

USB-IF COMPLIANCE PROGRAM

USB 2.0 Test Report for Low Speed Device

TM

Company Name: Holtek Semiconductor Inc.

Model Name: HT82M9AE

Product Type: Mouse

Product Receive Date: 2007/11/21

Test Start Date: 2007/11/22

Report Date: 2007/11/27

Test Result: **PASS**

Notice: 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.

Project ID : MOE-HOK-USB-009_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 e00, 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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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: _____ Device Description: _____

VID: 04D9 PID: 119A

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

Tester: Robert Liu

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

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

Power Current Test Result: Pass Fail

Operating Power: 53.2 mA Unconfiguration Power: 6.53 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: 21.71 mA

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

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

Suspend Mode Power with Remote Wake up: 383 uA

Suspend Mode Power without Remote Wake up: 383 uA

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

(<= 500uA for others)

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 |

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UHCI Controller:

12. Interoperability – Operate all device: Pass Fail

OHCI Controller:

13. Interoperability – Operate all device: Pass 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: 1.33 μ s
EOP width passes
- Receivers: reliable operation on tier 6
receivers pass
- Measured signaling rate: 1.5010MHz
signal rate passes
- Crossover voltage range: 1.61V to 1.82V, mean crossover 1.71V
(first crossover at 1.64V, 10 other differential crossovers checked)
crossover voltages pass
- Consecutive jitter range: -2.653ns to 4.569ns, RMS jitter 2.303ns
Paired JK jitter range: -1.111ns to 0.089ns, RMS jitter 0.872ns
Paired KJ jitter range: -1.644ns to 0.289ns, RMS jitter 1.318ns
jitter passes

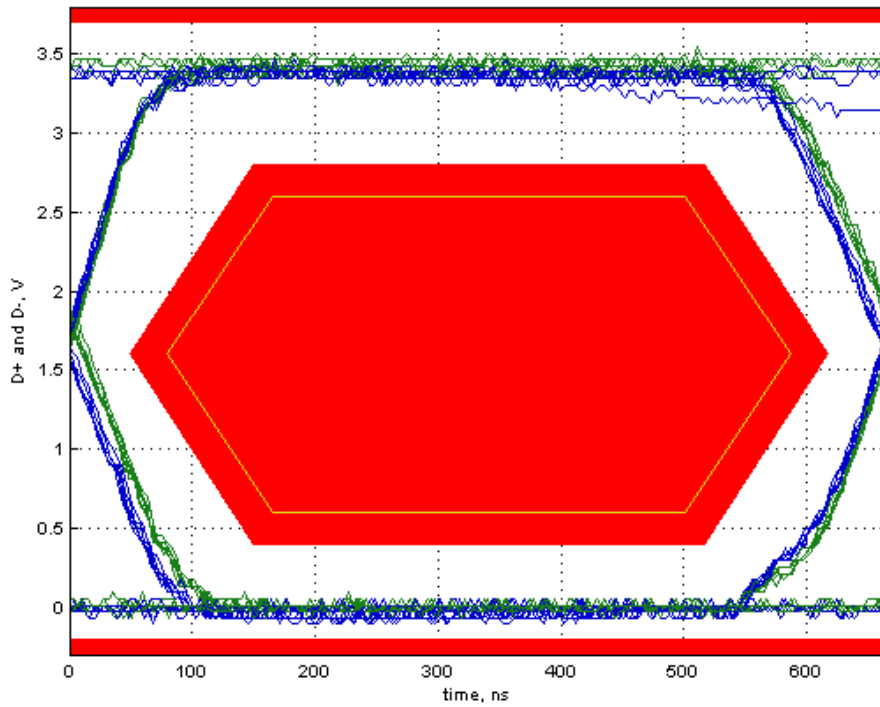
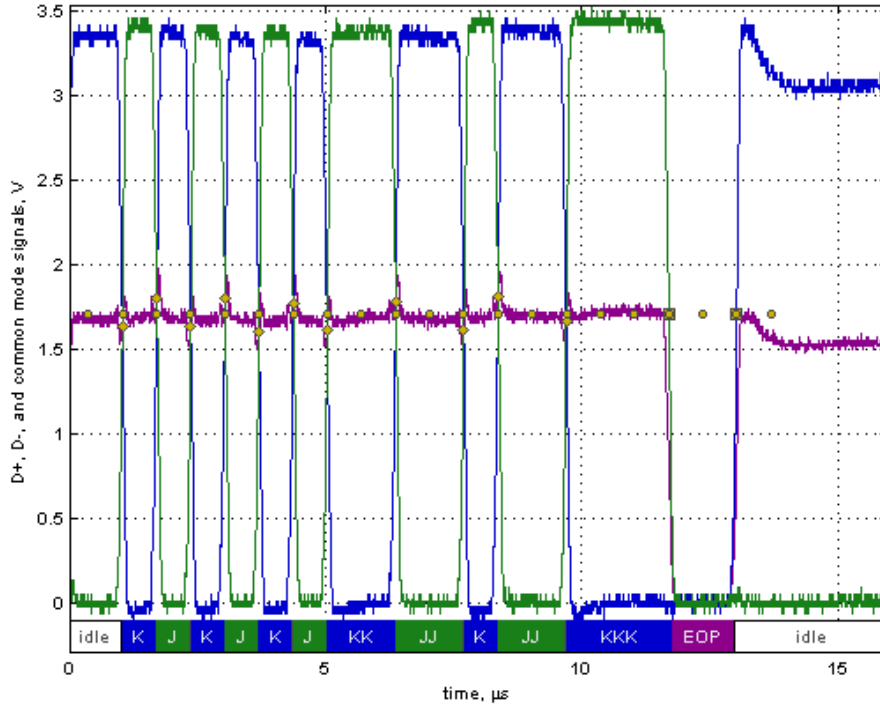
Additional Information

- Rising Edge Rate: 22.16 V/us (minimum 119109.688.800000e+000, maximum 32.00V/us)
- Rising Edge Rate: 35.20 V/us (minimum
- Falling Edge Rate: 18.50 V/us (minimum 142666.128.800000e+000, maximum 32.00V/us)
- Falling Edge Rate: 35.20 V/us (minimum
- Edge Rate Match: 19.78% (limit +/-20%)

Signal Data and Eye

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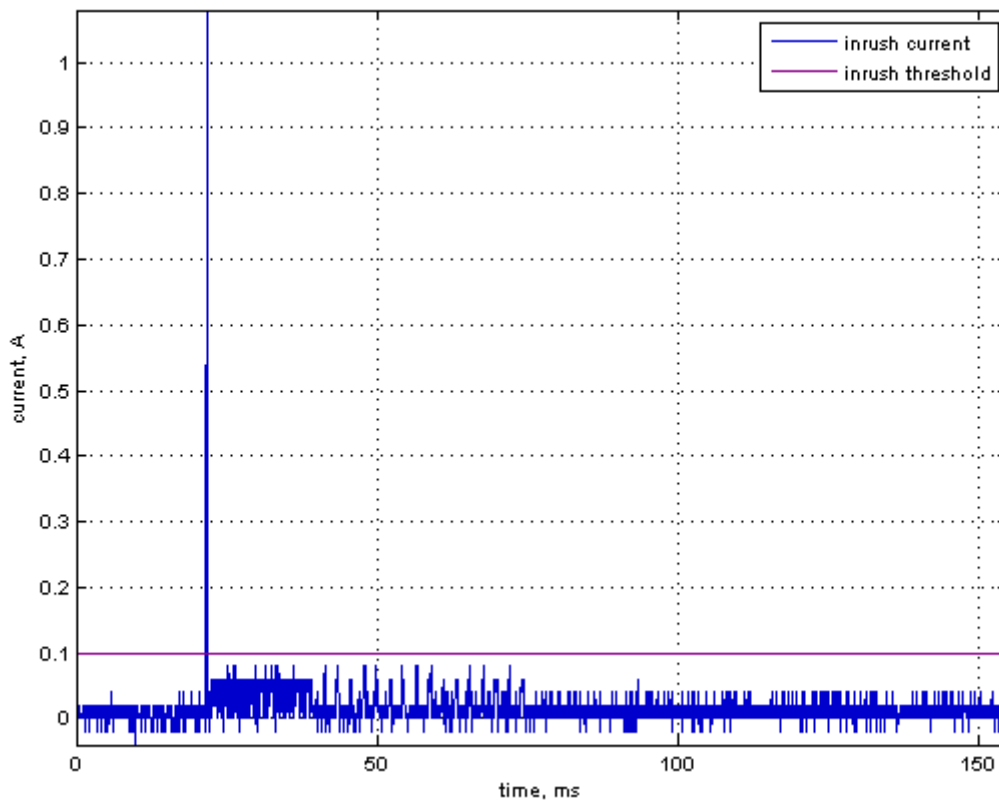
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2. Inrush Current Test: Pass

- Overall result: pass!
- Inrush at 5.080V: 74.38 μ C
*** inrush failure! *** (at 5.080V, maximum compliant inrush is 50.8 μ C)
*** waiver granted ***

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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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