

Quick Lock USB 3.0 Micro-D High-Speed Characterization

December 20, 2017



1. Product Description

- 1.1. **Assembly P/N:** A90020-620
- 1.2. **Connector Description:** 2-meter USB QuickLock Jumper
- 1.3. **Cable Primaries:** 26 AWG SPC ePTFE/PFA (SS Pairs); 26 AWG TPC PFA (D+/D-); 28 AWG TPC PFA (Power)
- 1.4. **Cable Shield:** Braided Shielded (90% Min coverage) + Foil
- 1.5. **Cable Jacket:** Polyurethane UL94 V0 & LSZH Jacket

2. High-Speed Performance Targets¹

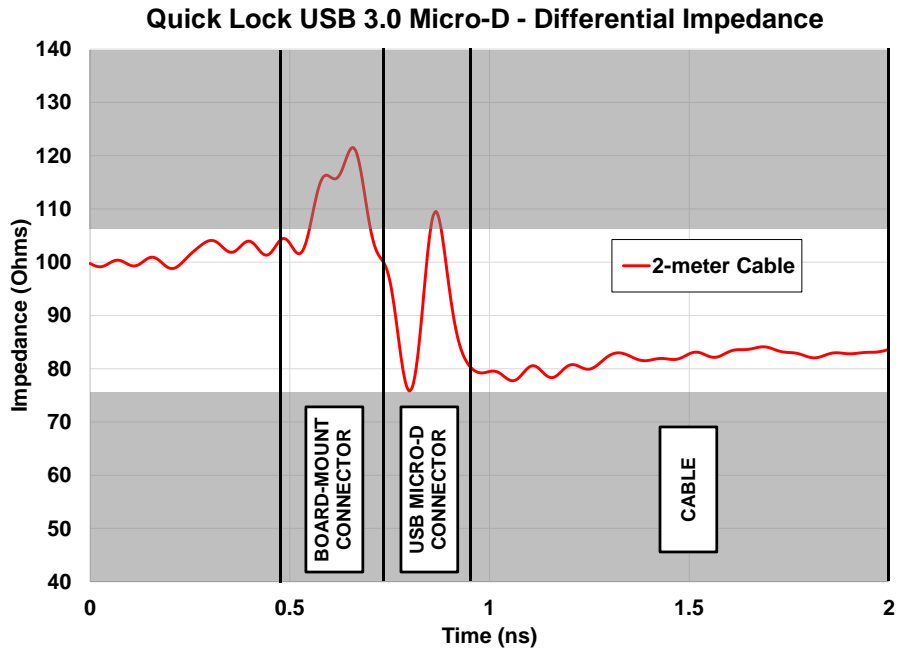
- 2.1. **Connector Differential Impedance:** $90 \Omega \pm 15 \Omega$ based on 50 ps (20%-80%) t_{RISE}
- 2.2. **Differential Insertion Loss:** Defined by the following vertices:
 - (100 MHz, -1.5 dB)
 - (1.25 GHz, -5.0 dB)
 - (2.5 GHz, -7.5 dB)
 - (7.5 GHz, -25 dB)
- 2.3. **Differential Near-End Crosstalk:** Defined by the following vertices:
 - (100 MHz, -32 dB)
 - (2.5 GHz, -32 dB)
 - (3 GHz, -23 dB)
 - (7.5 GHz, -23 dB)
- 2.4. **Differential-to-Common-Mode Conversion:** Less than -20 dB from DC to 7.5 GHz

¹ Per "Universal Serial Bus 3.0 Specification", June 6, 2011.

2.1 Connector Differential Impedance

TDR (Time Domain Reflectometer) measures the impedance based on a 50ps (20%-80%) rise time.

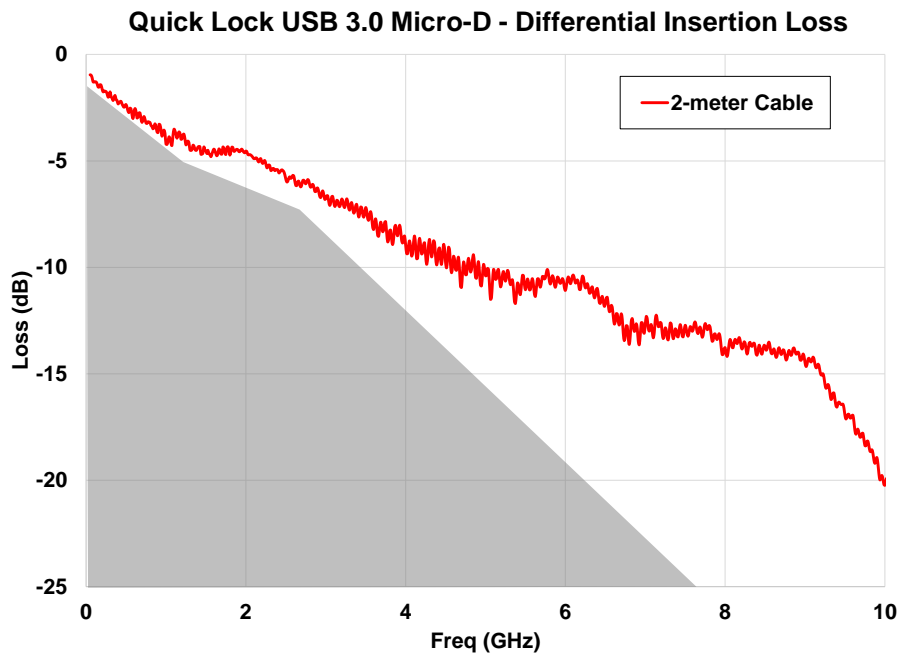
	Target	2-meter
Z_{MAX}	75 Ω	76 Ω
Z_{MAX}	105 Ω	110 Ω



2.2 Differential Insertion Loss

Insertion loss is the ratio of the transmitted signal to the incident signal.

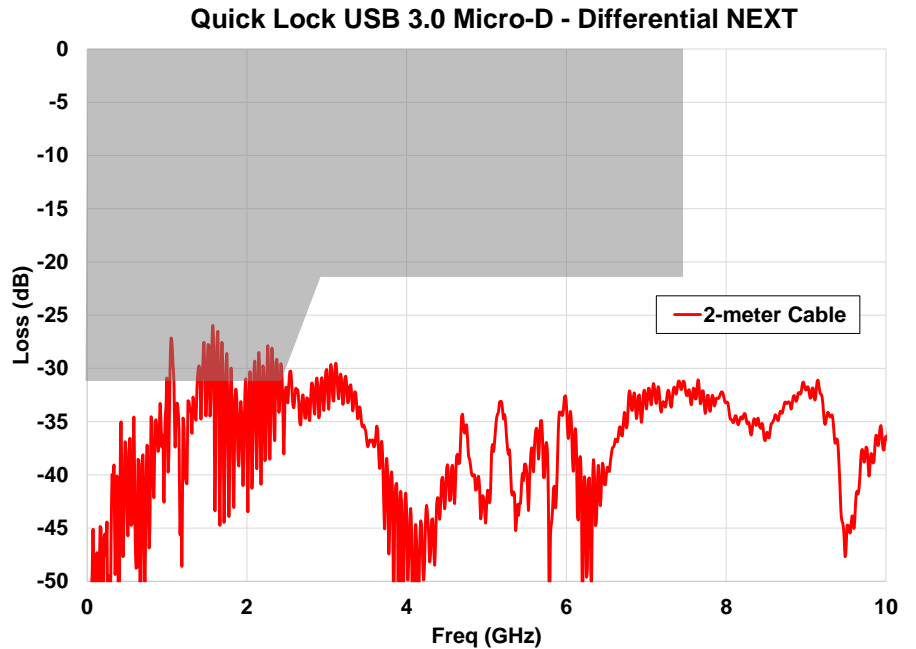
Freq	Loss	
	Target	2-meter
0.10 GHz	-1.5 dB	-1.4 dB
1.25 GHz	-5.0 dB	-4.2 dB
2.50 GHz	-7.5 dB	-5.8 dB
7.50 GHz	-25.0 dB	-12.6 dB



2.3 Differential Near-End Crosstalk

Crosstalk measures the unwanted coupling between differential pairs.

Freq	Crosstalk	
	Target	2-meter
0.10 GHz	-32 dB	-45 dB
2.50 GHz	-32 dB	-26 dB
3.00 GHz	-23 dB	-26 dB
7.50 GHz	-23 dB	-26 dB



2.4 Differential-to-Common-Mode Conversion

Differential-to-Common-Mode conversion is an indicator of intra-pair skew and EMI.

Freq	DCM	
	Target	2-meter
7.5 GHz	-20 dB	-23 dB

