DESIGN OBJECTIVE

Receptacle Connector Assembly, 90P EMS Plug

108- 101183

The product described in this document has not been fully tested to ensure conformance to the requirements outlined herein. Tyco Electronics makes no representation or warranty, expressed or implied that the product will comply with these requirements. Further, Tyco Electronics reserves the right to modify these requirements based on the results of additional testing and evaluation. Contact Tyco Electronics Engineering for further information. If necessary, this document will become the Product Specification at successful completion of testing.

1. Scope:

1.1) Contents.

This specification covers the performance, tests and quality requirements for the Receptacle Connector Assembly 90P EMS Plug, P/N is 1813261-1.
The counterpart part used for this evaluation is provided by outer vendor, Receptacle contact is TE 1.5mm contact 2050862-3.

1.2) Qualification

When tests are performed the following specified specifications and standards shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. Applicable Documents:

The following documents form a part of this Specification to the extent specified herein. In the event of conflict between the requirements of this Specification and the product drawing or of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1) Tyco Specifications:

a) 109-1 Series: General Requirements for Test Specifications
b) Customer Drawings
c) 109-5000

					DR ROC. DONG	Tyco Electronics	Tyco Electronics Shanghai, China	
					CHK			
					APP	NO. 108-101183	REV A	LOC ES
A	Acc. customer standard	20NOV10	R.D		PAGE 1/5	TITLE Connector Assembly, 90P EMS Plug		
LTR	REVISION RECORD	DATE	DR	APPD				

2.2) General Documents

A. GMW 3191 Connector Test and Validation Specification

B. DIN 40050 Part 9
Road vehicles, degrees of protection(IP-Code), protection against foreign objects, water and contact, electrical equipment

3. Requirements:

3.1) Design and Construction:

Product shall be of the design, construction and physical dimension specified in the applicable production drawing.

3.2) Materials:

Descriptions for material see in customer drawing.

3.3) Ratings:

Temperature range: -40 to +120 ℃

Atmospheric pressure: Normal

3.4) Performance and Test Descriptions

The product is designed to meet the electrical, mechanical and environmental performance requirements specified in paragraph 3.5

3.5) Requirement and procedure

	Test items	Test method	SPEC
VISUAL	3.5.1 Confirmation of product	Visually, dimensionally and functionally inspected per applicable quality inspection plan.	Product shall be conforming to the requirements of applicable product drawing
MECHANICAL TEST	3.5.2 Mating cycling	Completely mate and unmate each connector or terminal pair 10 times	10 times
	3.5.3 Contact Insertion Force	Measure the force required to insert contacts into housing. Operation Speed: 50mm/min Acc. To GMW3191-4.7.5	<20N
	3.5.4 Contact Retention Force	Apply axial load to contact t. Operation Speed: 50mm/min. Acc. To GMW3191-4.9	Primary lock only: 50N Min. Primary lock and TPA: 80N Min.
	3.5.5 Connector mating force	Operation Speed: 50mm/min. Measure the force required to mate connectors.	200N Max.
	3.5.6 Connector un-mating force	Operation Speed: 50mm/min. Measure the force required to defeat the connector primary lock. Acc. To GMW3191-4.13	120N Min.
	3.5.7 Mechanical shock	Acc. To GMW3191-4.27, 100G in 11 ms, 18 shocks totally	Evaluate the sample after vibration test.
	3.5.8 Vibration	Vibration with thermal cycling, Acc. To GMW3191, figure 17, transmission/engine mounting, 24 hours for each axis, no discontinuity larger than 1us	no discontinuity larger than 1us with resistance>7 Ω

	Test items	Test method	SPEC
ELECTRICAL TEST	3.5.9 Dry Circuit Resistance (Low Level)	Acc. To GMW3191-4-17	8mΩ Max.
	3.5.10 Dielectric Strength	Acc. To GMW3191-4-20	No dielectric breakdown or flash-over shall occur between the cavities and the outside of a connector at any time during the test.
	3.5.11 Insulation Resistance	Acc. To GMW3191-4-19	100MΩ Min.
ENVIRONMENT TEST	3.5.12 Pressure/Vacuum leak	Acc. To GMW3191-4-30	For positive pressure, no loss and bubbles visible exiting any test sample. For negative pressure (vacuum), all must meet the Acceptance Criteria of the Isolation Resistance test in item 3.5.11
	3.5.13 Thermal Aging	thermal aging, GMW3191-4-21, 1008 hours, temperature according to temperature class 3	Pass the specified items in Fig. 2
	3.5.14 Temperature/humidity cycling	temperature/humidity cycling, GMW3191-4-23, 240 hours, temperature according to temperature class 3	Pass the specified items in Fig. 2
	3.5.15 Thermal shock	Thermal shock, Acc. To GMW3191-4-22, 300 hours	no discontinuity larger than 1 us with resistance>7 Ω Pass the specified items in Fig. 2
	3.5.16 Fluid resistance	Acc. To GMW3191-4-32, 24 hours, pass isolation resistance, oil for testing will be given by customer	Pass the specified items in Fig. 2
	3.5.17 High pressure spray	Expose mated connectors under splash Water for 10 minutes GMW 3191-4.31 Condition: DIN40050 IPX9K	Termination Resistance No water inside after water splash
	3.5.18 Water Submersion	Acc. To GMW3191-4-29	Leakage current < 5uA

Product Qualification Test and Sequences

Para.	Test Items	Test Group							
		1	2	3	4	5	6	7	
		Test Sequence							
3.5.1	Confirmation of product	1,4	1,4	1,8	1,8, 12	1,8, 12	1,8, 12	1,8	
3.5.2	Connector Cycling			2	2	2	2	2	
3.5.3	Contact Insertion Force	2							
3.5.4	Contact Retention Force	3						7	
3.5.5	Connector mating force		2						
3.5.6	Connector un-mating force		3						
3.5.7	Mechanical shock			4					
3.5.8	Vibration			6					
3.5.9	Contact Resistance (Low Level)			3,5, 7					
3.5.10	Dielectric Strength				11	11	11	6	
3.5.11	Insulation Resistance				3,10	3,10	3,10	3,5	
3.5.12	Vacuum				4,6	4,6	4,6		
3.5.13	Thermal Aging				5				
3.5.14	Temperature/humidity cycling					5			
3.5.15	Thermal shock						5		
3.5.16	Fluid resistance							4	
3.5.17	High pressure spray				9	9	9		
3.5.18	Water Submersion				7	7	7		
Test Sample Account		3	3	3	3	3	3	3	

Fig .2