

USB-IF COMPLIANCE PROGRAM

USB 2.0 Test Report for Low Speed Device

Company Name: Holtek Semiconductor Inc.

Model Name: HT82M23A

Product Type: _____

Product Receive Date: 2006/5/08

Test Start Date: 2006/5/16

Report Date: 2006/5/24

Test Result: **PASS**

Project ID : MOE-HOK-USB-005_1

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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

Name: 溫植燁
Phone Number: 03-5631999 分機 1397
E-Mail: jackal@holtek.com.tw
FAX Number: 03-5641557

Marketing Contact

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

Product Information:

- Retail Device Device and Silicon Silicon Only
 Hi Power Low Power
 Bus Powered Self Powered
 Tethered Un-tethered with specified "B" connector

(All of low speed devices must use captive cable)

Device Category: Mouse Device Description: _____

VID: _____ PID: _____

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

Tester: Brian Tzeng

Authorized Signature: James O

Over All Test Result: Pass

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Legacy USB Compliance Tests

Frameworks Test Result: Pass Fail

Chapter 9: Pass Fail

HID View: Pass Fail

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

Power Current Test Result: Pass Fail

Operating Power: 62.8 mA Unconfiguration Power: 21.51 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: 23.85 mA

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

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

Suspend Mode with Remote Wake-Up Power: 2020 uA

Suspend Mode without Remote Wake-Up Power: 1990 uA

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

(=< 500uA for others)

Interoperability Test Overall Result: Pass Fail OS: W2k XP

EHCI Controller: (Intel D865GLC Motherboard)

- | | | | |
|---|--|-------------------------------|---|
| 1. Enumeration and Driver installation: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 2. Operation with Default Driver: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 3. Update Driver: | <input type="checkbox"/> Pass | <input type="checkbox"/> Fail | <input checked="" type="checkbox"/> N/A |
| 4. Install Additional Software: | <input type="checkbox"/> Pass | <input type="checkbox"/> Fail | <input checked="" type="checkbox"/> N/A |
| 5. DUT Demonstrates Operation: | <input type="checkbox"/> Pass | <input type="checkbox"/> Fail | <input checked="" type="checkbox"/> N/A |
| 6. DUT Operation Speed: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 7. Interoperability – Operate all device: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 8. Hot Detach & Reattach: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 9. Topology Change: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 10. Warn Boot: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 11. Cold Boot: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 12. Active S1 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 13. Inactive S1 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |
| 14. Active S3 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail | |

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UHCI Controller: (Intel D865GLC Motherboard)

- | | | |
|---|--|-------------------------------|
| 1. Enumeration and Driver installation: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 2. Interoperability – Operate all device: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 3. Hot Detach & Reattach: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 4. Topology Change: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 5. Warn Boot: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 6. Cold Boot: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 7. Active S1 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 8. Inactive S1 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 9. Active S3 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |

OHCI Controller: (PCI Adapter)

- | | | |
|---|--|-------------------------------|
| 1. Enumeration and Driver installation: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 2. Interoperability – Operate all device: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 3. Hot Detach & Reattach: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 4. Topology Change: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 5. Warn Boot: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 6. Cold Boot: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 7. Active S1 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 8. Inactive S1 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 9. Active S3 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |

EHCI Controller: (PCI Adapter)

- | | | |
|---|--|-------------------------------|
| 1. Enumeration and Driver installation: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 2. Interoperability – Operate all device: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |
| 3. Active S3 Suspend and Resume: | <input checked="" type="checkbox"/> Pass | <input type="checkbox"/> Fail |

Signal Quality Test Result: Pass Fail

Low 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. Low Speed Upstream Signal Quality: Pass

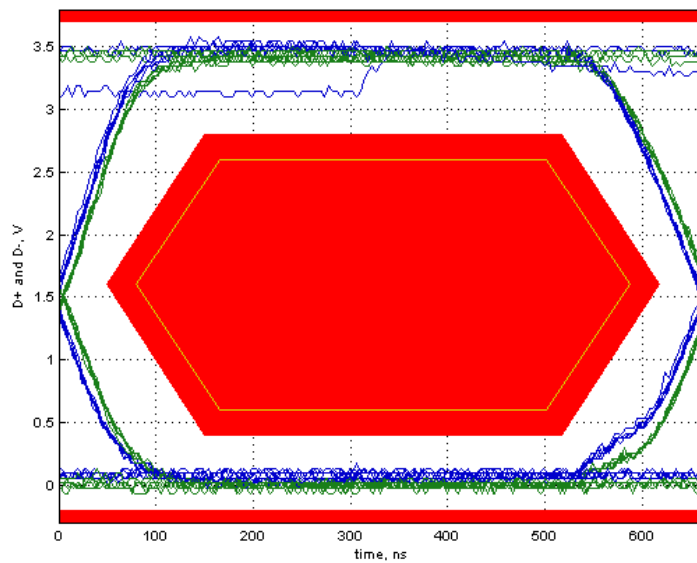
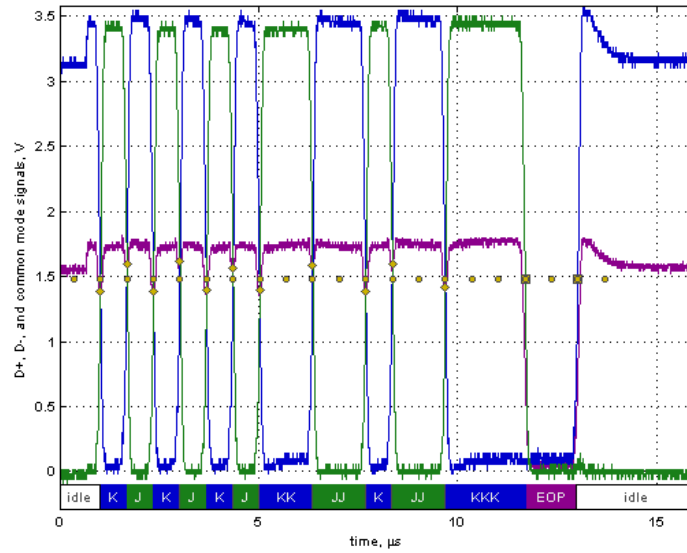
- Overall result: pass!
- Signal eye:
eye passes
- EOP width: 1.32 μ s
EOP width passes
- Receivers: reliable operation on tier 6
receivers pass
- Measured signaling rate: 1.4987MHz
signal rate passes
- Crossover voltage range: 1.38V to 1.61V, mean crossover 1.48V
(first crossover at 1.38V, 10 other differential crossovers checked)
crossover voltages pass
- Consecutive jitter range: -0.970ns to 0.830ns, RMS jitter 0.543ns
Paired JK jitter range: -0.467ns to 0.733ns, RMS jitter 0.451ns
Paired KJ jitter range: -1.800ns to 1.400ns, RMS jitter 1.342ns
jitter passes

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Signal Data and Eye



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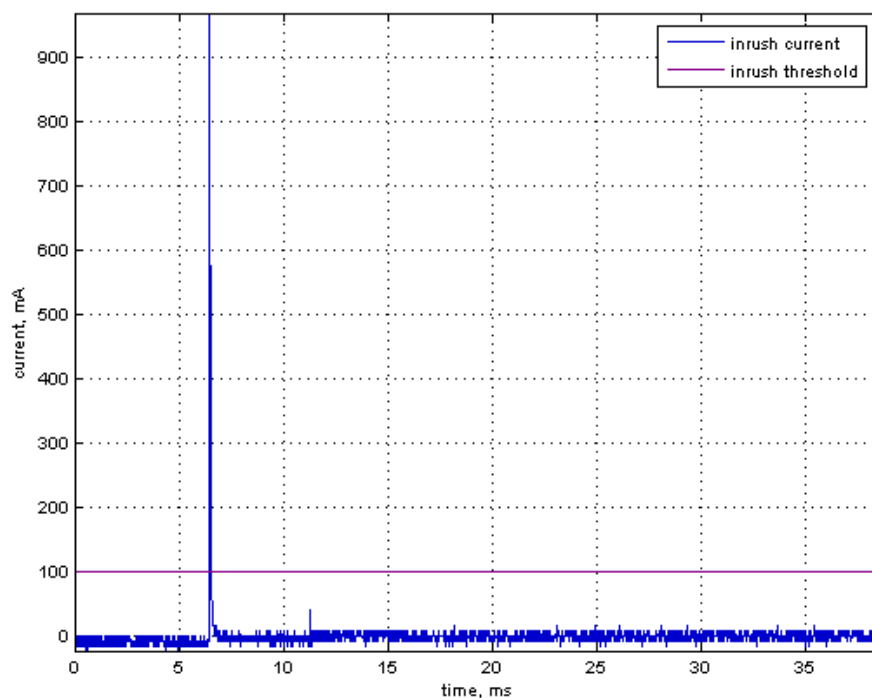
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2. Inrush Current: Pass

- Overall result: pass!
- Inrush at 5.100V: 30.91 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

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