NICOMATIC R&D LABORATORY	QUALIFICATION TEST REPORT	QTR18026a
EMM SERIE ACCORDING TO MIL-DTL-83513G STANDARD		Page : 1 /16
		Qualification status : PASSED

SALT SPRAY (96h)

According to MIL-DTL-83513G §3.5.15 & 4.5.17 and EIA-364-26B test procedure

ISSUE	MODIFICATION	VISA	DATE
a	Original Issue	AJ	21/05/18
b			
c			

	Name	Duty	Date	Visa
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1 Conclusion

The EMM connectors are **qualified** regarding SALT SPRAY (96h) according to MIL-DTL-83513G standard.

2 Technical Features Proposal

EMM connectors:
Salt Spray severities: 96 hours / Temperature: +35 ± 2°C / pH: between 6.5 and 7.2 / Concentration: between 5 ± 1 % of NaCl

The connectors are not showing any evidence of corrosion after having undergoes Salt Spray Severities

3 Connate Reports

R-ADE-PMN-17-300962-2 A DRAFT (1).pdf

4 Information about the tests

4.1 Object

The object of this test is to assess the ability of electrical components to withstand severities of salt spray according to MIL-DTL-83513G and 4.5.17 & EIA/ECA-364-26B test procedure standard.

4.2 Reference documents/Qualification Plan

- MDC.P16020.a
- MIL-DTL-83513G
- EIA-364-26B

4.3 Tested Products

Designation	Article Reference*	Drawing issue*	Batch / DI*	Quantity
C18892-30 (Female, Straight on PCB, E60 guiding)	C18892-30	na	DI7576	20
C18900-30 (Female Straight on PCB, E50)	C18900-30	na	DI7577	20
C18891-30 (Male, Straight on PCB, E10)	C18891-30	na	DI7579	20
C18904-30 (Male, 90° on PCB, E11 guiding)	C18904-30	na	DI7578	20
C18893-30 (Female, 90° on PCB, E61 guiding)	C18893-30	na	DI7580	20
C18901-30 (Female, 90° on PCB, E51 jackscrew)	C18901-30	na	DI7581	20
C18981-30-0250 (Male, on cable AWG30, E01 jackscrew)	C18981-30-0250	na	DI7592	20
C18980-30-0250 (Male, on cable AWG28, E01 jackscrew)	C18980-30-025	na	DI7591	20
C18902-30-0250 (Male, on cable AWG26, E01 jackscrew)	C18902-30-0250	na	DI7588	20
C18979-30-0250 (Male, on cable AWG24, E01 jackscrew)	C18979-30-0250	na	DI7589	20
C18902-30-0250-BP (Male, on cable AWG26, E01 jackscrew BP)	C18902-30-0250-BP	na	DI7586	20
18224-AWG24	18224-AWG24	na	DI7594	25
18224-AWG26	18224-AWG26	na	DI7596	25
18240-AWG28	18240-AWG28	na	DI7597	25
18240-AWG30	18240-AWG30	na	DI7598	25

4.4 Persons present during the tests

Name	Duty
A.JAGHMIM	Test & Measurement Manager

4.5 Date and place of the tests

ADETESTS Lab. from 26/02/18 to 09/03/18

4.6 Environmental conditions

Ambient temperature: See Test Set up
Pressure: ambiant
Humidity: See Test Set up

4.7 Incidents during the test

None

4.8 Test Equipments

Order Nr	Category	Manufacturer	Type	Last validity date	Next validity date
15119	Climatic chamber	Q-LAB	SSP1100/Q-FOG	06/01/2018	08/01/2020
08485	PHMeter	EZODO	7200	08/02/2018	10/02/2020
12710	Recorder	SEFRAM	DAS240	12/19/2016	02/19/2019
09618	Thermo sensor	TC	Pt 100 (3 fils)	05/31/2018	07/31/2020
08372	Densimeter	Labo-Moderne	AM1144	11/29/2016	01/29/2022
08137	Scale	Denver Instrument	DIT-4100	10/05/2017	12/05/2019

4.9 Test Tooling

Designation	Tooling reference

5 Requirements according to MIL-DTL-83513G standard

Mated connectors shall show no exposure of base metal due to corrosion which will affect Electrical and Mechanical performances.

The equipment is placed in the chamber test to be submitted at the salt fog exposure, which the characteristics are the following:

- Sodium chloride concentration : 5 ± 1 %
- pH of solution : between 6.5 and 7.2
- Temperature of exposure : + 35 ± 2°C
- Salt fog density : Between 0.5 and 3 ml/h (collecting surface 80cm²)
- Duration of exposure at the salt fog : 96 hours

After the exposure, the equipment is rinsed with tap water. Then the samples are dried at a temperature of 38°C ± 3°C.

6 Test Procedure

6.1 Test Procedure according to MIL-DTL-83513G standard

Mated connectors shall be subjected to a salt spray test in accordance with test procedure EIA-364-26, condition B.
After exposure, connectors shall be thoroughly washed with tap water to remove all salt deposits and then shall be dried in a circulating air oven at a temperature of 38°C ± 3°C for a period of 12 hours.
Connectors shall then be visually examined for evidence of corrosion and subjected to the low circuit resistance, contact resistance, and mating and unmating force test.

6.2 Test Procedure according to EIA-364-26B standard

6.2.1 Test specimen

6.2.1.1 Description

A test specimen shall consist of a connector assembly complete with wires, contacts, sealing plugs and accessories according to the referencing document.

6.2.1.2 Preparation

6.2.1.2.1 The test specimen shall be mounted with the engaging axis horizontal, unless otherwise specified.

6.2.1.2.2 Unless otherwise specified, the connector assembly shall be normally mated.

6.2.1.2.3 Connector contacts, when tested separately, shall be mounted with the engaging axis horizontal unless otherwise specified, and mated or unmated as specified in the referencing document.

6.2.1.2.4 Unless otherwise specified:

- The specimens shall be subjected to a minimum of handling, particularly on significant surfaces, and shall be prepared for test immediately before exposure.
- Specimens soiled with oil, dirt or grease shall be cleaned as necessary.
- Specimens having an intended coating shall not be cleaned with solvent.
- A suitable coating of wax or similar substance impervious to moisture shall be applied to protect those portions of specimens that come in contact with the support. In the case of coated specimens, cut edges and surfaces not required to be coated shall also be protected.

6.2.1.3 Location of specimens

The specimens shall be suspended from the top using glass or plastic hooks, waxed twine, string, or nylon thread. If plastic hooks are used, they shall be fabricated of material that is nonreactive to the salt solution. The use of metal hooks is not permitted. The specimens shall be positioned so as to ensure uniform exposure without contacting each other or shielding each other from the freely settling fog. Corrosion products and condensate from one specimen shall not fall upon another specimen. Parts with blind holes shall be suspended with the hole opening pointing downward whenever possible, unless conflicting with 3.2.1 or 3.2.3.

6.2.2 Test procedure

6.2.2.1 Location of specimens

The specimens shall be suspended from the top using glass or plastic hooks, waxed twine, string, or nylon thread. If plastic hooks are used, they shall be fabricated of material that is nonreactive to the salt solution. The use of metal hooks is not permitted. The specimens shall be positioned so as to ensure uniform exposure without contacting each other or shielding each other from the freely settling fog. Corrosion products and condensate from one specimen shall not fall upon another specimen. Parts with blind holes shall be suspended with the hole opening pointing downward whenever possible, unless conflicting with 3.2.1 or 3.2.3.

6.2.3 Operating conditions

6.2.3.1 Temperature

The test shall be conducted with a temperature in the exposure zone that is maintained at 35 °C +1 °C, -2 °C (95 F +2 °F, -3 °F). Satisfactory methods for controlling the temperature accurately include housing the apparatus in a room where the temperature is properly controlled, thoroughly insulating the apparatus and preheating the air to the proper temperature prior to atomization, and jacketing the apparatus and controlling the temperature of the water or of the air used. The use of immersion heaters for the purpose of maintaining the temperature within the chamber is prohibited.

6.2.3.2 Atomization

6.2.3.2.1 The conditions maintained in all parts of the exposure zone shall be such that a suitable receptacle placed at any point in the exposure zone will collect from 0.5 milliliter to 3.0 milliliters of solution per hour for each 80 square centimeters of horizontal collecting area (10 centimeters diameter) based on an average run of at least 16 hours. The 5% solution collected shall have a sodium-chloride content of from 4% to 6% (specific gravity) in accordance with Figure 3. At least two clean fog-collecting receptacles shall be used, one placed near any nozzle and one placed as far as possible from all nozzles. Receptacles shall be fastened so that they are not shielded by specimens and so that no drips of solution from specimens or other sources will be collected. The specific gravity and quantity of the solution collected shall be checked following each salt spray test. Suitable atomization has been obtained in boxes having a volume of less than 0.34 cubic meter (12 cubic feet) with the following conditions:

- Nozzle pressure of from 0.08 MPa to 0.13 MPa (12 lb to 18 lb per square inch).
- Orifices of from 0.5 to 0.7 millimeter (0.02 to 0.03 inch) in diameter.
- Atomization of approximately 2.8 liters (3 quarts) of the salt solution per 0.28 cubic meter (10 cubic feet) of box volume per 24 hours.
- When using boxes having a volume in excess of 0.34 cubic meter (12 cubic feet), the conditions in 4.2.2.1.1 through 4.2.2.1.3 may have to be modified in order to meet the requirements for operating conditions.

6.2.4 Length of test

6.2.4.1 The length of the salt spray test shall be indicated in one of the following test conditions, as specified:

Table 1 - Test conditions

Test condition	Length of test, hours
A	96
B	48
C	500
D	1000

6.2.4.2 Unless otherwise specified, the test shall be run continuously for the time indicated or until definite indication of failure is observed, with no interruption except for adjustment of the apparatus and inspection of the specimen.

6.2.5 Post cleaning

Immediately after exposure, the test specimens shall be dipped in running tap water not warmer than 38 °C (100 °F) for 5 minutes, maximum and dried for 16 hours maximum, in a circulating air oven at a temperature of 38 °C ± 3 °C (100 °F ± 5 °F), after which the specimens shall be examined at room temperature. If closer examination of a plated surface is required, the corrosion products may also be removed using any method that will not affect the plating.

6.2.6 Measurements

At the completion of the exposure period, measurements shall be made as specified in the referencing document. To aid in examination, specimens shall be prepared in the following manner, unless otherwise specified. Salt deposits shall be removed by a gentle wash or a dip in running water not warmer than 38 °C (100 °F) and a light brushing, if necessary, using a soft-hair brush or plastic-bristle brush.

6.2.7 Examination

Examination of the connector shall include the following:

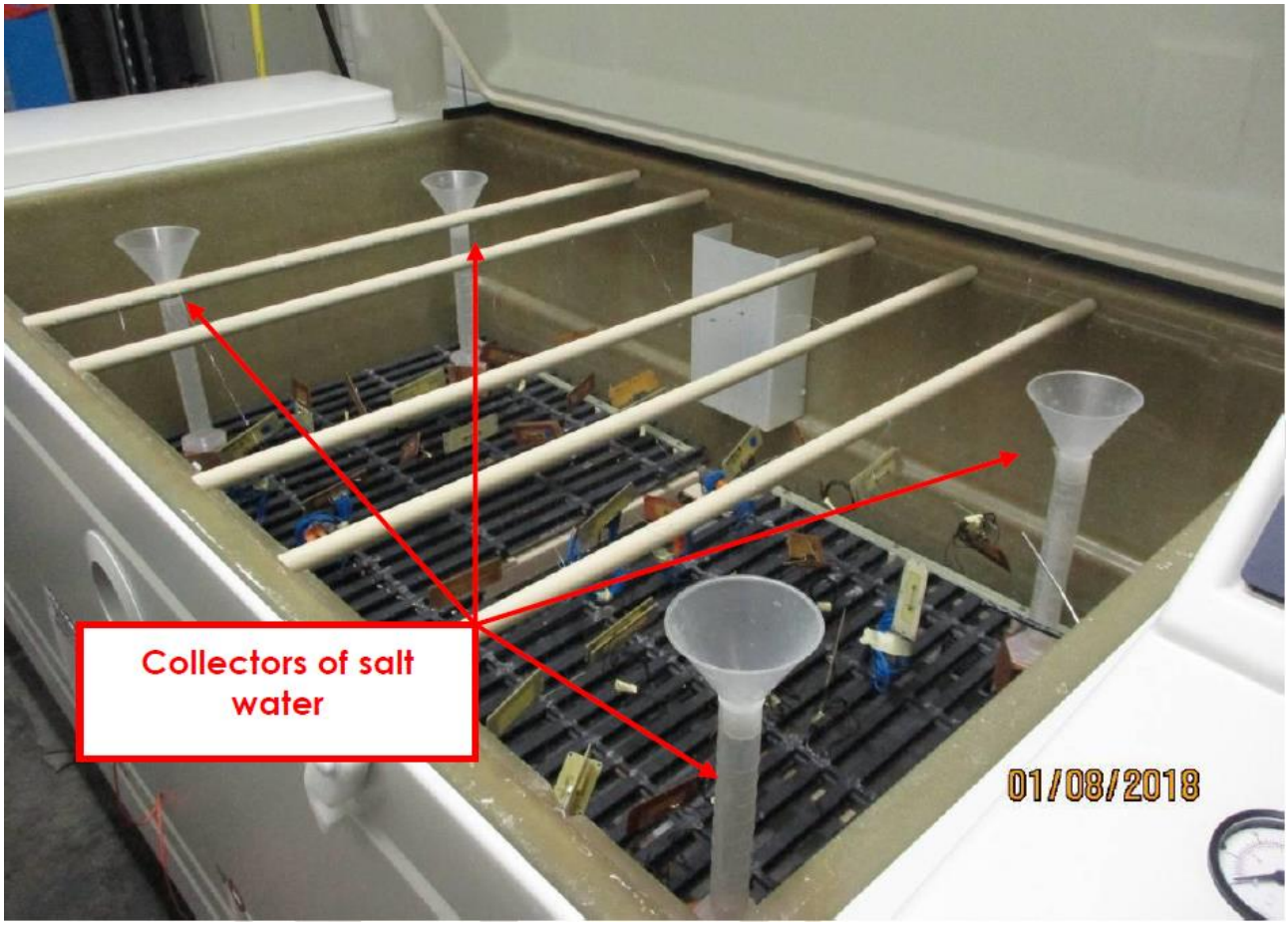
6.2.7.1 Exposure of base metals, pitting and porosity of finishes.

6.2.7.2 Cracking and delamination of components or finishes, or both.

6.2.7.3 Abnormal nicks, cracks, or scratches on finished surfaces that indicate the removal of the normal protective coating.

6.2.7.4 Measurement as required.

7 Test setup



8 Measurements results

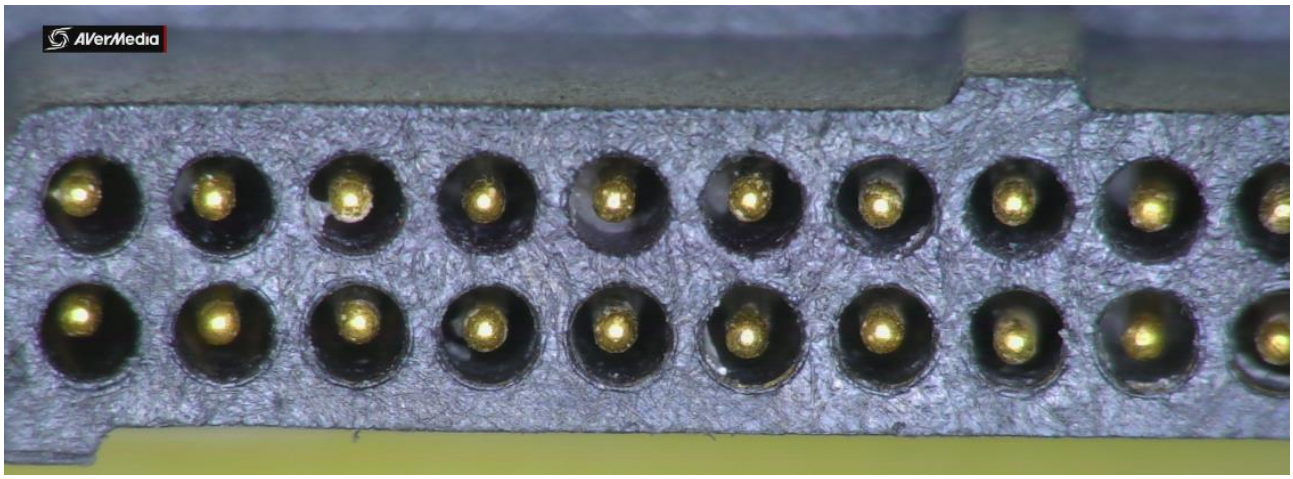
No visual damage after tests.
No presence of corrosion after having undergoes Salt Spray Severities.

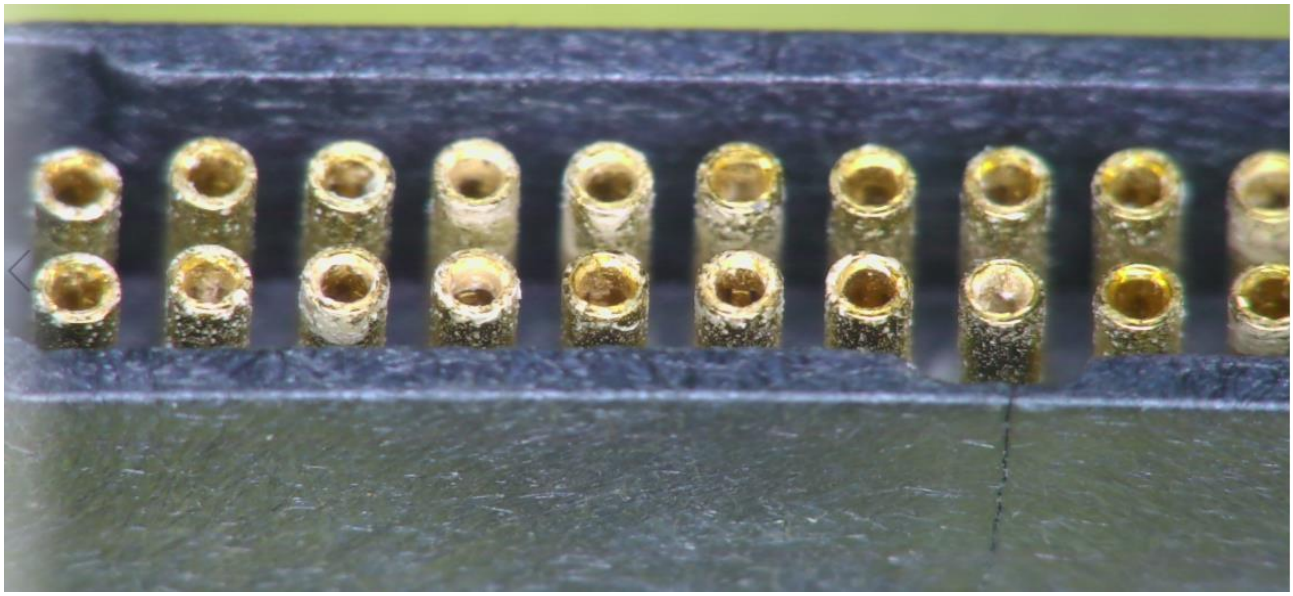
For Electrical report after climatic test: see QTR18027 +QTR18028

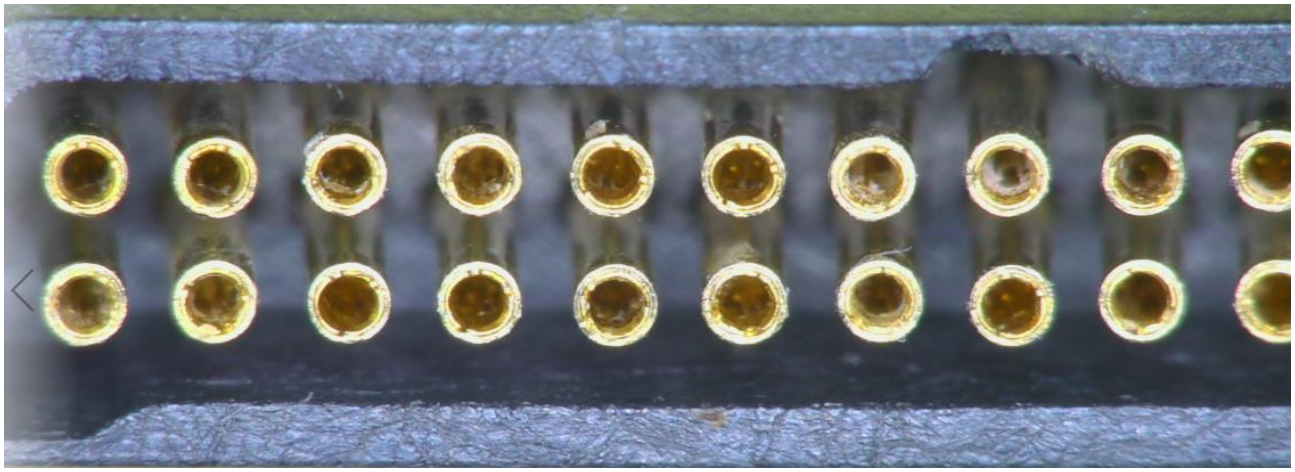
For Mechanical report after climatic test: see QTR18029 + QTR18030

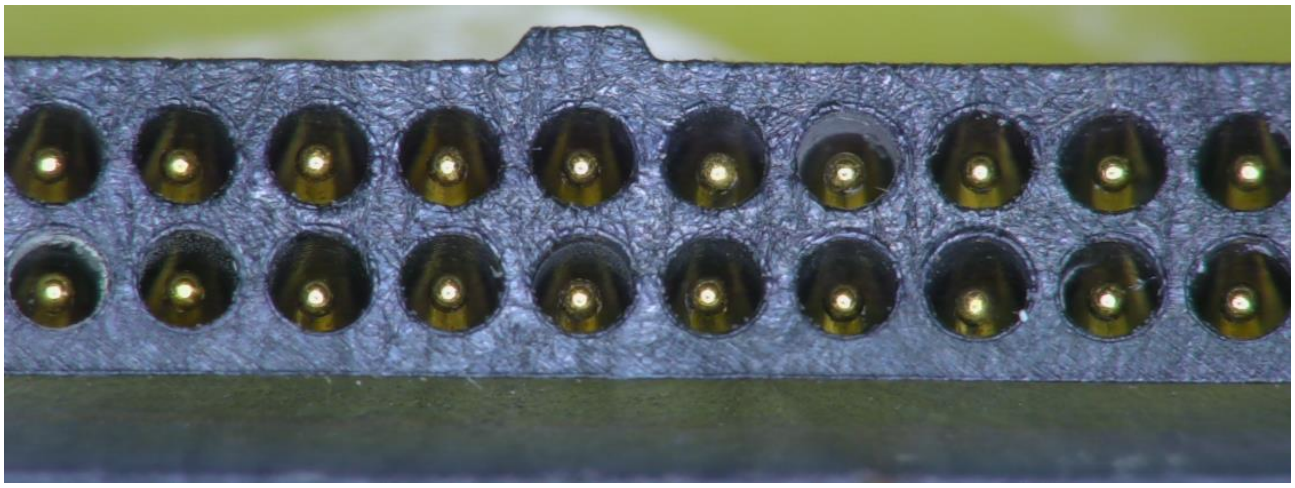
9 Visual Inspection

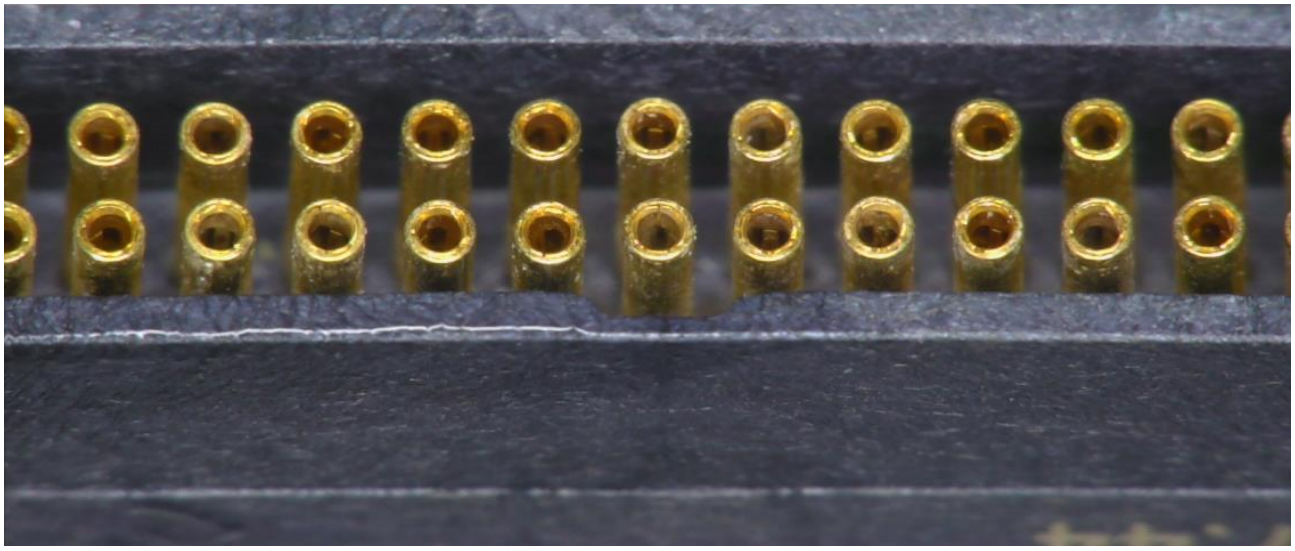
Required by the applicable standard ?			
YES		NO	☐



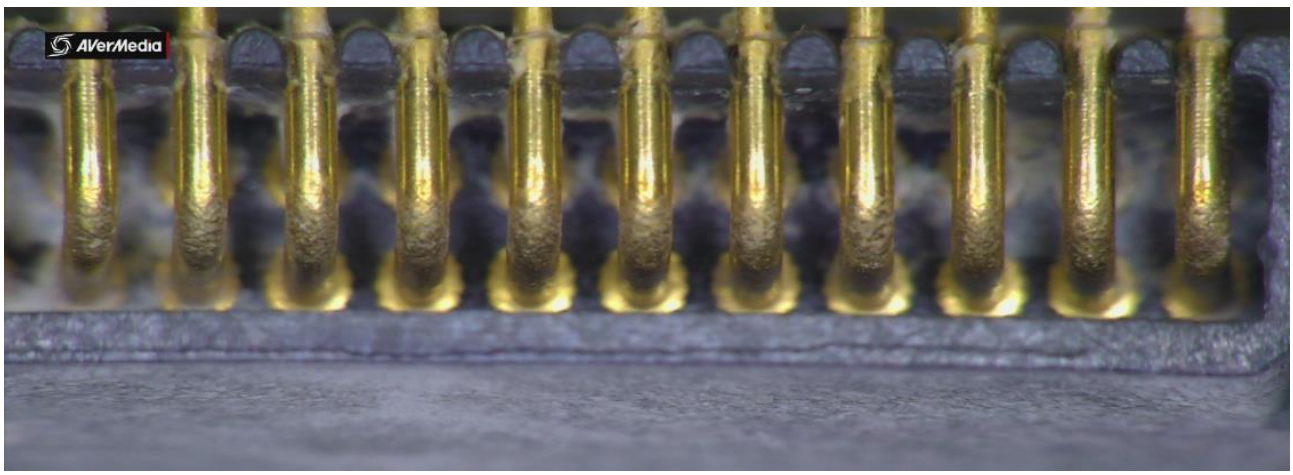












**********END OF REPORT**********

10 APPENDIX

Internal use only ?			
YES	☐	NO	☒

10.1 The Laboratory Advice

10.2 Pictures

**********END OF APPENDIX**********