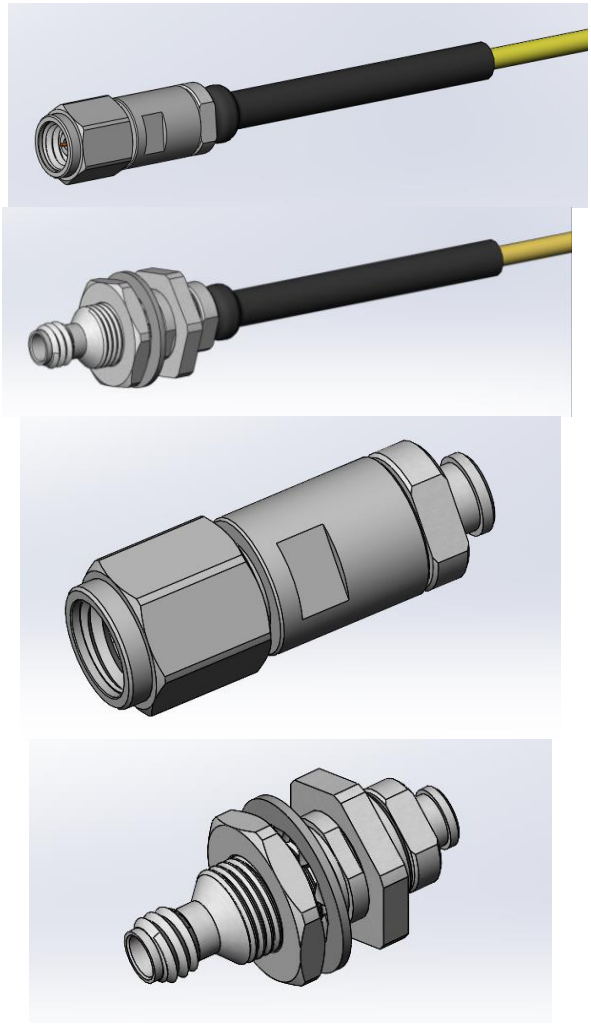
Project: Design Qualification Test Report	Tracking Code: CR-1189703_Report_Rev_1
Requested by: Iris Wang	Date: 6/5/2025
Part #: LL110-10SP-505050-0152/ LL110-10BJ-505050-0152	Tech: Tony Wagoner
Part description: LL110-10SP / LL110-10BJ	Qty to test: 20
Test Start: 05/15/2024	Test Completed: 05/25/2024



DESIGN QUALIFICATION TEST REPORT

LL110-10SP / LL110-10BJ
LL110-10SP-505050-0152/ LL110-10BJ-505050-0152
PRF10-P-C-VP-110B-SS/PRF10-J-C-VP-110B-BS

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
1/17/2025	**1**	**Initial Issue**	**PC**

CERTIFICATION

All instruments and measuring equipment were calibrated to National Institute for Standards and Technology (NIST) traceable standards according to IS0 10012-l and ANSI/NCSL 2540-1, as applicable.

SCOPE

To perform the following tests: Design Qualification test. Please see test plan.

APPLICABLE DOCUMENTS

Standards: MIL-PRF-39012

TEST SAMPLES AND PREPARATION

1) All materials were manufactured in accordance with the applicable product specification.
2) All test samples were identified and encoded to maintain traceability throughout the test sequences.
3) After soldering, the parts to be used for LLCR and IR_DWV testing were cleaned according to TLWI-0001.
4) Either an automated cleaning procedure or an ultrasonic cleaning procedure may be used.
5) The automated procedure is used with aqueous compatible soldering materials.
6) Parts not intended for testing LLCR and IR_DWV are visually inspected and cleaned if necessary.
7) Any additional preparation will be noted in the individual test sequences.
8) Solder Information: Lead Free

FLOWCHARTS

Mating/Unmating/Durability

Group 1
LL110-10SP-505050-0152
LL110-10BJ-505050-0152
5 Assemblies

Step	Description
1.	Interface Gaging
2.	DWV at Test Voltage (1) - Non Standard DWV = 500 VAC
3.	LLCR (2) - Non Standard *Note: Signal and ground.*
4.	Cycles Quantity = 500 Cycles *Note: By hand. Torque each time to 4 in-lbs. Rotate plug coupling nut only. Do not rotate entire assembly. MIL-PRF-39012, Paragraph. 4.6.12*
5.	LLCR (2) - Non Standard Max Delta = 15 mOhm *Note: Signal and ground.*
6.	Interface Gaging

(1) DWV at Test Voltage = Other
Test Condition = 1 (Sea Level) Test voltage applied for 60 seconds
MIL-PRF-39012, Paragraph. 4.6.14 per MIL-STD-202-301

(2) LLCR = Other
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max
MIL-PRF-39012, Paragraph 4.6.13 except current to be 100mA nominal and voltage to be 20 mV maximum.

FLOWCHARTS Continued

IR/DWV

Pin-to-Ground

Group 1

LL110-10SP-505050-0152

LL110-10BJ-505050-0152

5 Assemblies

Step	Description
1.	IR (2) - Non Standard
2.	DWV at Test Voltage (1) - Non Standard Test Voltage = 500 VAC
3.	LLCR (3) - Non Standard *Note: Signal and ground.*
4.	Thermal Shock (4) - Non Standard
5.	IR (2) - Non Standard
6.	DWV at Test Voltage (1) - Non Standard Test Voltage = 500 VAC
7.	LLCR (3) - Non Standard Max Delta = 15 mOhm *Note: Signal and ground.*

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(1) DWV at Test Voltage = Other
Test Condition = 1 (Sea Level) Test voltage applied for 60 seconds
MIL-PRF-39012, Paragraph. 4.6.14 per MIL-STD-202-301

(2) IR = Other
Test Condition = 500V DC, 2 Minutes Max
MIL-PRF-39012, Paragraph 4.6.8 per MIL-STD-202-302

(3) LLCR = Other
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max
MIL-PRF-39012, Paragraph 4.6.13 except current to be 100mA nominal and voltage to be 20 mV maximum.

(4) Thermal Shock = Other
Exposure Time at Temperature Extremes = 1/2 Hour
Test Condition = I (-65°C to +125°C)
Test Duration = test condition B except 10 cycles instead of 5.
MIL-PRF-39012, Paragraph. 4.6.17 per MIL-STD-202-107

FLOWCHARTS Continued

Cable Pull

Group 1
LL110-10SP-505050-0152
5 Assemblies

Step	Description
1.	Cable Retention (2) - Non Standard *Note: Pull-to-destruct.*

Group 2
LL110-10BJ-505050-0152
5 Assemblies

Step	Description
1.	Cable Retention (2) - Non Standard *Note: Pull-to-destruct.*

Group 3
LL110-10SP-505050-0152
LL110-10BJ-505050-0152
5 Assemblies

Step	Description
1.	Interface Gaging
2.	LLCR (3) - Non Standard *Note: Signal and ground.*
3.	Cable Retention (1) - Non Standard *Note: Apply 7 pounds (3.17 kg) for Cable Retention test.*
4.	LLCR (3) - Non Standard *Note: Signal and ground.*
5.	Interface Gaging

(1) Cable Retention = Other
Apply 5 pounds (2.3 kg) for Cable Retention test.
MIL-PRF-30192, Paragraph 4.6.21

(2) Cable Retention = Other
Pull-to-destruct.
MIL-PRF-30192, Paragraph 4.6.21

(3) LLCR = Other
Open Circuit Voltage = 20 mV Max
Test Current = 100 mA Max
MIL-PRF-39012, Paragraph 4.6.13 except current to be 100mA nominal and voltage to be 20 mV maximum.

Center Contact Retention

Group 1
NR-PRF10-P-C-VP-110B-SS-.TW
5 Assemblies
LL110 1.0mm Plug Connector

Step	Description
1.	Interface Gaging Interface Depth MAX = 0.002 " *Note: Measure Bushing to Contact shoulder depth using RF Interface Gage.*
2.	Retention - Applied Force Axial Force = 2.25 lbs *Note: Apply force axially to contact tip.*
3.	Interface Gaging Interface Depth MAX = 0.002 " *Note: Measure Bushing to Contact shoulder depth using RF Interface Gage.*

Group 2
NR-PRF10-P-C-VP-110B-SS-.TW
5 Assemblies
LL110 1.0mm Plug Connector

Step	Description
1.	Retention - To Destruct *Note: Apply axial force to contact tip. Push to destruct. Record destruct force.*

Group 3
NR-PRF10-J-C-VP-110B-BS-.TW
5 Assemblies
LL110 1.0mm Jack Connector

Step	Description
1.	Interface Gaging Interface Depth MAX = 0.002 " *Note: Measure Bushing to Contact shoulder depth using RF Interface Gage.*
2.	Retention - Applied Force Axial Force = 2.25 lbs *Note: Apply force axially to contact tip.*
3.	Interface Gaging Interface Depth MAX = 0.002 " *Note: Measure Bushing to Contact shoulder depth using RF Interface Gage.*

Group 4
NR-PRF10-J-C-VP-110B-BS-.TW
5 Assemblies
LL110 1.0mm Jack Connector

Step	Description
1.	Retention - To Destruct *Note: Apply axial force to contact tip. Push to destruct. Record destruct force.*

ATTRIBUTE DEFINITIONS

The following is a brief, simplified description of attributes.

THERMAL SHOCK:

1) MIL-PRF-39012, *Paragraph. 4.6.17 per MIL-STD-202-107*
2) Test Condition: I (-65℃ to +125℃)
3) Test Time: ½ hour dwell at each temperature extreme
4) Test Duration: Test condition B except 10 cycles instead of 5.
5) All test samples are pre-conditioned at ambient.
6) All test samples are exposed to environmental stressing in the mated condition.

MATING/UNMATING:

1) Reference document: MIL-PRF-39012, *Mating and Unmating Forces Test Procedure for Electrical Connectors*.
2) The full insertion position was to within 0.003" to 0.004" of the plug bottoming out in the receptacle to prevent damage to the system under test.
3) One of the mating parts is secured to a floating X-Y table to prevent damage during cycling.

LLCR:

1) MIL-PRF-39012, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets*.
2) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
3) The following guidelines are used to categorize the changes in LLCR as a result from stressing
    a. <= +5.0 mOhms: ----------Stable
    b. +5.1 to +10.0 mOhms:----------Minor
    c. +10.1 to +15.0 mOhms: ----------Acceptable
    d. +15.1 to +50.0 mOhms: ----------Marginal
    e. +50.1 to +1000 mOhms: ----------Unstable
    f. >+1000 mOhms:----------Open Failure

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

INSULATION RESISTANCE (IR):

To determine the resistance of insulation materials to leakage of current through or on the surface of these materials when a DC potential is applied.

1) PROCEDURE:
    a. Reference document: MIL-PRF-39012, *Insulation Resistance Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Adjacent Contacts or Signal-to-Ground
        ii. Electrification Time 2.0 minutes
        iii. Test Voltage (500 VDC) corresponds to calibration settings for measuring resistances.
2) MEASUREMENTS:
3) When the specified test voltage is applied (VDC), the insulation resistance shall not be less than 5000 megohms.

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

To determine if the sockets can operate at its rated voltage and withstand momentary over potentials due to switching, surges, and other similar phenomenon. Separate samples are used to evaluate the effect of environmental stresses so not to influence the readings from arcing that occurs during the measurement process.

1) PROCEDURE:
    a. Reference document: MIL-PRF-39012, Withstanding *Voltage Test Procedure for Electrical Connectors*.
    b. Test Conditions:
        i. Between Adjacent Contacts or Signal-to-Ground
        ii. Barometric Test Condition 1
        iii. Rate of Application 500 V/Sec
        iv. Test Voltage (VAC) until breakdown occurs
2) MEASUREMENTS/CALCULATIONS
    a. The breakdown voltage shall be measured and recorded.
    b. The dielectric withstanding voltage shall be recorded as 75% of the minimum breakdown voltage.
    c. The working voltage shall be recorded as one-third (1/3) of the dielectric withstanding voltage (one-fourth of the breakdown voltage).

ATTRIBUTE DEFINITIONS Continued

The following is a brief, simplified description of attributes

CABLE PULL:

1) Secure cable near center and pull on connector
    a. At 0°, in-line with cable

Fig. 1
0° Connector pull, notice the electrical continuity hook-up wires.

Center Contact Retention:

1) Apply axial force to contact tip, push to destruct, record the destruct force data.

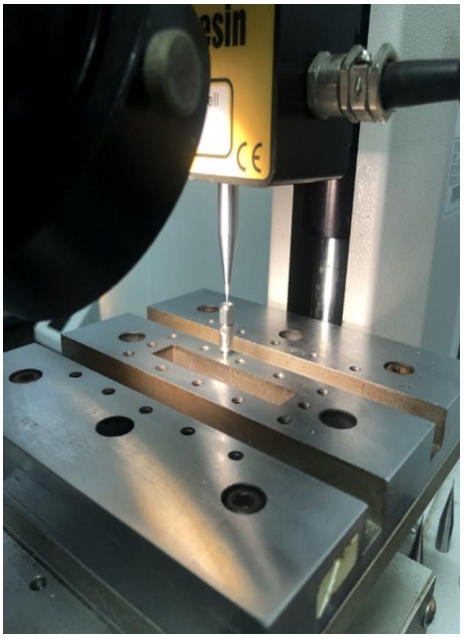

Fig. 2

RESULTS

Cable Pull force

SP

- **Min ----------12.36 lbs**
- **Max ----------14.01 lbs**

BJ

- **Min ----------12.95 lbs**
- **Max ----------13.94 lbs**

Retention Test

PRF10-P

- **Min ---------- 6.65 lbs**
- **Max ---------- 7.42 lbs**

PRF10-J

- **Min ---------- 7.04 lbs**
- **Max ---------- 7.35 lbs**

Insulation Resistance minimums, IR

Pin to Ground

- **Initial**
  - **Mated ----------45000 Meg Ω ---------- Passed**
- **Thermal Shock**
  - **Mated ----------45000 Meg Ω ---------- Passed**

Dielectric Withstanding Voltage minimums, DWV

- **Minimums**
  - **Test Voltage ----------500 VAC**

Pin to Ground

- **Initial DWV ----------Passed**
- **Thermal DWV----------Passed**

RESULTS Continued

Interface Gaging

Mating/Unmating Durability Group

10SP

Initial

- **Min ---------- 0.00122 Inch (0.031 mm)**
- **Max ---------- 0.00193 Inch (0.049 mm)**

After 100 cycles

- **Min ---------- 0.00055 Inch (0.014 mm)**
- **Max ---------- 0.00188 Inch (0.030 mm)**

10BJ

Initial

- **Min ---------- 0.00075 Inch (0.017 mm)**
- **Max ---------- 0.00188 Inch (0.030 mm)**

After 100 cycles

- **Min ---------- 0.00059 Inch (0.015 mm)**
- **Max ---------- 0.00183 Inch (0.046 mm)**

Cable Pull Group

10SP

Initial

- **Min ---------- 0.00047 Inch (0.012 mm)**
- **Max ---------- 0.00165 Inch (0.042 mm)**

After Retention force

- **Min ---------- 0.00091 Inch (0.023 mm)**
- **Max ---------- 0.00177 Inch (0.045 mm)**

10BJ

Initial

- **Min ---------- 0.00043 Inch (0.011 mm)**
- **Max ---------- 0.00126 Inch (0.032 mm)**

After Retention force

- **Min ---------- 0.00063 Inch (0.016 mm)**
- **Max ---------- 0.00161 Inch (0.041 mm)**

Center Contact Retention Group

PRF10-P-C-VP-110B-SS

Initial

- **Min ---------- 0.00131 Inch (0.033 mm)**
- **Max ---------- 0.00191 Inch (0.049 mm)**

After Retention force

- **Min ---------- 0.00120 Inch (0.030 mm)**
- **Max ---------- 0.00145 Inch (0.037 mm)**

PRF10-J-C-VP-110B-BS

Initial

- **Min ---------- 0.00043 Inch (0.0011 mm)**
- **Max ---------- 0.00183 Inch (0.046 mm)**

After Retention force

- **Min ---------- 0.00105 Inch (0.027 mm)**
- **Max ---------- 0.00217 Inch (0.055 mm)**

RESULTS Continued

LLCR IR/DWV (5 signal and 5 ground LLCR test points)

Signal Pin

- **Initial ---------- 75.08 mOhms Max**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 5 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin

- **Initial ---------- 27.45 mOhms Max**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 5 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

LLCR Cable Pull (5 signal and 5 ground LLCR test points)

Signal Pin

- **Initial ---------- 75.24 mOhms Max**
- **5 Ib Retention**
  - **<= +5.0 mOhms ---------- 5 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin

- **Initial ---------- 23.36 mOhms Max**
- **5 Ib Retention**
  - **<= +5.0 mOhms ---------- 5 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

RESULTS Continued

LLCR Durability (5 signal and 5 ground LLCR test points)

Signal Pin

- **Initial ---------- 74.95 mOhms Max**
- **Durability, 500 Cycles**
  - **<= +5.0 mOhms ---------- 5 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 0 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

Ground Pin

- **Initial ---------- 24.30 mOhms Max**
- **Durability, 100 Cycles**
  - **<= +5.0 mOhms ---------- 3 Points ---------- Stable**
  - **+5.1 to +10.0 mOhms ---------- 2 Points ---------- Minor**
  - **+10.1 to +15.0 mOhms ---------- 0 Points ---------- Acceptable**
  - **+15.1 to +50.0 mOhms ---------- 0 Points ---------- Marginal**
  - **+50.1 to +1000 mOhms ---------- 0 Points ---------- Unstable**
  - **>+1000 mOhms ---------- 0 Points ---------- Open Failure**

DATA SUMMARIES

Cable Pull Force:

SP	Force (lbs)
Minimum	12.36
Maximum	14.01
Average	13.28

BJ	Force (lbs)
Minimum	12.95
Maximum	13.94
Average	13.25

Retention Force

PRF10-P

	Force (lbs)
Minimum	6.65
Maximum	7.42
Average	7.15

PRF10-J

	Force (lbs)
Minimum	7.04
Maximum	7.35
Average	7.20

INSULATION RESISTANCE (IR):

	Pin to Ground
	Mated
Minimum	LL110-10SP / LL110-10BJ
Initial	45000
Thermal Shock	45000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

Pin to Ground (500 VAC)	
Initial Test Voltage	Pass
After Thermal Shock Test Voltage	Pass

DATA SUMMARIES Continued

INTERFACE GAGING

Mating\Unmating Durability

SP

Interface Gaging (Group 1)(.002/.000)(inch)			
Sample	**Initial**	**100 Cycles**	**Delta**
37	0.00193	0.00055	0.00118
38	0.00189	0.00098	0.00091
39	0.00181	0.00071	0.00110
40	0.00181	0.00083	0.00098
41	0.00122	0.00118	0.00004
Min	0.00122	0.00055	0.00004
Max	0.00193	0.00118	0.00119
Average	0.00173	0.00087	0.00082

BJ

Interface Gaging (Group 2)(.002/.000) (inch)			
Sample	**Initial**	**100 Cycles**	**Delta**
40	0.00075	0.00098	0.00024
41	0.00118	0.00181	0.00063
42	0.00114	0.00079	0.00035
43	0.00083	0.00059	0.00024
44	0.00067	0.00142	0.00075
Min	0.00075	0.00059	0.00024
Max	0.00118	0.00183	0.00075
Average	0.00091	0.00110	0.00043

Cable Pull Group

SP

Interface Gaging (Group 3)(.05/.000) (mm)			
Sample	**Initial**	**after 5lb retention**	**Delta**
12	0.00102	0.00134	0.00031
13	0.00142	0.00177	0.00035
14	0.00075	0.00091	0.00016
15	0.00165	0.00094	0.00071
16	0.00047	0.00177	0.00091
Min	0.00047	0.00091	0.00016
Max	0.00165	0.00177	0.00091
Average	0.00106	0.00134	0.00047

BJ

Interface Gaging (Group 4)(.05/.000) (mm)			
Sample	**Initial**	**after 5lb retention**	**Delta**
17	0.00043	0.00130	0.00087
18	0.00079	0.00098	0.00020
19	0.00051	0.00063	0.00012
20	0.00126	0.00098	0.00028
21	0.00098	0.00161	0.00063
Min	0.00043	0.00063	0.00012
Max	0.00126	0.00161	0.00087
Average	0.00079	0.00110	0.00043

DATA SUMMARIES Continued

Center Contact Retention
PRF10-P

Interface Gaging (Group 1)(.002/.000) (inch)			
Sample	**Initial**	**after 2.25lb Retention**	**Delta**
21	0.00163	0.00131	0.00032
22	0.00131	0.00125	0.00006
23	0.00153	0.00145	0.00008
24	0.00191	0.00133	0.00058
25	0.00157	0.00120	0.00037
Min	0.00131	0.00120	0.00006
Max	0.00191	0.00145	0.00058
Average	0.00159	0.00131	0.00028

PRF10-J

Interface Gaging (Group 2)(.002/.000) (inch)			
Sample	**Initial**	**after 2.25lb Retention**	**Delta**
26	0.00163	0.00217	0.00054
27	0.00166	0.00181	0.00015
28	0.00043	0.00112	0.00069
29	0.00096	0.00105	0.00009
30	0.00183	0.00137	0.00046
Min	0.00043	0.00105	0.00009
Max	0.00183	0.00217	0.00069
Average	0.00130	0.00150	0.00039

DATA SUMMARIES Continued

LLCR Durability:

1) A total of 5 signal and 5 ground points were measured.
2) MIL-PRF-39012, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ----------Stable
   b. +5.1 to +10.0 mOhms: ----------Minor
   c. +10.1 to +15.0 mOhms:----------Acceptable
   d. +15.1 to +50.0 mOhms:----------Marginal
   e. +50.1 to +1000 mOhms----------Unstable
   f. >+1000 mOhms:----------Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	11/26/2024	12/4/2024		
Room Temp (Deg C)	22	23		
Rel Humidity (%)	50	52		
Technician	Peter Chen	Peter Chen		
mOhm values	Actual **Initial**	**Delta 500 CYCLES**		
	Pin Type: Signal 1			
Average	74.25	0.49		
St. Dev.	0.48	0.39		
Min	73.6	0.12		
Max	74.95	1.16		
Summary Count	5	5		
Total Count	5	5		
	Pin Type: GND 1			
Average	22.77	4.94		
St. Dev.	1.89	1.86		
Min	19.46	2.79		
Max	24.3	7.72		
Summary Count	5	5		
Total Count	5	5		

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
After 500 Cycles	8	2	0	0	0	0

DATA SUMMARIES Continued

LLCR IR/DWV:

1) A total of 5 signal and 5 ground points were measured.
2) MIL-PRF-39012, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ----------Stable
   b. +5.1 to +10.0 mOhms:----------Minor
   c. +10.1 to +15.0 mOhms: ----------Acceptable
   d. +15.1 to +50.0 mOhms: ----------Marginal
   e. +50.1 to +1000 mOhms: ----------Unstable
   f. >+1000 mOhms:----------Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	12/4/2024	12/5/2024		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	50	50		
Technician	Peter Chen	Peter Chen		
mOhm values	Actual **Initial**	**Delta** **Thermal Shock**		
	Pin Type: Signal 1			
Average	74.02	0.38		
St. Dev.	0.97	0.49		
Min	73.18	0.06		
Max	75.08	0.94		
Summary Count	5	5		
Total Count	5	5		
	Pin Type: GND 1			
Average	23.77	1.40		
St. Dev.	3.46	1.15		
Min	20.59	0.27		
Max	27.45	2.56		
Summary Count	5	5		
Total Count	5	5		

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
Thermal Shock	**10**	**0**	**0**	**0**	**0**	**0**

DATA SUMMARIES Continued

LLCR Cable Pull:

1) A total of 4 signal and 4 ground points were measured.
2) MIL-PRF-39012, *Low Level Contact Resistance Test Procedure for Electrical Connectors and Sockets.*
3) A computer program, *LLCR 221.exe*, ensures repeatability for data acquisition.
4) The following guidelines are used to categorize the changes in LLCR as a result from stressing.
   a. <= +5.0 mOhms: ----------Stable
   b. +5.1 to +10.0 mOhms: ----------Minor
   c. +10.1 to +15.0 mOhms:----------Acceptable
   d. +15.1 to +50.0 mOhms:----------Marginal
   e. +50.1 to +1000 mOhms: ----------Unstable
   f. >+1000 mOhms:----------Open Failure

	LLCR Measurement Summaries by Pin Type			
Date	12/4/2024	8/14/2024		
Room Temp (Deg C)	22	23		
Rel Humidity (%)	50	54		
Technician	Peter Chen	Peter Chen		
mOhm values	Actual **Initial**	**Delta** **PULL**		
	Pin Type: Signal 1			
Average	74.49	1.16		
St. Dev.	0.59	0.56		
Min	73.87	0.59		
Max	75.24	1.89		
Summary Count	5	5		
Total Count	5	5		
	Pin Type: GND 1			
Average	22.95	1.84		
St. Dev.	0.33	1.37		
Min	22.58	0.73		
Max	23.36	3.56		
Summary Count	5	5		
Total Count	5	5		

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
PULL	**10**	**0**	**0**	**0**	**0**	**0**

EQUIPMENT AND CALIBRATION SCHEDULES

Equipment #: HZ-TCT-01
Description: Normal force analyzer
Manufacturer: Mecmesin Multitester
Model: Mecmesin Multitester 2.5-i
Serial #: 08-1049-04
Accuracy: Last Cal: 3/4/2024, Next Cal: 3/3/2025

Equipment #: HZ-TSC-01
Description: Vertical Thermal Shock Chamber
Manufacturer: Cincinnatti Sub Zero
Model: VTS-3-6-6-SC/AC
Serial #: 10-VT14994
Accuracy: See Manual
… Last Cal: 04/16/2024, Next Cal: 04/15/2025

Equipment #: DG-HPT-01
Description: Hipot Safety Tester
Manufacturer: Vitrek
Model: V73
Serial #: 025866
Accuracy:
… Last Cal: 04/16/2024, Next Cal: 04/15/2025

Equipment #: HZ-MO-05
Description: Micro-ohmmeter
Manufacturer: Keithley
Model: 3706
Serial #: 1285188
Accuracy: Last Cal: 12/17/2024, Next Cal: 12/16/2025