1.0 Objective

This specification defines the performance, test, quality and reliability requirements of the USB Cable Assembly.

2.0 Scope

This specification is applicable to the termination characteristics of the USB cable which provides interconnection of computer peripherals.

3.0 Ratings

3.1 Operating Voltage Rating = $30V_{AC}$

3.2 Operating Current Rating = 1.5A per contact for standard USB, 1A per contact for Mini and Micro series.

3.3 Operating Temperature Range = -30 to 80℃, includes the terminal temperature rise when powered.

4.0 Applicable Documents

4.1 FCI Specifications

4.1.1 Engineering drawing: Applicable for FCI USB cable P/N 10133304.

4.2 Industry or Trade Association standards

4.2.1 USB Standards, include USB, Micro-USB Cables and Connectors Specification.

4.3 National or International Standards

4.3.1 Flammability: UL94V-0 or similar applicable specification

4.3.2 EIA 364: Electrical Connector/Socket Test Procedures Including Environmental Classifications.

5.0 Requirements

5.1 Qualification

Connectors furnished under this specification shall be capable of meeting the qualification test requirements specified herein.

5.2 Material and Finish

The material and finish for each component shall be as specified herein or on equivalent drawings.

5.3 Design and Construction

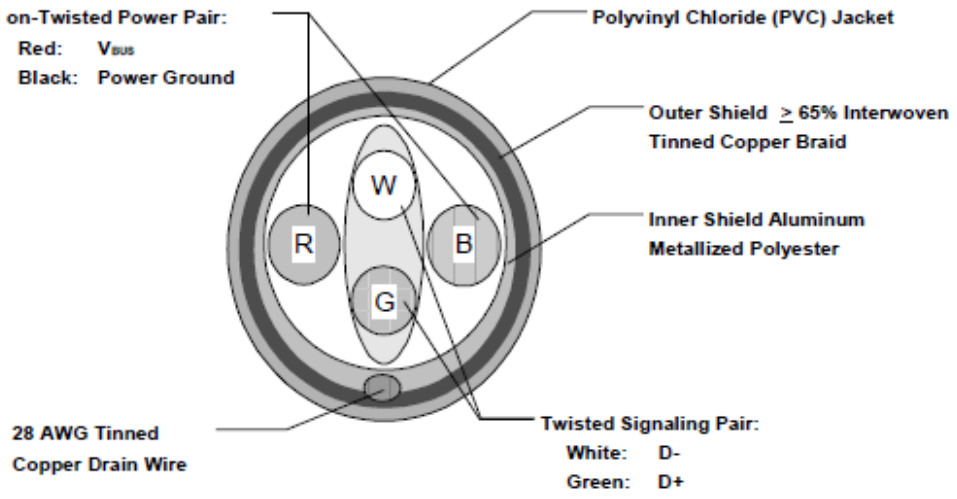
Connectors shall be of the design, construction, and physical dimensions specified on the applicable product drawing. There shall be no cracks, burrs, or other physical defects that may impair performance.

5.4 Cables

5.4.1 Cables should have a physical length of no more than 2M and meet the requirements of the USB cable defined in USB standards.

5.4.2 The high-speed USB cable consists of one 20-28 AWG non-twisted power pair, another 28 AWG data pair, a 28 AWG copper drain wire, outer shield and overall jacket.

5.4.3 Cable construction: Below is the typical high-speed cable construction.



5.4.4 Construction of non-twisted power pair, data pair and drain wire include wire gauge, conductor outside diameter, stranded tinned conductors and insulation should meet the requirements defined in USB standard.

5.5 Overmold

The size of overmolds of USB A plug, Micro-A and Micro-B plug must conform to the constrains shown in USB standards.

6.0 Electrical/Mechanical/Environmental Characteristics

6.1 Connectors used on USB cables should meet the electrical, mechanical and environmental characteristics listed in USB standards, if not listed in the specification. For detail test procedure and requirements, please refer to USB, Micro-USB Cables and Connectors Specifications.

6.2 Electrical/Mechanical/Environmental Characteristics of connectors

Description	Test Procedure	Requirements
Durability	EIA-364-09 Tested at cycle rate of 500 cycles per hour for auto machine and 200 cycles for manual cycle	1500 cycles for Standard USB 10000 cycles for Micro Series
Mating Force	EIA-364-13 Mechanical forces that are required for inserting a USB connector	35N max. at a speed of 12.5mm per minute.
Unmating Force	EIA-364-13 Mechanical forces that are required for extracting a USB connector	Standard A and B: 10N min. Micro Series: 8N min. Test at a speed of 12.5mm per min.
Dielectric Withstanding Voltage	EIA 364-20	Standard: 500 VAC for one min. Micro Series: 100 VAC for one min.
Insulation Resistance	EIA 364-21	Pre test: Standard: 1000 MΩ min. Micro Series: 1000 MΩ min. Post test: 100 MΩ min. final.
Low Level Contact Resistance	EIA 364-23 To measure the electrical resistance across a pair of mated contacts. Measured at 20 mV max. open circuit at 100 mA.	Standard and Micro Series: 30 mΩ max. Post test: 10 mΩ max. change

6.2 Cable Wiring Diagrams

6.2.1 P/N: 10133304, USB Standard A plug to Micro-B Plug

Signal Name	Std. A Plug		Micro-B Plug	Signal Name
VBUS	1	RED	1	VBUS
D-	2	WHITE	2	D-
D+	3	GREEN	3	D+
GND	4	BLACK	5	GND
Shield	Shell	GROUND	Shell	Shield

6.3 USB cables should conduct the following electrical tests after assembly:

6.3.1 100% open / short test.

6.3.2 Insulation Resistance: Min. 10 Mega ohms, test at DC300V for 0.01 sec.

6.3.3 Contact Resistance: 1.0 ohm max.

REVISION RECORD

Rev	Page	Description	EC#	Date
A	ALL	New Released		2015-05-29