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HYB 58P CAP/PLUG ASS'Y

1. Scope

1.1 Content

This specification defines the test method for 11p Door to Body Connector, terminal and accessories.

1.2 Qualification

When testing the named products, the following specified specifications and standards shall be used. All tests have to be done using the applicable inspection plan and product.

1.3 Applied Product

2005275-3	Cap assembly
2005281-3	Plug assembly

2. Applicable Documents

The following documents, if they are related, are sequent to this specification.

In case of conflict between the requirements of this specification and the product drawing or in conflict between the requirements of this specification and the referred documents, this specification has precedence

- 2.1 TE Connectivity Documents
 - 2005275 Customer Drawing (Plug assembly)2005281 Customer Drawing (Rear holder housing)
- 2.2 HKMC specification GMW3191 GM Connector test and validation

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3. Requirements

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		Term	inal – Mechan	ical Tests						
No.	Items	Criteria								
1	Crack Corrosion	Clean contacts or material to be tested by degreasing in a suitable alkaline cleaner or organic solvent. If necessary, immerse parts for » 30 s in either sulfuric acid (10 % by mass) or nitric acid (30 % by mass) and then rinse in clean running water. Dry the samples throughly. Fill the test vessel with the ammonia solution to a depth of » 30 mm. Suspend the cleaned test samples at a height of 50 mm above the surface of the ammonia solution and seal the test vessel. Expose the samples for (24 ± 1) h. Following the 24 h ammonia exposure, submerge the samples in either sulfuric acid (10 % by mass) or nitric acid (30 % by mass) at (+23 ± 5) C for (3060) s. Examine the parts using at least 10x magnification. Observe and note any cracks.								
2	Crimp Integrity	The degree of of the middle of the A method for the chosen which g smooth surface recognized. The N/A (only for un be polished and compression of strands. The dis shall be large e so that there is sample prepara In cases where from these exa alternate section	compression sh he cable he metallograp generates a without any c e zone to nplated coppe d photographe f the wire stance betwee nough no change in s ation. the crimp or a mples, pning methods	hall be shown in a cross-section phical fine sanding and polishin deformation. Small cavities sha r/zinc based terminal) d shall be chosen in the area of n the cutting zone and the po- structure of the polishing zone ttachment structure varies sig may be required.	n through ng shall be all be easily of maximum lishing zone e due to gnificantly					
		Test	ltems	Acceptance Cri	teria					
				No corrosion, discoloration	1.6					
			Visual Inspection	affect the function. Swelling	2.8					
		a ți		exceed the tolerances.	<mark>5.8</mark>					
		Crin Integ		All wire strands shall be	1.6					
			Crimp Integrity	uniformly deformed, honeycomb like structure,	2.8					
				enveloped by chillp wings.	5.8					
3	Terminal Wire Attachment Tensile strength	1 Using test ap occurs. Note: If more t wire individual 2 Record veloci	paratus, apply han one condu y. ty, tensile stre	force until terminal/conducto actor is attached to one termir ngth and location of failure fo	r separation hal, test each r each test					



		sample. Note: Ring terminals requiring dip sc dipping.	oldering shall be pull tested before						
4	Terminal-to-Terminal Engagement Force	Min 50N (0.35SQ) Min 70N (0.5SQ) Min 235N (2.5SQ) Min 115N (1.0SQ) Min 235N (2.5SQ) Min 320N (4.0SQ) None – Documentation purposes only.							
		Perform the terminal-to-terminal en circuit test. Push the test pin into the maximum force specified in Table 6. Extract the test pin and repeat the te force. Store the samples at (+23 ± 5) Repeat the dry circuit test. Table 6: Mechanical Ove	gage force test and a dry e female terminal at the Hold it for 60~70 seconds. erminal to terminal engage C for 24 h min. erstress Test						
5	Mechanical Overstress	Terminal Size in mm							
	Test	0.64	10						
		1.5	20						
		2.8	40						
		6.35	80						
		< 6.35	100						
6	Terminal Bend Resistance	Prepare the smallest (with the tninne largest conductor (with the thickest i terminal in a fixture. Apply the force to the sample as shown in Figure 28 Inspect the bend area using at least Straighten it and re-inspect the area Mount a new terminal rotated 180° procedure. Mount a new terminal rot For terminal style "B" designs in Figu above test procedure with each term that location "2" is firmly retained at	est insulation) and the nsulation). Mount the specified in Table 21 for 15 s and release. 10x magnification. and repeat the above otated 90° and repeat. ure 27, repeat the ninal mounted such						



		Table 21: Terminal Size and Applied Bending Force								
		Terminal Size Applied Force in mm in N								
		0.64 ≤ 1.5 4.0								
		1.5 ≤ 2.8 7.0								
		2.8 ≤ 6.3 10.0								
		6.3 ≤ 9.5 15.0								
		9.5 20.0								
		Terminal Electrical Tests								
No.	Items	Criteria	Remark							
1	Maximum Current Rating	Construct 'Draft Free Enclosure' as shown Figure 9. Turn on the power supply and adjust current to 0 A and voltage to 14 VDC. Slowly increase the power supply in 5 % increments until it is providing 50 % of the intended terminal design current capability. From 50% of design capability increase the current in 10 % increments. From 80 % of design capability, increase the current in increments of 5 % of the terminal capability Continue increasing the current in 5 % increments until								
		thermal stability can no longer be maintained after 15 min. Record the ambient Temperature, the Temperature of each terminal, the measured voltage and current at each increment. Construct the Base Curve by calculating the mean value of the temperature differences of the 10 test samples and plotting as shown in Figure 10,Base Curve. Reduce the current values of the base curve by 20 % to create the derating curve (reduced base curve) as shown in Figure 11.								
2	Current Cycling	curve) as shown in Figure 11. 'ON' and 15 min 'OFF' at the Base Curve Current of the terminal from Figure 11, Derating Curve. After 30 min into the first 'ON' cycle record the total connection resistance and thermocouple readings. Cycle the current with a duty cycle of 45 min 'ON' and 15min 'OFF' for 1008 h taking readings at least once daily, or as specified by the test requestor. TM'L Size Wire Size 1.6 1.0 2.8 2.5 2.8 2.5 5.8 4.0 24 °C 37 Amp.								
		Connector System – Electrical Tests								
No.	Items	Criteria	Remark							
1	Mechanical Shock	None – Samples are evaluated only after completion of the Vibration with Thermal Cycling Test.								
2	Thermal Aging	The test samples shall meet the requirements for Dry Circuit both before and after the environmental tests.								



		All test samples s All mechanical as connectors for se	hall m sists a rvice r	eet the visua nd/or other must function	al requiremer elements req n without bre	nts. uired † eakage	to separate			
3	Heavy duty test	Maximum allowe cycle is 50°C. RTC Table 10 in Sectio	d tem otal Co on 4.17	perature rise onnection me 7, Dry Circuit	e on the term easured shall	inal at be in a	the end of each accordance with			
4	Temperature Humidity cycling	Test samples shall after temperature All test samples s All mechanical as connectors for se	after temperature/humidity cycling. All test samples shall meet the visual requirements. All mechanical assists and/or other elements required to separate connectors for service must function without breakage.							
	Connector System – Mechanical tests									
No.	Items			Crit	teria			Remark		
	Terminal to Connector			TPA in op	en position	TP.	A in fully seated position			
1	Engagement Force	1.6 TAB/REC	•	1	5N		30N	-		
	8~800.00	2.8 TAB/REC	•	1	5N		30N			
		5.8 TAB/REC		3	ON		60N			
	Terminal from connector	Terminal Size (mm)	Prim Only	ary Lock (N)	Primary Los TPA/PLR ar Post-Moist Conditionir (N)	ck & id ure ig	Post-Thermal Aging and Post- Temp/Humidity Cycling (N)			
2	Extraction Force	0.64	30		60		50	-		
		=1.5</td <td>50</td> <td></td> <td colspan="2">80</td> <td>70</td> <td></td>	50		80		70			
		=2.8</td <td>60</td> <td></td> <td>100</td> <td></td> <td>90</td> <td>-</td>	60		100		90	-		
		=6.3</td <td>90</td> <td></td> <td colspan="2">120</td> <td>110</td> <td></td>	90		120		110			
		>6.3	100		150		140			
3	Connector to Connector Engagement Force	The maximum for	rce is 7	75N.						
4	Locked Connector Disengagement Force	The minimum for	ce is 1	20N.						
5	Unlocked Connector	The maximum for	rce for	both discon	necting the u	inlocke	ed connector			
	Disengagement Force	The connection subtraction for the connection subtraction for the force mathematical structures and the forc	iging ti ystem neasur	<u>he primary lo</u> shall withsta ed.	ock is 100N. and a minimu	m mat	ing force of three			
6	Polarization(Coding) Feature Effectiveness	Appearance : No the function. Swe	corros elling o	ion, cracks, o r distortion	discoloration shall not exce	, etc.,v ed the	which could affect tolerances.			
		Polarization Feat	ure : Si	nall Withstan	a 3 times of	the ma	TING FORCE.			
		TPA Pre-Lock For			More than	20N	130IN.			
	Terminal Position	TPA Closing Force Assembled Termi	e with nals	properly	30N or less	2011		-		
7	Assurance	TPA Closing Force Improperly Assen	e with nbled	One Terminals	60N or mo	re				
		Closed TPA Lockir	ng For	ce	More than	25N				
		Mount the sampl	es in t	he fixture wi	th the slide o	r levei				
8	Lever and Slide "Open" Position Retention	in the open positi : Min. 50Newton	ion. Ap	oply a 50N fo	rce in directi	on F.				
		Mount new conn slide or lever. : M	'rs. Ap in. 15(ply a 150N fo DNewton	orce to close	the				





		Mount new conn'rs. Apply an increasing force to the slide or lever until the pre-lock position is defeated : Shall withstand the force to defeat the pre-lock posi. Without permanent damage or deformation Apply a 100N force in direction "F", as shown in Figure 4 at the rate of (50±10)mm/min with the lever or slide in both the open and closed positions ① Apply a 100N force in direction opposite to direction "F" at the rate of (50±10)mm/min with the lever or slide in the open and closed positions ② Position the slide or lever in a position approximately halfway between the open and closed positions Apply a 60N force in direction "F" at the rate of (50±10) mm/min ③ Apply a 60N force in the direction opposite to direction "F" at the rate of (50±10) mm/min ④										
9	Lever and Slide, Side Force Strength											
		Test	Items	Acceptance C	riteria							
		lide, rength	Appea- rance	No corrosion, cracks, discoloration, etc., which could affect the function. Swelling or distortion shall not exceed the tolerances.	Initial After Test							
		Lever and S Side Force St	Lever and Slide, Side Force	Shall withstand 100 N in the open & closed position.	the open posi. he closed posi.							
			Strength	Shall withstand 60 N in the midpoint In the posi.	e mid posi.							
10	Connector Mounting Feature Mechanical	Manufacture a mounting feature with the correct dimensions to fit the conn'rs on test. With the conn'r attached to that, apply a force at a rate of 50 mm/min in the direction F1~F6 until the breakage of the mounting feature or until the force specified in the acceptance criteria is reached. Figure 6: (3D View) TEST SEQ. 25K										
	Strength	2 Matin 3 Mount 4 Non-r	g Axis ing Conn nounting	ect <u>F6</u> 2 		F5 7 F2						



			Test Items			Acce	eptance Cr	iteria	
		g Feature Mechanical angth abddy abddy		Appea-	No d wł	No corrosion, cracks, discoloration, etc., which could affect the		Initial	
				rance	fu (exc	unction. distortio ceed the	Swelling or n shall not e tolerances.	After Test	
						F1			
		nting	Stre	Connector		F2			
		Mou		Mounting Feature		F3	Min.	50N	
		ctor		Mechanical		F4			
		nne(orengin		F5			
		ပိ				F6	Min. 1	10 N	
11	Connector Position Assurance [CPA]	seated a until ful (2) CPA Using ar 10) mm, fully sea (3) CPA Using ar direction closing of detache	Appea-rance	ed. Open the ed. g Force on Un ted connecto atil d locked. Reco ion Force ted conn'r, ap normal n at a uniforr Acceptant No corrosion, cra discoloration, e which could affec function. swellin	or, clo ord th opply a m rate ce Cri acks, tt., tt the g or	at a unit ed Conne- se the CP ne peak f n force to e of (50 ± teria Initial	orm rate of (50 : 2A at a uniform r orce. the CPA in the c : 10) mm/min un	± 10)mm/min ate of (50 ± opposite til fully	
		CPA Lock Force Max		distortion shall n exceed the tolerar Max.	not nces. 22 N	Test			
		PA Extre	CPA Unlock Force	20~	-40N				
		0	Force on Unmated Conn'r	Over 3P	80N Min.				
			CPA Extraction Force	Over 3P	801	I Min.			
	 	C Divide t	onnect	or System - E	lectri	cal Tests	and the first and	un chall be	
1	MECHANICAL SHOCK / VIBRATION SEQUENCE	monitor Measure	ne test ed cont e the dr	samples into tinuously. Ty circuit resis	2 grc	e on the	and the first gro terminated lead	pairs. Set the	
		power s	upply to	o provide100	mA.				



12 F	igure	16.17	18 5	hock		ii Cyt		cstuc	ung		1001
Tabl	e 11' M	lechanica	al Sho	nock	· _			Test No.			
Tub	U 11. M	leename				1			2	2	
Acce	leration [g	9]				100				25	
Nom	inal shock	duration [ms]			11				15	
Nom	inal shock	k shape			ha	alf sine			h	alf sine	
Num (posi	ber of she tive and n	ocks per a negative)	xis		3 ×	6 = 1	8		500 >	× 6 = 3000	D
Figu 160 120 40 -40 1 2 Ten 3 Ten 4 Ten 7 Ten Figu	perature cla poperature poperature cla poperature poperature	hermal Cyc 150 210 t [min ass 2 ass 3 ass 4 *C cody (Spru	300	410	480	-1 -2 -3 -4	Time in min 0 60 150 210 300 410 480	Class 1 +20 -40 +20 +20 +85 +85 +20	Class 2 +20 -40 +20 +100 +20 +20	quirement ture in °C Class 3 +20 -40 +20 +20 +20 +20 +20 +20 +20 +20 +20 +20 +20 +20 +20	S Class +20 -40 -40 +15 +15 +20
		100 [(m/s ²) ² /Hz)] ISC)	sses) R	andom Vibra	ation S	chedule				
PSE F) Power Frequenc	([2H) ₂ (zs/w)) 0.1 0.1 0.0 0.0 0.01	ng Mas	in (m/s ²	andom Vibra	f [H Te a)	10 z] st Duratio	00 parts.	10 24) h for ea	000	coordina
PSC F Test	Power Frequenc according	((21), 100 10, 10 10, 10 10 10, 10 10 10 10 10 10 10 10 10 10 10 10 10 1	10 10 10 10 10 10	in (m/s ²	andom Vibra 100	f [H Te a) R	10 z] MS Accel	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² .	000 Nich X, Y, Z	coordinal
PSC F Test Tabl	Power Frequenc according le 15: Bo	((2H)/k(s ^s /w)) (Spectral D ay in Hz g to EN 600 ody (Sprun Frequent	ng Mas	in (m/s ²	andom Vibra 100 2) ² /Hz	f [H f av R tion Sc r Spec	thedule 10 z] mst Duratid s of the MS Accel hedule trai Dens	00 on = (22 parts. eration =	10 24) h for ea 20.9 m/s ² .	000 ich X, Y, Z i	coordina
PSL F Test Tabl	Power Frequenc according le 15: Bo	(2H);(;s)(u)) (2H);(;s)(u)) (2H);(;s)(u)) (2H);(s)(u)) (2	ng Mase	in (m/s ²	andom Vibra 100 2) ² /Hz ndom Vibrat	f [H f [H Te av R tion Sc r Spec: in (m/s	10 z] MS Accel hedule tral Dens 2) ² /Hz	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleratic ir	000 nch X, Y, Z n Power I n G2/Hz	coordina Density
PSE F Test Tabl	Power Frequenc according e 15: Bo	(2H);((:s/w)) (:s/w)	ng Mas)))))))))))))	in (m/s ²	andom Vibra 100 2) ² /Hz ndom Vibrat	f [H f [H Te av R tion Sc r Spect r Spect 7	10 z] MS Accel hedule tral Dens 2)2/Hz	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleratic ir	000 nch X, Y, Z n n Power I n G2/Hz 0.073	coordina Density
PSC F Test Tab	Power Frequenc according le 15: Bo	(2H);((:s/w)) (:s/w)	ng Mas 1 10 068-2-6 g Mass cy	in (m/s ²	andom Vibra 100 2) ² /Hz ndom Vibra	f [H Te aviant Second F [H Te aviant Second F (H) Te aviant Second F (H) F	10 z] MS Accel hedule tral Dens 2)2/Hz	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleratic ir	000 nch X, Y, Z i n G ² /Hz 0.073 0.036	coordinal Density
PSC F Test Tabl	Power Frequenc according le 15: Bo	(24) (24) (25) (25) (25) (25) (25) (25) (25) (25	ng Mas 1 10 068-2-6 g Mass cy	in (m/s ²	andom Vibra 100 2) ² /Hz	f [H F [H Te av R R r Spect 7 3 3 7 7 7	10 z] mst Duratid dis of the MS Accel hedule tral Dens 2) ² /Hz	00 on = (22 parts. eration = ity	100 24) h for ea 20.9 m/s ² . Acceleratic	0000 ach X, Y, Z a 0.073 0.036 0.018	coordinal
PSC F Test Tab	Power Frequenc according le 15: Bo	(2H) (2H)	ng Mas 1 10 068-2-6 g Mass	in (m/s ²	andom Vibra 100 2) ² /Hz Powe	f [H Te av r Spect r Spect r Spect n (m/s) 7 3. 1.7 0.0	10 z] mst Duratic is of the MS Accel hedule tral Dens 2)2/Hz 5 5 5 6	00 on = (22 parts. eration =	24) h for ea 20.9 m/s ² . Acceleratic	0000 nch X, Y, Z n n Power I n G²/Hz 0.073 0.036 0.018 0.0006	coordinat Density
PSE F Test Tabl	Power Frequenc according le 15: Bo	(2) 100 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 50 60 1000 0000	ng Mass 1 10 068-2-6 g Mass cy	in (m/s ² 4 sees) Ra	andom Vibra 100 2) ² /Hz	f [H Te av r Spect in (m/s) 7 3. 1.7 0.0	10 z] mst Duratio is of the MS Accel hedule tral Dens 2)2/Hz 5 5 5 5 6	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleratic	000 nch X, Y, Z n n G ² /Hz 0.073 0.036 0.018 0.0006	Density
PSC F Test Tab	Power Frequenc according le 15: Bo titems	(100 (14) (55) (100) (10	ng Mass 1 1 10 0 0 0 0 0 0 0 0 0 0 0 0 0	in (m/s ² 4 sees) Ra eria Initial Atter Test	andom Vibra 100 2) ² /Hz	f [H Te av R R R R r Spect 7 3. 1.7 0.0	thedule 10 z] mst Duratic is of the MS Accel hedule tral Dens 2)2/Hz 5 5 5 6	00 on = (22 parts. eration =	10 24) h for ea 20.9 m/s ² . Acceleratic	0000 nch X, Y, Z i n Power I n G²/Hz 0.073 0.036 0.018 0.0006	Density
PSC F Test Tabl	Power Frequenc according le 15: Bo	(100) 1000 Acceptar No corrosion, or distort exceed the to Swelling or distort exceed the to 5mg Max.	ng Mas 10 Density	eria Initial Atter Test	andom Vibra 100 2) ² /Hz	f [H Te av r Speci in (m/s 7 3. 1.7 0.0	10 z] ast Durati tis of the MS Accel hedule tral Dens 2)2/Hz 5 5 5 5 6	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleration	0000 ach X, Y, Z d 0.073 0.036 0.018 0.0006	Density
PSC F Test Tabl	Power Frequenc according le 15: Bo	(F) 100 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 50 60 1000 000 Acceptar No constant, etc. No constant, etc. could affect the tocold a	ng Mass 1 10 10 068-2-6 g Mass cy nce Crite cracks. 	eria Initial Atter Test Initial Atter Test	andom Vibra 100 2) ² /Hz	f [H Te av r Spect in (m/s 7 3. 1.7 0.0	10 z] MS Accel hedule tral Dens 2)2/Hz 5 5 5 6	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleratic ir	000 nch X, Y, Z i n <u>G2/Hz</u> 0.073 0.036 0.018 0.0006	Density
PSC F Test Tabl	Power Frequenc according le 15: Bo	(Гр. 100 100 100 100 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 10000 Acceptar No corrosion, discolaration, tesced the to could affect the baseling or discolaration to exceed the to could affect the baseling or discolaration, tesced the to could affect the baseling or discolaration, tesced the to the baseling or discolaration, tesced the to could affect the baseling or discolaration, tesced the to the baseling or discolaration, tesced the to the baseling or discolaration to the could affect the baselin	ng Mas 1 10 0 0 0 0 0 0 0 0 0 0 0 0 0	eria Initial Atter Test Initial Atter Test Initial	andom Vibra 100 2) ² /Hz	f [H F R R R R R R R R R T 7 3. 1.7 0.0	thedule 10 z] est Duratic is of the MS Accel hedule tral Dens 2)2/Hz	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleratic	000 n Power I n G ² /Hz 0.073 0.036 0.018 0.0006	Density
PSL F Test Tabl	Power Frequenc according e 15: Bo	(Г. 100 100 100 100 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 1000 10000 Acceptar No corrosion, discolaration, tesced the to could affect the baseling or discolaration to exceed the to could affect the baseling or discolaration, tesced the to affect the baseling or discolaration, the scene of the to affect the baseling or discolaration, tesced the to affect the baseling or discolaration to the scene of the to affect the baseling or discolaration, tesced the to affect the baseling or discolaration to the scene of the to affect the baseling or discolaration to the scene of the to affect the baseling or discolaration to the scene of the to affect the baseling or discolaration to the scene of the to affect the baseling or discolaration to the scene of the to affect the baseling or discolaration to the scene of the to affect the baseling or discolaration to affect the basel	ng Mas 10 10 068-2-6 g Mass cy nce Crite 1.6 2.8 5.8	eria Initial Atter Test Initial Atter Test	andom Vibra 100 2)2/Hz Nowe	f [H F F C C T T S P C C T T S P C C T T S P C C T T T C C C	thedule 10 z] est Duratic is of the MS Accel hedule tral Dens 2)2/Hz	00 on = (22 parts. eration =	100 24) h for ea 20.9 m/s ² . Acceleratic	000 n Power I n G ² /Hz 0.073 0.036 0.018 0.0006	Density

connectivity

		Set the specifie 1008 h. temper resistar	tempe ed in Ta Remov ature a nce.	rature char ble 1. Place ve the sam nd humidit Acceptar	mber t e the s ples fr cy for	o the ample om th 24 h m eria	maximum ambien is in the chamber a e chamber and let in. Measure the d	at temperature and heat age for rest at ambient Iry circuit	
			Appea- rance	No corrosion, o discoloration, et could affect the Swelling or distor not exceed the to	cracks, c., which function. tion shall lerances.	Initial After Test	• - -		
2 The	Thermal Aging	<u></u>		5mΩ Max.	1.6	Initial After	•		
		Therm Aging	RDry Circuit (unit: m Ω)	5mΩ Max.	2.8	Initial After			
				3.5mΩ Max.	5.8	Initial After Test			
3	Heavy duty test	record 2 Set th the tern taken f largest at the s 3 Conn 4 Set th in Table for term 5 Run t respect temper 6 Transs 7 Repea 8 After 9 Perfo	the res the res period a rom the wire siz pecifie ect the ret the peratu hemaxi ive test ature for fer the at the a 5 cycle rm a dr	e dry circui ults er supply to nd cable e border of ze d test temp thermocou perature ch +100 C re class 4 ir mum de-ra t or 5 h. samples to bove test p s, store the y circuit te	Area oprov Area operatu uple le ambe trable trable trable or -40 Co procee e samp st and	de the 2 in Fig re, i.e. ads a r to +8 e 1. urrent and c lure fo lles at recor	ragraph 4.17, Dry e maximum de-rat gure 11, Derating ., +80 C or +100 C. data logger. 0 C for temperatu through the test s ool for 2 h at 0 A. or a total of 5 cycle (+23 ± 5) C for 24 d the results for e	circuit, and red current for Curve, for the ure classes (13) samples at the es. h min. ach terminal pair.	
		Te	rmina	al w	ire		T _{ambient}	Current	
			1.6	1.0	mm²	(+	80 ~ −40)℃	7 Amp	
			2.8 5.8	4.0	mm° mm⁴	(+	80 ~ −41) C 80 ~ −42) C	27Amp	
4	Thermal Shock	Divide the samples into two groups of 5 and perform the thermal shock test. The first group shall be set according to the Figure 14(1. refer to mechanical shock/vibration seq. in this seq.) and monitored throughout the test. Set the chamber to the minimum ambient temperature for the class and place and soak the samples for 30 minutes.							



set the chamber to the maximum amplent temperature and place and soak the samples for 30 min.	
For temp, class 1, transfer the samples between temperature	
extremes 100 times	
For temp. class 2, 3 and 4, transfer the samples between	
temperature extremes 300 times.	
Ambient Operating Temperature Typical Installation	
Class in ^o C Position	
1 -40+85 Passenger compartment or trunk	
2 -40+105 Under hood/chassis	
3 -40+125 On engine	
4 -40+155 On engine (hot locations)	
Table 1: Temperature Class	
Test Items Acceptance Criteria	
No correitor, cracks, Appea_ rance Swelling or distortion shall After	
not exceed the tolerances. Test	
5mQ Max. 1.6 After Toret	
e š e č procenit Initial	
Resistance SmQ Max. 2.8 After Test	
3.5mQ Max. 5.8	
Electrical Shall be no loss of electrical	
Discontinuity <u>continuity</u> (resistance >7\alpha >1\u00eds)	
Place the samples in to the thermal chamber and cycle 10 times per th	9
the min, and max, operating temperatures for the class	
Test Items Acceptance Criteria	
Appea- discoloration, etc., which rance switch or discrimination shall After	
Function All mechanical assists	
5 Temperature Humidity Cycling	
Since A and	
Unitial Contraction (unit:m2) Find Max.	
3.5mQ.May 5.8	
After Test	
Exercise Shall be no loss of electrical Discontinuity (resistance >7Q >1, µ)	
Unsealed connector – Environmental Tests	



No.	Items					Cr	iteria	Remark	
1	Thermal Aging	Set the temperature chamber to the maximum ambient temperature specified in Table 1, temperature for the class rating of the connector under test. Place the samples in the chamber and heat age for Remove the samples from the chamber and let rest at ambient temperature and humidity for 24h mi							
		Thermal Aging	Appea- rance	No corrosion, cracks, discoloration, etc., which could affect the function. Swelling or distortion		Initial	-		
			Function	All mecha and/or oth must function	All mechanical assists and/or other elements must function without breakage.		-		
			isolation Resistance (unit. GQ)	100MΩ M	in.	Initial After Test	- - -		
			Dielectric Strength (unit: #A)	No current leakage		minal & rminal minal &	+ - -		
			Roy Circuit (unit: mΩ)	5mΩ Max.	1.6	Initial After	-		
				5mΩ Max.	2.8	Test Initial	-		
						Test Initial	-		
				3,5mΩ Max.	5.8	After Test	+		
2	Corrosion Sequence	 Mo within (1) Use followi (2) Per (3) Per form c 	unt cor the tes ISO 16 ing test form th form th onn'r e	inector pa t chamber 5750-4, Sal cycle: ne Salt Fog ne dry circu xtraction f	irs ir t For (Mi uit re orce	n both a g Test, st) Tes esistan	a vertical and horizontal orientation for a period of 6 days per the t per IEC 60068-2-11 Ka. ce test, visual inspection, terminal		





		Test Items		Acceptance Criteria		iteria					
			Annea-	No corrosion, cracks, discoloration, etc., whic could affect the function		Initial					
			rance	Swelling or distortion shall not exceed the tolerances.		After Test					
			Dielectric	No current		minal & rminal					
			(unit: #A)	leakage	Ter Ho	minal & busing					
		ock	Isolation Resistance (unit. G <u>O</u>)	10010015-		Initial					
				100/052 10	After Test						
		rmal Sh		5m0 Mex	1.6	Initial					
		The		onnae wielk.		After Test					
			Rory Circuit	5mQ Max	2.8	Initial					
			(unit: mΩ)			After Test					
				3.5mΩ Max.	5.8	Initial					
						After Test					
			Electrical Discontinuity	Shall be no <u>lo</u> <u>continuity</u> (resis	stance	electrical >70 >1.45)					
		Place	the sa	amples in	to	the th	ermal chamber and cycle 10 times per the				
	Temperature Humidity Cycling	schedule shown below using the min, and max, operating temperatures									
		for the close									
		Termorature (CD Belature									
Λ		Humidity (%)									
4											
		75 2 Relative humanity									
		23 4 5									
		0	4 4,5		14,5	17 19 20,5	22,5 24 Time (h) 0 4 4,5 14,5 24 Time (h)				

108-61613

I	est Items	Acceptar	ice Cr	eria -	
	Appea-	No corrosion, cr discoloration, etc could affect the fi	racks, ., which unction.	Initial	
	rance	Swelling or dist shall not excee tolerances	ortion d the	After Test	
	Function	All mecha and/or oth must function v	nical as ter elen vithout	iists ents reakage.	
	isciation			Initial	
2	Resistance (unit: GQ)	100MΩ M	in.	After Test	
Qclin	Dielectric	No current	Terr Te	inal & minal	
	(unit: #A)	leakage	Terr Ho	iinal & using	
ature F		50.14-	1.0	Initial	
enderg	2	om≌ Max,	1.6	After Test	
	Boulous		nanes-	Initial	
	(unit: mΩ)	5mΩ Max.	2.8	After Test	
				Initial	
		3,5mΩ Max.	5.8	After Test	
	Electrical Discontinuity	Shall be no <u>lo</u> continuity (resis	oss of e	ectrical 70. >1.48)	