

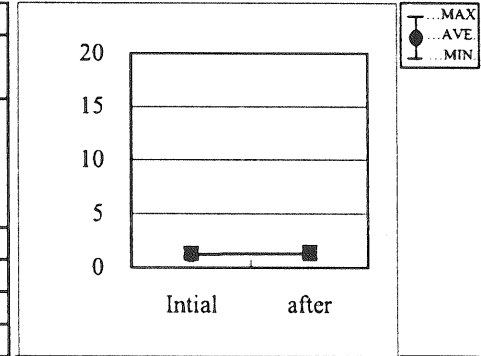
DOCUMENT CLASSIFICATION Qualification Test Report テストレポート	TITLE MHF series micro coaxial connector	No. TR-1021
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(8) Thermal shock(熱衝撃)

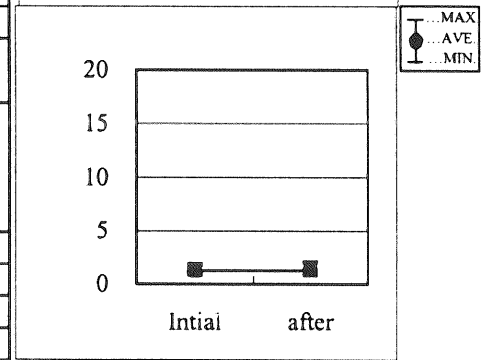
8-1 20278-001R-13 +AWG#32 (OD1.13) coaxial cable

Appearance(外観) : No abnormality(異常無し)

Contact resistance of inner contact (中心導体接触抵抗)		
	Initial (初期)	After testing (試験後)
AVE.	1.20	1.32
MAX.	1.8	1.9
MIN.	0.9	0.9
S	0.28	0.32
Specification(規格)	20 MAX.	25 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK



Contact resistance of ground contact (外部導体接触抵抗)		
	Initial (初期)	After testing (試験後)
AVE.	1.22	1.29
MAX.	1.8	2.0
MIN.	0.9	0.9
S	0.35	0.37
Specification(規格)	10 MAX.	15 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK

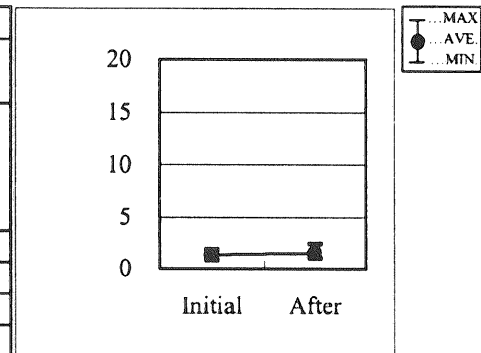


Insulation resistance (絶縁抵抗)		
	Initial (初期)	After testing (試験後)
Results(結果) MIN. value	10,000	10,000
Specification(規格)	500 MIN.	100 MIN.
Units(単位)	mega-ohm	mega-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK

8-2 20278-001R-32 +AWG#32 (OD1.32) coaxial cable

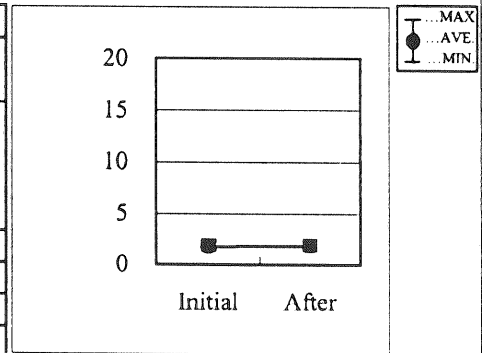
Appearance(外観) : No abnormality(異常無し)

Contact resistance of inner contact (中心導体接触抵抗)		
	Initial (初期)	After testing (試験後)
AVE.	1.33	1.50
MAX.	1.8	2.4
MIN.	0.5	1.0
S	0.38	0.44
Specification(規格)	20 MAX.	25 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK



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Contact resistance of ground contact (外部導体接触抵抗)	Initial (初期)	After testing (試験後)
AVE.	1.76	1.85
MAX.	2.3	2.3
MIN.	1.5	1.5
S	0.26	0.27
Specification(規格)	10 MAX.	15 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK



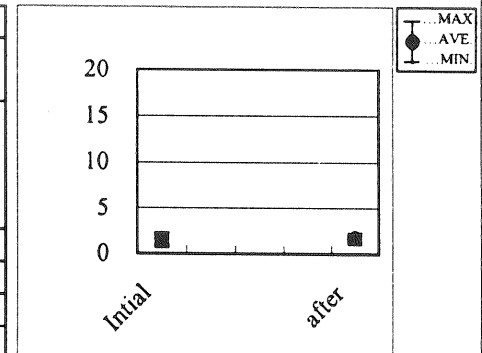
Insulation resistance (絶縁抵抗)	Initial (初期)	After testing (試験後)
Results(結果) MIN. value	10,000	10,000
Specification(規格)	500 MIN.	100 MIN.
Units(単位)	mega-ohm	mega-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK

(9) Humidity(湿度)

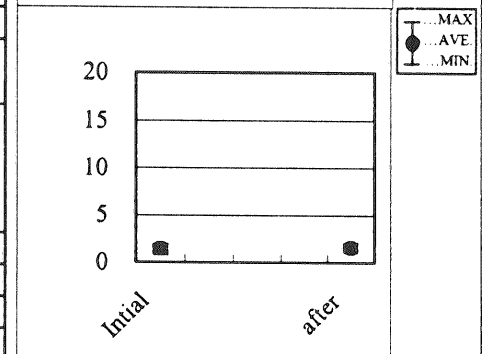
9-1 20278-001R-13 +AWG#32 (OD1.13) coaxial cable

Appearance(外観) : No abnormality(異常無し)

Contact resistance of inner contact (中心導体接触抵抗)	Initial (初期)	After testing (試験後)
AVE.	1.51	1.66
MAX.	2.1	2.1
MIN.	0.8	1.1
S	0.41	0.34
Specification(規格)	20 MAX.	25 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK



Contact resistance of ground contact (外部導体接触抵抗)	Initial (初期)	After testing (試験後)
AVE.	1.44	1.55
MAX.	1.8	1.9
MIN.	1.0	1.2
S	0.25	0.25
Specification(規格)	10 MAX.	10 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK



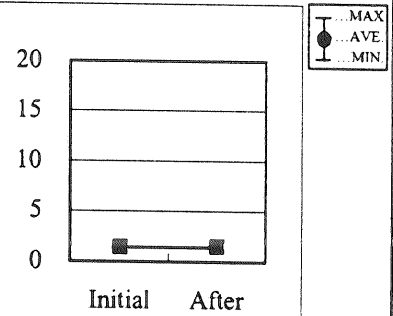
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Insulation resistance (絶縁抵抗)	Initial (初期)	After testing (試験後)
Results(結果) MIN. value	10,000	10,000
Specification(規格)	500 MIN.	100 MIN.
Units(単位)	mega-ohm	mega-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK

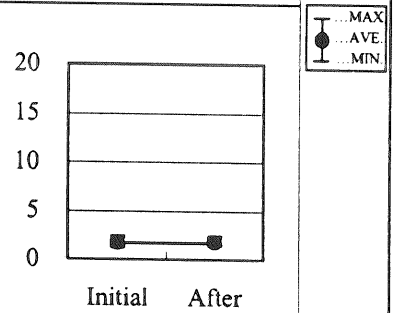
9-2 20278-001R-32 +AWG#32 (OD1.32) coaxial cable

Appearance(外観) : No abnormality(異常無し)

Contact resistance of inner contact (中心導体接触抵抗)	Initial (初期)	After testing (試験後)
AVE.	1.42	1.46
MAX.	1.6	2.0
MIN.	0.9	1.0
S	0.31	0.32
Specification(規格)	20 MAX.	25 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK



Contact resistance of ground contact (外部導体接触抵抗)	Initial (初期)	After testing (試験後)
AVE.	1.70	1.77
MAX.	2.3	2.3
MIN.	1.3	1.5
S	0.33	0.30
Specification(規格)	10 MAX.	15 MAX.
Units(単位)	mille-ohm	mille-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK



Insulation resistance (絶縁抵抗)	Initial (初期)	After testing (試験後)
Results(結果) MIN. value	10,000	10,000
Specification(規格)	500 MIN.	100 MIN.
Units(単位)	mega-ohm	mega-ohm
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK

(10) Salt water spray
(塩水噴霧)

	Initial(初期)	After testing(試験後)
Results(結果)	No abnormality(異常無し)	No abnormality(異常無し)
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK

(11) Solderability, reflow soldering resistance(半田付け性, 半田耐熱性)

	Solderability(半田付け性)	Reflow soldering resistance(半田耐熱性)
Results(結果)	No abnormality(異常無し)	No abnormality(異常無し)
Sample quantity(試料数)	10pcs.	10pcs.
Judge(判定)	OK	OK

QUALIFICATION TEST REPORT

Document No. TR-1029

Mechanical testing and environmental testing of I-PEX MHF series micro coaxial connector and HIROSE U.FL. Connector

					Prepared by	Reviewed by	Approved by
					K.Ohbayashi OCT/05/01	E.Kawabe OCT/05/01	K.Katabuchi OCT/05/01
0	T1028	K.O	OCT/05/01				
REV.	ECN	BY	DATE	APP.			
REVISION RECORD							

DOCUMENT CLASSIFICATION	TITLE	DOCUMENT No.
Qualification Test Report	Mechanical testing and environmental testing of I-PEX MHF and HIROSE U.FL connector	TR-1029

1.Purpose

To perform the mechanical testing and environmental testing of I-PEX MHF series micro coaxial connector and HIROSE U.FL connector

2.Conclusion

There are no abnormality at all combinations

3.Sample

(1) I-PEX connector

Plug : part No.20278-001R-13

Cable : AWG#32 coaxial cable (jacket diameter 1.13mm)

Receptacle : part No.20279-001E-01

(2) HIROSE connector

Plug : part No.U.FL-LP-040(01)

Cable : VSWR test AWG#32 coaxial cable (jacket diameter 1.13mm)

Cable : environmental test AWG#36 coaxial cable (jacket diameter 0.81mm)

Receptacle : part No.U.FL-R-SMT(10)

3.Method

Refer to product specification,PRS-1176

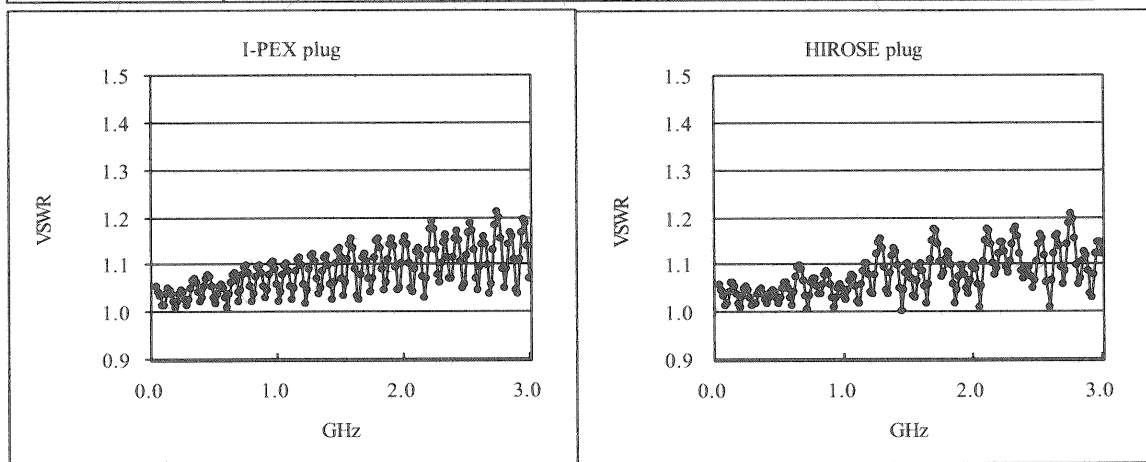
4. Results

(1) Dielectric withstanding voltage

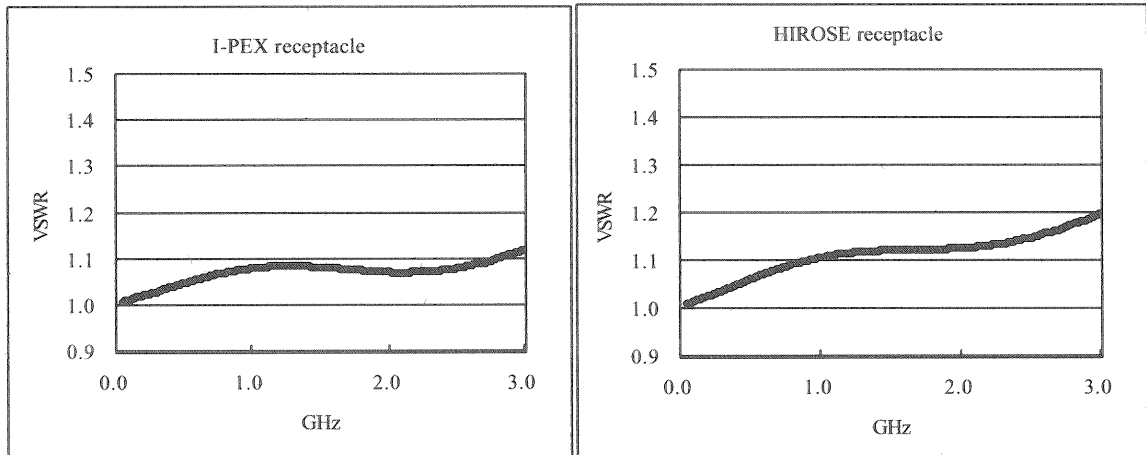
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
Results	No abnormality	No abnormality	No abnormality	No abnormality
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.

(2) VSWR

	I-PEX plug AWG#32 coaxial cable length 995mm	HIROSE plug AWG#32 coaxial cable length 995mm	I-PEX receptacle	HIROSE receptacle
AVE.	1.185	results	1.120	1.141
MAX.	1.20	No.1 1.18	1.13	1.19
MIN.	1.17	No.2 1.17	1.11	1.08
Sample quantity	5 pcs.	2 pcs.	5 pcs.	5 pcs.



DOCUMENT CLASSIFICATION	TITLE	DOCUMENT No.
Qualification Test Report	Mechanical testing and environmental testing of I-PEX MHF and HIROSE U.FL connector	TR-1029



(3) Mating & unmating force

Total mating force	Initial		After 30 cycles		
	Plug	I-PEX	I-PEX	I-PEX	I-PEX
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE	HIROSE
AVE.	15.3	15.0	6.5	6.8	
MAX.	16	16	7	7	
MIN.	15	14	6	6	
S	0.5		0.4		
Units	N	N	N	N	
Sample quantity	10pcs.	5pcs.	10pcs.	5pcs.	

Total unmating force	Initial		After 30 cycles		
	Plug	I-PEX	I-PEX	I-PEX	I-PEX
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE	HIROSE
AVE.	12.6	14.7	6.2	7.3	
MAX.	14	16	7	8	
MIN.	12	14	5	7	
S	0.8		0.6		
Units	N	N	N	N	
Sample quantity	10pcs.	5pcs.	10pcs.	5pcs.	

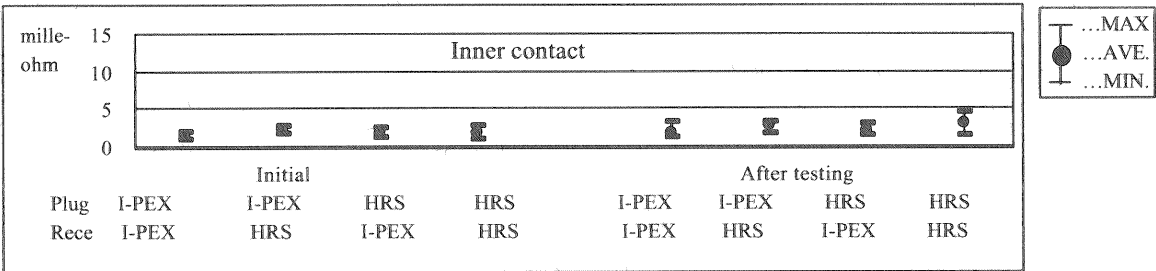
Unmating force of inner contact

	Initial		After 30 cycles		
	Plug	I-PEX	I-PEX	I-PEX	I-PEX
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE	HIROSE
AVE.	0.372	0.400	0.233	0.274	
MAX.	0.39	0.43	0.25	0.32	
MIN.	0.35	0.36	0.22	0.25	
S	0.015		0.012		
Units	N	N	N	N	
Sample quantity	10pcs.	5pcs.	10pcs.	5pcs.	

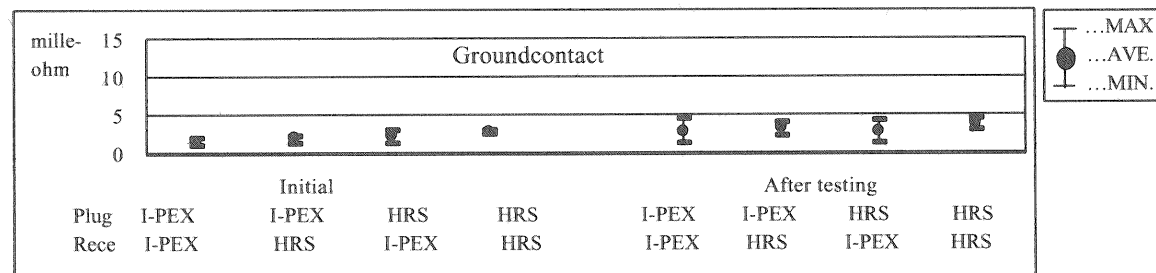
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Qualification Test Report	Mechanical testing and environmental testing of I-PEX MHF and HIROSE U.FL connector	TR-1029

(4) Durability

Contact resistance of inner contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.42	2.21	1.80	2.06
MAX.	2.0	2.7	2.5	3.0
MIN.	0.9	1.7	1.2	1.4
S	0.36			
	After 30 cycles			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.80	2.68	2.06	3.06
MAX.	3.4	3.2	3.0	4.5
MIN.	1.2	1.9	1.4	1.4
S	0.68			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



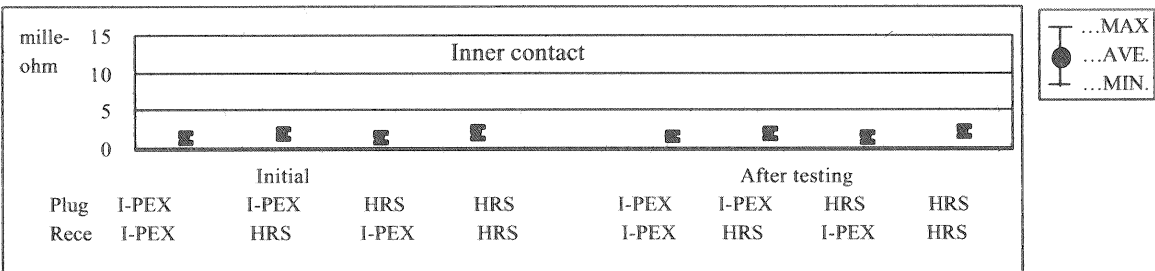
Contact resistance of ground contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.54	1.95	2.32	2.76
MAX.	1.9	2.3	3.0	3.0
MIN.	1.0	1.3	1.2	2.6
S	0.31			
	After 30 cycles			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	2.74	3.16	2.78	3.74
MAX.	4.6	4.1	4.2	4.4
MIN.	1.3	2.3	1.3	3.1
S	1.07			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



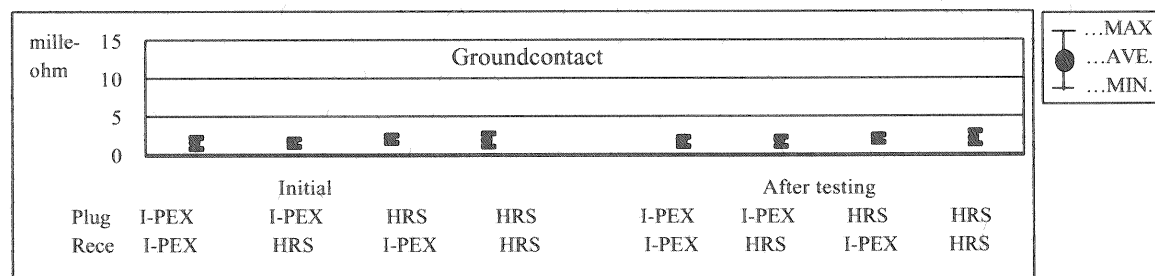
DOCUMENT CLASSIFICATION	TITLE	DOCUMENT No.
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(5) Vibration Electrical discontinuity : no abnormality at all combinations.

Contact resistance of inner contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.53	1.88	1.42	1.98
MAX.	2.0	2.5	2.0	2.8
MIN.	0.8	1.2	0.8	1.3
S	0.42			
	After 30 cycles			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.61	1.94	1.57	2.18
MAX.	2.0	2.6	2.1	2.8
MIN.	0.9	1.2	0.8	1.6
S	0.38			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



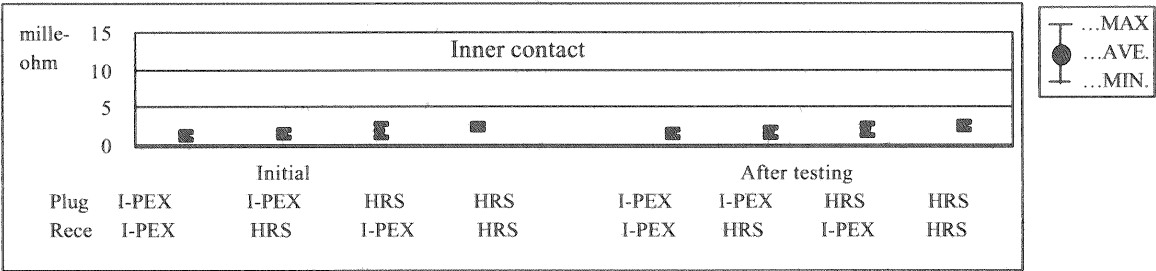
Contact resistance of ground contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.38	1.60	1.98	1.70
MAX.	2.2	2.0	2.5	2.8
MIN.	0.8	1.0	1.5	1.0
S	0.47			
	After testing			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.44	1.76	2.11	1.90
MAX.	2.3	2.2	2.6	3.1
MIN.	0.9	1.0	1.6	1.2
S	0.47			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



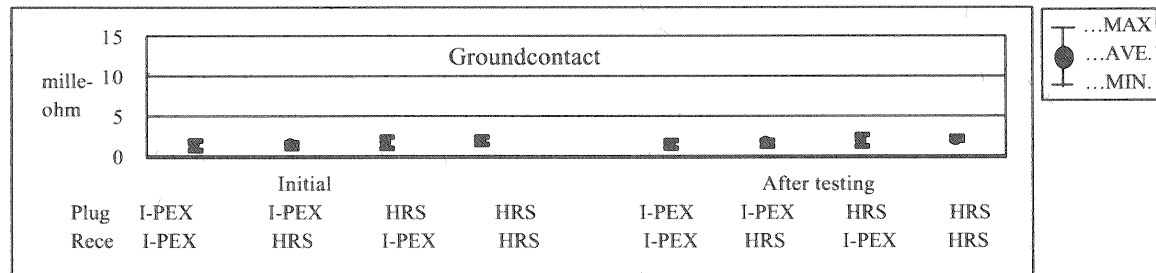
DOCUMENT CLASSIFICATION	TITLE	DOCUMENT No.
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(6) Shock Electrical discontinuity : no abnormality at all combinations.

Contact resistance of inner contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.38	1.38	1.76	2.24
MAX.	1.9	2.0	2.7	2.7
MIN.	0.8	1.0	1.1	2.0
S	0.35			
	After testing			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.42	1.58	2.04	2.50
MAX.	2.0	2.3	2.8	3.0
MIN.	0.9	1.1	1.2	2.0
S	0.38			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



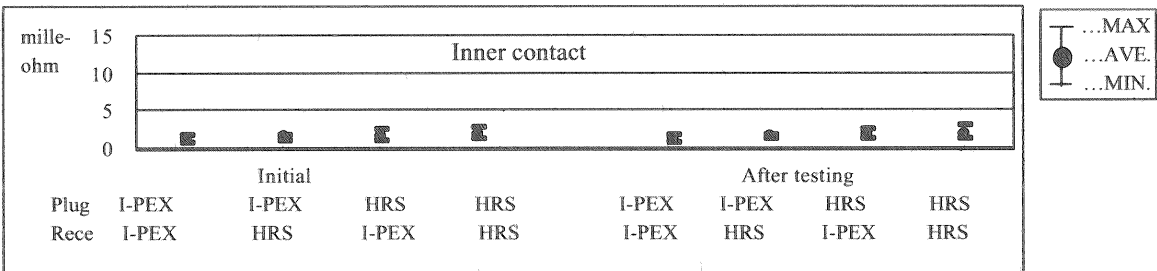
Contact resistance of ground contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.40	1.38	1.58	1.80
MAX.	1.8	1.7	2.5	2.4
MIN.	0.8	1.0	1.0	1.4
S	0.32			
	After testing			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.51	1.64	1.80	2.02
MAX.	2.0	1.9	2.6	2.4
MIN.	0.9	1.3	1.1	1.8
S	0.34			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



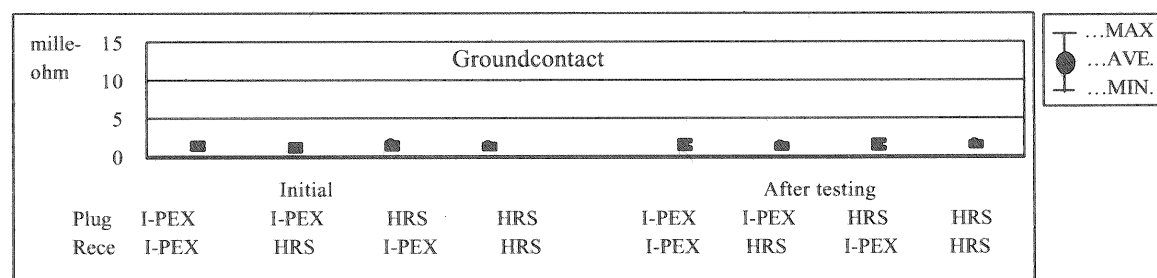
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(7) Thermal shock

Contact resistance of inner contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.20	1.20	1.20	1.20
MAX.	1.8	1.8	1.8	1.8
MIN.	0.9	0.9	0.9	0.9
S	0.28			
	After testing			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.32	1.62	1.72	1.88
MAX.	1.9	1.9	2.6	3.0
MIN.	0.9	1.2	1.2	1.3
S	0.32			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



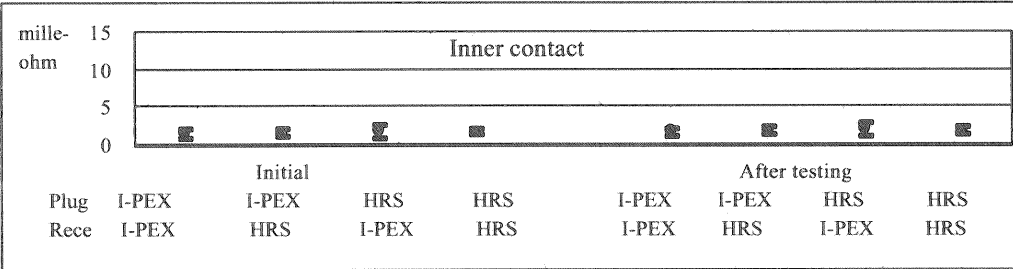
Contact resistance of ground contact				
	Initial			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.22	1.08	1.44	1.28
MAX.	1.8	1.4	1.7	1.6
MIN.	0.9	0.8	1.1	1.1
S	0.35			
	After testing			
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.29	1.24	1.56	1.42
MAX.	2.0	1.5	1.9	1.7
MIN.	0.9	1.0	1.1	1.2
S	0.37			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



DOCUMENT CLASSIFICATION Qualification Test Report	TITLE Mechanical testing and environmental testing of I-PEX MHF and HIROSE U.FL connector	DOCUMENT No. TR-1029
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(8) Humidity

Contact resistance of inner contact				
Initial				
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.51	1.60	1.84	1.46
MAX.	2.1	2.1	2.6	2.1
MIN.	0.8	1.1	0.8	1.2
S	0.41			
After testing				
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.66	1.74	1.96	1.56
MAX.	2.1	2.2	2.9	2.4
MIN.	1.1	1.3	0.9	1.2
S	0.34			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.



Contact resistance of ground contact				
Initial				
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.44	1.52	1.20	1.96
MAX.	1.8	1.7	1.7	2.8
MIN.	1.0	1.3	0.8	0.7
S	0.25			
After testing				
Plug	I-PEX	I-PEX	HIROSE	HIROSE
Receptacle	I-PEX	HIROSE	I-PEX	HIROSE
AVE.	1.55	1.66	1.30	2.06
MAX.	1.9	2.0	1.8	2.9
MIN.	1.2	1.4	0.9	1.0
S	0.25			
Units	mille-ohm	mille-ohm	mille-ohm	mille-ohm
Sample quantity	10pcs.	5pcs.	5pcs.	5pcs.

