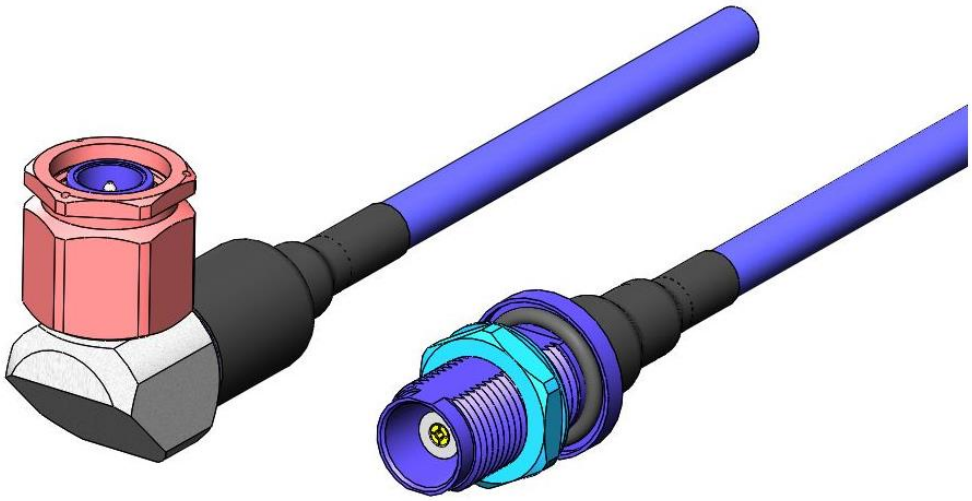
Project Number: Design Qualification Test Report	Tracking Code: 2777860_Report_Rev_2
Requested by: Alvin Wang	Date: 12/23/2021
Part #: RF180-04RP-505050-0152 /RF180-04BJ-505050-0152	
Part description: RF180-04RP / RF180-04BJ	Tech: Keney Chen
Test Start: 4/25/2021	Test Completed: 10/22/2021



DESIGN QUALIFICATION TEST REPORT

RF180-04RP / RF180-04BJ
RF180-04RP-505050-0152 /RF180-04BJ-505050-0152

REVISION HISTORY

DATA	REV.NUM.	DESCRIPTION	ENG
6/7/2021	**1**	**Initial Issue**	**KC**
11/30/2021	**2**	**Add MUD Group**	**KC**

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: EIA Publication 364, 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) Parts not intended for testing LLCR and DWV/IR are visually inspected and cleaned if necessary.
4) Any additional preparation will be noted in the individual test sequences.

FLOWCHARTS

IR/DWV

Pin-to-Ground

Group 1

RF180-04RP-505050-1000

RF180-04BJ-505050-1000

4 Assemblies

Step	Description
1.	Length & Mass
2.	Interface Gaging
3.	IR (2) - Non Standard
4.	DWV at Test Voltage (1) - Non Standard Test Voltage = 1500 V
5.	LLCR (3) - Non Standard *Note: Signal and ground.*
6.	Thermal Shock (4) - Non Standard *Note: For STEP 6, please put the following additional cable assemblies in the thermal shock chamber (ride along parts). Plug & jack versions are mated with dust caps (Brown) on open ends.* *Plug version: RF180-04RP-04RP-1000 (4 PCS)* *Jack version: RF180-04BJ-04BJ-1000 (4PCS)*
7.	IR (2) - Non Standard
8.	DWV at Test Voltage (1) - Non Standard Test Voltage = 1500 V
9.	LLCR (3) - Non Standard *Note: Signal and ground.*
10.	Interface Gaging

(1) DWV at Test Voltage = Other
Test Condition = 1 (Sea Level) Test voltage applied for 60 seconds
MIL-PRF-39012, Paragraph 4.6.8 per MIL-STD-202-302

(2) IR = Other
Test Condition = 500 Vdc, 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
Method A, Test Condition = I (-55°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
RF180-04BJ-505050-0152

2 Assemblies
0 Degrees

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

Group 2
RF180-04RP-505050-0152

2 Assemblies
0 Degrees

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

Group 3
RF180-04BJ-505050-0152
RF180-04RP-505050-0152

4 Assemblies
0 Degrees

Step	Description
1.	Length & Mass
2.	Interface Gaging
3.	LLCR (3) - Non Standard *Note: Signal and ground.*
4.	Cable Retention (1) - Non Standard *Note: Apply 25 pounds (11.3kg) for Cable Retention test.*
5.	LLCR (3) - Non Standard *Note: Signal and ground.*
6.	Interface Gaging

(1) Cable Retention = Other
Apply 25 pounds (11.3 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.

FLOWCHARTS Continued

Mating/Unmating/Durability

Group 1
RF180-04RP-505050-0152
RF180-04BJ-505050-0152
4 Assemblies

Step	Description
1.	Length & Mass
2.	Interface Gaging
3.	DWV at Test Voltage (1) - Non Standard Test Voltage = 500 V
4.	LLCR (2) - Non Standard *Note: Signal and ground.*
5.	Cycles Quantity = 500 Cycles *Note: By hand. Torque each time to 8 in-lbs. Rotate plug coupling nut only. Do not rotate entire assembly. MIL-PRF-39012, Paragraph. 4.6.12*
6.	LLCR (2) - Non Standard *Note: Signal and ground.*
7.	Length & Mass

(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.

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: -55℃ 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.

LLCR:

1) MIL-PRF-39012, Paragraph 4.6.13 except current to be 100 mA nominal and voltage to be 20 mV maximum.
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

CABLE RETENTION:

1) Apply 25 pounds (11.3 kg) for cable retention test.
2) Pull to destruct.
3) MIL-PRF-30192, paragraph. 4.6.21.

MATING/UNMATING:

1) MIL-PRF-30192, paragraph. 4.6.12.
2) By hand. Torque each time to 8 in-lbs.

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, paragraph. 4.6.8 per MIL-STD-202-302.
    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 1000 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, paragraph. 4.6.14 per MIL-STD-202-301.
    b. Test Conditions:
        i. Between Adjacent Contacts or Signal-to-Ground
        ii. Barometric Test Condition 1(Sea Level) Test voltage applied for 60 seconds.
        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).

RESULTS

Cable Pull force

- **0° Pull**

Group 1 RF180-04RP-505050-0152

- **Min ---------- 113.46 lbs**
- **Max ---------- 117.21 lbs**

Group 2 RF180-04BJ-505050-0152

- **Min ---------- 118.47 lbs**
- **Max ---------- 125.11 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 ---------- 1500 VAC**

Pin to Ground

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

Mating/Unmating Durability Group

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

Pin to Ground

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

RESULTS Continued

Length & Mass

IR/DWV Group

Length

04RP

- **Min----------1010.00 mm**
- **Max ----------1012.00 mm**

04BJ

- **Min----------1011.00 mm**
- **Max ----------1012.00 mm**

Mass

04RP

- **Min----------93.40 g**
- **Max ----------93.50 g**

04BJ

- **Min----------70.65 g**
- **Max ----------70.76 g**

Cable Pull Group

Length

04RP

- **Min---------- 155.00 mm**
- **Max ---------- 154.00 mm**

04BJ

- **Min---------- 156.00 mm**
- **Max ---------- 157.00 mm**

Mass

04RP

- **Min----------45.92 g**
- **Max ----------46.09 g**

04BJ

- **Min----------23.32 g**
- **Max ----------23.43 g**

Durability Group

Length

04RP

- **Min---------- 150.00 mm**
- **Max ---------- 150.00 mm**

04BJ

- **Min---------- 150.00 mm**
- **Max ---------- 150.00 mm**

Mass

04RP

- **Min----------45.71 g**
- **Max ----------45.93 g**

04BJ

- **Min----------23.01 g**
- **Max ----------23.21 g**

RESULTS Continued

Interface Gaging

IR/DWV Group

04RP

Initial

- **Min ---------- 0.0109 mm [0.0004inch]**
- **Max ---------- 0.0307 mm [0.0012inch]**

After Thermal Shock

- **Min ---------- 0.0141 mm [0.0006inch]**
- **Max ---------- 0.0533 mm [0.0021inch]**

04BJ

Initial

- **Min ---------- 0.0278 mm [0.0011inch]**
- **Max ---------- 0.0432 mm [0.0017inch]**

After Thermal Shock

- **Min ---------- 0.0025 mm [0.0001inch]**
- **Max ---------- 0.0397 mm [0.0016inch]**

Cable Pull Group

04RP

Initial

- **Min ---------- 0.0191 mm [0.0008inch]**
- **Max ---------- 0.0445 mm [0.0018inch]**

After Retention

- **Min ---------- 0.0256 mm [0.0010inch]**
- **Max ---------- 0.0561 mm [0.0022inch]**

04BJ

Initial

- **Min ---------- 0.0096 mm [0.0004inch]**
- **Max ---------- 0.0173 mm [0.0007inch]**

After Retention

- **Min ---------- 0.0031 mm [0.0001inch]**
- **Max ---------- 0.0281 mm [0.0011inch]**

Durability Group

04RP

Initial

- **Min ---------- 0.0161 mm [0.0006inch]**
- **Max ---------- 0.0267 mm [0.0011inch]**

After 500 Cycles

- **Min ---------- 0.0210 mm [0.0008inch]**
- **Max ---------- 0.0310 mm [0.0012inch]**

04BJ

Initial

- **Min ---------- 0.0119 mm [0.0005inch]**
- **Max ---------- 0.0201 mm [0.0008inch]**

After 500 Cycles

- **Min ---------- 0.0120 mm [0.0005inch]**
- **Max ---------- 0.0190 mm [0.0007inch]**

RESULTS Continued

LLCR IR/DWV (4 ground and 4 signal LLCR test points)

Ground pin

- **Initial ---------- 31.94 mOhms Max**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 4 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**

Signal pin

- **Initial ---------- 27.67 mOhms Max**
- **Thermal Shock**
  - **<= +5.0 mOhms ---------- 4 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 (4 ground and 4 signal LLCR test points)

Ground pin

- **Initial ---------- 6.27 mOhms Max**
- **After 25lb Retention**
  - **<= +5.0 mOhms ---------- 4 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**

Signal pin

- **Initial ---------- 5.27 mOhms Max**
- **After 25lb Retention**
  - **<= +5.0 mOhms ---------- 4 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

Mating/Unmating Durability (4 ground and 4 signal LLCR test points)

Ground pin

- **Initial ---------- 4.62 mOhms Max**
- **After 500 Cycles**
  - **<= +5.0 mOhms ---------- 4 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**

Signal pin

- **Initial ---------- 5.23 mOhms Max**
- **After 500 Cycles**
  - **<= +5.0 mOhms ---------- 4 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**

DATA SUMMARIES

INSULATION RESISTANCE (IR):

	Pin to Ground
	Mated
Minimum	RF180-04RP/RF180-04BJ
Initial	45000
Thermal Shock	45000

DIELECTRIC WITHSTANDING VOLTAGE (DWV):

IR/DWV Group

Voltage Rating Summary	
Minimum	RF180-04RP/RF180-04BJ
Test Voltage	1500

Pin to Ground	
Initial Test Voltage	Pass
After Thermal ShockTest Voltage	Pass

Durability Group

Voltage Rating Summary	
Minimum	RF180-04RP/RF180-04BJ
Test Voltage	500

Pin to Ground	
Initial Test Voltage	Pass

Cable Pull Force:

0° Pull

Group 1 RF180-04RP-505050-0152

	Force (lbs)
Minimum	**113.46**
Maximum	117.21
Average	115.34

Group 2 RF180-04BJ-505050-0152

	Force (lbs)
Minimum	**118.47**
Maximum	125.11
Average	121.79

DATA SUMMARIES Continued

LENGTH & MASS

IR/DWV Group

04RP	Length (mm)	Mass (g)
1	1011.00	93.41
2	1012.00	93.50
3	1012.00	93.44
4	1010.00	93.40

04BJ	Length (mm)	Mass (g)
1	1012.00	70.72
2	1012.00	70.76
3	1011.00	70.65
4	1011.00	70.67

Cable Pull Group

Group 3		
04RP	Length (mm)	Mass (g)
1	155.0	46.090
2	154.0	45.920
3	155.0	46.070
4	155.0	46.020

Group 3		
04BJ	Length (mm)	Mass (g)
1	156.0	23.370
2	156.0	23.430
3	157.0	23.320
4	156.0	23.330

Durability Group

04RP	Length (mm)	Mass (g)
1	150.00	45.71
2	150.00	45.87
3	150.00	45.93
4	150.00	45.82

04BJ	Length (mm)	Mass (g)
1	150.00	23.21
2	150.00	23.13
3	150.00	23.01
4	150.00	23.04

DATA SUMMARIES Continued

INTERFACE GAGING

IR/DWV Group

Gaging 0.13/0.00 [0.005/0.000] (mm/inch)						
04BJ	Initial		Post Ther Shock		Delta	
	mm	Inch	mm	Inch	mm	Inch
1	0.0278	0.0011	0.0101	0.0004	0.0177	0.0007
2	0.0351	0.0014	0.0025	0.0001	0.0326	0.0013
3	0.0415	0.0016	0.0397	0.0016	0.0018	0.0001
4	0.0432	0.0017	0.0042	0.0002	0.0390	0.0015

Gaging 0.23/-0.08 [0.009] (mm/inch)						
04RP	Initial		Post Ther Shock		Delta	
	mm	Inch	mm	Inch	mm	Inch
1	0.0307	0.0012	0.0141	0.0006	0.0166	0.0007
2	0.0213	0.0008	0.0371	0.0015	0.0158	0.0006
3	0.0273	0.0011	0.0533	0.0021	0.0260	0.0010
4	0.0109	0.0004	0.0371	0.0015	0.0262	0.0010

Cable Pull Group

Gaging 0.13/0.00 [0.005/0.000] (mm/inch)						
04BJ	Initial		Retention		Delta	
	mm	Inch	mm	Inch	mm	Inch
1	0.0173	0.0007	0.0281	0.0011	0.0108	0.0004
2	0.0096	0.0004	0.0031	0.0001	0.0065	0.0003
3	0.0117	0.0005	0.0223	0.0009	0.0106	0.0004
4	0.0168	0.0007	0.0219	0.0009	0.0051	0.0002

Gaging 0.23/0.00 [0.009/0.000] (mm/inch)						
04RP	Initial		Retention		Delta	
	mm	Inch	mm	Inch	mm	Inch
1	0.0191	0.0008	0.042400	0.0017	0.0233	0.0009
2	0.0314	0.0012	0.025600	0.0010	0.0058	0.0002
3	0.0294	0.0012	0.032200	0.0013	0.0028	0.0001
4	0.0445	0.0018	0.0561	0.0022	0.0116	0.0005

Durability Group

Gaging 0.13/0.00 [0.005/0.000] (mm/inch)						
04BJ	Initial		After Cycles		Delta	
	mm	Inch	mm	Inch	mm	Inch
1	0.0194	0.0008	0.0130	0.0005	0.0064	0.0003
2	0.0173	0.0007	0.0190	0.0007	0.0017	0.0001
3	0.0119	0.0005	0.0160	0.0006	0.0041	0.0002
4	0.0201	0.0008	0.0120	0.0005	0.0081	0.0003

Gaging 0.23/0.00 [0.009/0.000] (mm/inch)						
04RP	Initial		After Cycles		Delta	
	mm	Inch	mm	Inch	mm	Inch
1	0.0181	0.0007	0.03100	0.0012	0.0129	0.0005
2	0.0256	0.0010	0.02100	0.0008	0.0046	0.0002
3	0.0267	0.0011	0.02300	0.0009	0.0037	0.0001
4	0.0161	0.0006	0.02400	0.0009	0.0079	0.0003

DATA SUMMARIES Continued

LLCR IR/DWV:

1) A total of 4 signal and 4 ground points were measured.
2) EIA-364-23, *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	4/28/2021	5/10/2021		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	50	50		
Technician	Keney Chen	Keney Chen		
mOhm values	Actual **Initial**	**Delta** **Thermal Shock**		
	Pin Type: Signal 1			
Average	27.5825	0.285		
St. Dev.	0.0640	0.1971		
Min	27.53	0.02		
Max	27.67	0.49		
Summary Count	4	4		
Total Count	4	4		
	Pin Type: GND 1			
Average	31.4425	1.3425		
St. Dev.	0.3357	0.7591		
Min	31.24	0.58		
Max	31.94	2.3		
Summary Count	4	4		
Total Count	4	4		

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

DATA SUMMARIES Continued

LLCR Cable Pull:

1) A total of 4 signal and 4 ground points were measured.
2) EIA-364-23, *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	5/11/2021	5/14/2021		
Room Temp (Deg C)	20	23		
Rel Humidity (%)	50	50		
Technician	Keney Chen	Keney Chen		
mOhm values	**Actual** **Initial**	**Delta** **after 25lb Retention**		
	Pin Type: Signal 1			
Average	5.25	0.01		
St. Dev.	0.01	0.01		
Min	5.24	0		
Max	5.27	0.02		
Summary Count	4	4		
Total Count	4	4		
	Pin Type: GND 1			
Average	6.09	0.86		
St. Dev.	0.16	0.16		
Min	5.89	0.69		
Max	6.27	1		
Summary Count	4	4		
Total Count	4	4		

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

DATA SUMMARIES Continued

Mating/Unmating Durability:

1) A total of 4 signal and 4 ground points were measured.
2) EIA-364-23, *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	9/19/2021	10/19/2021		
Room Temp (Deg C)	22	22		
Rel Humidity (%)	50	50		
Technician	Peter Chen	Peter Chen		
mOhm values	Actual **Initial**	**Delta** **500 Cycles**		
	Pin Type: Signal 1			
Average	5.18	0.13		
St. Dev.	0.04	0.19		
Min	5.13	0.01		
Max	5.23	0.41		
Summary Count	4	4		
Total Count	4	4		
	Pin Type: GND 1			
Average	4.52	0.15		
St. Dev.	0.15	0.07		
Min	4.29	0.05		
Max	4.62	0.20		
Summary Count	4	4		
Total Count	4	4		

LLCR Delta Count by Category						
	Stable	**Minor**	**Acceptable**	**Marginal**	**Unstable**	**Open**
mOhms	**<=5**	**>5 & <=10**	**>10 & <=15**	**>15 & <=50**	**>50 & <=1000**	**>1000**
500 Cycles	**8**	**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: 3/4/2021, Next Cal: 3/3/2022

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: 04/16/2021, Next Cal: 04/15/2022

Equipment #: DG-HPT-01
Description: Hipot Safety Tester
Manufacturer: Vitrek
Model: V73
Serial #: 025866
Accuracy:
… Last Cal: 04/16/2021, Next Cal: 04/15/2022

Equipment #: HZ-MO-05
Description: Micro-ohmmeter
Manufacturer: Keithley
Model: 3706
Serial #: 1285188
Accuracy: Last Cal: 12/17/2020, Next Cal: 12/16/2021