NICOMATIC R&D LABORATORY	QUALIFICATION TEST REPORT	QTR18041a
EMM SERIE ACCORDING TO MIL-DTL-83513G STANDARD		Page : 1 /25
		Qualification status : PASSED

RADIATION RESISTANCE

According to ESCC 22900 Issue 5 (10 Mrad)

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

	Name	Duty	Date	Visa
Written by	A.JAGHMIM	Test & Measurement Manager	18/05/18	AJ
Test Operator(s)	A.JAGHMIM	Test & Measurement Manager	18/05/18	AJ
Checked by	J.RIGAT	Project Manager	18/05/18	JR
Approved by	A.VULLIEZ	R&D Manager	18/05/18	AV
Requested by	J.RIGAT	Project Manager	18/05/18	JR

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1 Conclusion

The EMM connectors are **qualified** regarding RADIATION RESISTANCE (until 10 Mrad) according to ESCC 22900 Issue 5.

2 Technical Features Proposal

EMM Connectors:
There has not been any significant deviation in the isolation resistance between 0 and 10Mrad.

The proto part shows the same aspect than at the initial visual inspection.

3 Connate Reports

ATN-RR-510 - C6X - SET_OF_NICOMATIC_CONNECTORS.PDF

4 Information about the tests

4.1 Object

This report describes the Total Ionizing Dose (TID) test performed on EMM Connectors. The purpose of this test is to evaluate its degradation under TID radiation conditions.

4.2 Reference documents/Qualification Plan

- MDC.P16020.a
- ESCC 22900 Issue 5

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
José J. GONZALEZ	TID Engineer

4.5 Date and place of the tests

ALTER TECHNOLOGY RadLab. from 04/07/18 to 04/07/18

4.6 Environmental conditions

Ambient temperature: See Test procedure
Pressure: ambiant
Humidity: See Test procedure

4.7 Incidents during the test

None

4.8 Test Equipments

See "ATN-RR-510 - C6X - SET_OF_NICOMATIC_CONNECTORS.PDF"

4.9 Test Tooling

See "ATN-RR-510 - C6X - SET_OF_NICOMATIC_CONNECTORS.PDF"

5 Requirements according

Insulation resistance must be higher than 2000 GOhm after being exposed to Radiation

Table 1 - Test Parameters and Conditions

N°	SYMBOL	TEST	CONDITIONS	PRE IRRAD. LIMITS		POST IRRAD. LIMITS		UNIT
				MIN.	MAX.	MIN.	MAX.	
1	IR	Insulation Resistance **(Note 1)**	V=500 VDC	2000	-	2000	-	Gohm

Notes:
1. Between 2 contacts on 7 pairs of contacts.
2. The limits included above are included herein for reference purposes only. The degradation of any of these parameters above the limits must not be considered a reason for supplier lot rejection, due to the fact that the aim of this test is to characterize the electrical behaviour of this lot when is submitted to radiation.

6 Test Procedure

TID testing has been performed in accordance with the approved test plan ATN-RP-318 Issue 1 (see 6.3 TEST PLAN). Testing plan accomplishes with the "ESCC 22900. Total Dose Steady State Irradiation" test method and follows the MFR Datasheet performance specification" for device performance evaluation.

Started on 2018/07/04 and finished on 2018/07/04, TID testing was performed using a Cobalt-60 gamma ray source as it is described in paragraph "7 Test Setup (Irradiation facility)" (see ANNEX II: DOSIMETRY).

A total of 6 samples without bias configurations were tested (6 OFF bias). Dose rate was 1.704 Mrad(Si)/h for a total cumulative dose of 10.08 Mrad. Irradiation steps were not followed by any annealing steps. TID testing sequence has been described in paragraph "5.1.Radiation source dose rate and annealing".

6.1 DOSIMETRY AND IRRADIATION FACILITY

6.1.1 Competences and irradiation facility

ALTER TECHNOLOGY laboratory has been audited by DSCC and ALTER TECHNOLOGY has been awarded DLA Laboratory Suitability for MIL-STD-883 TM 1019 and MIL-STD-750 TM 1019 TID tests performance in accordance with VQE-15-0222801.

ALTER TECHNOLOGY laboratory is ENAC accredited ISO 17025 for ESCC 22900, MIL-STD-883 TM 1019, MIL-STD-750 TM 1019 TID tests performance and dosimetry calculation and performance in accordance with Technical Annex 345/LE2116.

See ANNEX III: COMPETENCES AND WARRANTIES.

6.1.2 Irradiation facility

6.1.2.1 Náyade facility

The NÁYADE gamma radiation laboratory is based on a Cobalt-60 sources placed into a pool. This Cobalt- 60 source has photons of 1.17 and 1.33 MeV energies.
The gamma radiation of around 1 MeV is a penetrating radiation, so the samples are irradiated completely.

The facility features meet the requirements for total dose irradiation tests currently demanded by the industry, and applicable standards such as ESCC, MIL-STD or ASTM. The dose rate can be

adjusted to the level requested by the customer needs within a wide range, including standard and low window rates specified in ESCC 22900.

Test specimens are enclosed in an Al container to minimize dose enhancement effects caused by low energy, scattered radiation.

6.1.2.2 Dose measurement

A set of eight dosimeters were placed in an axial configuration in order to obtain an accurate measurement of dose rate.

6.2 EXPERIMENTAL CONDITIONS

6.2.1 Radiation source dose rate and annealing

The dose exposures were performed at Náyade facility (CIEMAT, Spain). A Cobalt 60 source is used to produce the ionizing radiation with the possibility of fixing the dose rate which arrives on samples by adjusting the samples distance to the source.

The total dose steady-state irradiation test was performed using a dose rate of 1.704 Mrad(Si)/h until a total accumulated dose of 10.08 Mrad. Radiation uniformity on samples is equal to 92.47 % (see ANNEX II: DOSIMETRY).

See Table III for a quick overview on performed steps and achieved dates.

Table 2 - Radiation Monitoring System and TID Follow-Up Tool

Step	Required Acc. Dose	Total Step Dose	Real Acc. Dose	Deviation	Dose rate	Exposure time	Date
--	rad	rad	rad	%	Mrad(Si)/h	(h)	-
1	0	0	0	0	0	--	2018/07/03
2	1000000	994291.7	994291.7	0.6	1.704	0.58	2018/07/04
3	2000000	994291.7	1988583.3	0.6	1.704	0.58	2018/07/04
4	3000000	994291.7	2982875.0	0.6	1.704	0.58	2018/07/04
5	5000000	1988583.3	4971458.3	0.6	1.704	1.17	2018/07/04
6	10000000	5113500.0	10084958.3	0.8	1.704	3.00	2018/07/04

6.2.2 Bias setup

6.2.2.1 Parts distribution

In order to evaluate TID samples sensitivity, the irradiated parts were serialized as follows:

Table 3 - Parts Distribution

ALTER S/N	MANUFACTURER S/N	BIAS CONDITION
R1	C18891-30 + C18893-30	
R2	C18900-30 + C18902-30-250	
R3	C18901-30 + C18902-30-250	N/A

6.2.2.2 Bias conditions

No bias conditions were applied during the irradiation test.

6.2.2.3 Bias equipment identification

No biasing was applied during the irradiation test.

6.2.3 Test parameters and measuring conditions

6.2.3.1 Test parameters and measuring conditions

Both electrical parameters test conditions and limits used for performing parameter measurements were provided in the test plan ATN-RP-510 Issue 1. They are also reported in table VI for information purpose.

Table 4 - Test Parameters and Conditions

N°	SYMBOL	TEST	CONDITIONS	PRE IRRAD. LIMITS		POST IRRAD. LIMITS		UNIT
				MIN.	MAX.	MIN.	MAX.	
1	IR	Insulation Resistance **(Note 1)**	V=500 VDC	2000	-	2000	-	Gohm

Notes:
1. Between 2 contacts on 7 pairs of contacts.
2. The limits included above are included herein for reference purposes only. The degradation of any of these parameters above the limits must not be considered a reason for supplier lot rejection, due to the fact that the aim of this test is to characterize the electrical behaviour of this lot when is submitted to radiation.

6.2.3.2 Parameter measurement circuits

Test circuits used are the ones specified into the applicable documents.
The schematic of the set-up used for this measurement can be seen in the following picture:

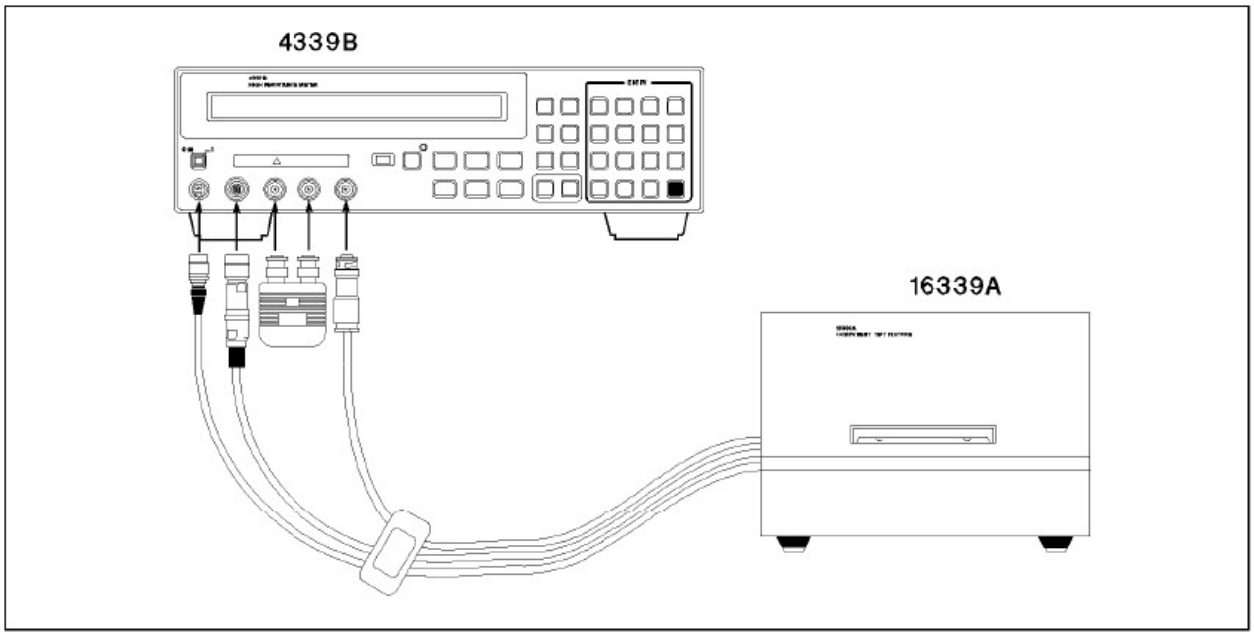


Figure 1 - Electrical Measurement set-up

6.3 TEST PLAN

Component No. Set of NICOMATIC Connectors		**Component Designation:** Set of NICOMATIC Connectors			**Irradiation Spec. No.:** ESCC22900 Iss.5
Gen. Spec.: N/A **Det. Spec.:** MFR DATASHEET **Amend.:** N/A		**Date Code:** N/AV. **Lot Number:** N/AV. **Wafer No.:** N/AV.			**Project/Programme:** C6X
Family/Group: 02/99	**Technology:** --	**Functional Assignment:** CONNECTORS			**Package:** N/A
Manuf. Name: NICOMATIC **Address:** FRANCE		**Sample Size:** 6 *(see TABLE II)* **Irradiation Devices:** 6 **Control Devices:** 0			**Level of Interest:** N/A krad(Si) **Maximum Test Level:** 10 Mrad(Si) **Radiation Source:** ^{60}Co
EXPERIMENTAL STEPS		**1** (Note 3)	**2** (Note 3)	**3** (Note 3)	**4** (Note 3)	**5** (Note 3)
PROCESS		**Irrad**	**Irrad**	**Irrad**	**Irrad**	**Irrad**
Dose [Mrad (Si)]		1	1	1	2	5
Cumulative Dose [Mrad (Si)]		1	2	3	5	10
Dose Rate [Mrad(Si)/h]		1.8	1.8	1.8	1.8	1.8
Exposure Time (h)		0.55	0.55	0.55	1.11	2.77
Temperature (°C)		25	25	25	25	25
Irradiation Conditions: **Biased:** 0 samples **Unbiased:** 6 samples **Test Circuit:** Figure 1		**Irradiation Measurements Interval:** **Remote Test:** X **In situ Test:** -			**Annealing Conditions:** **Biased:** 0 samples **Unbiased:** 0 samples **Test Circuit:** Figure 1	

Notes:

1. The total dose step values recommended in the table above should be considered as indicative. If any step cannot reach a deviation ≤10%, it should be separated in two intermediate steps (before and after).
2. The dose rate given must be considered as a guide. In any case, it must be maintained ≥ 360 rad(Si)/h.
3. The connectors shall be examined after each step (as agreed with the customer).
   (For the DMM, the shell is glued to the insulator. And the glue could be affected by the radiation. We just need to know if the shell and the insulator could be separated by hand after each step of radiation).

	Name	Signature	Date
Prepared by	Alejandro Sánchez (ATN)		2018/05/29
Reviewed by	José J. González (ATN) (TID Supervisor)		2018/05/29
Approved by	Adane Jaghmim (NICOMATIC)	e-mail	2018/05/30

7 Test setup

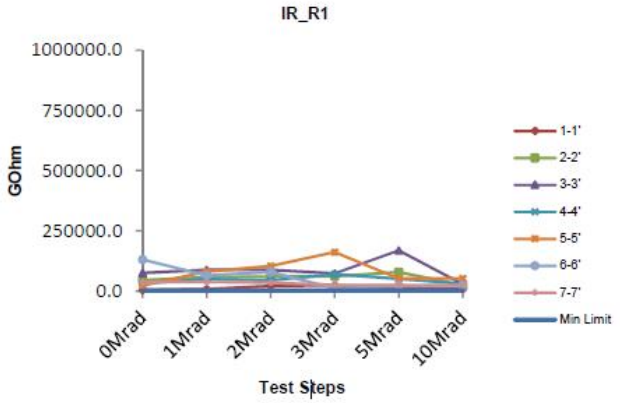


Figure 2 – Gamma Irradiation Facility (Nàyade)

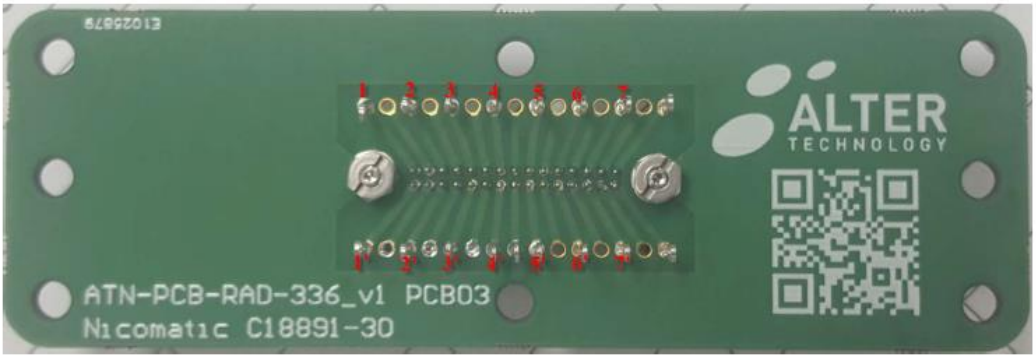
8 Measurements results

ALTER S/N	MANUFACTURER S/N
R1	C18891-30 + C18893-30
R2	C18900-30 + C18902-30-250
R3	C18901-30 + C18902-30-250

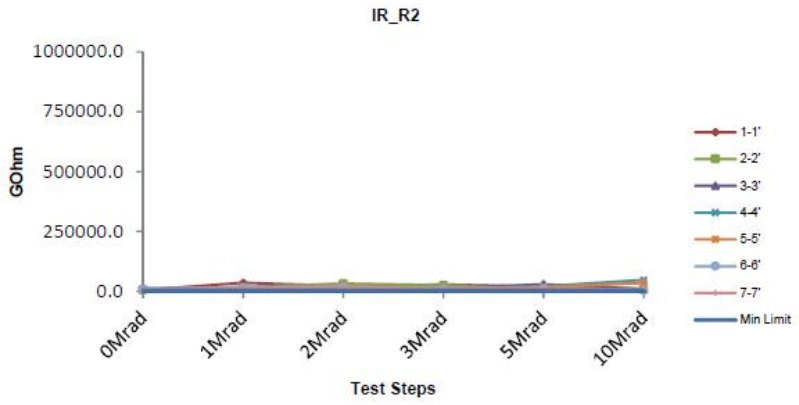
8.1 R1 Measurements results



IR_R1	0Mrad	1Mrad	2Mrad	3Mrad	5Mrad	10Mrad
Min Limit	2000	2000	2000	2000	2000	2000
Max Limit	--	--	--	--	--	--
Unit	GOhm	GOhm	GOhm	GOhm	GOhm	GOhm
1-1'	4330.0	8460.0	21500.0	24200.0	10700.0	9160.0
2-2'	45400.0	57600.0	61100.0	61800.0	78800.0	24500.0
3-3'	75700.0	88300.0	88200.0	73900.0	169000.0	28800.0
4-4'	31600.0	50000.0	44600.0	70200.0	51400.0	30400.0
5-5'	23500.0	80600.0	104000.0	162000.0	52600.0	52500.0
6-6'	131000.0	65400.0	79700.0	11000.0	22500.0	23300.0
7-7'	37000.0	37600.0	35300.0	26200.0	25000.0	23100.0



8.2 R2 Measurements results

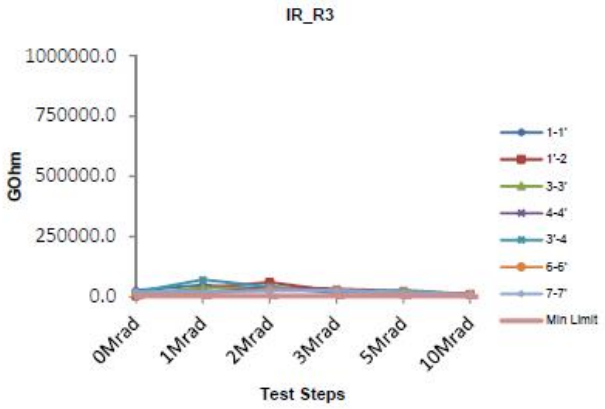


IR_R2	0Mrad	1Mrad	2Mrad	3Mrad	5Mrad	10Mrad
Min Limit	2000	2000	2000	2000	2000	2000
Max Limit	--	--	--	--	--	--
Unit	GOhm	GOhm	GOhm	GOhm	GOhm	GOhm
1-1'	5220.0	36600.0	22200.0	28300.0	19600.0	9050.0
2-2'	7370.0	16600.0	32600.0	24800.0	16100.0	9090.0
3-3'	12500.0	11300.0	16600.0	11500.0	30200.0	10100.0
4-4'	7410.0	18800.0	16200.0	10100.0	21000.0	48100.0
5-5'	6860.0	12600.0	23000.0	10900.0	17200.0	36000.0
6-6'	10300.0	15000.0	18100.0	11000.0	8340.0	5430.0
7-7'	7540.0	13700.0	14600.0	12500.0	11300.0	7840.0



Note : The connector cables used during this test were damaged after radiation resistance test. But it was not the goal of this test and does not affect the result.

8.3 R3 Measurements results



IR_R3	0Mrad	1Mrad	2Mrad	3Mrad	5Mrad	10Mrad
Min Limit	2000	2000	2000	2000	2000	2000
Max Limit	--	--	--	--	--	--
Unit	GOhm	GOhm	GOhm	GOhm	GOhm	GOhm
1-1'	25700.0	48800.0	30400.0	25700.0	18700.0	7430.0
1'-2	3230.0	35400.0	59900.0	22900.0	15500.0	10100.0
3-3'	9840.0	37200.0	33600.0	24000.0	11100.0	11600.0
4-4'	4680.0	16500.0	39400.0	32800.0	22500.0	10300.0
3'-4	18400.0	70700.0	40600.0	15700.0	27300.0	10400.0
6-6'	10600.0	12400.0	29700.0	26500.0	18100.0	9260.0
7-7'	19400.0	21500.0	24000.0	25100.0	16400.0	9590.0





Note : The connector cables used during this test were damaged after radiation resistance test. But it was not the goal of this test and does not affect the result.

9 Visual Inspection

Required by the applicable standard ?			
YES		NO	☐

9.1 INITIAL EXTERNAL VISUAL INSPECTION

METHOD: MFR DATASHEET, ESCC 20500 & ESCC 2053400
RADIATION VERIFICATION TEST performed in accordance with customer request (ESCC 22900 & Customer Requirements).

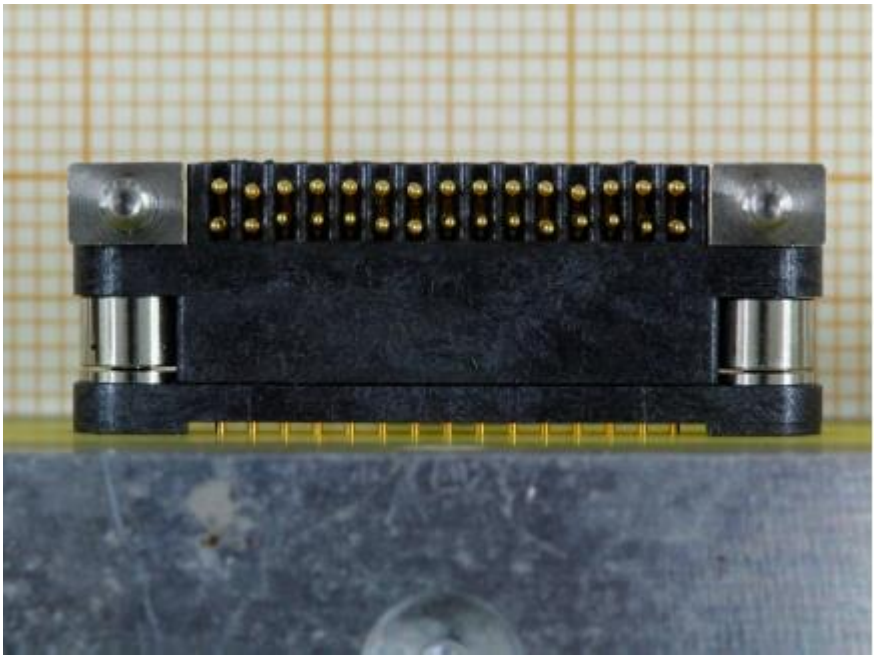


Figure 3 - Misaligned contacts (C18891-30 + C18893-30)

Two parts (C18891-30 + C18893-30 and C18901-30 + C18902-30-25) were observed showing the misaligned contacts .Therefore, this could be considered a cause for rejection iaw DRAWING with reference C18893-nn and C18901-nn. Therefore, this will be evaluated during the Radiation Verification Test.

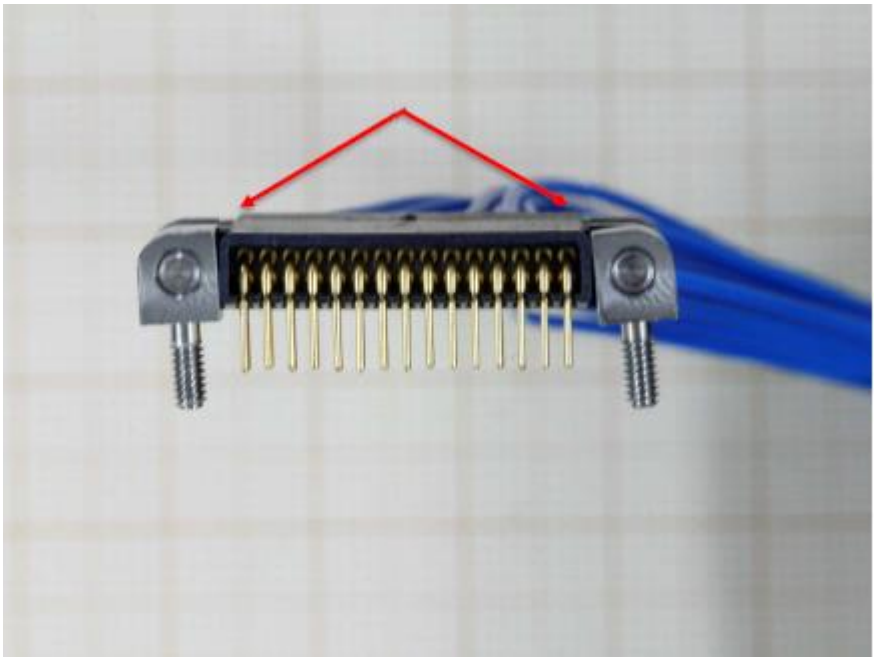


Figure 4 - Misaligned fixations (C18901-30 + C18902-30-25)

The other part (C18901-30 + C18902-30-25) also shows the misaligned anchors (see photo nº10 on the next pages). Therefore, this could be considered a cause for rejection iaw DRAWING with reference C18901-nn. Therefore, this will be evaluated during the Radiation Verification Test.

No more anomalies were observed

9.2 FINAL EXTERNAL VISUAL INSPECTION

METHOD: MFR DATASHEET, ESCC 20500 & ESCC 2053400
RADIATION VERIFICATION TEST performed in accordance with customer request (ESCC 22900 & Customer Requirements).

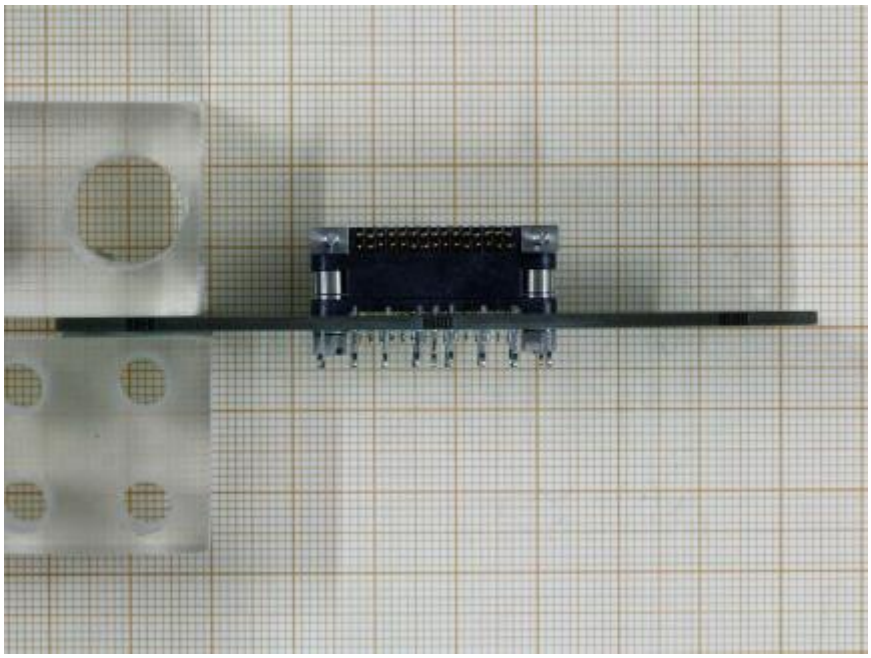


Figure 5 - C18891-30 + C18893-30

The part (C18891-30 + C18893-30) that showed foreign particles on the surface of the case was disassembled and assemble on another PCB, therefore the criteria indicated in the initial external visual inspection would not be applicable in this inspection, since the indicated case was disassembled from the connector. (see Figure 4).



Figure 6 - C18901-30 + C18902-30-25

During initial external visual inspection two parts (C18891-30 + C18893-30 and C18901-30 + C18902-30-25) were observed showing the misaligned contacts. During the Radiation Verification Test the parts were assembled in a PCB where it was observed that the misalignment of the contacts was not a problem, therefore this anomaly was considered as a cosmetic defect, see Figure 5.

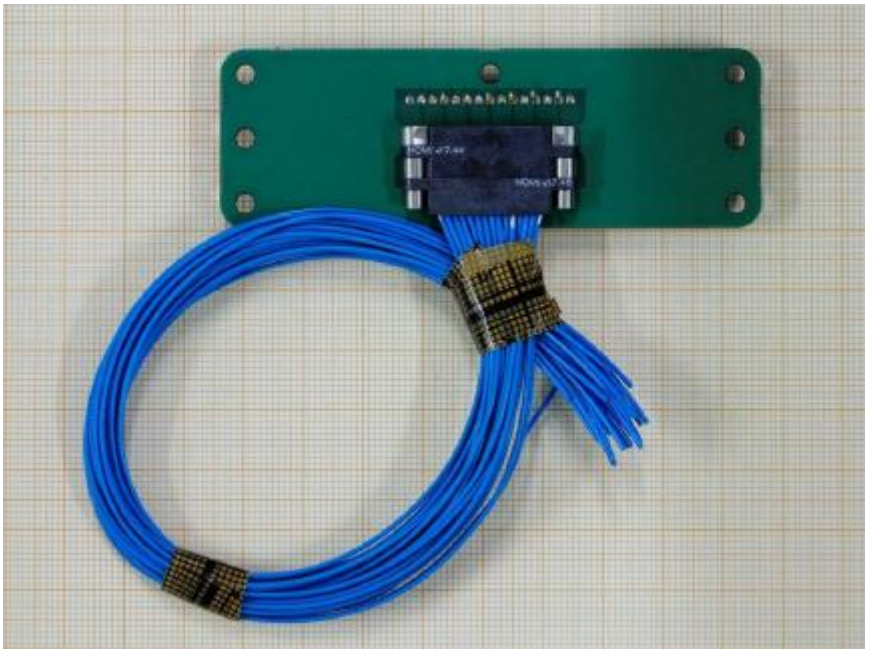


Figure 7 - C18901-30 + C18902-30-25

The other part (C18901-30 + C18902-30-25) during initial external visual inspection showed a misaligned anchor. During the Radiation Verification Test the part was assembled in a PCB where it was observed that the misalignment anchors was not a problem, therefore this anomaly was considered as a cosmetic defect. (see Figure 5 and Figure 6).

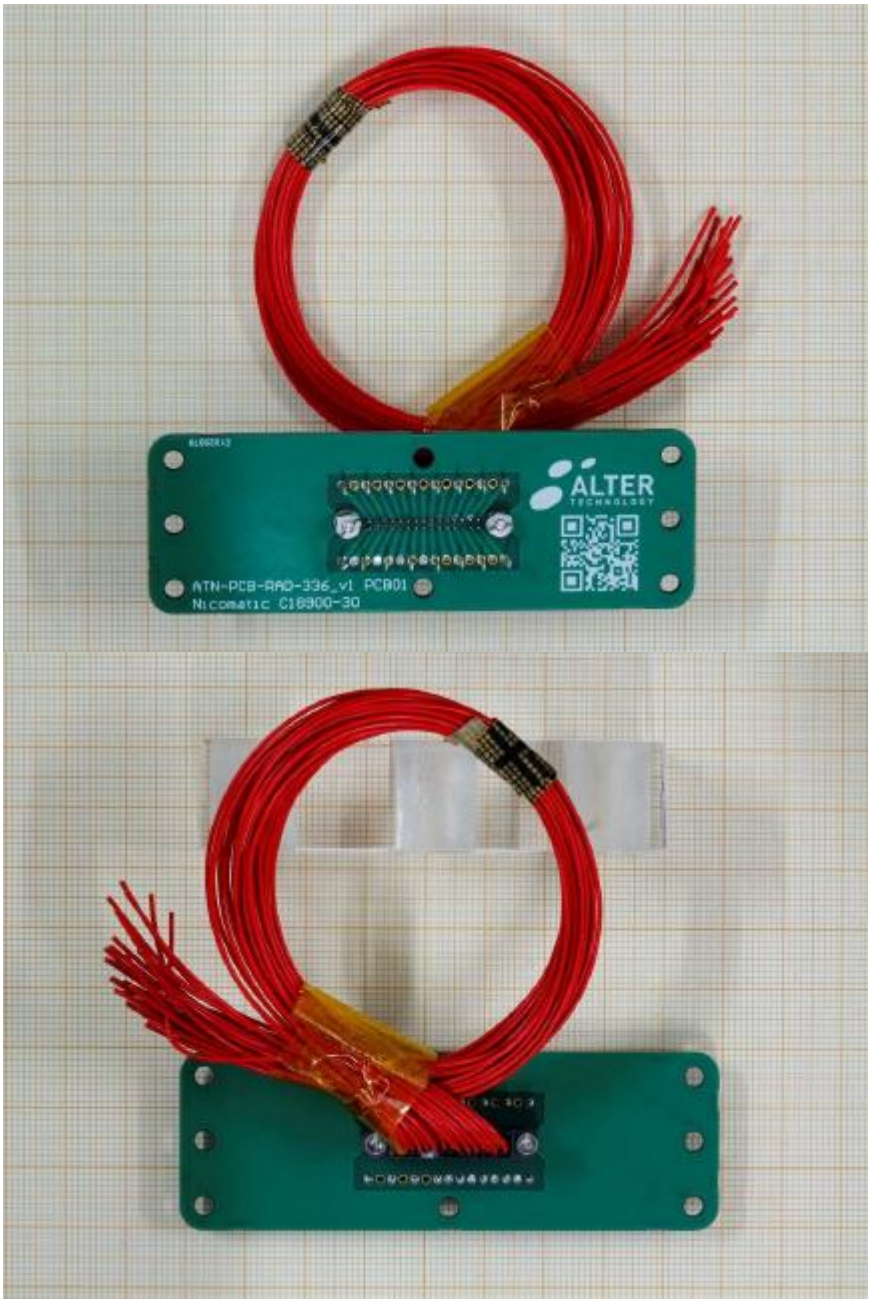


Figure 8 - C18900-30 + C18902-30-250

The connectors C18900-30 + C18902-30-250 have not suffered any type of damage during Radiation Verification Test, see Figure 7.

Note: The part C18900-30 + C18902-30-250 was disassembled and assembled on another PCB to perform the tests sequence as part of Radiation Verification Test.

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

10 APPENDIX

Internal use only ?			
YES	☐	NO	☒

10.1 TID TESTING RESULTS

10.1.1 Parameters drift

Next table show the irradiation step, using a colour legend, for which one sample (at least) is near, out of specification, or even, not measurable for each measured parameter.

The table legend of parameters drift is described as below:

✔ Normal operation

Out of limits: out-of-tolerance defined in the test plan

Catastrophic failure: sudden and total failure from which recovery is impossible.

Table 5 - Summary of Irradiation Testing Results

N.	Symbol	DOSE RATE: 1.704 Mrad					
		0 Mrad	1 Mrad	2 Mrad	3 Mrad	5 Mrad	10 Mrad
1	IR	✔	✔	✔	✔	✔	✔

10.2 DOSIMETRY REPORT

UNIDAD DE IRRADIACIÓN NÁYADE
DIVISIÓN DE MATERIALES DE INTERÉS ENERGÉTICO
DEPARTAMENTO DE TECNOLOGÍA
Ciemat Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas

DOSIMETRÍA FRICKE

Usuario:	Alter Technology Group Spain	**Fecha:**	13/06/2018
Referencia:	EXT/ALT-04.18		

Disposivo:	G-III
Fuentes radiactivas:	12G
Tasa de Dosis solicitada:	1738,150 Krad/h

DOSIMETRÍA

Número de dosímetros:	8
Posición:	Vial normal Fricke
Coeficiente extinción molar:	2181

DATOS DOSIMÉTRICOS

Dosímetro	Tiempo (min)	D. Óptica (A)	Tª Espect. (ºC)	Coeficiente Conversión	Dosis (Gy)	T.de dosis (Krad/h)
1	1,0	1,061	23,1	279,24	296,27	1777,630
2	1,0	1,050	23,1	279,24	293,20	1759,200
3	1,0	0,986	23,0	279,43	275,52	1653,135
4	1,0	1,008	22,8	279,83	282,07	1692,401
5	1,0	1,003	22,7	280,03	280,87	1685,194
6	1,0	0,987	22,8	279,83	276,19	1657,143
7	1,0	1,013	22,8	279,83	283,47	1700,796
8	1,0	1,019	22,8	279,83	285,15	1710,870
9						
10						
11						
12						
	T.de dosis media (Krad/h)			**1704,546**	(KGy/h)	**17,045**
	Falta de uniformidad de dosis			7,53%		

IRRADIACIÓN

		Tiempo de irradiación			
Muestra	Dosis (Krad)	Días	Horas	Minutos	Segundos
I	1000,00	0	0	35	11
II	2000,00	0	1	10	24
III	3000,00	0	1	45	36
IV	5000,00	0	2	55	60
V	10000,00	0	5	51	59

10.3 SUPPLIER COMPETENCES AND WARRANTIES

DEFENSE LOGISTICS AGENCY
LAND AND MARITIME
POST OFFICE BOX 3990
COLUMBUS, OH 43218-3990

April 25, 2018

Mr. Jose Andres Izquierdo
Alter Technology TUV Nord S.A.U.
C/ Tomas A. Edison 4
41092 Sevilla, Spain

Dear Mr. Izquierdo:

Re: Retention of Laboratory Suitability, January 1, 2017 through December 31, 2017, MIL-STD-750F and Mil-STD-883; FSC 5961 and FSC 5962, VQE-18-032559, Control Number: 061195

We have reviewed your January 1, 2017 through December 31, 2017 commercial laboratory suitability annual retention report for MIL-STD-750 & MIL-STD-883. The reports indicate conformance with the requirements of DLA Land and Maritime's Laboratory Suitability Information booklet. Therefore, the listing of your MIL-STD-750 & MIL-STD-883 capabilities as stated in your latest laboratory suitability letter, VQE-18-031782, will be continued on the List of Commercial Laboratories Suitable for Testing Military Devices.

This suitability prohibits your company from removing or altering the device marking. Any device that fails testing conditions shall be identified (isolated) as a reject and returned to the device manufacturer for verification of failure mode.

Electrostatic discharge sensitivity (ESDS) requirements as stated in MIL-PRF-19500 and MIL-STD-883 are enforced by this Center. Therefore, all semiconductor and microcircuit devices will be handled as marked, unless otherwise notified by device manufacturer.

Your next retention report of commercial laboratory suitability should cover calendar year 2018 and must be submitted no later than March 1, 2019. It should be formatted to contain the items of Section IV of the DLA Land and Maritime booklet mentioned above. If we do not receive the report by this date, your capabilities may be removed from the List of Commercial Laboratories Suitable for Testing Military Devices.

If you have any questions, please contact Mr. Carl DelloStritto at 614-692-0616.

Sincerely,

RAYMOND L. KOLONCHUK
Chief
Electronic Devices Branch

ENAC
Entidad Nacional de Acreditación

Acreditación/*Accreditation* nº 345/LE2116
Anexo Técnico Rev. /*Technical Annex Ed.* 4
Fecha/*Date* 07/11/2016
Hoja/*Page* 1 de 1

ANEXO TÉCNICO
ACREDITACIÓN Nº 345/LE2116
SCHEDULE OF ACCREDITATION

Entidad/*Entity:* ALTER TECHNOLOGY TÜV NORD, S.A. (Unipersonal)

Dirección/*Address*: C/ Tomás Alba Edison, 4 Parque Científico y Tecnológico Cartuja; 41092 Sevilla

Norma de referencia/*Reference Standard*: UNE-EN ISO/IEC 17025: 2005

Ensayos en la siguiente área/*Test in the following area:*

Ensayos Eléctricos, Funcionales y Seguridad / *Electrical, Functional And Safety Tests*

Categoría 0 (Ensayos en el laboratorio permanente)
Category 0 (Test performed at permanent laboratory)

PRODUCTO/MATERIAL A ENSAYAR *PRODUCTS/MATERIALS TESTED*	ENSAYO *TYPE OF TEST*	NORMA/PROCEDIMIENTO DE ENSAYO *STANDARD SPECIFICATIONS/ TEST PROCEDURE*
Componentes eléctricos, electrónicos, electromecánicos y opto electrónicos para aplicaciones aeroespaciales y de defensa ***Electrical, electronic, electromechanical and opto electronics components for aerospace and defence application***		
Dispositivos semiconductores, incluyendo dispositivos discretos y circuitos integrados *Semiconductor devices, including discrete devices and integrated circuits*	Radiación ionizante dosis total *Total dose steady-state irradiation (TID)*	ESCC 22900, iss. 4: 2010
Dispositivos microelectrónicos *Microelectronic devices*	Radiación ionizante dosis total *Ionizing radiation total dose (TID)*	MIL-STD-883H 26 February 2010 MIL-STD-883J 7 June 2013 Método 1019.8
Dispositivos semiconductores *Semiconductor devices*	Radiación ionizante dosis total *Steady - state total dose irradiation (TID)*	MIL–STD–750E 20 November 2006 MIL–STD–750F 3 January 2012 Método 1019.5
Dispositivos eléctricos, electrónicos y electromecánicos *Electrical, electronical and electromechanical devices*	Dosimetría para ensayos de dosis absorbida *Dosimetry for absorbed dose testing*	Procedimiento interno / *In-house procedure* ATN-Q-IO-21-73

ENTIDAD NACIONAL DE ACREDITACIÓN ENAC

The present technical annex is subject to possible modifications. The validity status of the accreditation can be confirmed in www.enac.es

Código Validación Electrónica: 4d164922M5NCz5n4X9
El presente anexo técnico está sujeto a posibles modificaciones. La vigencia de la acreditación y del presente anexo técnico puede confirmarse en http://www.enac.es/web/enac/validacion-electronica o haciendo clic **aquí**

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