

Quick Lock USB 3.0 Micro-D Vibration and Mechanical Shock Test

December 6, 2017



1. Product Description

- 1.1 **Assembly P/N:** A90000-801 & A90002-801
- 1.2 **Connector Descriptions:** 18-inch USB Quick Lock Connector Assembly & Board-mount Mate

2. Test Description¹

- 2.1 **Purpose:** Perform vibration and mechanical shock testing on mated connectors described above.
- 2.2 **Method:** Follow test plan as follows:
 - LLCR (Low Level Contact Resistance)
 - Vibration
 - LLCR
 - Mechanical Shock
 - LLCR

3. Test Summary

- 3.1 **LLCR:** Evaluation of contact resistance characteristics (before and after critical tests)
- 3.2 **Vibration:** Evaluation of electrical stability when exposed to vibratory environment.
- 3.3 **Mechanical Shock:** Evaluation of electrical stability when subjecting to shock.

4. Test Results

Test	Requirement	Results
LLCR Pin 1 & Pin 4	30.0 mΩ MAX	29.7 mΩ MAX
	All Other Contacts	50.0 mΩ MAX
Vibration	No Damage	PASSED
	1.0 microsecond	PASSED
LLCR	10.0 mΩ MAX CHG	+3.3 mΩ MAX CHG
Shock	No Damage	PASSED
	1.0 microsecond	PASSED
LLCR	10.0 mΩ MAX CHG	+3.4 mΩ MAX CHG

¹ Full report available upon request.

5. Test Procedures

5.1 LLCR: Performed in accordance with EIA 364, Test Procedure. Test conditions:

- Test current = 100 mA maximum
- Open circuit voltage = 20 millivolts
- Positions tested = 9 per test sample

5.2 Vibration: Performed in accordance with MIL-DTL-83513G, Paragraphs 3.5.12/4.5.14, and EIA 364, Test Procedure 28, condition IV. Test conditions:

- Frequency = 10 to 2000 to 10 Hz
- Amplitude = 0.06" da or 20 G's
- Duration = 4.0 hrs/axis, 3 axes total
- Test Current = 100 mA
- Sweep time = 20.0 minutes

5.3 Shock: Performed in accordance with MIL-DTL-83513G, Paragraphs 3.5.13/4.5.14, and EIA 364, Test Procedure 27, condition E. Test conditions:

- Peak Value = 50 G
- Duration = 11 milliseconds
- Wave Form = Sawtooth
- No. of shocks = 1 shock per direction; 6 shocks total
- Test Current = 100 mA

6. Test Equipment

EQUIPMENT LIST

ID#	Next Cal	Last Cal	Equipment Name	Manufacturer	Model #	Serial #	Accuracy	Freq. Cal
280	4/10/2015	4/10/2014	Micro-Ohm Meter	Keithley Instr.	580	477845	See Cal Cert	12 mon
553	5/29/2015	5/29/2014	12 channel Power Unit	PCB Piezotronics	483A	1303	See Cal Cert	12 mon
684	6/18/2015	6/18/2014	Accelerometer	PCB Piezotronics	353B04	47648	See Cal Cert.	12 mon
874	N/A	N/A	Computer	M&P	Vectra	us75203327	N/A	N/A
1166	10/31/2015	10/31/2013	Sine/Rndm Vib Control Digitizer	Hewlett Packard	E1432A	US39342279	See Cal Cert	12 mon
1167	N/A	N/A	Interface	Hewlett Packard	E8491B	US390100753	N/A	N/A
1168	N/A	N/A	Mainframe	Hewlett Packard	E8408A	US39000357	N/A	N/A
1175	5/28/2015	5/28/2014	Discontinuity Monitor	Metronics	DM3000-10	6-2K-1	See Cal Cert	12 mon
1271	N/A	N/A	Amplifier	Unholtz Dickie	SA15	3483	N/A	N/A
1272	N/A	N/A	Shaker Table	Unholtz Dickie	S202PB	263	N/A	N/A
1366	N/A	N/A	Main Frame	Agilent H.P.	8408A		N/A	N/A
1367	N/A	N/A	Interface	Agilent H.P.	E8491A		N/A	N/A
1368	6/20/2015	6/20/2013	Sine/Rnd Control digitizer	Agilent H.P.	E1432A	US35470169	See Manual	24 mon
1634	10/31/2015	10/31/2013	Vibration Controller	HP Agilent	E1434A	US38090307	See Cal Cert	12 mon
1681	N/A	N/A	Computer	Emachines	T3393	CK855-B00-02829	N/A	N/A
1790	N/A	N/A	Power Amplifier	Unholtz Dickie	SAI30F	4860	N/A	N/A
1791	N/A	N/A	Vibration Shaker Table	Unholtz Dickie	S452-12	314	N/A	N/A
1793	N/A	N/A	Computer	Dell	Optiplex	CKWCPC1	N/A	N/A
1797	9/23/2015	9/23/2014	Accelerometer	PCB Piezotronics	353B04	LW167522	See Cal Cert	12 mon

TABLE 6-1: List of test equipment