

USB-IF COMPLIANCE PROGRAM

USB 2.0 Test Report For Full Speed Device

TM

Company Name: Holtek Semiconductor Inc.

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

Model Name: HT82A525R

Product Type: HID device

Report Date: 2010/07/13

Test Result: **PASS**

Tester: Homer Hung

Authorized Signature: *Eric Chen*

Project ID : UNC-HOK-USB-025_1

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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.



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Legacy USB Compliance Tests

Frameworks Test Result: 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.

Chapter 9:

VID: 04d9

PID: f623

Chapter 9: Pass Fail

HID View: Pass Fail N/A

MSC: Pass Fail N/A

UVC: Pass Fail N/A

Interface: 1 MAX Power: 100 mA Remote Wakeup: Yes

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Power Current Test Result: Pass Fail

Power Type: Low Powered Device

Operating Power: 12.2 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: 12.83 mA
(\leq 100mA)

Configuration Power: 12.84 mA
(\leq Max Power \leq 100mA for Low Power)
(\leq Max Power \leq 500mA for High Power)

Suspend Mode Power: 350 uA
Suspend Mode Power with Remote Wake up: 347 uA
(\leq 2500uA)

Suspend Port Power: 350 uA
(\leq 2500uA for not Supporting USB Battery Charging)
(\leq 100mA for Supporting USB Battery Charging)

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Interoperability Test Overall Result: Pass Fail

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 | <input type="checkbox"/> N/A |
| 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. Root Port Test | <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 | |
|--|--|-------------------------------|--|

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Full Signal Quality Test Result: Pass Fail

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

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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With USB 3.0 PDK (NEC D720200xHCI):

All USB 2.0 peripherals seeking certification are required to demonstrate enumeration on the USB 3.0 PDK. Failure to enumerate and pass the USB 2.0 Chapter 9 Device Framework tests in USB30CV will prevent certification

Frameworks Test Result: Pass Fail

Chapter 9: Pass Fail

Interface: 1 MAX Power: 100 mA Remote Wakeup: Yes

MSC Test: Pass Fail N/A

UVC Test: Pass Fail N/A

HID Test: Pass Fail N/A

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More Detail Test Result:

1. Full Speed Upstream Signal Quality: Pass

- Overall result: pass!
- Signal eye:
eye passes
- EOP width: 166.18 ns
EOP width passes
- Measured signaling rate: 12.0025 MHz
signal rate passes
- Crossover voltage range: 1.53 V to 1.75 V, mean crossover 1.63 V
(first crossover at 1.58 V, 10 other differential crossovers checked)
crossover voltages pass
- Consecutive jitter range: -168.396 ps to 167.735 ps, RMS jitter 103.696 ps
Paired JK jitter range: -14.498 ps to 36.278 ps, RMS jitter 27.625 ps
Paired KJ jitter range: -133.832 ps to 82.528 ps, RMS jitter 85.724 ps
jitter passes

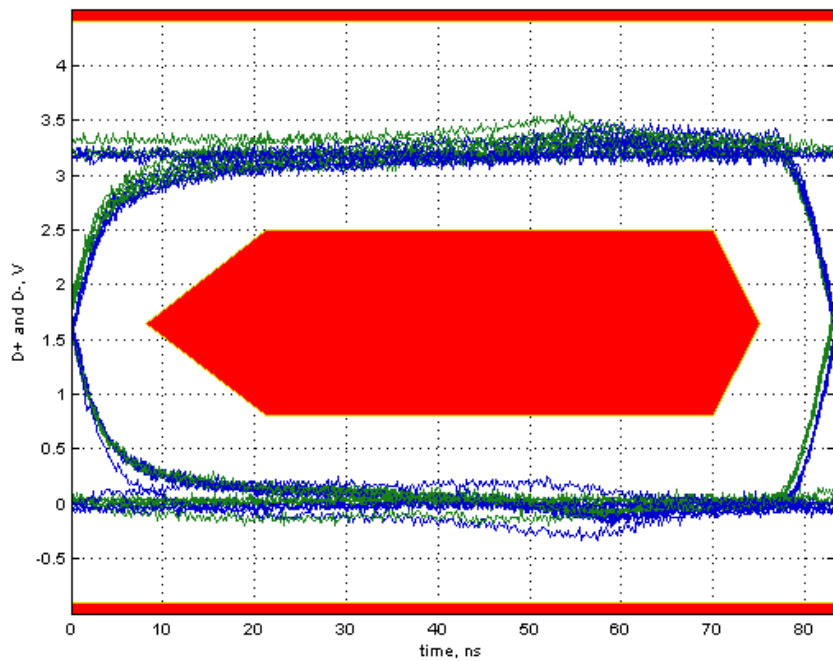
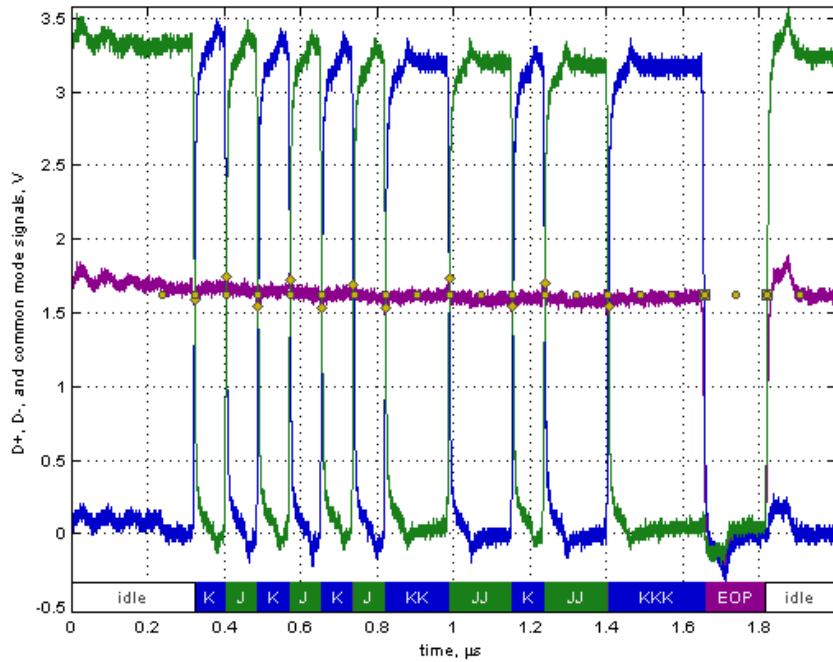
Additional Information

- Rising Edge Rate: 279.47 V/us (Equivalent risetime = 9.45 ns)
(minimum 132.00 V/us, maximum 660.00 V/us)
- Falling Edge Rate: 285.84 V/us (Equivalent risetime = 9.24 ns)
(minimum 132.00 V/us, maximum 660.00 V/us)
- Edge Rate Match: 2.23% (limit +/-10%)

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Signal Data and Eye



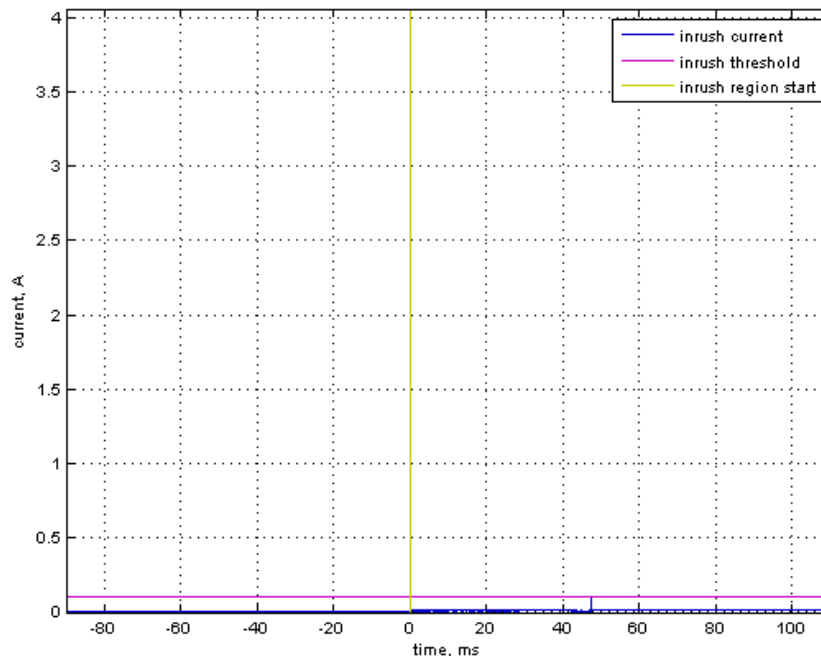
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2. Inrush Current: Pass

- Overall result: pass!
- Inrush at 5.000 V: 89.76 μC
*** inrush failure! *** (at 5.000 V, maximum compliant inrush is 50 μC)
*** waiver granted ***
- Region 1 Start: 0.0441 ms - End: 0.224 ms = 89.76 μC

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 Tektronix Test Equipment, version: 1.0
3. Universal Serial Bus Implementers Forum Device High-speed Electrical Test Procedure, version: 1.0

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