NICOMATIC R&D LABORATORY	QUALIFICATION TEST REPORT	QTR18016b
EMM SERIE ACCORDING TO MIL-DTL-83513G STANDARD		Page : 1 /12
		Qualification status : PASSED

HUMIDITY (10 days)

According to MIL-DTL-83513G §3.5.9 & 4.5.11 and EIA-364-31B test procedure

ISSUE	MODIFICATION	VISA	DATE
a	Original Issue	AJ	21/05/18
b	60 points qualification added	AJ	30/06/20
c			

	Name	Duty	Date	Visa
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1 Conclusion

The EMM connectors are **qualified** regarding HUMIDITY (10 days) according to MIL-DTL-83513G standard.

2 Technical Features Proposal

EMM connectors:
The connectors are not showing any evidence of cracking or breaking having undergoes Humidity severities during 10 days.

3 Connate Reports

4 Information about the tests

4.1 Object

The object of this test is to check the influence of Humidity test on EMM connectors Series according to MIL-DTL-83513G §3.5.8 & 4.5.10 standard.

4.2 Reference documents/Qualification Plan

- MDC.P16020.a
- MIL-DTL-83513G
- EIA-364-32D

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

Connector EMM 220 female straight on PCB, 60 LF contacts, E60	E222Y60E60	na	LCT1901318	10
Connector EMM 220 male Y straight on PCB, 60 LF contacts, E10	E221Y60E10	na	LCT1901319	10
Connector EMM 220 female 90° on PCB, 60 LF contacts, E61	E222V60E61	na	LCT1901320	10
Connector EMM 220 female straight on PCB, 60 LF contacts, E50	E222Y60E50	na	LCT1901321	10
Connector EMM 220 female 90° on PCB, 60 LF contacts, E51	E222V60E51	na	LCT1901322	10
Connector EMM 220 male 90° on PCB, 60 LF contacts, E11	E221V60E11	na	LCT1901323	10
Harness EMM220 male to crimp AWG24, 60 LF contacts, E01 fixing hardware, 250 mm	HE221J6P60E01ZF0250	na	LCT1904265	3
Harness EMM220 male to crimp AWG26, 60 LF contacts, E01 fixing hardware, 250 mm	HE221I2P60E01ZF0250	na	LCT1904264	3
Harness EMM220 male to crimp AWG28, 60 LF contacts, E01 fixing hardware, 250 mm	HE221H6P60E01ZF0250	na	LCT1904266	3
Harness EMM220 male to crimp AWG30, 60 LF contacts, E01 fixing hardware, 250 mm	HE221D5P60E01ZF0250	na	LCT1904268	3

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 12/03/18 to 23/03/18 (1st Qualification – 30 contacts connector)
NICOMATIC France Lab. from 03/04/19 to 10/04/19 (2nd Qualification – 60 contacts connector)

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

Designation	Calibration Data	
CLIMATS EXCAL 1423-HA N N°00612	**Last calibration date**	02/10/17
	Next calibration date	02/10/18

4.9 Test Tooling

Designation	Tooling reference

5 Requirements according to MIL-DTL-83513G standard

Connectors shall meet the applicable dielectric withstanding voltage and insulation resistance requirements.

6 Test Procedure

6.1 Test Procedure according to MIL-DTL-83513G

The connectors shall be fully wired and mated. Then the connectors shall be subjected to testing in accordance with test procedure EIA-364-31, method IV (except steps 7a and 7b shall not be required). The following exceptions and details specified in 3.5.9 shall apply:

a. After the 24-hour conditioning period, the insulation resistance shall be measured as specified in 3.5.5.

b. Upon completion of step 6 of the final cycle, connectors shall be removed from the chamber, unmated, and surface moisture removed from the inserts. Dielectric withstanding voltage test specified in 4.5.6.1 (sea level) and insulation resistance test specified in 4.5.7 shall be performed for all classes of connectors within 1 to 2 hours.

6.2 Test Procedure according to EIA-364-31B

6.2.1 Method IV, cycling temperature - humidity with optional cold shock

6.2.1.1 Conditioning

The specimens shall be conditioned in a dry oven at a temperature of 50 °C (122 °F) for 24 hours. At the end of this period, measurements shall be made as specified in the referencing document.

6.2.1.2 Mounting

The connectors shall be mounted by their normal mounting means, in their normal mounting position, but shall be positioned so that they do not contact each other, and so that each specimen receives essentially the same degree of humidity.

6.2.1.3 Initial measurements

Prior to step 1 of the first cycle, the specified initial measurements shall be made at room ambient conditions, or as specified in the referencing document.

6.2.1.4 Polarization and load

When specified, a polarizing potential of 100 Vdc shall be applied between alternate contacts connected together electrically and the remaining contacts and shell connected together electrically. The polarity of the voltage applied to the shell shall be negative, unless otherwise specified.

6.2.1.5 Number of cycles

Specimens shall be subjected to 10 continuous cycles, each as shown on figure 2, unless otherwise specified in the referencing document.

6.2.1.6 Subcycle

During step 7, at least 1 hour but not more than 4 hours after step 7 begins, the specimens shall be either removed from the humidity chamber, or the temperature of the chamber shall be reduced, for performance of step 7a, when specified in the referencing document. After step 7a, when specified in the referencing document, the specimens shall be returned to 25 °C (77 ºF) at 90% to 98% relative humidity and kept there until the next cycle begins. This subcycle shall be performed during any five of the first nine cycles. Subcycles are optional.

7 Test setup



8 Measurements results

No visual damage after tests.

Dielectric withstanding voltage after climatic test: QTR18017

Insulation resistance after climatic test: QTR18018

Connectors 30 contacts						
	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
C18892-30 (Female, Straight on PCB, E60 guiding)	OK	OK	OK	OK	OK	OK
C18900-30 (Female Straight on PCB, E50)	OK	OK	OK	OK	OK	OK
C18891-30 (Male, Straight on PCB, E10)	OK	OK	OK	OK	OK	OK
C18904-30 (Male, 90° on PCB, E11 guiding)	OK	OK	OK	OK	OK	OK
C18893-30 (Female, 90° on PCB, E61 guiding)	OK	OK	OK	OK	OK	OK
C18901-30 (Female, 90° on PCB, E51 jackscrew)	OK	OK	OK	OK	OK	OK
C18981-30-0250 (Male, on cable AWG30, E01 jackscrew)	OK	OK	OK	OK	OK	OK
C18980-30-0250 (Male, on cable AWG28, E01 jackscrew)	OK	OK	OK	OK	OK	OK
C18902-30-0250 (Male, on cable AWG26, E01 jackscrew)	OK	OK	OK	OK	OK	OK
C18979-30-0250 (Male, on cable AWG24, E01 jackscrew)	OK	OK	OK	OK	OK	OK
C18902-30-0250-BP (Male, on cable AWG26, E01 jackscrew BP)	OK	OK	OK	OK	OK	OK

Connectors 60 contacts			
	Sample 1	Sample 2	Sample 3
E222Y60E60	OK	OK	OK
E221Y60E10	OK	OK	OK
E222V60E61	OK	OK	OK
E222Y60E50	OK	OK	OK
E222V60E51	OK	OK	OK
E221V60E11	OK	OK	OK
HE221J6P60E01ZF0250	OK	OK	OK
HE221I2P60E01ZF0250	OK	OK	OK
HE221H6P60E01ZF0250	OK	OK	OK
HE221D5P60E01ZF0250	OK	OK	OK

9 Visual Inspection

Required by the applicable standard ?			
YES		NO	☐



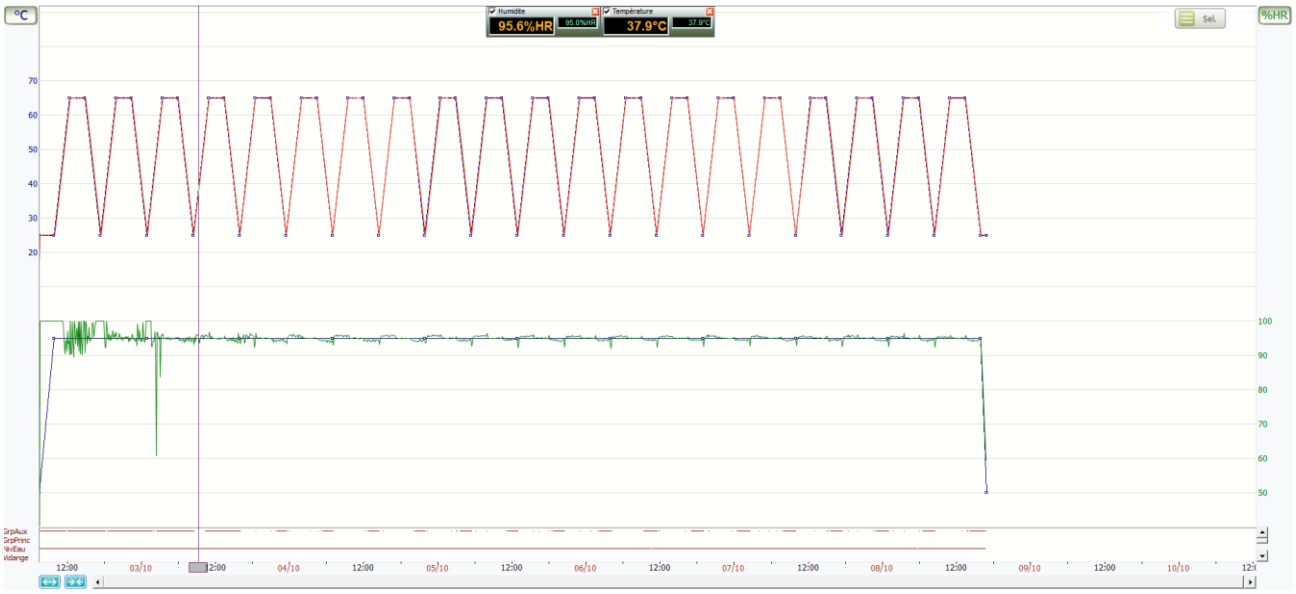
**********END OF REPORT**********

10 APPENDIX

Internal use only ?			
YES	☐	NO	☒

10.1 The Laboratory Advice

10.2 Pictures



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