

USB-IF COMPLIANCE PROGRAM

USB 2.0 Test Report for Full Speed Device

TM

Company Name: Holtek Semiconductor Inc.

Model Name: HT82A523R

Product Type: Mouse

Product Receive Date: 2007/12/03

Test Start Date: 2007/12/03

Report Date: 2007/12/05

Test Result: **PASS**

Project ID : MOE-HOK-USB-010_1(U1)

USB-IF COMPLIANCE PROGRAM

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USB-IF COMPLIANCE PROGRAM

Company

Company Name: Holtek Semiconductor Inc.
Company Address: No.3, Creation Rd. II, Science Park, Hsinchu 300, Taiwan, R.O.C.
VID (Dec) 04D9 The VID for the company who apply the USB-IF logo.

Technical Contact

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Marketing Contact

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FAX Number: (03)5641557

Product Information:

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

*** These are requirement fields. All testing will be held until information is completed. ***

- Retail Device Device and Silicon Silicon Only
 Hi Power Low Power
 Bus Powered Self Powered
 Untethered B Tethered

Highest capacity tested for Mass Storage Device: _____

Device Category: _____ Device Description: _____

VID: 04D9 PID: 0000

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

Tester: Brian Tzeng

Authorized Signature: *Eric Chen*

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Legacy USB Compliance Tests

Frameworks Test Result: Pass Fail

Chapter 9: Pass Fail

HID View: Pass Fail N/A

MSC Test: Pass Fail N/A

UVC Test: Pass Fail N/A

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

Power Current Test Result: Pass Fail

Operating Power: 56 mA Unconfiguration Power: 14.37 mA (<100mA)

(=< Max Power <= 100mA for Low Power) (<=Max Power <= 100mA)

(=< Max Power <= 100mA for Self Power)

(=< Max Power <= 500mA for High Power)

Configuration Power: 28.7 mA

(=< Max Power <= 100mA for Low Power)

(=< Max Power <= 500mA for High Power)

Suspend Mode Power with Remote Wake up: 366.6 uA

Suspend Mode Power without Remote Wake up: 363.2 uA

(=< 2500uA for High Power /w Remote Wake Up)

(=< 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 | <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. 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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More Detail Test Result:

1. Full Speed Upstream Signal Quality: Pass

- Overall result: pass!
- Signal eye:
eye passes
- EOP width: 167.08ns
EOP width passes
- Receivers: reliable operation on tier 6
receivers pass
- Measured signaling rate: 12.0019Mb/s
signal rate passes
- Crossover voltage range: 1.56V to 1.71V, mean crossover 1.63V
(first crossover at 1.71V, 10 other differential crossovers checked)
crossover voltages pass
- Consecutive jitter range: -118.009ps to 121.991ps, RMS jitter 86.864ps
Paired JK jitter range: -60.000ps to -0.000ps, RMS jitter 42.426ps
Paired KJ jitter range: -60.000ps to 26.667ps, RMS jitter 35.463ps
jitter passes

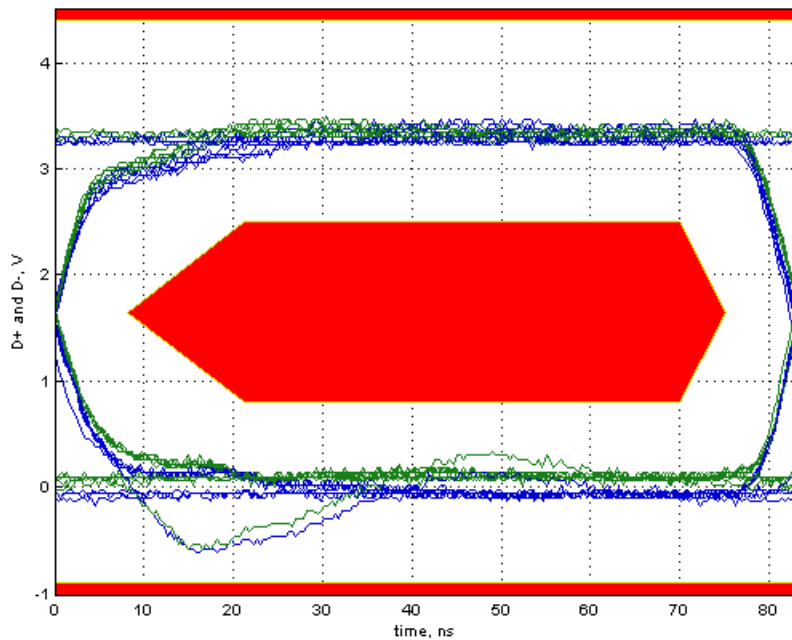
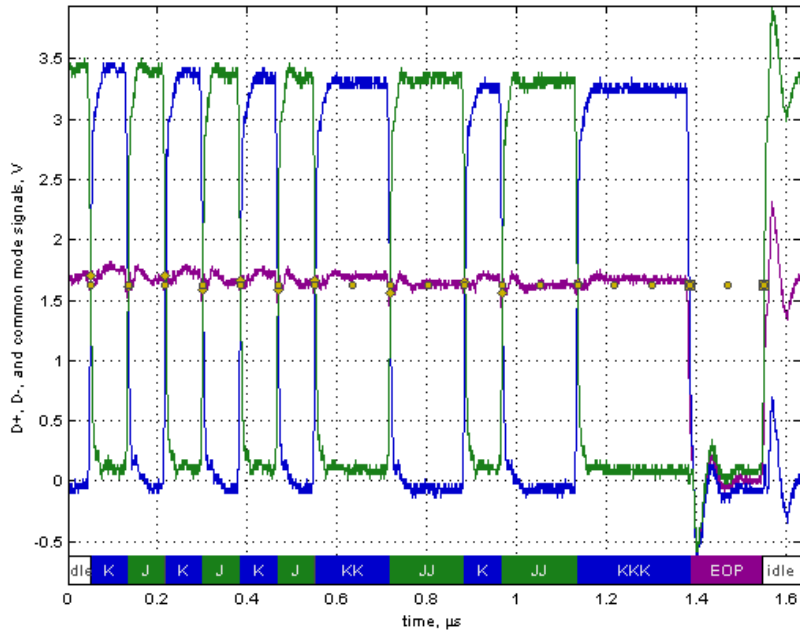
Additional Information

- Rising Edge Rate: 354.15 V/us (Equivalent risetime = 7.45ns)
(minimum 132.00 V/us, maximum 660.00 V/us)
- Falling Edge Rate: 297.12 V/us (Equivalent risetime = 8.89ns)
(minimum 132.00 V/us, maximum 660.00 V/us)
- Edge Rate Match: 19.19% (limit +/-10%)

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Signal Data and Eye



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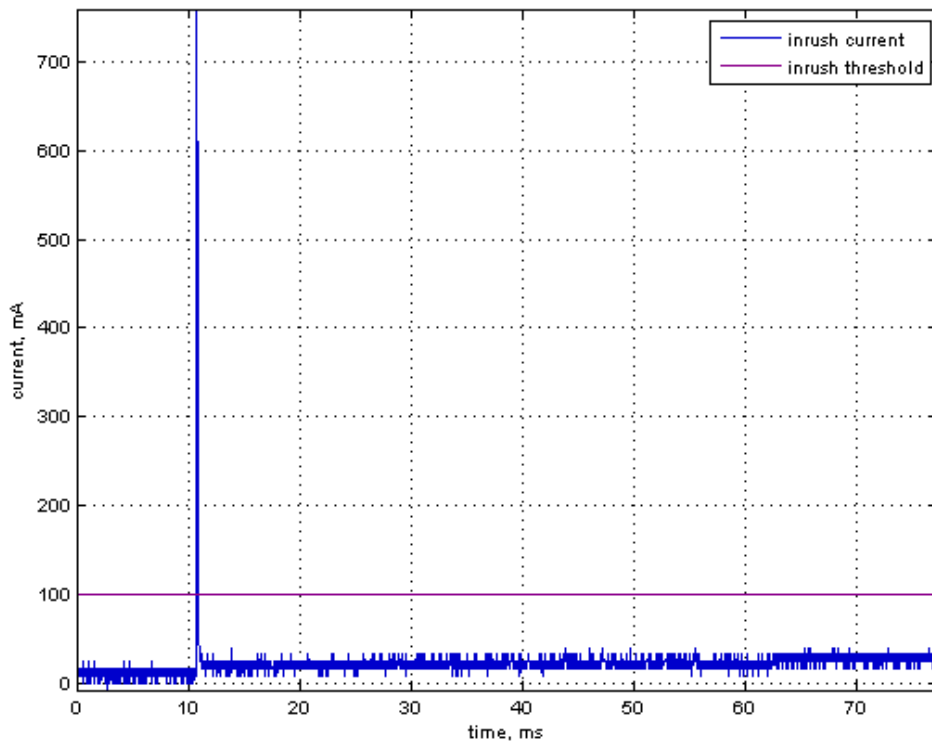
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2. Inrush Current Test: Pass

- Overall result: pass!
- Inrush at 5.080V: 26.79 μ C
inrush passes

Hot Plug (Attach) Current Draw



Test Procedure Reference:

1. Universal Serial Bus Implementers Forum Full and Low Speed Electrical and Interoperability Compliance Test Procedure, version: 1.3

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