NICOMATIC	Self-Declaration of Conformity	
SDA 4 CMM series	**according to MIL-C-55302F Standard**	Issue January 2010

The CMM micro-connector series are designed to meet or exceed the relevant electrical and environmental performances described in MIL-C-55302F & BS-9525-F0033 Standards.

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- We declare that the product(s) involved :

- **CMM micro-connector series 100 and 200**
- **CMM micro-connector series 220 LF, 220 Mix (LF/HP), 220 Special (HP)**
- **CMM micro-connector series 320 LF, 320 Mix (LF/HP), 320 Special (HP)**
- **CMM micro-connector series 340 Mix (LF/HP 22-), 340 Special (HP 22-)**

- have been tested according to the following items of the MIL-C-55302F Standard:

see Auto Declaration Annex

- and comply with the level of performance required, provided that the product is applied for its intended use and conforms to the specifications of the manufacturer, and that the installation conforms to the relevant standards.

Please refer to the Annex herewith (13 pages): List of QUALIFICATION TESTS "MIL" for Reports numbers, titles and test results (specification data).

Place and date of issue: Bons en Chablais, January 30th, 2010

Approved by: NICOLLIN Olivier (CEO)

Signature and stamp of the Company:

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AUTO DECLARATION ANNEX
LIST OF QUALIFICATION TESTS "MIL" (indice b)

Designation	EIA PROCEDURE #
Oversized pin exclusion	
Contact engagement and separation forces	364-37B
Contact resistance	364-06C
Low level contact resistance	364-23C
Contact retention	364-29C §4,5,6
Dielectric withstanding voltage sea level	364-20
Insulation resistance	364-21
Mating and unmating force	364-13D
Dielectric withstanding voltage high altitude (70 000 ft)	364-20
Contact life (Durability)	§4,5,9
Vibration	364-28E TEST CONDITION III
Shock (specified pulse)	364-27B TEST CONDITION G
Salt spray (corrosion)	364-26B TEST CONDITION B
Temperature cycling	364-110
Humidity	364-31D Method IV
Solderability	MIL STD 202 Method 208
Resistance to soldering heat	MIL STD 202 Method 210 condition C
Crimp tensile strenght	364-08

The tests has been performed following the MIL-DTL-55302F qualification routine chronologically and shall be considered as a whole.

1_Contact engagement and separation forces

REPORT TITLE: CONTACTS ENGAGEMENT AND SEPARATION FORCES TEST According to MIL DTL 55302F & EIA/ECA-364-37B test procedure

REPORT CONCLUSION:

The contacts are qualified regarding CONTACTS ENGAGEMENT AND SEPARATION FORCES TEST according to MIL DTL 55302-3F and BS 9525 F0033 and NICOMATIC SPEC. SHEETS

SPECIFICATION DATA:

LF contacts:		Engagement Force= 2 N max Separation Force= 0,2 N min
HP contacts:	**22 series:**	Engagement Force= 3 N max Separation Force= 0,5 N min
	30 series:	Engagement Force= 5 N max Separation Force= 0,5 N min

2_Contact resistance

REPORT TITLE: CONTACT RESISTANCE TEST FOR ELECTRICAL CONNECTORS
According to MIL-DTL-55302F & EIA/ECA-364-06C test procedure

REPORT CONCLUSION:

The contacts are qualified regarding CONTACT RESISTANCE TEST FOR ELECTRICAL CONNECTORS according to MIL DTL 55302-3F and BS 9525 F0033* & NICOMATIC SPEC. SHEETS

*The contact resistance of the LF tested contacts is always lower than 5,88 mOhm @3A
The contact resistance of the HP tested contacts is always lower than 2,16 mOhm @8A
The contact resistance of the HP tested contacts is always lower than 1,42 mOhm @10A
The contact resistance of the HP tested contacts is always lower than 0,47 mOhm @20A

SPECIFICATION DATA:

LF contacts:		Contact resistance @3A=8,7 mOhm max
HP contacts:	**22 Series:**	Contact resistance @8A/10A/20A = 3 mOhm max
	30 Series:	Contact resistance @8A/10A/20A = 3 mOhm max

3_Low level contact resistance

REPORT TITLE: LOW LEVEL CONTACT RESISTANCE FOR ELECTRICAL CONNECTORS AND SOCKETS According to MIL-DTL-55302F
& EIA/ECA-364-23C test procedure

REPORT CONCLUSION:

The contacts are qualified regarding LOW LEVEL CONTACT RESISTANCE according to MIL DTL 55302-3F standard & NICOMATIC SPEC. SHEETS.

SPECIFICATION DATA:

LF contacts: Initial Low Level Contact resistance : <10 mOhm **HP contacts:** Initial Low Level Contact resistance : <3 mOhm

4_Contact Retention

REPORT TITLE: CONTACT RETENTION TEST FOR ELECTRICAL CONNECTORS AND SOCKETS According to MIL-DTL-55302F / BS-9525-F0033 & EIA/ECA-364-29C test procedure

REPORT CONCLUSION:

The contacts are qualified regarding CONTACT RETENTION according to BS 9525 F0033 & NICOMATIC SPEC. SHEETS.

SPECIFICATIONS DATA:

LF contacts:		PCB type	Contact Retention= 22.22 N (except 13507: 10N)
		Cable type	Contact Retention= 10 N
HP contacts:	**22 series**	PCB type	Contact Retention= 22.22 N
		Cable type	Contact Retention= 10 N
	30 series	PCB type	Contact Retention= 22.22 N
		Cable type	Contact Retention= 44.44 N

5_Dielectric Withstanding Voltage Sea Level

REPORT TITLE: WITHSTANDING VOLTAGE TEST (Sea Level) FOR ELECTRICAL CONNECTORS, SOCKETS CONTACTS According to MIL-DTL-55302F & EIA/ECA-364-20C test procedure

REPORT CONCLUSION:

The contacts are qualified regarding WITHSTANDING VOLTAGE AT SEA LEVEL according to MIL DTL 55302-3F standard and BS 9525 F0033 & NICOMATIC SPEC. SHEETS.

SPECIFICATIONS DATA:

LF contacts:		Withstanding voltage=1200 VRMS	Rated Voltage=400 VRMS
HP contacts:	**22 series**	Withstanding voltage=900 VRMS	Rated Voltage=300 VRMS
	30 series	Withstanding voltage=1500 VRMS	Rated Voltage=500 VRMS

6_Insulation Resistance

REPORT TITLE: INSULATION RESISTANCE TEST FOR ELECTRICAL CONNECTORS, SOCKETS CONTACTS According to MIL-DTL-55302F& EIA/ECA-364-21C test procedure

REPORT CONCLUSION:

The contacts are qualified regarding INSULATION RESISTANCE according to MIL DTL 55302-F standard and BS 9525 F0033 & NICOMATIC SPEC. SHEETS.

SPECIFICATIONS DATA:

LF & HP Contacts (all series):
Insulation resistance > 400 Gohm

7_Mating & Un-mating Forces

REPORT TITLE: LF/HP Contacts MATING AND UNMATING FORCE TEST FOR ELECTRICAL CONNECTORS AND SOCKETS According to MIL-DTL-55302F & EIA/ECA-364-13D test procedure

REPORT CONCLUSION:

The connectors are qualified regarding MATING AND UNMATING FORCE TEST according to MIL-DTL-55302F & NICOMATIC SPEC. SHEET.

SPECIFICATIONS DATA:

Mating/unmating force /contact:

	Mating & un-mating force specification			
	LF contacts		HP contacts	
	Mating force	**Unmating force**	**Mating force**	**Unmating force**
Before life test	2.7 N max	0.2 N min	6 N max	1 N min
After 500 cycles				
After vibration and shock tests				
After temperature cycling				
After qualification tests			8 N max	

(Mating & Un-mating forces are initially measured as a reference in order to check the mating & un-mating evolution after durability, vibration, salt spray, temperature cycling tests)

8_ Dielectric Withstanding Voltage High Altitude (70 000 ft)

REPORT TITLE: WITHSTANDING VOLTAGE TEST (At 70000 ft) FOR ELECTRICAL CONNECTORS, SOCKETS CONTACTS According to MIL-DTL-55302F & EIA/ECA-364-20C test procedure

REPORT CONCLUSION:

The contacts are qualified regarding WITHSTANDING VOLTAGE at high altitude (70 000 ft) according to MIL DTL 55302-3F standard & NICOMATIC SPEC. SHEETS.

SPECIFICATIONS DATA:

			90°PCB Type V	Straight PCB Type Y	Straight SMT Type T	90°SMT Type R	Crimp Type S-C	Straight PCB Press fit
LF CONTACTS	Dielectric Withstanding Voltage (VRMS)	Male	450				330	360
		Female	360	450				
	Rated Voltage (VRMS)	Male	150				110	120
		Female	120	150				

		Series 22 M/F			Series 30 M/F		
		Straight PCB	90°PCB	Solder Crimp Type S-C	Straight PCB	90°PCB	Solder Crimp Type S-C
HP CONTACTS	Dielectric Withstanding Voltage (VRMS)	300			360		
	Rated Voltage (VRMS)	100			120		

9_ Durability (contact life) at ambient condition of use

REPORT TITLE: CONTACTS LIFE TEST According to MIL-DTL-55302F § 4.5.9 test procedure & EIA/ECA-364-13D (Mating and Unmating force test procedure) & EIA/ECA-364-06C (Contact resistance test procedure & low level contact resistance test procedure)

REPORT CONCLUSION:

The contacts are qualified regarding DURABILITY (CONTACT LIFE) at ambient conditions of use according to MIL DTL 55302-3F standard & NICOMATIC SPEC. SHEETS.

SPECIFICATIONS DATA:

LF & HP Contacts (all series): Durability at ambient condition of use: 500 cycles

10_Vibration

REPORT TITLE: VIBRATION TEST For Electrical Connectors & Sockets
According to MIL-DTL-55302F & EIA/ECA-364-20C test procedure

REPORT CONCLUSION:

The connectors **are qualified** regarding VIBRATION TEST FOR ELECTRICAL CONNECTORS AND SOCKETS according to MIL DTL 55302-F.

SPECIFICATIONS DATA:

Vibration severity: MIL-DTL-55302F Test Condition III [147.1 m/s^2 (15 g_n) peak]

It is recommended to use the locking fixing hardware (screws) with the HP and mixed contacts instead of the floating fixing hardware for vibrating applications.

11_Mechanical Shock

REPORT TITLE: MECHANICAL SHOCK TEST FOR ELECTRICAL CONNECTORS, SOCKETS CONTACTS According to MIL-DTL-55302F/EIA 364-27B test procedure

REPORT CONCLUSION:

The connectors **are qualified** regarding MECHANICAL SHOCK TEST FOR ELECTRICAL CONNECTORS AND SOCKETS according to MIL DTL 55302-F.

SPECIFICATIONS DATA:

Shock severity: MIL-DTL-55302F test condition G: Peak acceleration:100 g / Normal duration: 6 ms / Waveform: Saw tooth

12_Salt Spray

REPORT TITLE: QUALIFICATION TEST FOR ELECTRICAL CONNECTORS AND SOCKETS AFTER SALT SPRAY TEST According to MIL-DTL-55302F

REPORT CONCLUSION:

The mated connectors **are qualified** regarding measurements after salt spray test according to MIL-DTL-55302F.

SPECIFICATIONS DATA:

Contact resistance (@rated current):

	LF contacts	HP contacts
Before life test	10 mOhm max	3 mOhm max
After 500 cycles		6 mOhm max
After Vibration and Shock tests	15 mOhm max	3 mOhm max
After salt spray test	15 mOhm max	6 mOhm max

Low level contact resistance (@100mA)

	LF contacts	HP contacts
Before life test	10 mOhm max	3 mOhm max
After 500 cycles		
After Vibration and Shock tests	15 mOhm max	
After Salt Spray	15 mOhm max	6 mOhm max

13_Temperature cycling

REPORT TITLE: QUALIFICATION TEST FOR ELECTRICAL CONNECTORS AND SOCKETS AFTER TEMPERATURE CYCLING According to MIL-DTL-55302F.

REPORT CONCLUSION:

The mated connectors **are qualified** regarding measurements after temperature cycling test according to MIL-DTL-55302F.

SPECIFICATIONS DATA:

Temperature cycling severity: Ten cycles -65°C/125°C/-65°C @5°C/mn

Contact resistance _ specification

	LF contacts	HP contacts
Before life test	10 mOhm max	3 mOhm max
After 500 cycles		
After Vibration and Shock tests	15 mOhm max	
After Salt Spray		6 mOhm max
After temperature cycling		

Low level contact resistance _ specification

	LF contacts	HP contacts
Before life test	10 mOhm max	3 mOhm max
After 500 cycles		6 mOhm max
After Vibration and Shock tests	15 mOhm max	3 mOhm max
After salt spray test		6 mOhm max
After Temperature cycling		

Mating & Un-mating force per contact _ specification

	LF contacts		HP contacts	
	Mating force	**Unmating force**	**Mating force**	**Unmating force**
Before life test	2.7 N max	0.2 N min	6 N max	1 N min
After 500 cycles				
After vibration and shock tests				
After temperature cycling				

14_Humidity

REPORT TITLE: HUMIDITY TEST FOR ELECTRICAL CONNECTORS, SOCKETS CONTACTS According to MIL-DTL-55302F & EIA/ECA-364-21C/31D test procedures

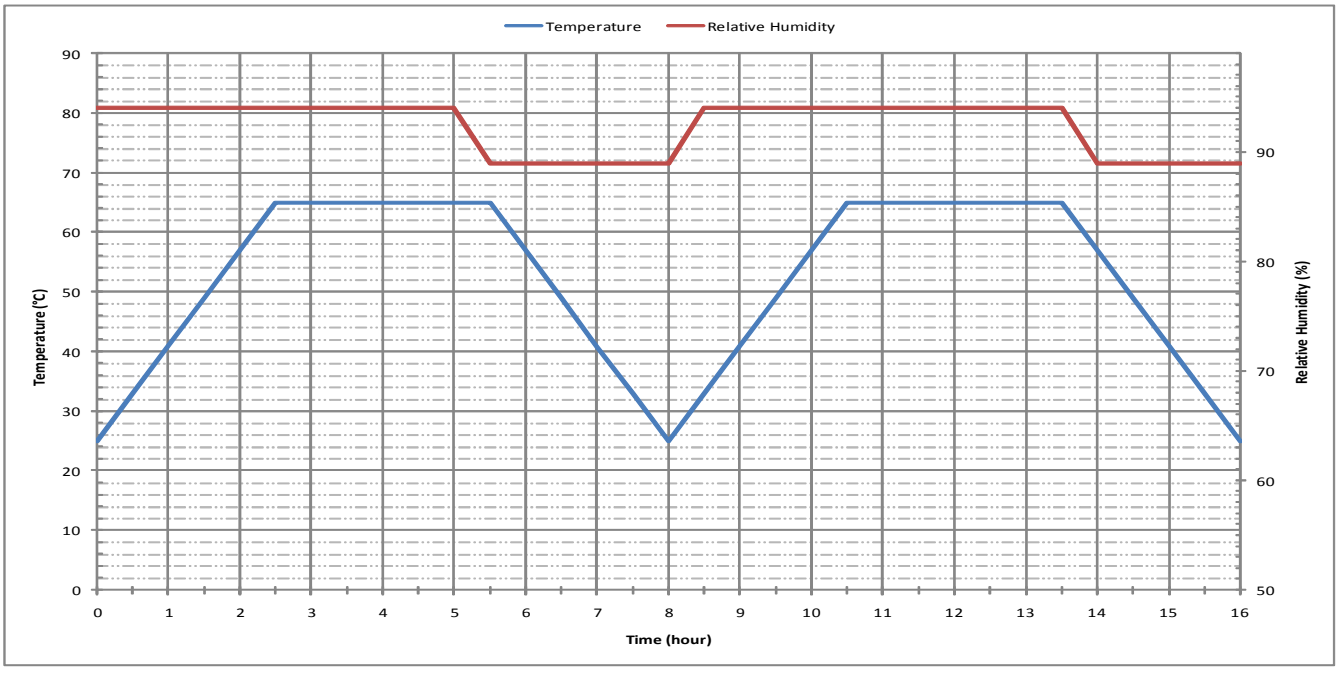
REPORT CONCLUSION:

The connectors **are qualified** regarding HUMIDITY TEST FOR ELECTRICAL CONNECTORS AND SOCKETS according to MIL DTL 55302-F.

SPECIFICATIONS DATA:

Insulation resistance after humidity: > 1 GΩ

	Contact resistance _ specification		Low level contact resistance _ specification	
	LF contacts	**HP contacts**	**LF contacts**	**HP contacts**
Before life test	10 mOhm max	3 mOhm max	10 mOhm max	3 mOhm max
After 500 cycles				6 mOhm max
After Vibration and Shock tests	15 mOhm max		15 mOhm max	3 mOhm max
After Salt Spray		6 mOhm max		6 mOhm max
After temperature cycling				
After humidity test				



15_Solderability

REPORT TITLE: SOLDERABILITY QUALIFICATION TEST For Electrical Connectors and Sockets According to MIL-DTL55302F & MIL-STD202 method 208 solderability test procedure

REPORT CONCLUSION:

During the qualification tests, the connectors are subjected to soldering operation at 350°C. No physical damage to the termination or connectors resulting from soldering. **Test is passed**

SPECIFICATIONS DATA:

Solder Iron T°: 4~5s @350°C +/-10°C

16_Resistance to soldering heat

REPORT TITLE: RESISTANCE TO SOLDERING HEAT TEST for Electrical Connectors and Sockets according to MIL-DTL55302F

REPORT CONCLUSION:

The printed wiring terminal connectors **are qualified** according to MIL-DTL-55302F regarding the resistance to soldering heat test.

SPECIFICATIONS DATA:

Wave solder T°: 20s@260°C

17_Crimp Tensile Strength

REPORT TITLE: CRIMP TENSILE STRENGTH TEST QUALIFICATION FOR ELECTRICAL CONNECTORS according to MIL DTL 55302F

REPORT CONCLUSION:

The LF and HP contacts are qualified according to MIL-DTL-55302F standards and NICOMATIC SPEC. SHEETS, regarding the crimp tensile strength test.

SPECIFICATIONS DATA:

Crimp Tensile Strength:

	Contacts crimped with Hand crimp tool MH800				
	Contacts reference	**Batch**	**Wire size (AWG)**	**Requirements (N)**	**Minimal force measured (N)**
LF contacts	12960	09A05	22	53.3	92.69
	12969	09321	24 - 26 - 28	35.6 - 22.3 - 13.4	67 - 36.13 - 14.35
	C13064-P	230409	22	53.4	91.45
	C12468	290508	24 - 26 - 28	35.6 - 22.3 - 13.4	78.34 - 33.65 - 16.72
	Contacts crimped with Hand crimp tool Daniels HX3				
HP contacts serie 22	22-4310	0829	16	222.3	155.3
	22-3310	08A21	16	222.3	95
HP contacts serie 30	30-4308	0924	18	142	212
	30-3308	0805	18	142	203