ for Low Power)
($\leq \text{Max Power} \leq 100\text{mA}$ for Self Power)
($\leq \text{Max Power} \leq 500\text{mA}$ for High Power)



Interoperability Test Overall Result

Pass Fail

Operating System: Win10

StarTech PEX400USB2 PCIe Add-on Card

Root Port Testing:

EHCI Controller Driver Installation

Pass Fail

Peripheral Enumeration and Driver Installation

Pass Fail

Interoperability (Stress)

Pass Fail

Active Sleep/Remote Wake

Pass Fail

Active S4 Hibernation/Resume

Pass Fail

Warm boot

Pass Fail

Cold boot

Pass Fail

Hybrid boot

Pass Fail



DELL XPS8700 Platform

Interoperability Interim Tree - Initial Topology:

xHCI Controller Driver Installation	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Peripheral Enumeration and Driver Installation	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Interoperability (Stress)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
All Device Tests		
Inactive Detach & Reattach	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Active Sleep/Remote Wake	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Active S4 Hibernation/Resume	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Warm boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Cold boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Hybrid boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail

Interoperability Interim Tree - Topology Change 1:

Peripheral Enumeration and Driver Installation	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Interoperability (Stress)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
All Device Tests		
Inactive Detach & Reattach	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Active Sleep/Remote Wake	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Active S4 Hibernation/Resume	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Warm boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Cold boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Hybrid boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail

Interoperability Interim Tree - Topology Change 2:

Peripheral Enumeration and Driver Installation	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Interoperability (Stress)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail

Interoperability Interim Tree - Function Wake:

Active Sleep/Remote Wake	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input checked="" type="checkbox"/> N/A
--------------------------	-------------------------------	-------------------------------	---

Root Port Testing:

Peripheral Enumeration and Driver Installation	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Interoperability (Stress)	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Inactive Detach & Reattach	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Active Sleep/Remote Wake	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Active S4 Hibernation/Resume	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Warm boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Cold boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail
Hybrid boot	<input checked="" type="checkbox"/> Pass	<input type="checkbox"/> Fail



Battery Charging 1.2 Compliance Test

<u>Portable Device (PD)</u>	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input checked="" type="checkbox"/> N/A
B-UUT Initial Power-up Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
Data Contact Detect Test – With Current Source	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
Data Contact Detect Test – No Current Source	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
DCP Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
CDP Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
SDP Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
ACA-Dock Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
ACA-A Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
ACA-B Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
ACA-C Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
ACA-GND Detection Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
Common Mode Test - Full Speed	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
Common Mode Test - High Speed	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A
Dead Battery Provision Test	<input type="checkbox"/> Pass	<input type="checkbox"/> Fail	<input type="checkbox"/> N/A



More Detail Test Result:

1. Frameworks Test Result (USB30CV): **Fail**

High-Speed & Basic -Speed:

Chapter 9 Test:

***** Please refer to the test log for more details *****

2. Power Current Test Result: **Fail**

High-Speed & Basic-Speed

Unconfiguration Power: The DUT must not consume more than 100mA when instructed by USBCV

3. High Speed Upstream Signal Quality: **Fail**

Although the test result is passed, but the test pattern doesn't follow the USB 2.0 spec.

NRZI Symbols (Fields)	NRZ Bit Strings	Number of NRZ Bits
{KJ * 15}, KK (SYNC)	{00000000 * 3}, 00000001	32
KKJKJKKK (DATA0 PID)	11000011	8
JKJKJKJK * 9	00000000 * 9	72
JJKKJJKK * 8	01010101 * 8	64
JJJJKKKK * 8	01110111 * 8	64
JJJJJJKKKKKKKK * 8	0, {111111S *15}, 111111	97
JJJJJJK * 8	S, 111111S, {011111S * 7}	55
{JKKKKKKK * 10}, JK	00111111, {S0111111 * 9}, S0	72
JJJKKKJJKKKKJJKK (CRC16)	0110110101110011	16
JJJJJJJ (EOP)	01111111	8



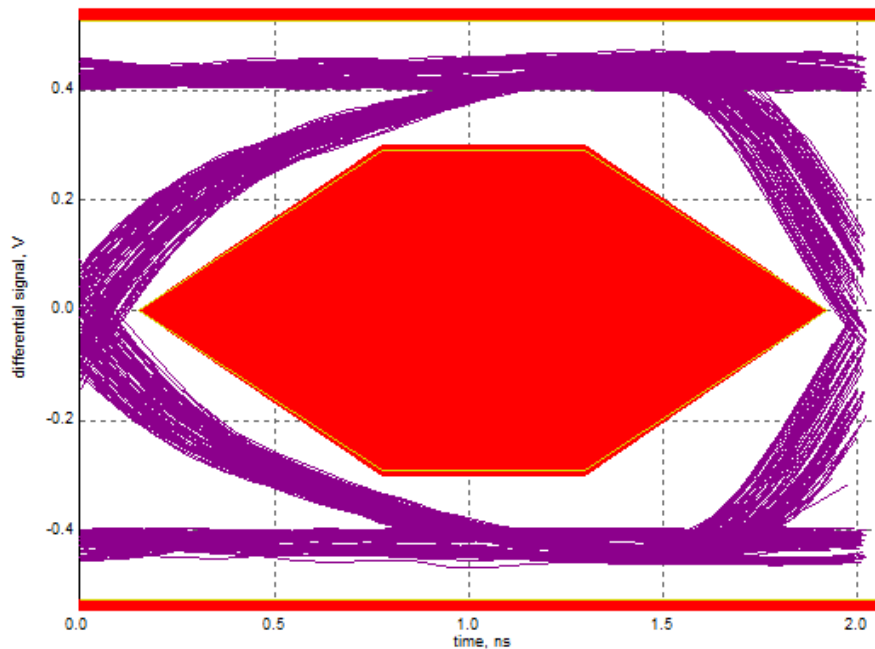
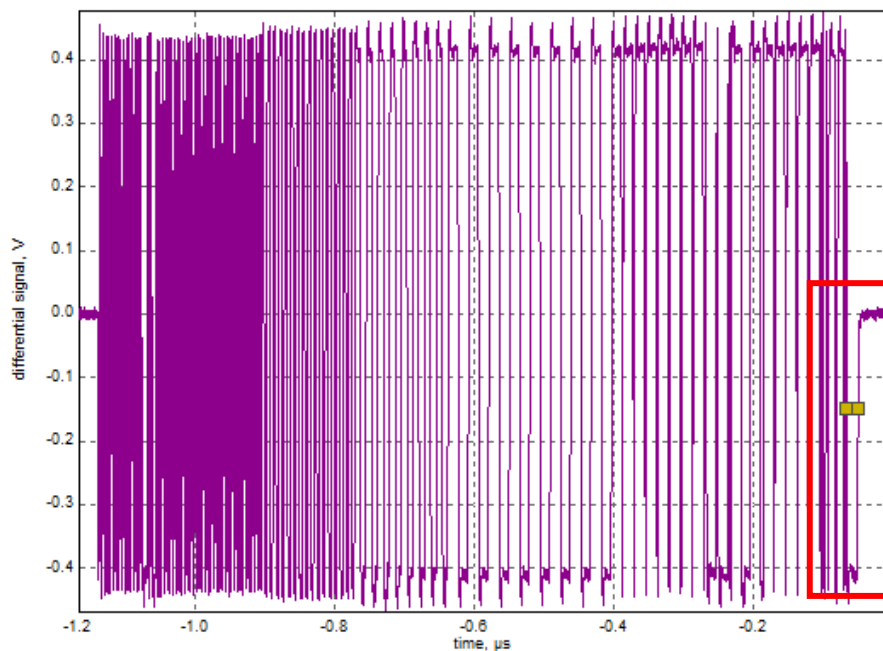
- Overall result: pass!
- Sync result:
sync passes
- Signal eye:
eye passes
- EOP width: 8.04 bits
EOP width passes
- Measured signaling rate: 479.9600 MHz
signal rate passes
- Edge Monotonicity: 0 mV
Monotonic Edge passes
- Rising Edge Rate: 939.85 V/us (680.96 ps equivalent risetime)
passes
- Falling Edge Rate: 912.08 V/us (701.70 ps equivalent falltime)
passes

Additional Information

- Consecutive jitter range: -136.344 ps to 127.983 ps, RMS jitter 64.580 ps
- Paired JK jitter range: -47.743 ps to 35.317 ps, RMS jitter 17.543 ps
- Paired KJ jitter range: -40.911 ps to 36.547 ps, RMS jitter 17.269 ps
- Margin Above eye: 33.2000 mV
- Margin Below eye: 38.8000 mV
- Maximum Voltage: 467.6000 V
- Margin Below Top: 57.4000 mV
- Minimum Voltage: -467.6000 mV
- Margin Above Bottom: 57.4000 mV



SignalData and Eye





4. Full Speed Upstream Signal Quality: Pass

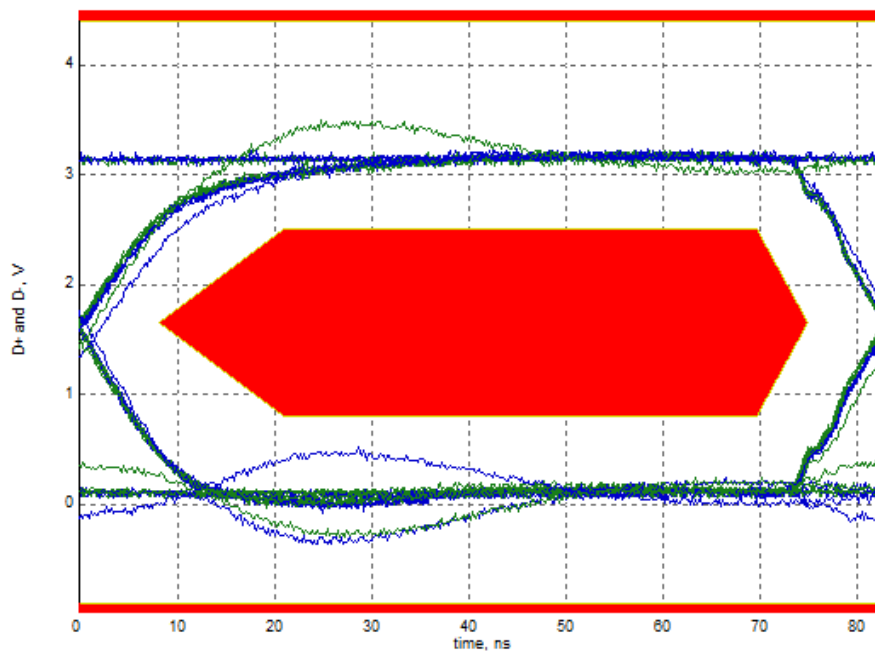
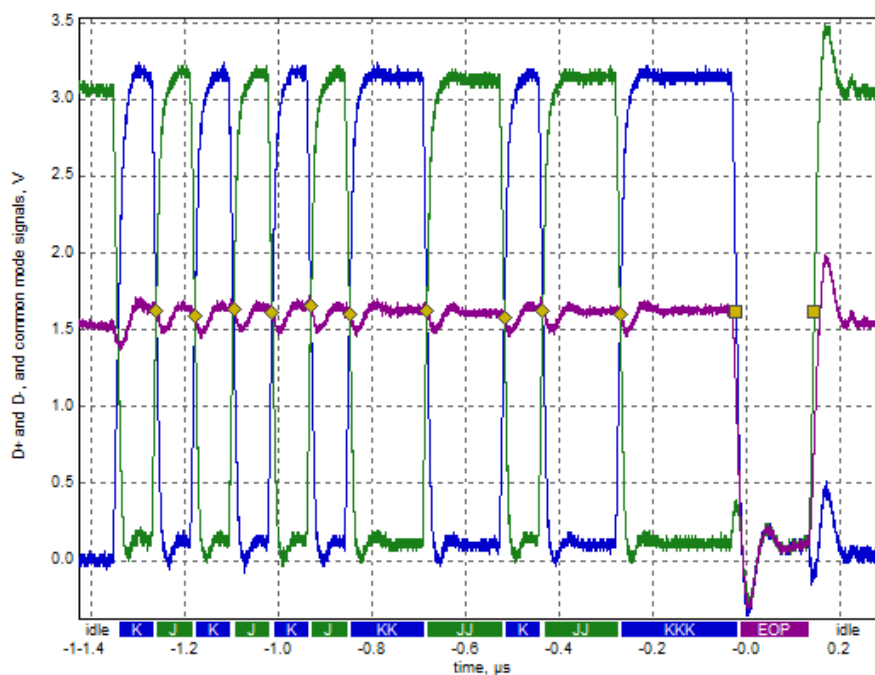
- Overall result: pass!
- Sync result:
sync passes
- Signal eye:
eye passes
- EOP width: 167.07 ns
EOP width passes
- Measured signaling rate: 12.0016 MHz
signal rate passes
- Edge Monotonicity: 60 mV
Monotonic Edge passes
- Crossover voltage range: 1.58 V to 1.65 V, mean crossover 1.62 V
(first crossover at 1.63 V, 9 other differential crossovers checked)
crossover voltages pass
- Consecutive jitter range: -154.843 ps to 145.157 ps, RMS jitter 103.270 ps
- Paired JK jitter range: -100.000 ps to -22.222 ps, RMS jitter 82.652 ps
- Paired KJ jitter range: -122.222 ps to 44.444 ps, RMS jitter 77.841 ps
jitter passes

Additional Information

- Rising Edge Rate: 136.05 V/us (Equivalent risetime = 19.41 ns)
- Falling Edge Rate: 162.06 V/us (Equivalent falltime = 16.29 ns)
- Edge Rate Match: 17.45% (limit +/-10%)
- Margin Above eye: 0.4600 V
- Margin Below eye: 0.2800 V
- Maximum Voltage: 3.5000 V
- Margin Below Top: 0.9000 V
- Minimum Voltage: -0.3600 V
- Margin Above Bottom: 0.5400 V



SignalData and Eye



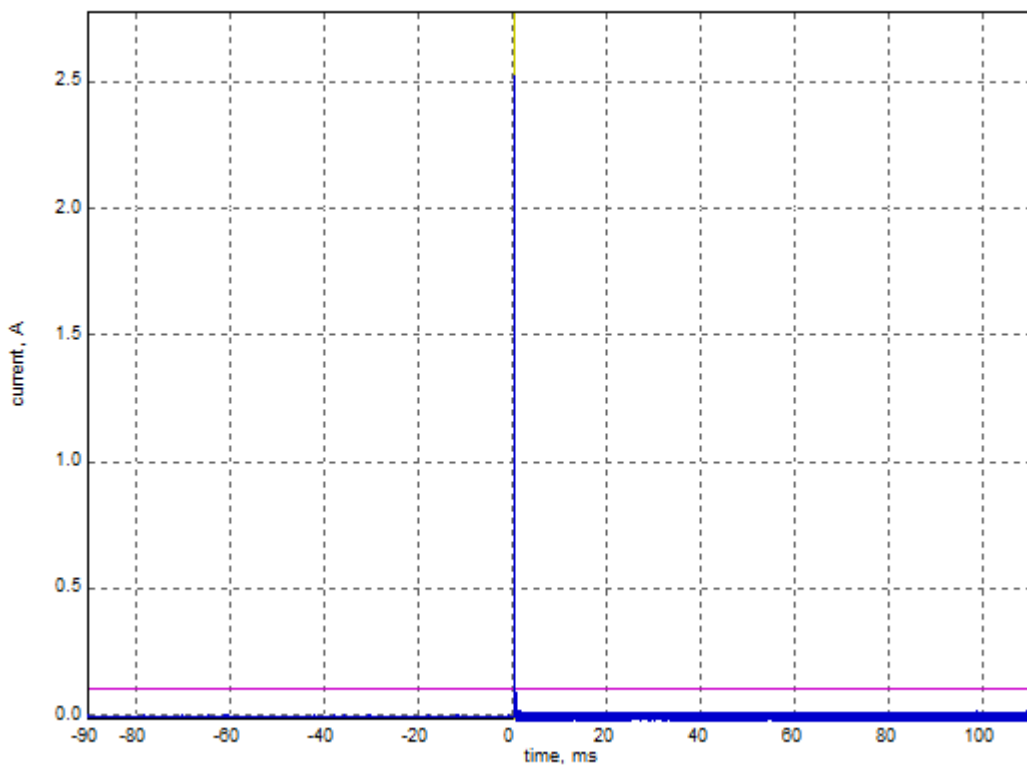


5. Inrush Current: Pass

Good Battery

- Overall result: pass!
- Inrush at 5.180 V: 20.1830 μC
Inrush passes
- **Region 1 Start: 0.00000 ms - End: 0.114 ms = 20.18 μC**

Hot Plug (Attach) Current Draw

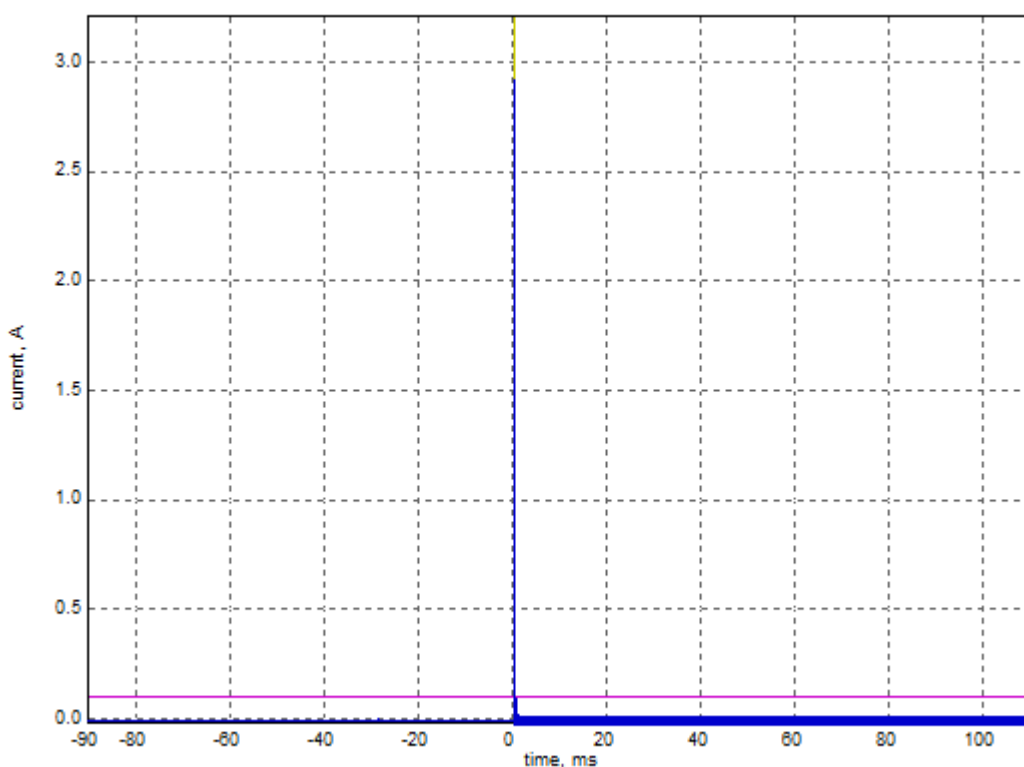




Dead Battery

- Overall result: pass!
- Inrush at 5.180 V: 24.3472 μ C
Inrush passes
- **Region 1 Start: 0.00000 ms - End: 0.114 ms = 24.35 μ C**

Hot Plug (Attach) Current Draw





Test Procedure Reference:

1. Universal Serial Bus Implementers Forum Device High-speed Electrical Test Procedure For Tektronix Test Equipment, version: 1.5
2. Universal Serial Bus Implementers Forum Full and Low Speed Electrical and Interoperability Compliance Test Procedure, Version: 1.3
3. USB-IF Compliance Update Page---Interoperability Gold Tree Update
<http://compliance.usb.org/resources/GoldSuite%20Test%20Procedure.pdf>
4. USB Battery Charging 1.2 Compliance Plan, Revision: 1.1

Notice: Test result is valid only to the original tested device model. The content of test report may not be copied or re-transmitted (except for the entire report) unless it is prior approved by Allion.