MP-A 03

Part No. 3186-0001

Test Report

Product Specification no. PRS-2130

1	T21136	November 25, 2021	H.Takao	K.Yufu	M.Takemoto
0	T15165	October 20, 2015	S.Suzuki	T.Hirakawa	T.Takano
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of MP-A 03Connector in accordance with PRS-2130.

2. Specimen

MP-A 03 （Part No. 3186-0001）

3. Test Sequence

All the evaluations were performed in accordance with Table 1. Test Sequence.

4. Result

See Table 2-1 to 2-3, Graph 1-1 to 1-11. For the details of the testing conditions and requirements, see PRS-2130.
The “n” in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-2130.

Table 1 Test Sequence and Sample Quantity

Test Item	Group									
	A	B	C	D	E	F	G	H	J	K
Contact resistance		1,3	1,3	1,3	1,3	1,3	1,3	1,3		2
Mating force	1,4									
Un-mating force	2,5									
Durability	3	2								
Vibration			2							
Shock				2						
Thermal shock					2					
High temperature life						2				
Humidity (Steady State)							2			
Low-temperature test								2		
Solder ability									1	
Soldering heat resistance										1
Specimen quantity.	10	10	5	5	5	5	5	5	5	5

※Numbers indicate test sequences

Table 2-1 Test Result

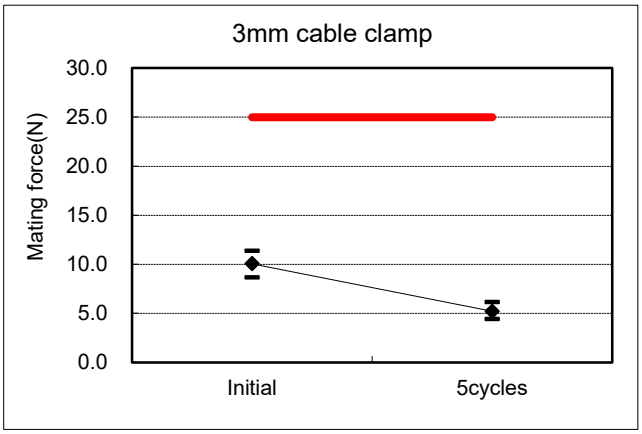
	Test Item / Measurements		Spec.	n	Unit	Data AVE.	Data MAX.	Data MIN.	Data σ	Judge.
A	Mating Force									
	Cable Clamp 3mm	Initial	25 MAX.	10	N	10.05	11.4	8.7	0.97	OK
		5cycles				5.22	6.1	4.4	0.57	OK
	Cable Clamp 6mm	Initial		10	N	10.15	11.2	8.8	0.84	OK
		5cycles				5.35	6.0	4.7	0.45	OK
	Un-mating Force									
	Cable Clamp 3mm	Initial	3 MIN.	10	N	5.04	5.8	4.1	0.62	OK
		5cycles	2 MIN.			3.97	4.5	3.4	0.38	OK
	Cable Clamp 6mm	Initial	3 MIN.	10	N	4.89	5.8	4.2	0.52	OK
		5cycles	2 MIN.			4.07	4.5	3.7	0.25	OK
B	Durability									
	Cable clamp 3mm									
	Contact Resistance	Initial	70 MAX	10	mΩ	9.64	10.2	8.9	0.35	OK
		5cycles				10.42	11.0	9.5	0.45	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	10	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	Initial	70 MAX	10	mΩ	9.16	9.7	8.8	0.31	OK
		5cycles				10.07	11.5	9.4	0.72	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	10	-	No abnormality				OK
C	Vibration									
	Cable clamp 3mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	10.92	11.4	10.5	0.34	OK
		After test				11.36	11.7	10.9	0.28	OK
	Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
		During test	—	5	-	No discontinuity				OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	12.09	12.7	11.3	0.56	OK
		After test				12.12	13.0	11.4	0.57	OK
	Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
		During test	—	5	-	No discontinuity				OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK

Table 2-2 Test Result

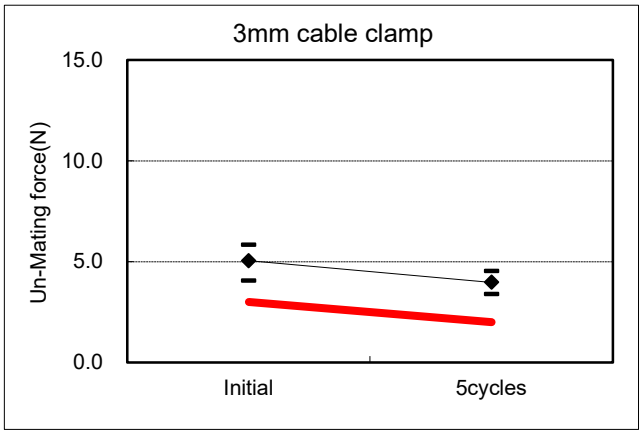
	Test Item / Measurements		Spec.	n	Unit	Data AVE.	Data MAX.	Data MIN.	Data σ	Judge.
D	Shock									
	Cable clamp 3mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	10.92	11.4	10.5	0.34	OK
		After test				11.76	12.3	11.1	0.49	OK
	Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
		During test	—	5	-	No discontinuity				OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	12.09	12.7	11.3	0.56	OK
		After test				11.97	12.6	11.2	0.60	OK
	Electrical discontinuity	Spec. No electrical discontinuity greater than 1μs shall occur.								
		During test	—	5	-	No discontinuity				OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
E	Thermal Shock									
	Cable clamp 3mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	12.12	12.2	12.0	0.11	OK
		After test				12.66	13.0	12.2	0.37	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	11.30	11.4	11.0	0.15	OK
		After test				12.62	13.6	12.1	0.68	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
F	High temperature life									
	Cable clamp 3mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	11.44	12.7	11.1	0.73	OK
		After test				14.48	15.7	13.2	1.01	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	11.08	11.2	11.0	0.07	OK
		After test				11.86	12.1	11.6	0.16	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK

Table 2-3 Test Result

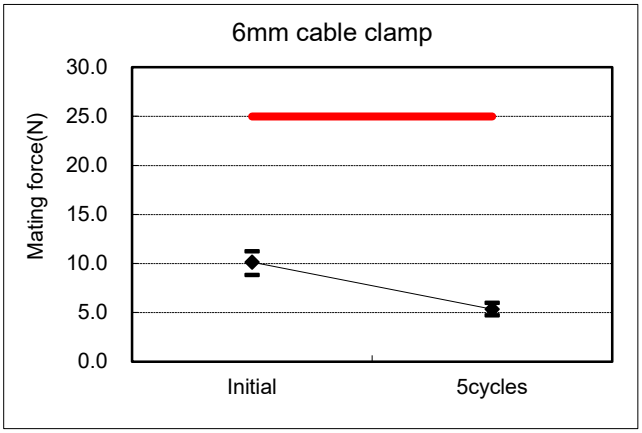
	Test Item / Measurements		Spec.	n	Unit	Data AVE.	Data MAX.	Data MIN.	Data σ	Judge.
G	Humidity (Steady state)									
	Cable clamp 3mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	13.61	14.2	13.2	0.40	OK
		After test				11.88	13.2	11.4	0.76	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	11.35	11.5	11.1	0.13	OK
		After test				11.62	11.7	11.5	0.12	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
H	Low-temperature test									
	Cable clamp 3mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	11.86	12.2	11.5	0.26	OK
		After test				11.69	12.4	11.3	0.41	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	Initial	70 MAX	5	mΩ	11.39	11.5	11.3	0.10	OK
		After test				11.77	12.1	11.4	0.27	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
J	Surface Mount Solderability test									
	Solder wetting area	After test	95 MIN	5	%	95 MIN.				OK
K	Resistance to Reflow Soldering Heat									
	Cable clamp 3mm									
	Contact Resistance	After test	70 MAX	5	mΩ	12.44	12.9	12.0	0.32	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK
	Cable clamp 6mm									
	Contact Resistance	After test	70 MAX	5	mΩ	11.68	11.8	11.6	0.10	OK
	Apearance	Spec. No abnormality adversely affecting the performance shall occur.								
		After test	—	5	-	No abnormality				OK



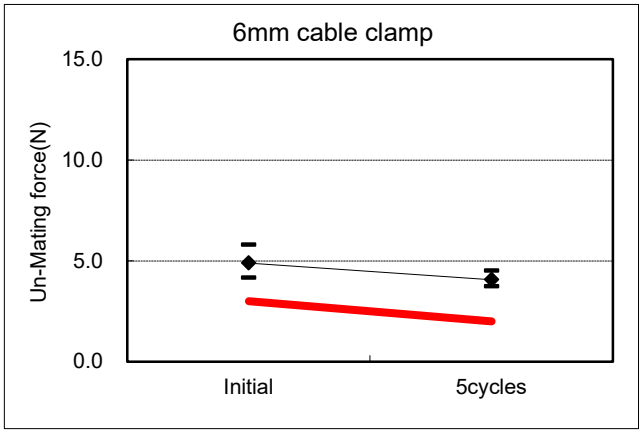
Graph1-1 Mating force(3mm cable clamp)



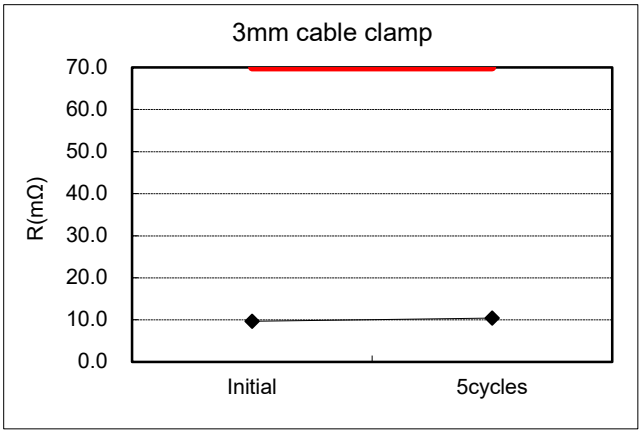
Graph1-2 Un-mating force(3mm cable clamp)

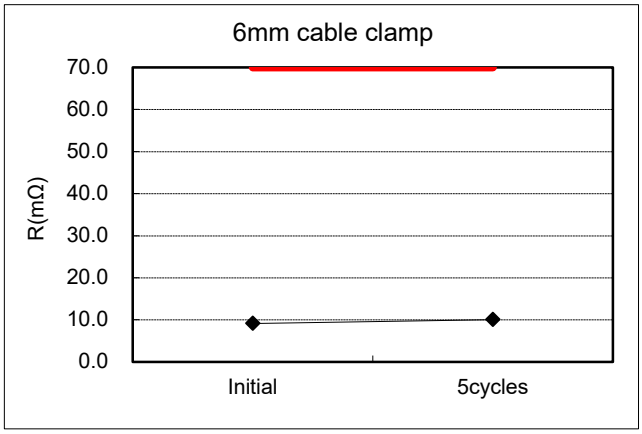


Graph1-3 Mating force (6mm cable clamp)

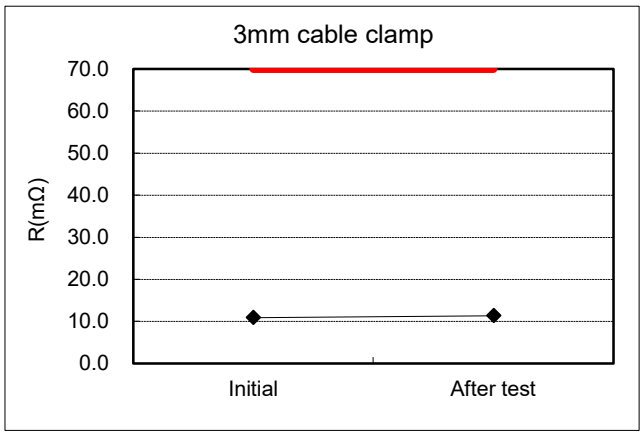


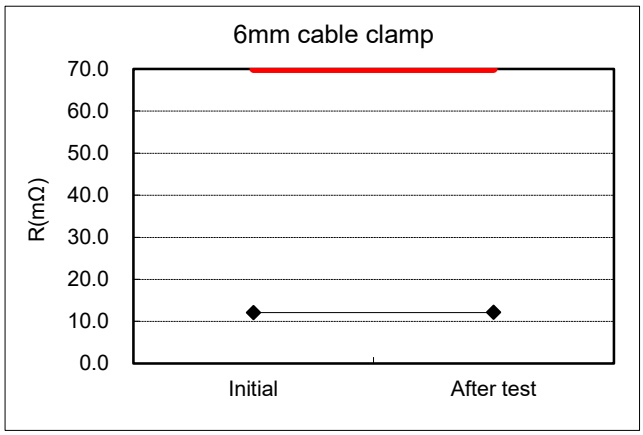
Graph1-4 Un-mating force (6mm cable clamp)



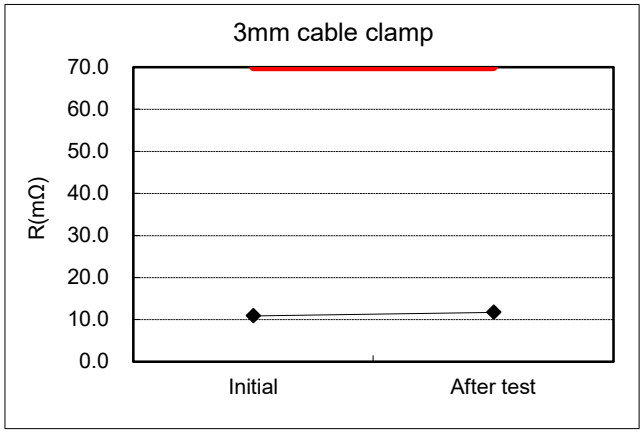


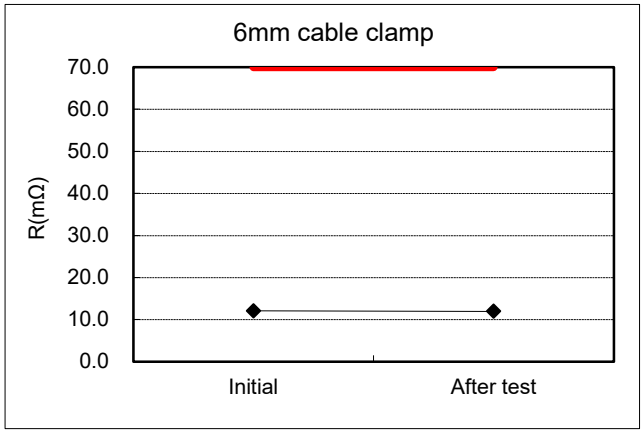
Graph1-5 Durability



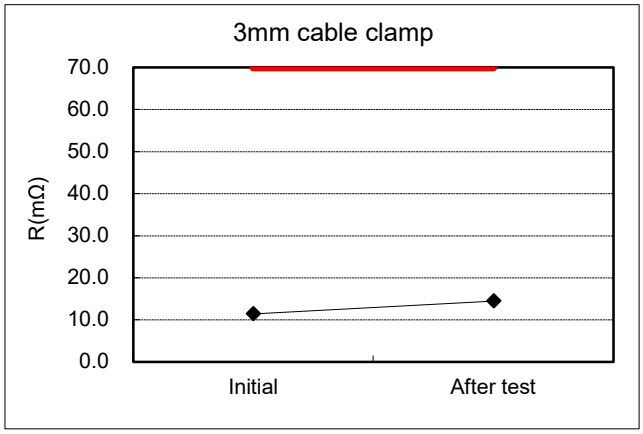


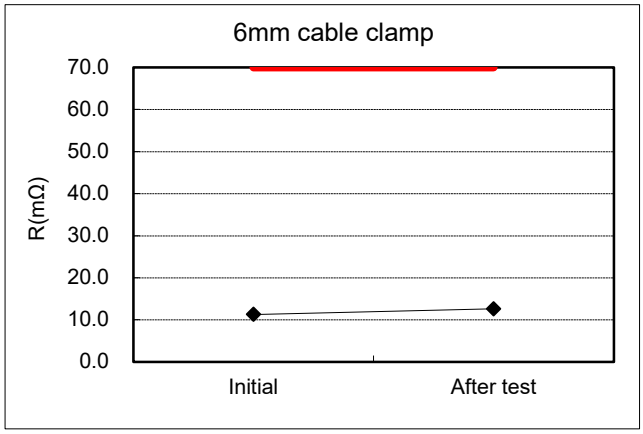
Graph1-6 Vibration



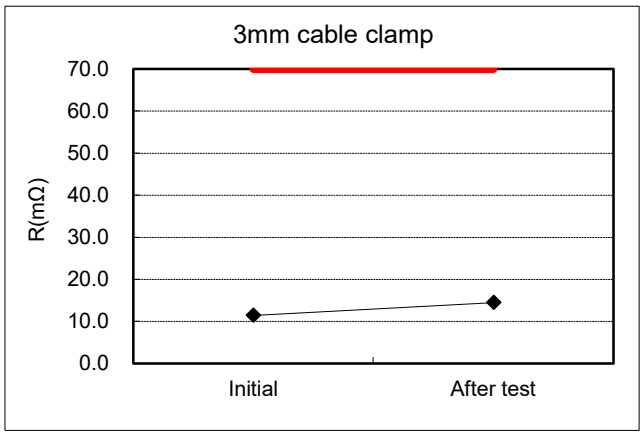


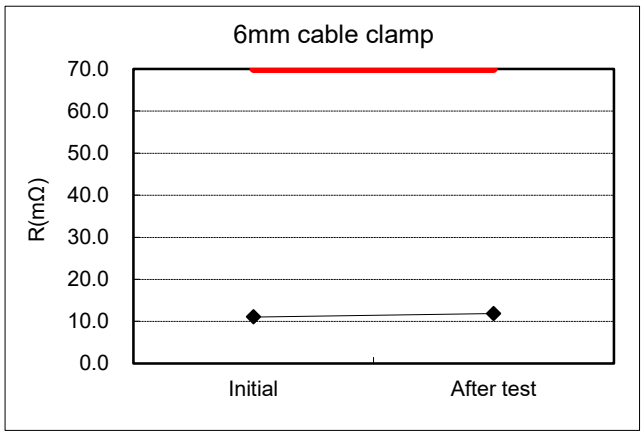
Graph1-7 Shock



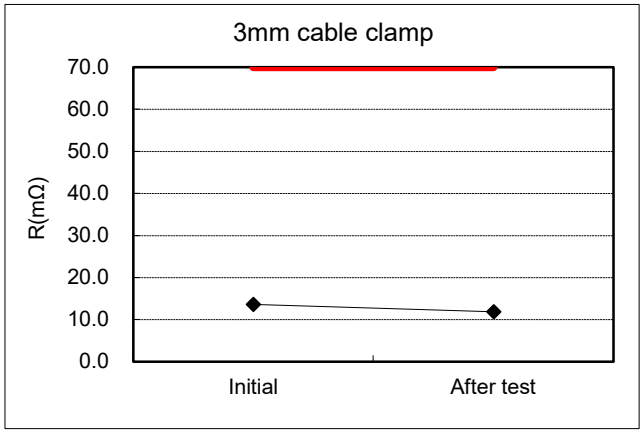


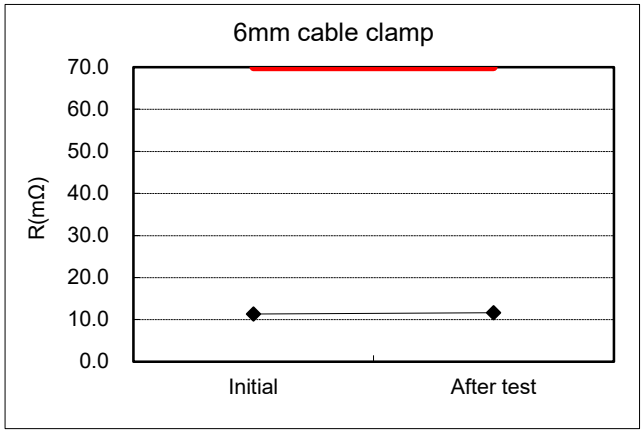
Graph1-8 Thermal Shock



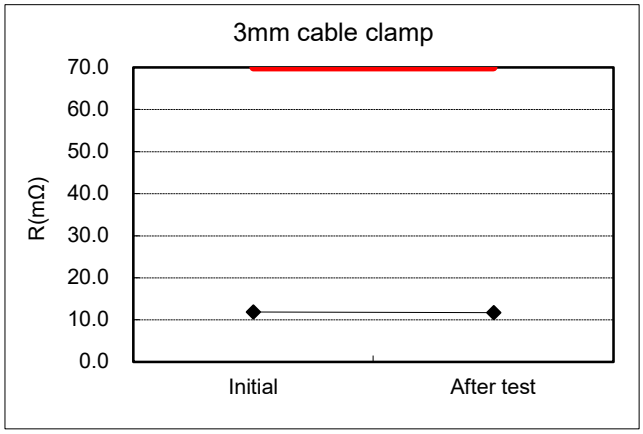


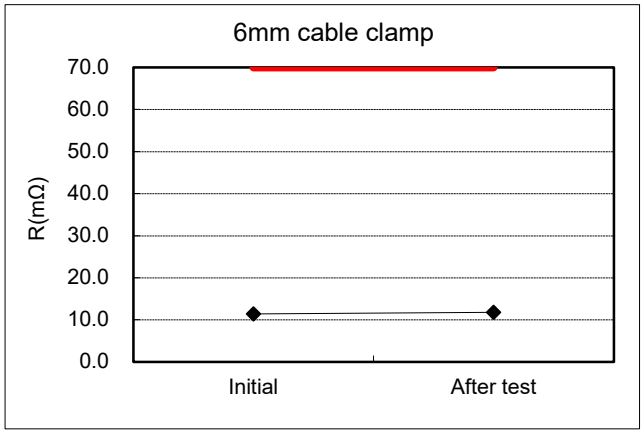
Graph1-9 High temperature life





Graph1-10 Humidity （Steady state）





Graph1-11 Low-temperature test