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OBJECTIVE

This product specification shall be used for qualifying any FCI extended PC Card kit in the case there is no specific product specification (customer specific needs).

1.0 SCOPE

This product specification covers the requirements of the extended PC Card kit made by Framatome Connectors International (FCI).

2.0 GENERAL-Extended PC Card kit description

3.1 General

The extended PC Card kit consists of:

- two stainless steel card shields, each containing an integrated frame-bar,
- one 68 position SMTIL Receptacle,
- one antenna extension.

The extended PC Card kit is available in Type II.

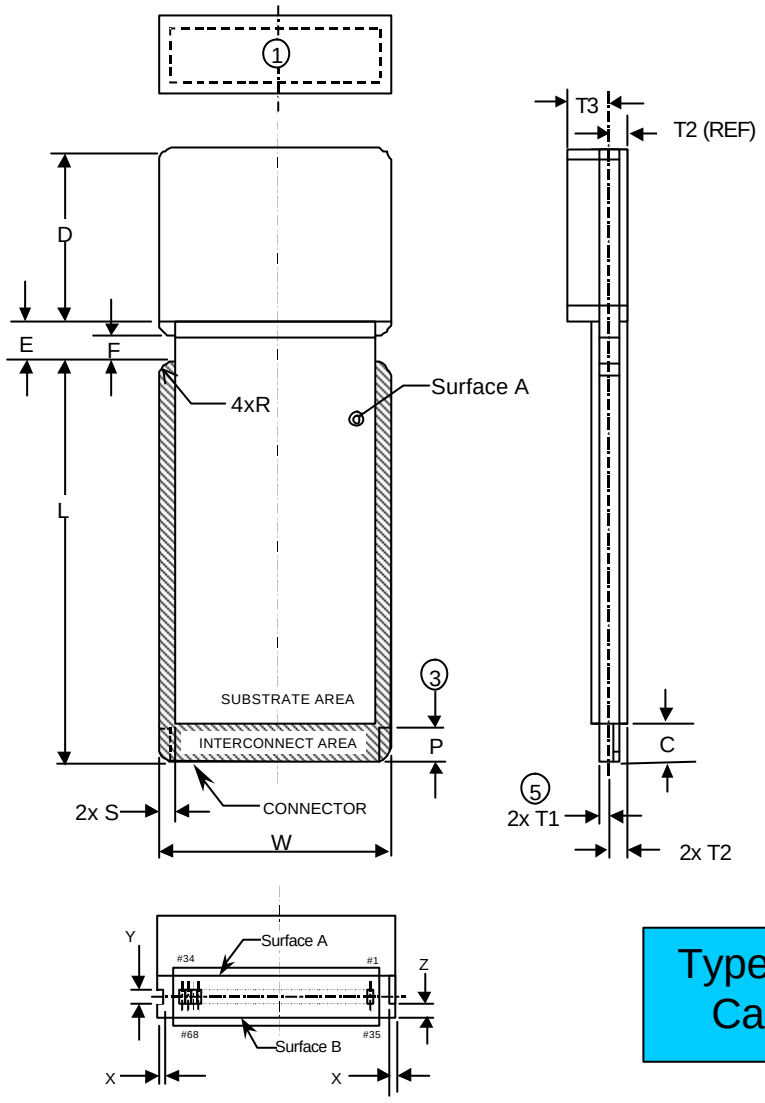
The back-end of the assembled cardshields is fully opened.

This FCI specification meets or exceeds the PC Card Standard.

FCI manufactures the extended PC Card kit without PCB.
For this reason, this FCI specification will only cover the specifications of the extended PC Card kit in the mechanical point of view, no electrical functionality test are required.
It is, in this area, different from the PC Card Standard.

3.2 Dimensions

The extended PC Card kit dimensions must meet the requirements from the figure below.
All these dimensions shall be measured according to the internal procedure: PMT-035.
The connector location and pin numbering are also shown in the figure.



Type II extended PC Card dimensions

C MIN	L±0.20	P MIN (3)	T1±0.05 (5)	T2 MAX	S±0.10	W±0.10	
10.0	83.3	10.0	1.65	2.5	3.1	54.0	
X±0.05	Y±0.05	Z±0.05	D MAX	E±0.20	F MIN	R MAX	T3 (4)
1.0	1.6	1.0 or 2.1	40.0	10.0	5.0	3.0	8.0

(1).RECOMMENDED I/O CONNECTOR LOCATION.

2 .THE PC CARD SHALL BE OPAQUE (NON SEE THROUGH).

(3).POLARIZATION KEY LENGHT.

(4).MAXI.

(5).FOR CARDBUS PC, DIMENSION T1 IS INCREASED BY 0.50±0.05 OVER DIMPLES.

(REFER TO CARDBUS PC CARD RECOMMENDED CONNECTOR GROUNDING INTERFACE DIMENSIONS FIGURE IN THE PC CARD STANDARD PHYSICAL SPECIFICATION)

3.3 Cosmetic requirements

- The card shields must comply to the following cosmetic requirements:
  Surface finish: mat / dull (not brushed)

The outside surfaces of the card shield must be free of scratches, dents, spots, finger prints, cleaning residue or other irregularities.
This is to be formally checked following GS-19-022.

- If available, the extension parts must comply to the cosmetic requirements mentioned in the related drawings.

3.4 Materials

The card shields are made of stainless steel. The materials and finishes of the other extended PC Card kit components are compatible with the stainless steel.

3.0 ABBREVIATIONS

I/O	Input / Output
LAN	Local Area Network
PCB	Printed Circuit Board
PCMCIA	Personal Computer Memory Card International Association
ROCARD™	Rugged Original CARD
SMTIL	Surface Mount (Technology) In Line

4.0 PROCEDURE-Extended PC Card kit performances

5.1 Test sequence

The following table defines the recommended test sequence.
Each test group contains a number of tests to be executed on the test samples, to begin with test n°1.
Each test group consists of 4 extended PC Card kits minimum.

Test number	§ number	Test item	Test groups				
			1	2	3	4	5
			Test sequence				
1	3.2.1	Vibration	▯				
2	3.2.2	Shock	▯				
3	3.2.3	Bend test		▯			
4	3.2.4	Torque test			▯		
5	3.2.5	Drop test				▯	
6	3.2.6	Finger nail test					▯

The extended PC Card kit shall meet or exceed all reliability test requirements as described below.

Unless otherwise specified, all tests and measurements shall be made according to the following standard conditions.
If results need to be reproducible, the parameters shall be closely controlled according to the following specific conditions:

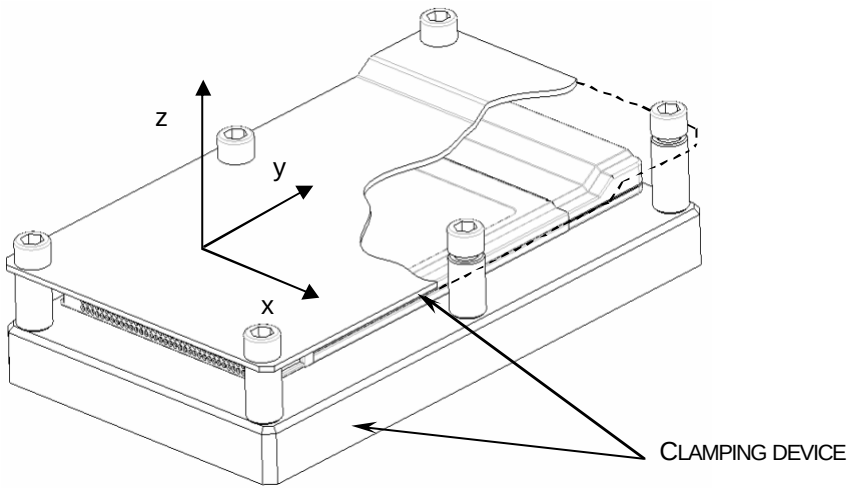
Conditions	
Temperature	15°C to 35°C
Air pressure	86 to 106 kPa
Relative humidity	25% to 85%

5.2 Mechanical performance

5.2.1 Vibration

The extended PC Card kit shall be fully assembled, ie the PCB and its components shall be installed inside.

Conditions: 15G peak amplitude (147 m/s^2), 10-2000 Hz, 10 minutes sweep,
2 sweeps=1 cycle, 12 cycles per axis, 3 axis. Sinusoidal signal.
Total test time: 12h
Test procedure according to the Standards IEC 512-4 test 6d (vibration) and IEC 68-2-6 test Fc Vibration (sinusoidal).



THE PC CARD SHOCK AND VIBRATION TEST FIXTURE SHALL ENTRAP THE PC CARD SUCH THAT ALL SHOCK AND VIBRATION SHALL BE TRANSMITED INTO THE SAMPLE CARD

Requirement: No visual damage shall be present on the parts.
The card shields shall still be connected mechanically.

5.2.2 Shock

The extended PC Card kit shall be fully assembled ie the PCB and its components shall be installed inside.

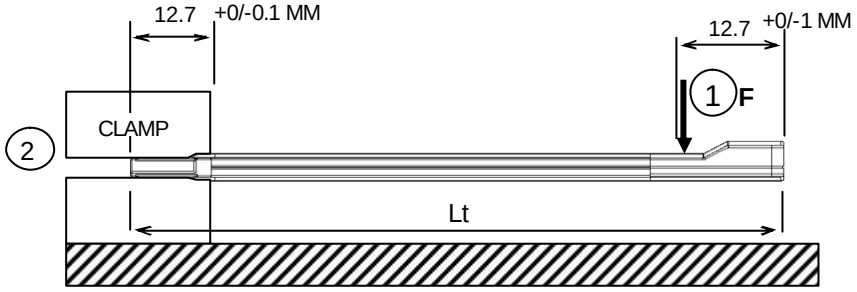
Conditions: 50G acceleration (490 m/s^2), duration: 11 ms, semi-sine wave,
velocity change: 3.4 m/s. One shock to perform in negative vertical axis.
(see figure on previous page _ vertical axis = z axis).
Test procedure according to the International Standard IEC 68-2-27.

Requirement: No visual damage shall be present on the parts.
The card shields shall still be connected mechanically.

5.2.3 Bend test

The extended PC Card kit shall be fully assembled ie the PCB and its components shall be installed inside.

Conditions: Test the entrance of the Card kit inside the slot-gauge P/N G-4076 with maximum insertion force 39.2 N before the test is done.
see the following figure :



1 THE FORCE BAR SHALL APPLY A UNIFORM FORCE ACROSS THE END OF THE EXTENDED PC CARD. THE FORCE IS PROPORTIONAL TO THE TOTAL LENGHT (Lt) OF THE PRODUCT : $F \approx \frac{1180}{Lt - 25.4}$

2 A TORQUE SCREWDRIVER SHALL BE USED TO APPLY A TORQUE OF 6 N.m ± 6% ON THE TWO SCREWS USED TO CLAMP THE PC CARD.

1.	Clamp the 68 position SMTIL Receptacle end of the extended PC Card kit, as shown on above figure. Apply the F force with the force bar at the unclamped end and hold for 1 minute.
2.	Turn the extended PC Card kit upside down. Clamp the 68 position SMTIL Receptacle end of the extended PC Card kit. Apply the F force with the force bar at the unclamped end and hold for 1 minute.

Test procedure according to the Standard IEC 512-5 test 8b (static load, axial).

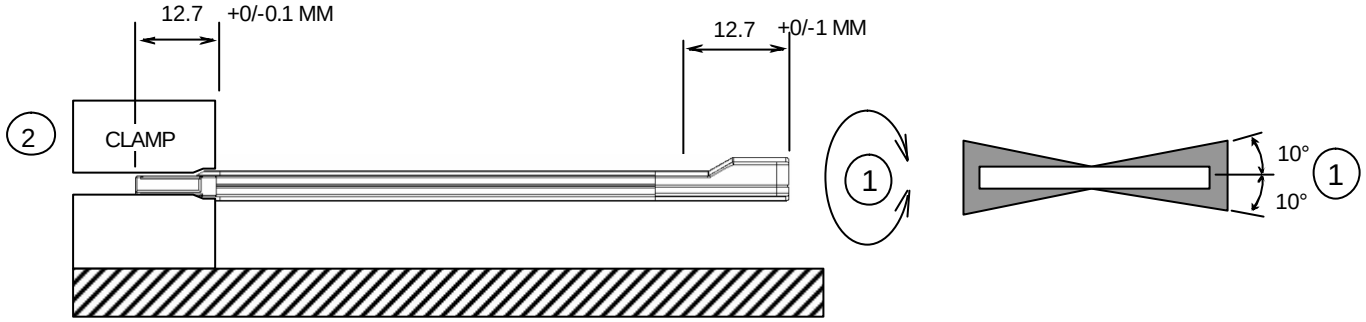
Requirement: No visual damage shall be present on the parts.
The card shields shall still be connected mechanically.
The Card kit must be inserted inside the slot-gauge P/N G-4076 with maximum insertion force 39.2 N.

Cosmetic irregularities like scratches, dents, spots, finger prints are not a base for evaluation here.

5.2.4 Torque test

The extended PC Card kit shall be fully assembled ie the PCB and its components shall be installed inside.

Conditions: Test the entrance of the Card kit inside the slot-gauge P/N G-4076 with maximum insertion force 39.2 N before the test is done.
Clamp the 68 position SMTIL Receptacle end of the Extended PC Card kit as shown in the next figure.
Apply a clockwise torque to the unclamped end, until the torque reaches 1.236 N.m *or* the angle reaches 10° (whichever occurs first), and hold for 5 minutes. Execute test in counterclockwise direction, and repeat this test 5 times again in both directions.



1 APPLY TORQUE TO UNCLAMPED END OF THE EXTENDED PC CARD.
THE TORQUE AND ANGLE MAX ARE 1.236 N.m OR 10°, WHICHEVER OCCURS FIRST.

2 A TORQUE SCREWDRIVER SHALL BE USED TO APPLY A TORQUE OF 6 N.m ± 6%
ON THE TWO SCREWS USED TO CLAMP THE PC CARD.

Requirement: No visual damage shall be present on the parts.
The card shields shall still be connected mechanically.
The Card kit must be inserted inside the slot-gauge P/N G-4076 with maximum insertion force 39.2 N.
Cosmetic irregularities like scratches, dents, spots, finger prints are not a base for evaluation here.

5.2.5 Drop test

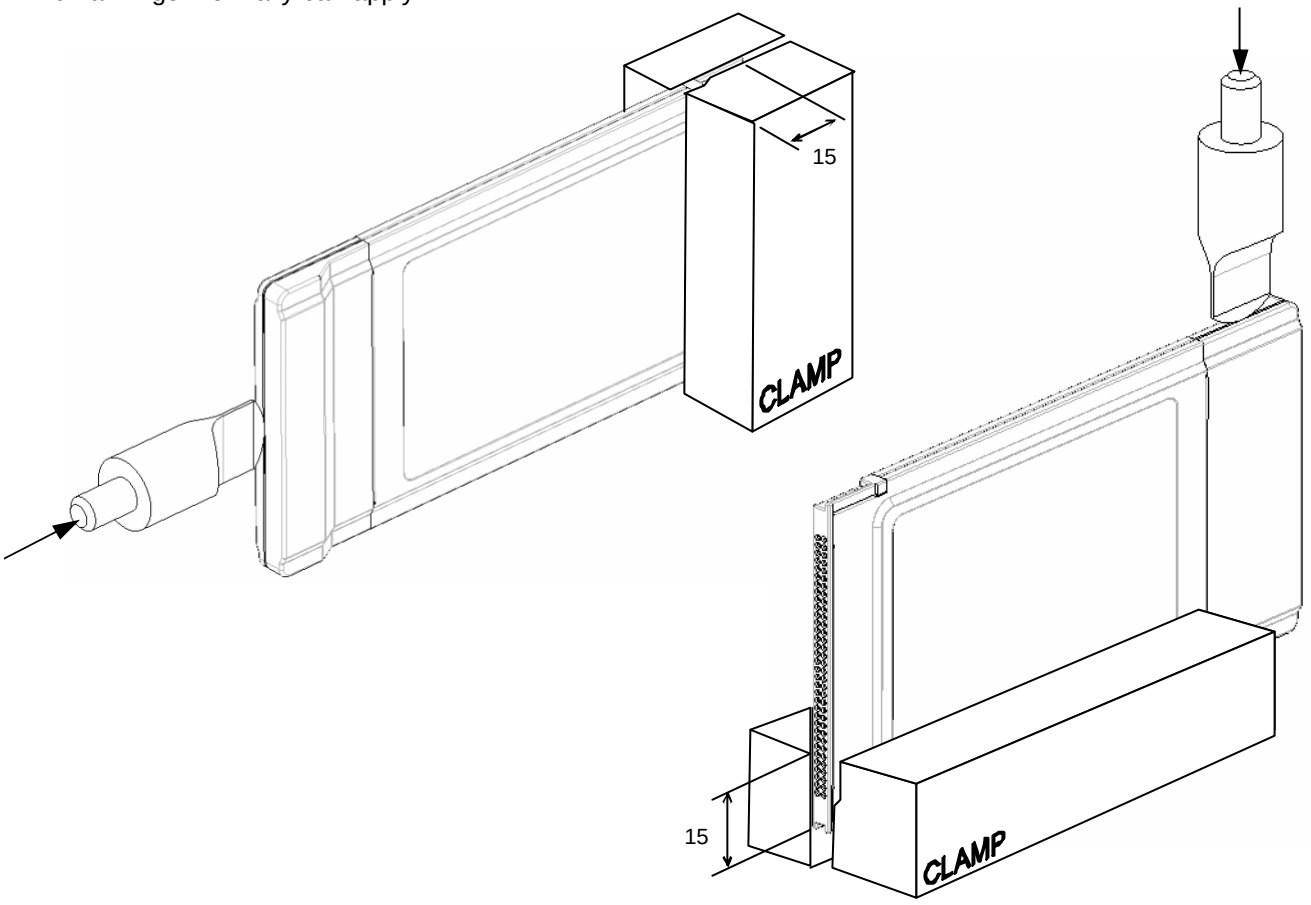
Conditions: Test the entrance of the Card kit inside the slot-gauge P/N G-4076 with maximum insertion force 39.2 N before the test is done.
Drop the extended PC Card kit one time in each direction of the three axes: X, Y, and Z, from a height of 75 cm, onto a non-cushioning vinyl-tile surface.

Requirement: No visual damage shall be present on the parts.
The card shields shall still be connected mechanically.
The Card kit must be inserted inside the slot-gauge P/N G-4076 with maximum insertion force 39.2 N
Cosmetic irregularities like scratches, dents, spots, finger prints are not a base for evaluation here.

Note : Full assembled kit weight should not exceed 50g to guarantee performance of drop test as described.

5.2.6 Finger nail test

This test, which exceeds the requirements of the PC Card Standard, is to verify if the mechanical connections between the two plastic parts are strong enough to withstand manual opening.
The test pin from the picture below simulates the human finger nail and the defined force is the maximum a human finger normally can apply.



Conditions:

1) Clamp the extended PC Card kit up to 15 mm from one of the long sides. Put the test pin on the interface in between the top and bottom covers, increase the load until 50 N, and hold for 1 minute.
2) Repeat the test on 2 other random places of the same side, if the side is long enough.
3) Clamp the extended PC Card kit up to 15 mm from the opposite long side. Put the test pin on the interface in between the top and bottom covers, and press until the load reaches 50 N. Hold for 1 minute.
4) Repeat the test on 2 other random places of the same side, if the side is long enough.
5) Clamp the extended PC Card kit up to 15 mm from the 68 pos connector side. Put the test pin on the interface in between the top and bottom covers, increase the load until 50 N, and hold for 1 minute.
6) Repeat the test on 3 other places of the same side.

Requirement: Cosmetic irregularities are not a base for evaluation here. Some opening marks may be visible.
The antenna extension shouldn't be opened.
The card shields shall still be connected mechanically.

5.3 Electrical performance

5.3.1 Electrostatic discharge

As this specification does not include the electrical circuits within the extended PC Card kit, it is not possible to specify any requirement.
FCI can only state that our extended PC Card can contribute to the ESD performance of the customer's end product, as the extended PC Card kit contains 2 stainless steel card shields which directly transfer the electrostatic load to the host socket chassis.

5.3.2 Electromagnetic field interference

As this specification does not include the electrical circuits within the extended PC Card kit, it is not possible to specify any requirement.
FCI can only state that our extended PC Card can contribute to the Electromagnetic field interference performance of the customer's end product, as the extended PC Card kit contains 2 stainless steel card shields which have a shielding effect.

5.3.3 Insulator

An electrical insulator is available as an option.
The insulator thickness is 0,10 mm maximum. It has a dielectric withstanding voltage of 2500 V.

5.0 REFERENCE DOCUMENTS

6.1 Applicable standards

PC Card Standard: volume 10 (Guidelines) release 8.0 of April 2001.
This standard can be obtained from:
PCMCIA, 2635 North First Street, Suite 209,
San Jose, CA 95134 USA.

6.2 Related product specifications

110-263 68 position SMTIL Receptacle
GES-12-091 Card Kit for PCMCIA ROCARD™
GS-19-022 PCMCIA cardshields visual control protocol

6.3 Related test procedures

- International Standard IEC 512-4: Electromechanical components for electronic equipment; basic testing procedures and measuring methods
  Part 4: dynamic stress tests
  Test 6d: Vibration
- International Standard IEC 512-5: Electromechanical components for electronic equipment; basic testing procedures and measuring methods
  Part 5: Impact tests (free components), static load tests (fixed components), endurance tests and overload tests
  Test 8b: Static load, axial
- International Standard IEC 68-2-6 test Fc Vibration (sinusoidal)
- International Standard IEC 68-2-27 test Ea and guidance (shock)
- EIA Standard EIA-364-C: Electrical connector/socket test procedures including environmental classifications

6.4 Related measurement procedure

PMT-035 Measure and test procedure number 035: “Procédure Mesure et Test N° 035”
Measurement Methodology for assembled extended PC Card: “Méthodologie de mesures sur PC-Card assemblés”.

6.0 REVISION RECORD

REV	PAGE	DESCRIPTION	ECR	DATE
A	All	Creation	F00445	21-Mar-2001
B	All	• Update Areva logo • Update document after improvement of cosmetic requirements and qualification protocols.	F20504	20-Aug-2002
C	All	• § 5.2.5 : Add note in drop test per weight limit for drop test. • § 5.3.3 : Change thickness of insulator from 0.07 MAX to 0.10 MAX	F03066	18-Mar-2003
D	All	Change form and FCI logo	F06-0186	23-May-2006

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