

# USB-IF COMPLIANCE PROGRAM

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## USB 2.0 Test Report for Full Speed Device

TM

Company Name: Holtek Semiconductor Inc.

Model Name: HT82A520R

Product Type: HID device

Product Receive Date: 2009/05/21

Test Start Date: 2009/05/21

Report Date: 2009/05/25

Test Result: **PASS**

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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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## 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

Name: \_\_\_\_\_  
Phone Number: \_\_\_\_\_  
E-Mail: \_\_\_\_\_  
FAX Number: \_\_\_\_\_

## 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: HID device      Device Description: \_\_\_\_\_

VID: 04d9      PID: f520

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

Tester: Alex Chuang

Authorized Signature: *Eric Chen*

Project ID : UNC-HOK-USB-017\_1



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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: 13.12 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: 12.87 mA (<100mA)

( $\leq$  Max Power  $\leq$  100mA)

Configuration Power: 12.94 mA

( $\leq$  Max Power  $\leq$  100mA for Low Power)

( $\leq$  Max Power  $\leq$  500mA for High Power)

Suspend Mode Power with Remote Wake Up: 340 mA

Suspend Mode Power without Remote Wake Up: 342 mA

( $\leq$  2500uA)

**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                              |

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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

Full Speed UP Stream Signal Quality:  Pass  Fail

Inrush Current Test:  Pass  Fail

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

D+:    mV /    mV

D- :    mV /    mV

V<sub>Bus</sub>:    mV /    mV

(All values <= 400mV)

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## More Detail Test Result:

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### 1. Full Speed Upstream Signal Quality: Pass

- Overall result: pass!
- Signal eye:  
eye passes
- EOP width: 166.96 ns  
EOP width passes
- Measured signaling rate: 12.0038 MHz  
signal rate passes
- Crossover voltage range: 1.59 V to 1.75 V, mean crossover 1.66 V  
(first crossover at 1.67 V, 10 other differential crossovers checked)  
crossover voltages pass
- Consecutive jitter range: -386.380 ps to 373.206 ps, RMS jitter 274.683 ps  
Paired JK jitter range: 34.609 ps to 81.269 ps, RMS jitter 62.460 ps  
Paired KJ jitter range: -389.031 ps to 415.360 ps, RMS jitter 285.880 ps  
jitter passes

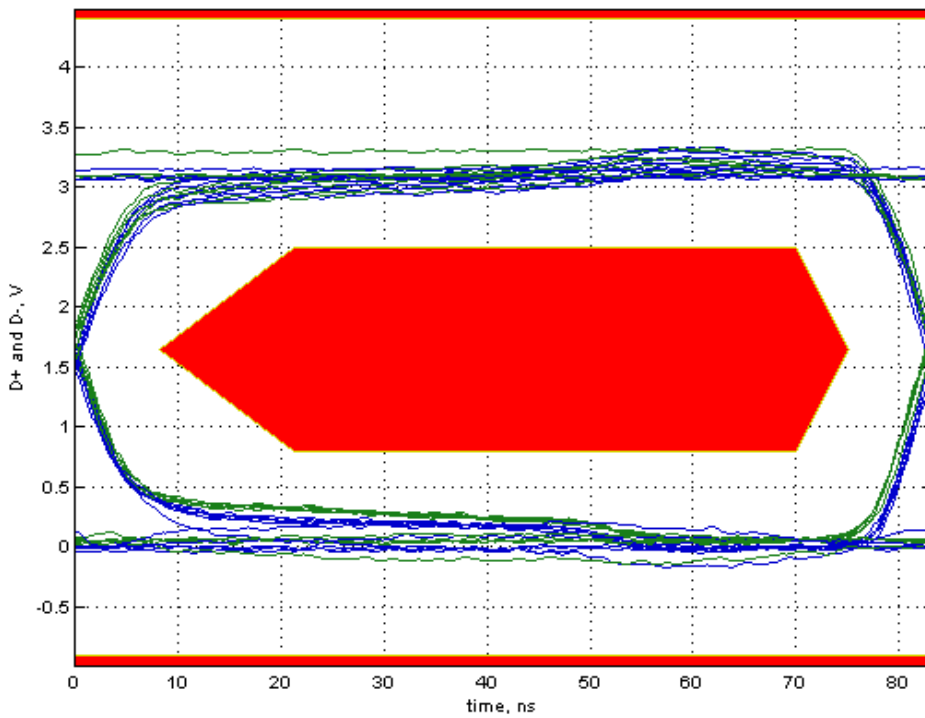
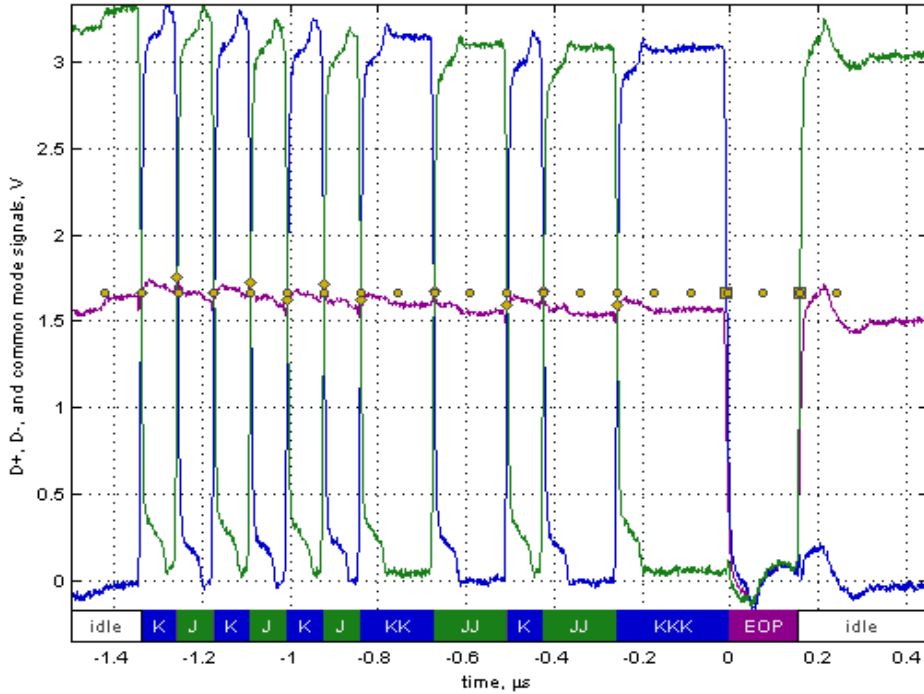
### Additional Information

- Rising Edge Rate: 247.44 V/us (Equivalent risetime = 10.67 ns)  
(minimum 132.00 V/us, maximum 660.00 V/us)
- Falling Edge Rate: 254.54 V/us (Equivalent risetime = 10.37 ns)  
(minimum 132.00 V/us, maximum 660.00 V/us)
- Edge Rate Match: 2.79% (limit +/-10%)

### Signal Data and Eye

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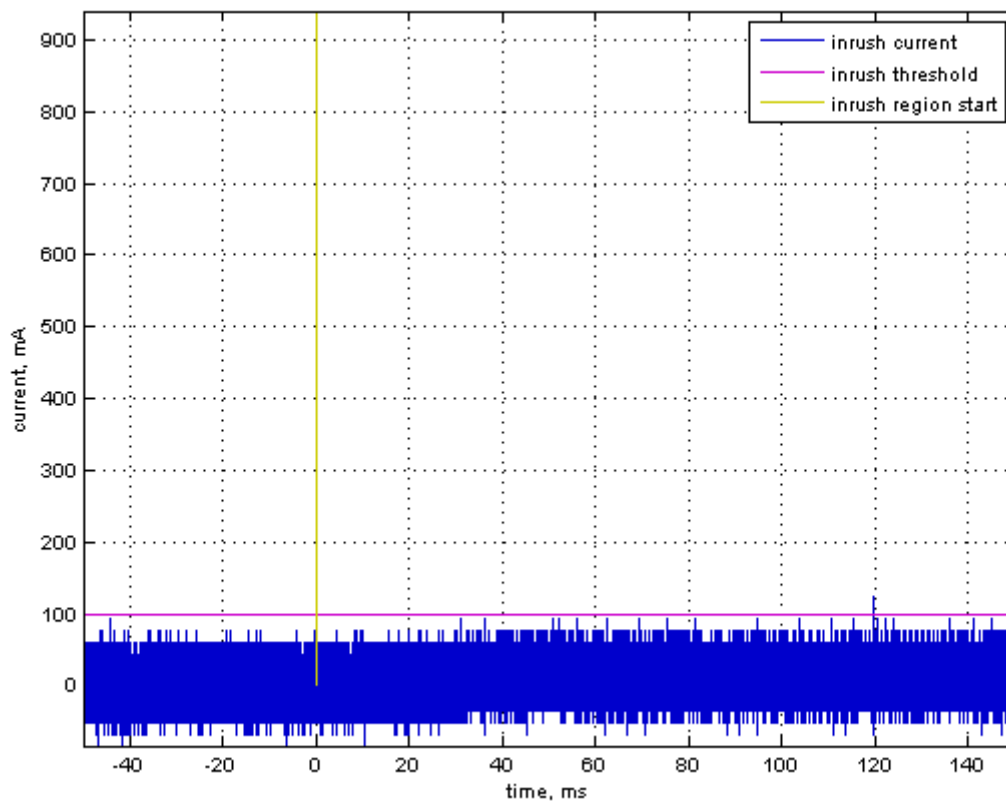
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## 2. Inrush Current: Pass

- Overall result: pass!
- Inrush at 5.000 V: 25.72  $\mu\text{C}$   
inrush passes
- Region 1 Start: 0.00148 ms - End: 0.229 ms = 25.72  $\mu\text{C}$

### Hot Plug (Attach) Current Draw

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#### 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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