

# USB-IF COMPLIANCE PROGRAM

---

## USB 2.0 Test Report For Low Speed Device

TM

Company Name: Holtek Semiconductor Inc.

VID (Dec) 04D9 The VID for the company who apply the USB-IF logo.

Model Name: HT82B40R

Product Type: USB Keyboard

Report Date: 04/27/2010

Test Result: **PASS**

Tester: Homer Hung

Authorized Signature: *Eric Chen*

Project ID : KB-HOK-USB-006\_1

# USB-IF COMPLIANCE PROGRAM

---

## Legal Disclaimer

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.



# USB-IF COMPLIANCE PROGRAM

## Legacy USB Compliance Tests

**Frameworks Test Result:**  Pass  Fail

This test primarily covers USB-IF testing of devices and hubs for compliance with the standard commands in Chapters 9 and 11 of the USB 2.0 specification. This specification does not describe the full set of USB-IF tests and assertions for these devices.

Chapter 9:

VID: 04d9 PID: 0d40

Chapter 9:  Pass  Fail

HID View:  Pass  Fail  N/A

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

**Power Current Test Result:**  Pass  Fail

**Power Type:** Low Powered Device

Operating Power: 27.9 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: 14.4 mA  
( $\leq$  100mA)

Configuration Power: 14.4 mA

Suspend Mode Power with Remote Wake Up: 350 uA  
Suspend Mode Power without Remote Wake Up: 350 uA  
( $\leq$  Max Power  $\leq$  100mA for Low Power) ( $\leq$  2500uA)  
( $\leq$  Max Power  $\leq$  500mA for High Power)

Suspend Port Power: 350 uA  
( $\leq$  2500uA for not Supporting USB Battery Charging)  
( $\leq$  100mA for Supporting USB Battery Charging)

# USB-IF COMPLIANCE PROGRAM

**Interoperability Test Overall Result:**  Pass  Fail

## **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. Root Port Test                         | <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 |  |
|--|--|-------------------------------|--|

# USB-IF COMPLIANCE PROGRAM

---

**Full Signal Quality Test Result:**  Pass  Fail

Connector Type: **Untethered** (Tethered mean no standard B or special B connector)

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

(All values <= 400mV)

TM

# USB-IF COMPLIANCE PROGRAM

---

## With USB 3.0 PDK (NEC D720200xHCI):

All USB 2.0 peripherals seeking certification are required to demonstrate enumeration on the USB 3.0 PDK. Failure to enumerate and pass the USB 2.0 Chapter 9 Device Framework tests in USB30CV will prevent certification

Frameworks Test Result:  Pass  Fail

Chapter 9:  Pass  Fail

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

MSC Test:  Pass  Fail  N/A

UVC Test:  Pass  Fail  N/A

HID Test:  Pass  Fail  N/A

TM

# USB-IF COMPLIANCE PROGRAM

---

## More Detail Test Result:

---

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

- Overall result: pass!
- Signal eye:  
eye passes
- EOP width: 1.33  $\mu$ s  
EOP width passes
- Measured signaling rate: 1.5032 MHz  
signal rate passes
- Crossover voltage range: 1.69 V to 1.82 V, mean crossover 1.75 V  
(first crossover at 1.73 V, 10 other differential crossovers checked)  
crossover voltages pass
- Consecutive jitter range: -1.166 ns to 1.021 ns, RMS jitter 0.760 ns  
Paired JK jitter range: 0.647 ns to 0.980 ns, RMS jitter 0.830 ns  
Paired KJ jitter range: -1.120 ns to 1.236 ns, RMS jitter 0.959 ns  
jitter passes

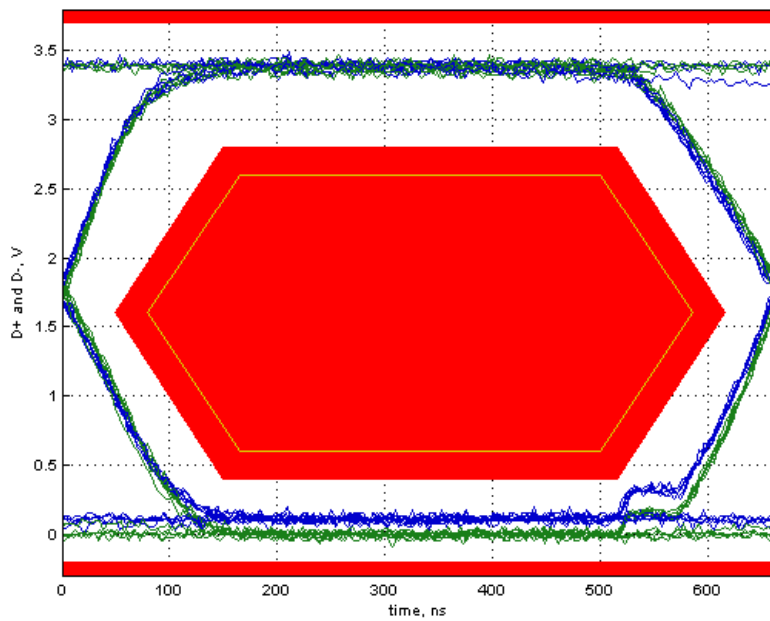
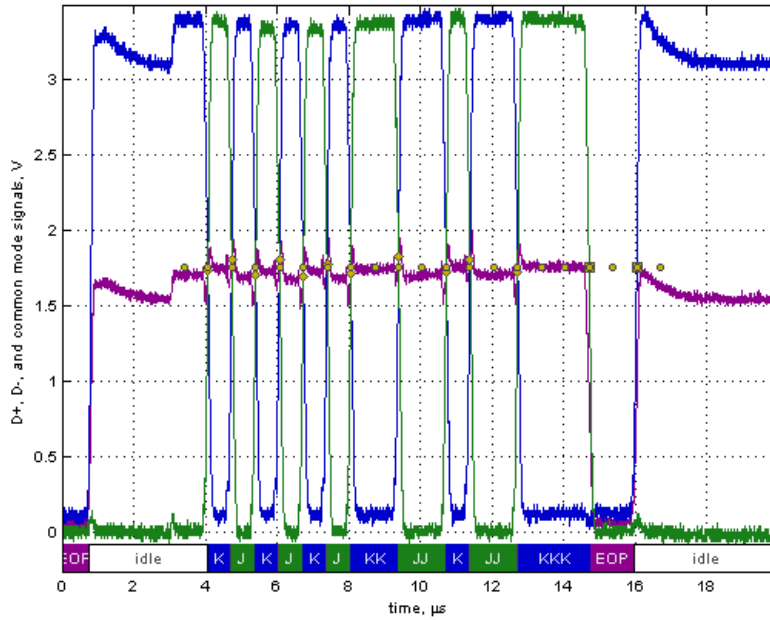
### Additional Information

- Rising Edge Rate: 17.43 V/us (Equivalent risetime = 151.46 ns)  
(minimum 8.80 V/us, maximum 35.20 V/us)
- Falling Edge Rate: 13.94 V/us (Equivalent risetime = 189.40 ns)  
(minimum 8.80 V/us, maximum 35.20 V/us)
- Edge Rate Match: 25.05% (limit +/-20%)

### Signal Data and Eye

Project ID : KB-HOK-USB-006\_1

# USB-IF COMPLIANCE PROGRAM



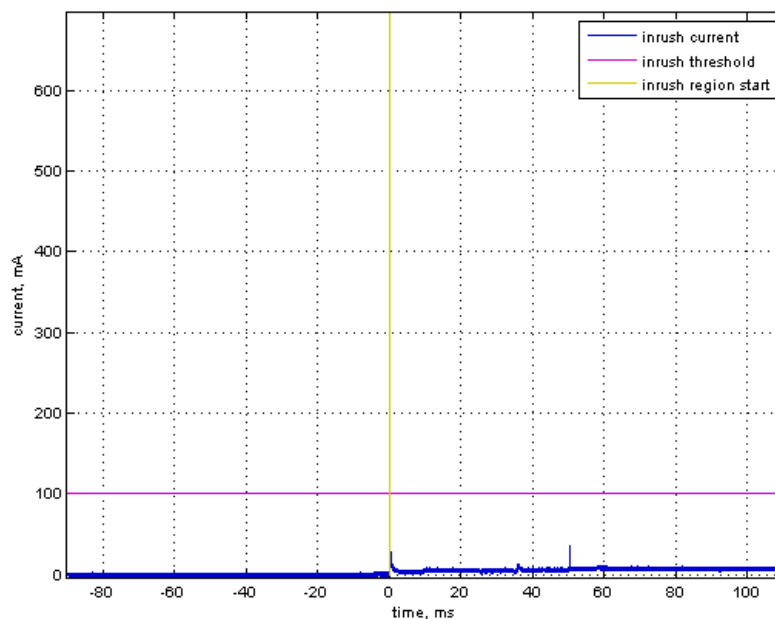
TM

# USB-IF COMPLIANCE PROGRAM

## 2. Inrush Current: Pass

- Overall result: pass!
- Inrush at 5.000 V: 17.77  $\mu\text{C}$   
inrush passes
- Region 1 Start: 0.00101 ms - End: 0.23 ms = 17.77  $\mu\text{C}$

### 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
2. Universal Serial Bus Implementers Forum Device High-speed Electrical Test Procedure For Tektronix Test Equipment, version: 1.0
3. Universal Serial Bus Implementers Forum Device High-speed Electrical Test Procedure, version: 1.0

Project ID : KB-HOK-USB-006\_1