NICOMATIC R&D LABORATORY	QUALIFICATION TEST REPORT	QTR18035a
EMM SERIE ACCORDING TO MIL-DTL-83513G STANDARD		Page : 1 /11
		Qualification status : PASSED

SOLDERABILITY

According to MIL-DTL-83513G §3.5.11, 4.5.13 and MIL-STD202 method 208 solderability test procedure

ISSUE	MODIFICATION	VISA	DATE
a	Original Issue	AJ	30/06/20
b			
c			

	Name	Duty	Date	Visa
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1 Conclusion

The EMM connectors are **qualified** regarding SOLDERABILITY according to MIL-DTL-83513G standard.

2 Technical Features Proposal

EMM connectors:
> 95% of contact surface is wetted

3 Connate Reports

4 Information about the tests

4.1 Object

The purpose of this test method is to determine the solderability of all terminations which are normally joined by a soldering operation. This determination is made based on the ability of these terminations to be wetted by solder and the predictability of a suitable fillet resulting from solder application. These procedures will verify that the pre-assembly lead finish provides a solderable surface of enough quality to enable satisfactory soldering.

4.2 Reference documents/Qualification Plan

- MDC.P16020.a
- MIL-DTL-83513G
- MIL-STD-202 method 208

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

NICOMATIC France Lab. from 07/05/18 to 27/08/18

4.6 Environmental conditions

Ambient temperature: ambiant
Pressure: ambiant
Humidity: ambiant

4.7 Incidents during the test

None

4.8 Test Equipments

Designation	Calibration Data	
Meniscographe METRONELEC modèle ST78	**Last calibration date**	na
	Next calibration date	na

See report 19-CRC-02 for more information

4.9 Test Tooling

Designation	Tooling reference

5 Requirements

Each terminal shall be subjected to method 208 of MIL-STD-202
A minimum of 7 contacts shall be tested per specimen.

Minim 95% of the contact surface shall be wetted

6 Test Procedure

6.1 Test procedure according to MIL-DTL-83513G

Connectors with wire terminations (A-A-59551) shall be tested for solderability in accordance with MIL-STD-202, method 208.

Connectors with wire cup termination shall be tested for solderability using the following methods-.
- Test samples shall not be cleaned prior to soldering
- Test sample connectors shall have the solder cups dipped in, or bushed with, flux type RMA just prior to the application of solder.
- A pencil type soldering iron shall be used, with temperature regulated to 300°C±10°C to heat the test solder cups.
- After heating the test solder cups to a solder melt temperature, 63/37 tin-lead type solder shall be applied to fill the solder cup to capacity which will result in solder wetting the entire cup surface and forming a solder fill meniscus across the open portion of the solder cup.
- The finished solder fill shall be smooth and slightly concave with clear wetting and adhesion to all internal surfaces of the solder cup. Inspection shall be aided by a 10X optical aid.
- Twenty percent, but not less than 7 contacts of test specimens shall be tested.

6.2 Test procedure according to MIL-STD202 method 208

6.2.1 Test method. The test method used (from J-STD-002) shall be as follows:

- Test A – for through-hole mount and surface mount leaded components, solid wire less than 0.45 inch diameter and stranded wire 18 AWG or smaller. If not otherwise specified in the procurement document, angle of immersion for surface mount leaded components shall be 90°

- Test B – for surface mount leadless components.

- Test C – for lugs, tabs, terminals, solid wire greater then 0.045 inch diameter and stranded wire larger than 18 AWG.

7 Test setup

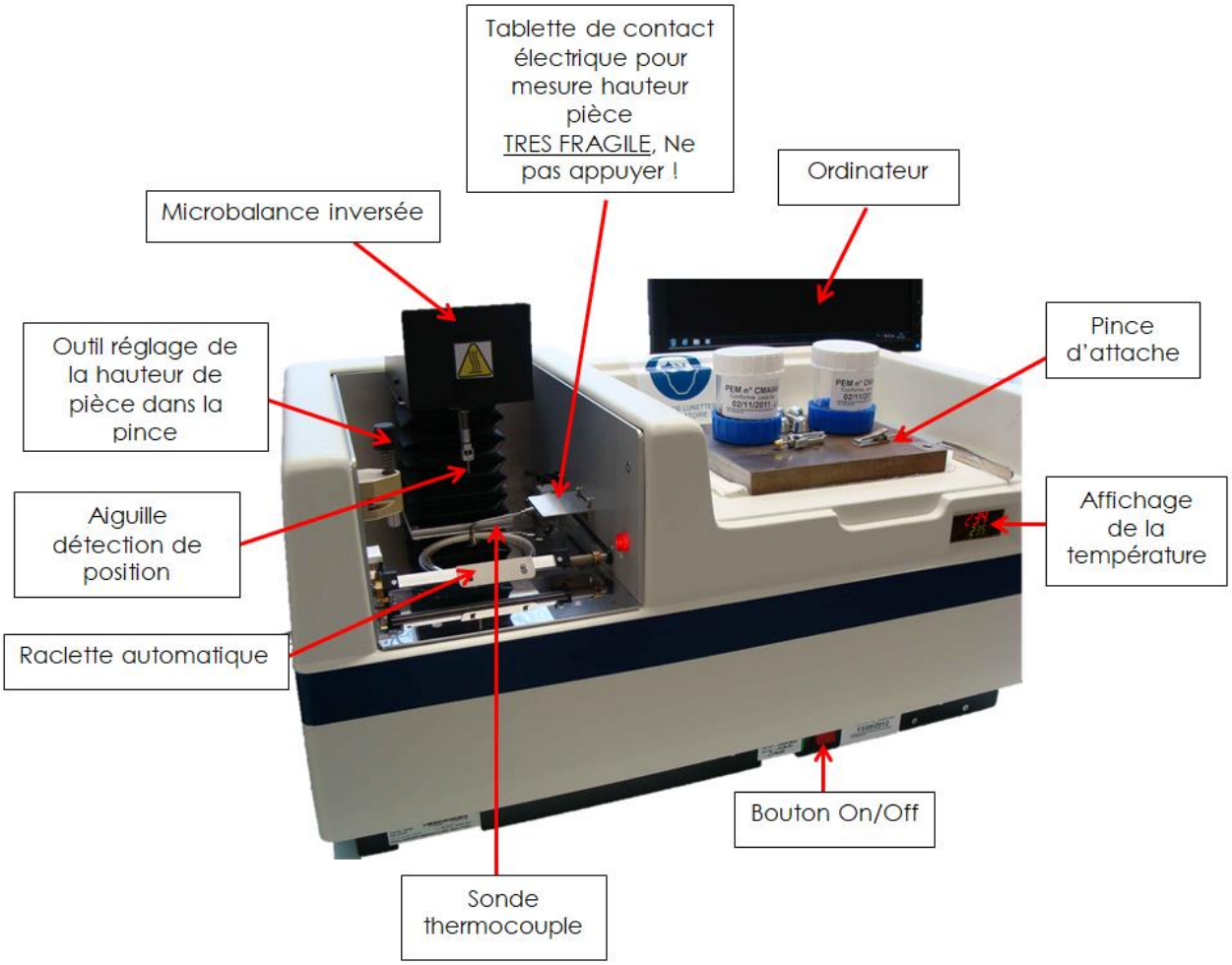


Figure 1 – Meniscographe

- Tin bath SAC 305
- Temperature bath = 245°C
- Flux CMA
- Immersion time = 5 seconds
- immersion rate = 20-25 mm/s

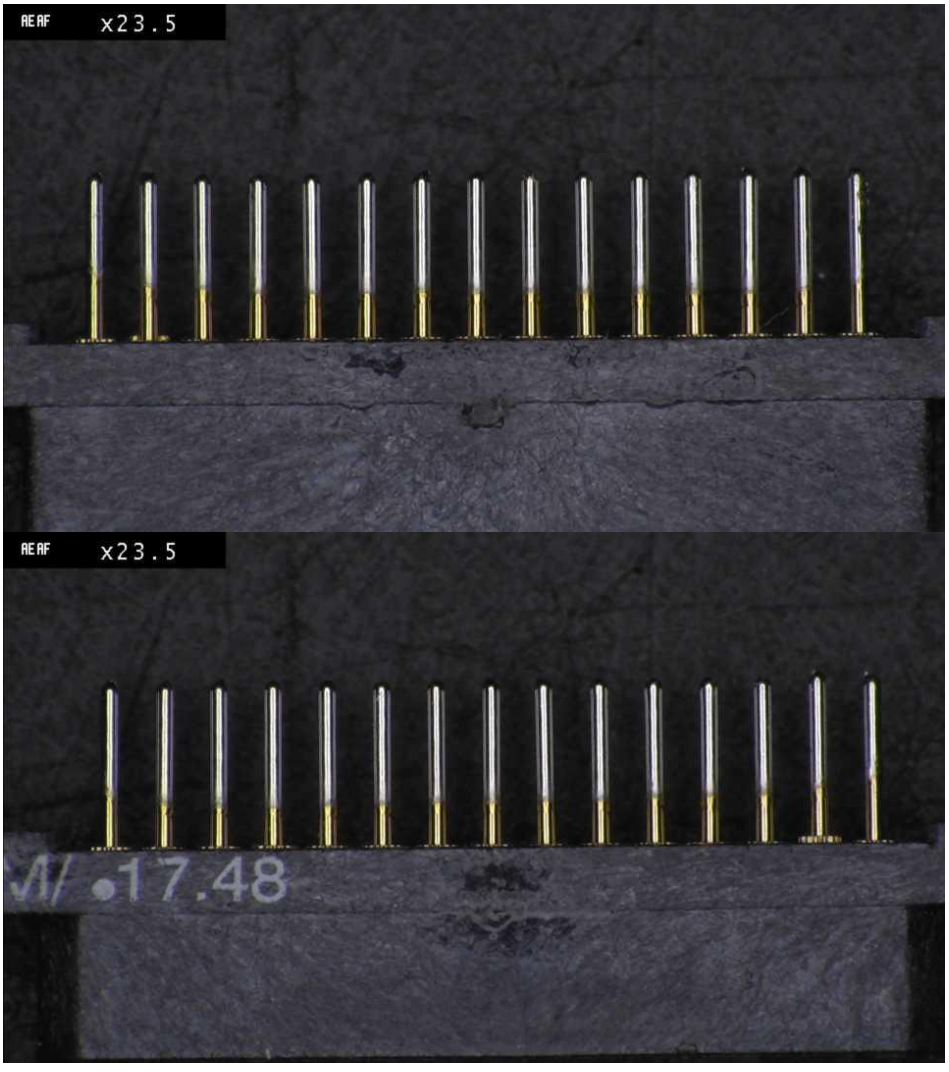
8 Measurements results

All the connectors tested have a contact surface wetted with tin higher than 95%

See Visual Inspection.

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**********