

USB-IF COMPLIANCE PROGRAM

USB 2.0 Test Report for High Speed Device

TM

Company Name: STEC, Inc.

Model Name: UFD

Product Type: USB High Speed Flash Disk

Product Receive Date: 2007/01/16

Test Start Date: 2007/01/17

Report Date: 2007/01/19

Test Result: **PASS**

Project ID : REM-SIH-USB-002_1



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USB-IF COMPLIANCE PROGRAM

Company

Company Name: STEC, Inc.
Company Address: 4F.,No.3, Lane91, Dong-Mei Rd, Hsinchu City 300, Taiwan
VID (Dec) 4971 The VID for the company who apply the USB-IF logo.

Technical Contact

Name: ZY Chen
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Marketing Contact

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E-Mail: nchen@simpletech.com
FAX Number: 886-3-5733633

Product Information:

Silicon Model Name: _____ TID (If you know): _____

*** This is a required field, the test project will be held until the information provided. ***

- | | | |
|---|--|---------------------------------------|
| <input type="checkbox"/> Retail Device | <input checked="" type="checkbox"/> Device and Silicon | <input type="checkbox"/> Silicon Only |
| <input checked="" type="checkbox"/> Hi Power | <input type="checkbox"/> Low Power | |
| <input checked="" type="checkbox"/> Bus Powered | <input type="checkbox"/> Self Powered | |
| <input type="checkbox"/> Untethered B | <input checked="" type="checkbox"/> Tethered | |

Highest capacity tested for Mass Storage Device: 4GB

Device Category: Mass Storage Device Device Description: USB Flash Disk

VID: 136B PID: 0918

Tested OS: Win 2000 Win XP (Standard test fee will cover 1 OS only.)

Tester: Sam Chen

Authorized Signature: James Ou

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Legacy USB Compliance Tests

Frameworks Test Result: Pass Fail

Chapter 9:

High Speed Mode: Pass Fail

Full Speed Mode: Pass Fail

Interface: 1 MAX Power: 200 mA Remote Wakeup: N/A

MSC Test: N/A

High Speed Mode: Pass Fail

Full Speed Mode: Pass Fail

UVC Test: N/A

High Speed Mode: Pass Fail

Full Speed Mode: Pass Fail

Power Current Test Result: Pass Fail

High Speed Mode:

Operating Power: 152.8 mA

(\leq Max Power \leq 100mA for Low Power)
(\leq Max Power \leq 100mA for Self Power)
(\leq Max Power \leq 500mA for High Power)

Unconfiguration Power: 95.9 mA (<100 mA)

(\leq Max Power \leq 100mA)

Configuration Power: 126.7 mA

(\leq Max Power \leq 100mA for Low Power)
(\leq Max Power \leq 500mA for High Power)

Suspend Mode Power: 454 uA

(\leq 2500uA for High Power /w Remote Wake Up)
(\leq 500uA for others)

Full Speed Mode:

Operating Power: 87.6 mA

(\leq Max Power \leq 100mA for Low Power)
(\leq Max Power \leq 100mA for Self Power)
(\leq Max Power \leq 500mA for High Power)

Unconfiguration Power: 42.5 mA (<100 mA)

(\leq Max Power \leq 100mA)

Configuration Power: 73.3 mA

(\leq Max Power \leq 100mA for Low Power)
(\leq Max Power \leq 500mA for High Power)

Suspend Mode Power: 455 uA

(\leq 2500uA for High Power /w Remote Wake Up)
(\leq 500uA for others)

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Interoperability Test Overall Result: Pass Fail OS: W2k XP

EHCI Controller:

- | | | |
|---|--|-------------------------------|
| 1. Enumeration and Driver installation: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 2. Check operation of device | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 3. Interoperability – Operate all device: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 4. Hot plug test | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 5. Warm Boot test | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 6. Remote Wake-up test | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 7. S3 Active Standby Test | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 8. S3 Active Standby Resume Test | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 9. Topology change | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 10. S4 Active Hibernate Test | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 11. S4 Active Hibernate Resume Test | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |

UHCI Controller:

- | | | |
|--|--|-------------------------------|
| 12. Interoperability – Operate all device: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
|--|--|-------------------------------|

OHCI Controller:

- | | | |
|--|--|-------------------------------|
| 13. Interoperability – Operate all device: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
|--|--|-------------------------------|

Signal Quality Test Result: Pass Fail

Full Speed UP Stream Signal Quality: Pass Fail

Inrush Current Test: Pass Fail

Back Voltage Test Result: (Enumerate before/after) Pass Fail

D+: 0 mV / 0 mV

D- : 0 mV / 0 mV

V_{Bus}: 0 mV / 0 mV

(All values <= 400mV)

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High Speed USB Compliance Tests

A4.4 Device High-speed Signal Quality Pass Fail

EL_2: Transmitter Data Rate: Pass Fail
 EL_4: Eye Pattern (Template 1): Pass Fail N/A
 EL_5: Eye Pattern (Template 2): Pass Fail N/A
 EL_6: Rising and Falling Time: Pass Fail
 EL_7: Monotonic Data Transition: Pass Fail

*** USB 2.0 HS driver must have 10% to 90% differential rise and fall times of greater than 500 ps. Reference documents: USB 2.0 Specification, Section 7.1.2.2 ***

A4.5 Device Packet Parameters Pass Fail

EL_21: 32 bit, EL_22 Step1:142bit, Step2:165bit, EL_25:8 bit
 (EL_21: 32Bit EL_22: 8 to 192 bit EL_25: 8Bit)

A4.6 Device CHIRP Timing Pass Fail

EL_28: 1.135ms, EL_29: 3.024ms, EL_31: 41.6us
 (EL_28: 2.5us to 6ms EL_29: 1ms to 7ms EL_31: 500us)

A4.7 Device Suspend/Resume/Reset timing Pass Fail

EL_38: 3.02ms, EL_39: YES, EL_40: YES
 (EL_38: 3ms to 3.125ms)

EL_27: 3.4ms, EL_28: 1.22ms
 (EL_27: 3.1ms to 6ms EL_28: 2.5us to 6ms)

A4.8 Device Test J/K, SE0_NAK Pass Fail

EL_8

Test	D+ Voltage (mV)	D- Voltage (mV)
J	411	2
K	2	409

(360mV to 440mV)

EL_9

	Voltage (mV)
D-	2
D+	2

(-10mV to 10mV)

A4.9 Device Receiver Sensitivity Pass Fail

EL_18: YES, EL_17: +116, -116 mV, EL_16: +108, -108 mV
 (EL_17: <= +200mV and >= -200mV EL_16: >= +100mV and <= -100mV)

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More Detail Test Result:

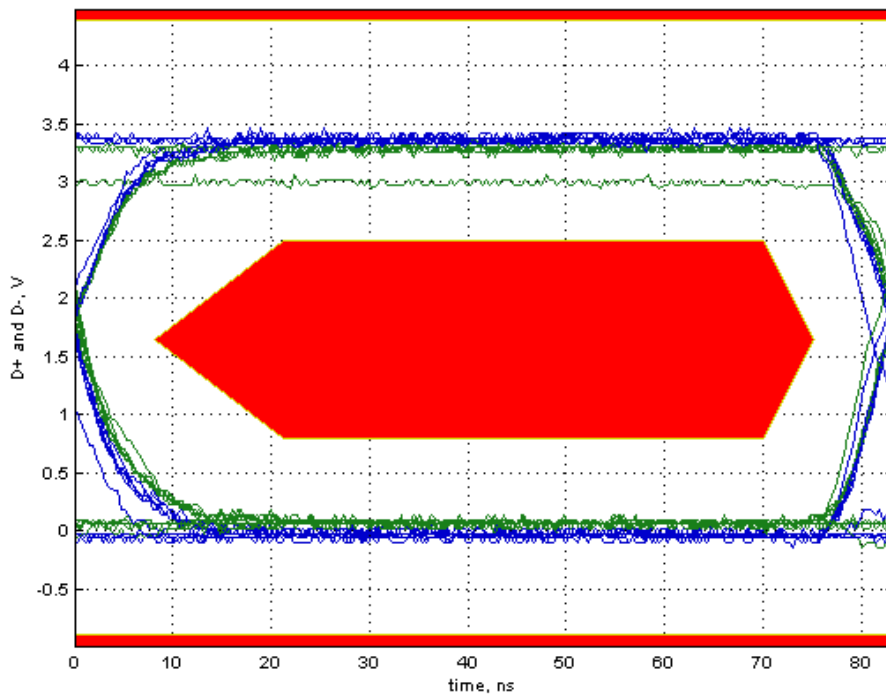
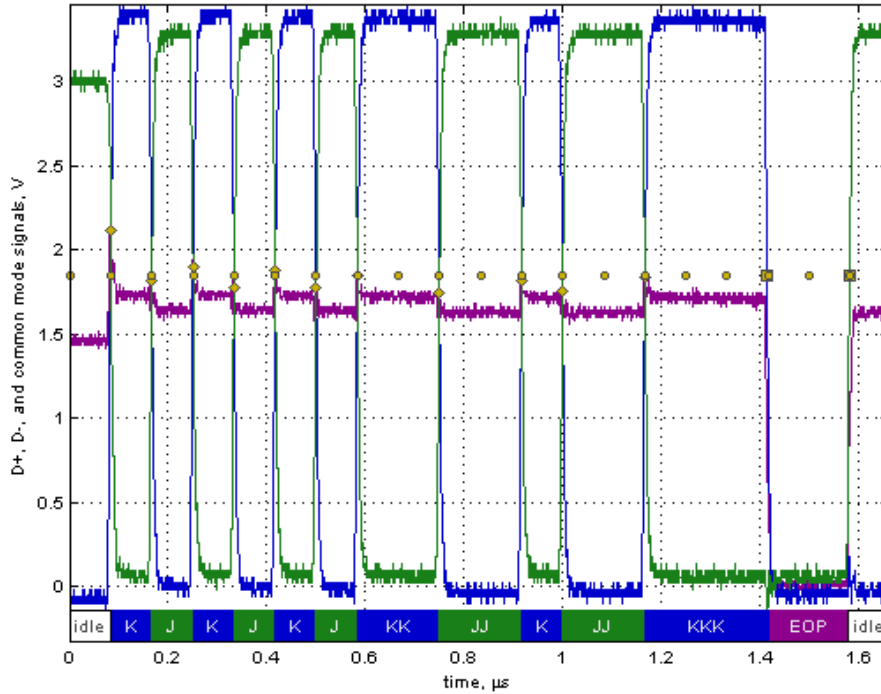
1. Full Speed Upstream Signal Quality: Pass

- Overall result: pass!
- Signal eye:
eye passes
- EOP width: 167.97ns
EOP width passes
- Receivers: reliable operation on tier 6
receivers pass
- Measured signaling rate: 11.9960MHz
signal rate passes
- Crossover voltage range: 1.75V to 2.11V, mean crossover 1.84V
(first crossover at 2.11V, 10 other differential crossovers checked)
crossover voltages pass
- Consecutive jitter range: -290.765ps to 220.346ps, RMS jitter 185.845ps
Paired JK jitter range: -11.111ps to 150.000ps, RMS jitter 84.680ps
Paired KJ jitter range: 7.937ps to 122.222ps, RMS jitter 80.065ps
jitter passes

[Signal Data and Eye](#)

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2. High Speed Upstream Signal Quality: Pass

- Overall result: pass!
- Signal eye:
eye passes
- EOP width: 7.93 bits
EOP width passes
- Measured signaling rate: 480.0485MHz
signal rate passes

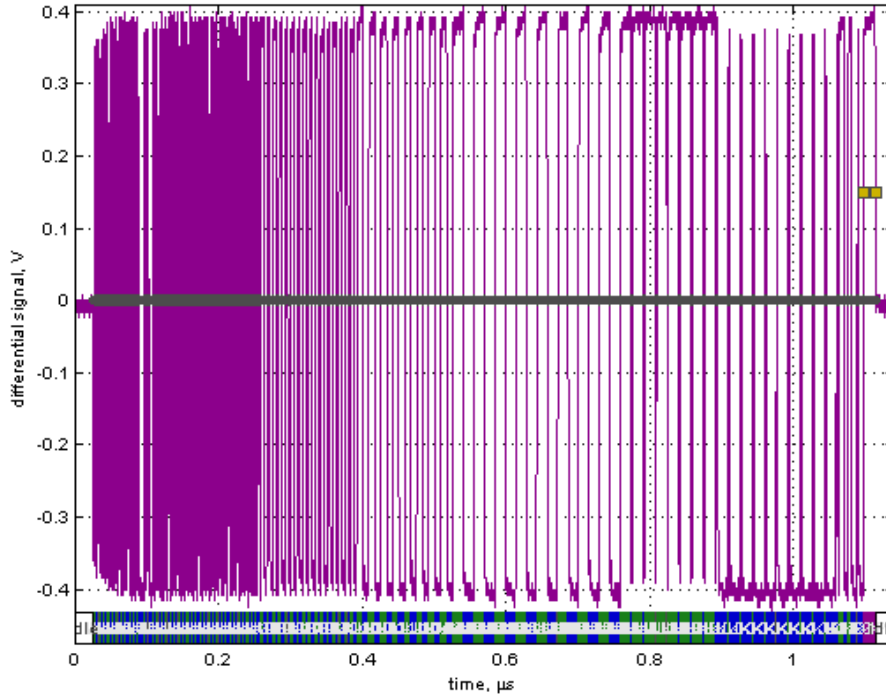
Additional Information

- Consecutive jitter range: -142.822ps to 154.105ps, RMS jitter 57.438ps
Paired JK jitter range: -173.531ps to 127.029ps, RMS jitter 58.330ps
Paired KJ jitter range: -135.691ps to 130.731ps, RMS jitter 65.206ps

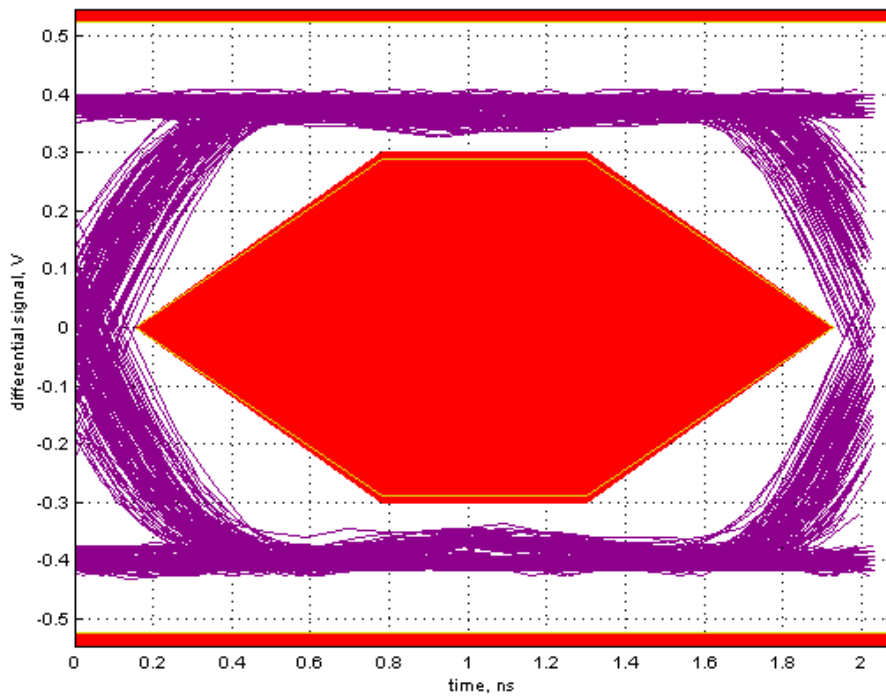
Signal Data and Eye

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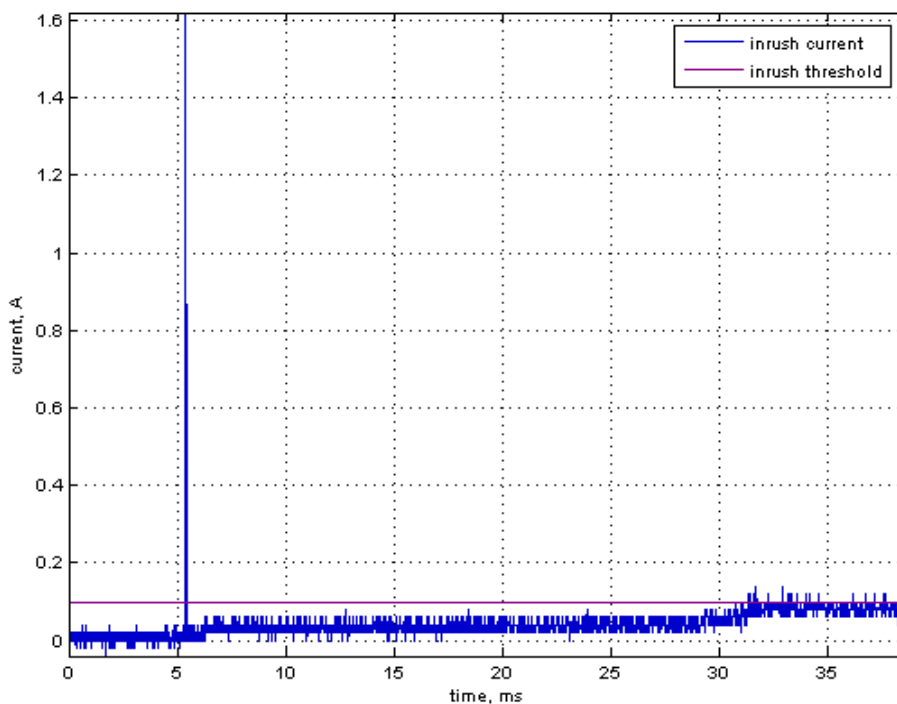
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3. Inrush Current: Pass

- Overall result: pass!
- Inrush at 5.150V: 19.96 μ C
inrush passes

Hot Plug (Attach) Current Draw



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.

Test Procedure Reference:

1. Universal Serial Bus Implementers Forum Full and Low Speed Electrical and Interoperability Compliance Test Procedure, version: 1.3
2. Universal Serial Bus Implementers Forum Device High-speed Electrical Test Procedure For Agilent Infiniium, version: 1.0
3. Universal Serial Bus Implementers Forum Device High-speed Electrical Test Procedure, version: 1.0

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