Future Technology Devices International Ltd.

Technical Note TN_114

USB Device Testing and Marking

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A major contributing factor in the success of USB as a peripheral interface has been the close adherence to the USB specification and the testing environment which ensures interoperability. This document describes some of the USB testing that is required for USB compliance and what the different USB logos mean.

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1 Introduction

A major contributing factor in the success of USB as a peripheral interface has been the close adherence to the specification and the testing program that ensures USB interoperability. This technical note describes some of the USB testing that is required and what the different USB symbols mean.

2 USB Compliance Testing

The USB standard defines a suite of compliance tests that must be passed before a device can claim to be USB compliant. A product designed with a compliant chipset does not automatically make the end product compliant with the USB specification. The end product must also pass the USB compliance tests before it can claim to be USB compliant. The tests are broadly split into two parts, electrical and interoperability (software).

There are test companies which will test products and services for OEMs, but another alternative is to visit a USB Implementers Forum "plugfest". These are workshops held by the governing body at regular intervals throughout the world where you can have your device tested and ratified for free provided the OEM is a member of the USB Implementers Forum in good standing.

There are also free test kits available from the USB Implementers Forum to allow you to perform some of these tests before submitting your product for test.

For more details see www.usb.org

2.1 Electrical Tests

2.1.1 Signal quality

The signal quality is a measure of the signal rise and fall times and peak levels. This is usually measured on an oscilloscope against a template known as an "eye" diagram where the signal must remain within the upper and lower limits.

2.1.2 Power

The power consumption of the device is verified in all power modes of the device e.g. during enumeration, in suspend or when active. It also looks at the in rush current on plug in and exiting suspend.

2.2 Interoperability

Interoperability is concerned with the device descriptors and device configuration being correct and not interfering with other devices that may be plugged in to a host at the same time. (See TN_113 Simplified Description of USB Enumeration for more information)

3 Product Labelling

There are two main USB symbols in common use. The USB Trident symbol and the USB logo.

3.1 Trident Symbol

The trident symbol is most commonly seen on USB connectors. It indicates the device is compatible with USB. Any USB compatible device may use the trident symbol. It does **not** signify the device has passed the USB compliance tests.

Figure 3.1: The USB Trident Symbol

3.2 USB Logo

The USB Logo may only be used under the following conditions:

1) The OEM has obtained a current Vendor ID (VID) from the USB Implementers Forum through membership or purchase.
2) The device has passed all USB compliance tests.
3) The OEM has executed a logo license agreement with the USB Implementers Forum.

Official USB logos are provided to the OEM after execution of the license agreement. Examples from the USB-IF web site are shown here:

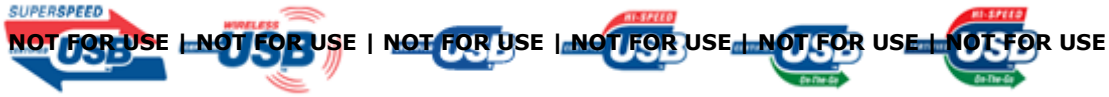

Figure 3.2: USB Logo Examples

FTDI is not authorized to extend use of the USB logos under any circumstances. Also note that OEMs who have obtained a block of Product IDs for use with the FTDI Vendor ID *cannot* use the USB logos under any circumstances. See Technical Note TN_100 USB Vendor / Product ID Guidelines for further details.

4 FTDI Devices

FTDI devices are all tested against the USB compliance tests. The devices have passed these tests as "Silicon Building Blocks" and are compliant to the USB specification.

Part Number	TID
FT232BL	40360210
FT245BL	40360111
FT232R	40680004
FT245R	40680005
FT2232D	40680003
FT2232H	pending
FT4232H	pending

Table 4.1: FTDI USB TID Numbers

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Distributor and Sales Representatives

Please visit the Sales Network page of the FTDI Web site for the contact details of our distributor(s) and sales representative(s) in your country.

Appendix A – Terminololgy

FTDI	Future Technology Devices International
USB	Universal Serial Bus

Appendix B – References

USB Implementers Forum – www.usb.org

USB Specification - http://www.usb.org/developers/docs/usb_20_052709.zip

TN_113 Simplified Description of USB Enumeration –
http://www.ftdichip.com/Documents/TechnicalNotes.htm

Appendix E – Revision History

Version 1.0 First Release 28/10/2009

