

# USB-IF COMPLIANCE PROGRAM

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## USB 2.0 Test Report for Full Speed Device

TM

Company Name: Holtek Semiconductor

Model Name: HT82A821R

Product Type: Audio Class

Product Receive Date: 2007/5/4

Test Start Date: 2007/5/4

Report Date: 2007/05/08

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 : UNC-HOK-USB-005\_1



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## Company

Company Name: Holtek Semiconductor  
Company Address: No.3, Creation Rd II, Science Park, Hsinchu 300, Taiwan, R.O.C.  
VID (Dec): 1241 The VID for the company who apply the USB-IF logo.

## Technical Contact

Name: Lee Chien Chia (李乾嘉)  
Phone Number: 03-5631999 ex. 1218  
E-Mail: eric\_lee@holtek.com.tw  
FAX Number: 03-5641557

## 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: \_\_\_\_\_ Device Description: \_\_\_\_\_

VID: 0x04D9      PID: 0x2821

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

Tester: Sam Chen

Authorized Signature: James O

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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: 3 MAX Power: 500 mA Remote Wakeup: N/A

**Power Current Test Result:**  Pass  Fail

Operating Power: 97.2 mA

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

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

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

Unconfiguration Power: 14.3 mA (<100mA)

(<=Max Power <= 100mA)

Configuration Power: 19.2 mA

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

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

Suspend Mode Power: 1095 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

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<sub>Bus</sub>: 0 mV / 0 mV

(All values <= 400mV)

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## More Detail Test Result:

### 1. Power Current: Pass with Waiver

The suspend mode power should not exceed 500uA.

**\*\*\*Specification: All devices must draw 500uA or less current while in suspend unless the device is High-powered and has remote wakeup enabled where 2500uA is permitted.\*\*\***

**\*\*\*Waiver ID 17: The USB-IF allows any device to consume up to 2500uA while suspend.\*\*\***

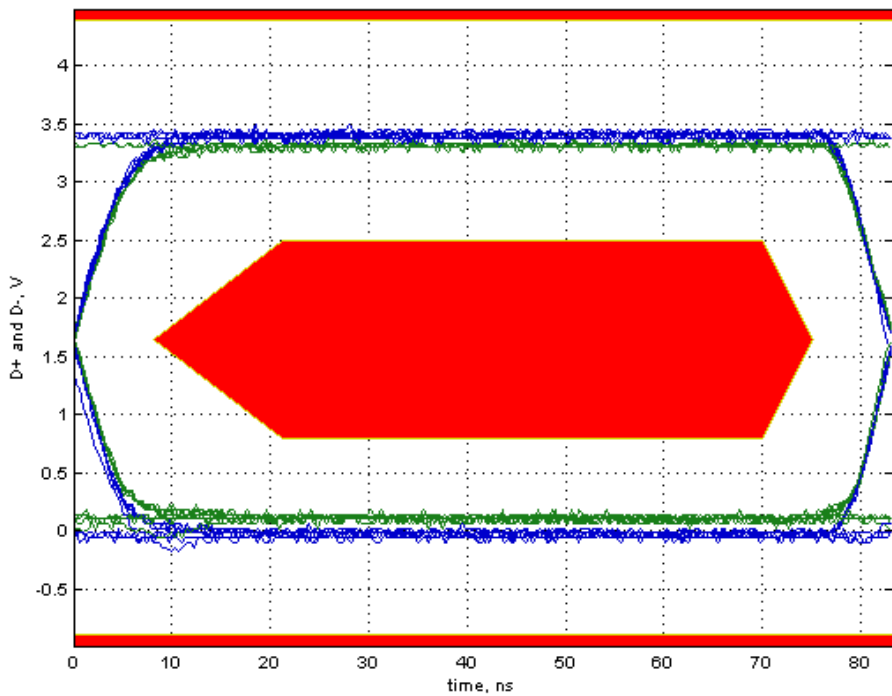
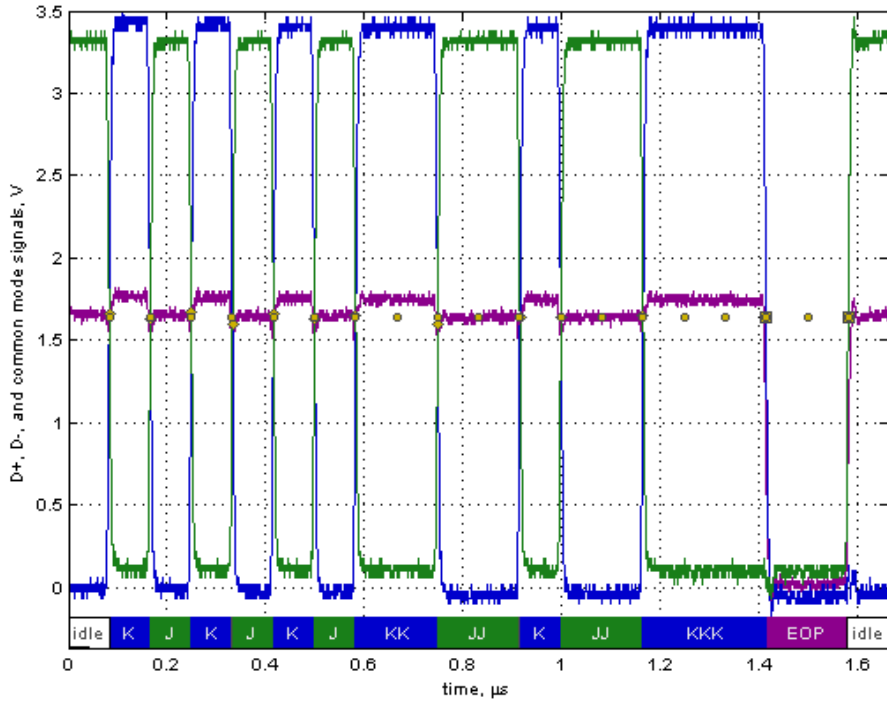
### 2. Full Speed Upstream Signal Quality: Pass

- Overall result: pass!
- Signal eye:  
eye passes
- EOP width: 166.99ns  
EOP width passes
- Receivers: reliable operation on tier 6  
receivers pass
- Measured signaling rate: 12.0033MHz  
signal rate passes
- Crossover voltage range: 1.60V to 1.67V, mean crossover 1.64V  
(first crossover at 1.66V, 10 other differential crossovers checked)  
crossover voltages pass
- Consecutive jitter range: -49.721ps to 66.020ps, RMS jitter 33.817ps  
Paired JK jitter range: -42.593ps to 41.667ps, RMS jitter 34.690ps  
Paired KJ jitter range: -69.444ps to 73.704ps, RMS jitter 57.468ps  
jitter passes

[Signal Data and Eye](#)

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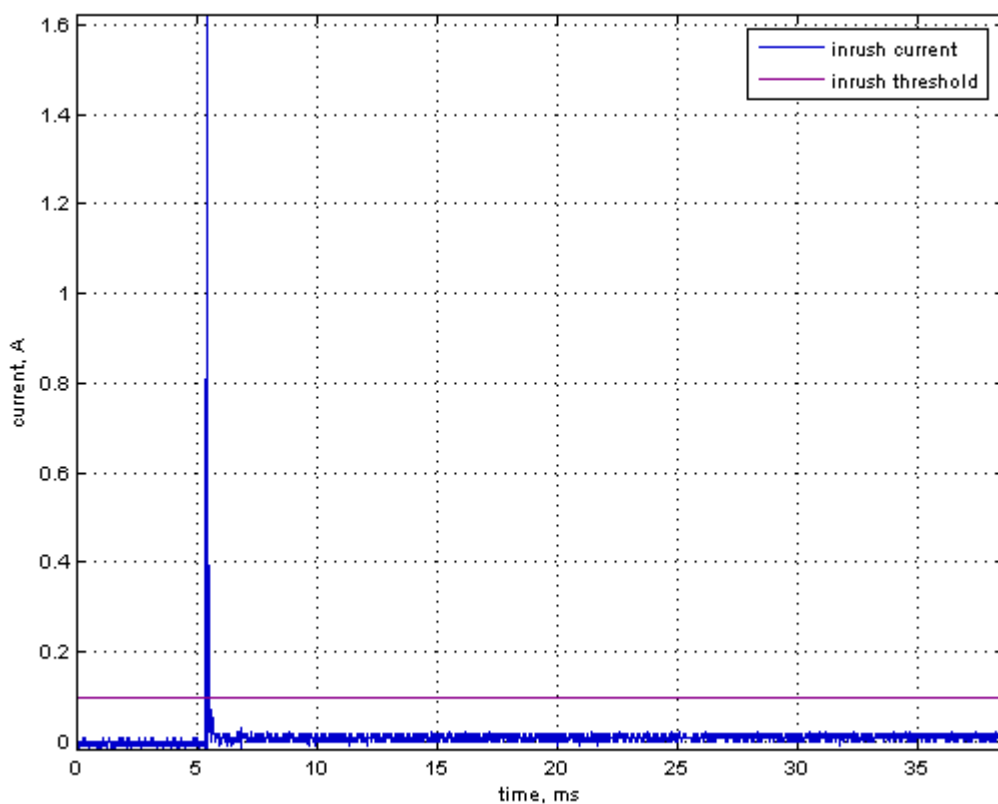
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## 3. Inrush Current: Pass

- Overall result: pass!
- Inrush at 5.080V: 50.11 $\mu$ C  
inrush passes

### 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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