APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: CONNECTORS, ELECTRICAL, RECTANGULAR, NON REMOVABLE SOLDER BUCKET, PCB AND WIRE-WRAP CONTACTS AND REMOVABLE COAXIAL AND POWER CONTACTS, BASED ON TYPE D*M

Executive Member: CNES Date: 11/01/2022

Appl. No. 71T

1

Components (including series and families) submitted for Extension of Qualification Approval:

ESCC COMPONENT NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
3401/001 3401/004	01 & 02 01 to 25	Shell size : E, A, B, C, D, F Standard density layout : 9, 15, 25, 37, 50 size 20 contacts	D*M	See Annex 1 page 4	D*MA
3401/022 3401/040	01 to 95 01 to 17	High density layout : 15, 26, 44, 62, 78, 104 size 22 contacts			
3401/080	01	Combined contact arrangements : 3W3 to 8W8, 5W1 to 47W1			
3401/072	05 to 14, 25 to 39, 46 to 55, 61 to 65, 72, 73, 76 to 80, 81 to 153	Mounting Type: standard mounting holes; floating mount; captive nuts Termination contacts : solder bucket, straigth PCB, 90° PCB, wire wrap Gold-plated non-magnetic coating Coaxial contact arrangements: 3401/004 variants 01 to 25 Power contact arrangements: 3401/040 variants 01 to 17 Operating Temperature Range (°C): -55 to +125			

2 Component Manufacturer

C&K Components

3 Location of Manufacturing Plant(s)

2, rue Berthollet
39100 DOLE - France

4

Date of original qualification approval:
Date: 12/02/1981

Certificate Ref No. 71

5

ESCC Specifications used for Maintenance of qualification testing:

Generic: 3401 Issue: 5

Detail(s): 3401/040 Issue: 6

6

Deviations to LVT testing and Detail Specification used:

No ☒ Yes ☐ (supply details in Box 15)

Deviation from current Specifications:

No ☒ Yes ☐ (Supply details)

7

Qualification Extension Report reference and date:

Report n° D210160C contacts
Report n° D210162C Connectors

8

Summary of procurement or equivalent test results during current validity period in support of this application (those to ESCC listed first)

Project Name	Testing Level	LAT	Date code	Quantity Delivered
See appendix				

9

PID changes since start of qualification

None ☐
Minor* ☒
Major* ☐

*Provide details in box:

10

Current **PID** Verified by: Nouals François, CNES

Name of Excutive Representative

Ref No: CS-FR030
Issue: 2 rev Q Date: 11/01/2022
Rev Date: 01/05/2021

11

Current Manufacturing facilities surveyed by: Nouals François, CNES on 15/09/2021

(Name of Executive Representative) (Date)

Satisfactory: Yes ☒ No ☐ Explain CRIM appended

Report Reference: CRIM du 15/09/21

12

Failure Analysis, DPA, NCCS available: Yes ☐ No ☒ (Supply data)

Ref. No's and purposes:

13

The undersigned hereby certifies on behalf of the ESCC Executive - that the above information is correct; - that the appropriate documentation has been evaluated; - that full compliance to all ESCC requirements is evidence (except as stated in box 15;) - that the reports and data are available at the ESCC Executive and therefore applies on behalf of CNES as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

Date: 17/01/2022

JP BUSSENOT

(Signature of the Executive Coordinator)

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Continuation of Boxes above:

Box 1 : Addition of backshell (variants 81 to 153 of ESCC 3401/072)

15

Non compliance to ESCC requirements:

No.:	Specification	Paragraph	Non compliance

16

Additional tasks required to achieve full compliance for ESCC qualification or rationale for acceptability of noncompliance:

17

Executive Manager Disposition

Application Approval: Yes ☒ No ☐

Action / Remarks:

Date:

Britta Schade

Digitally signed by Britta Schade
Date: 2022.01.28 11:18:11 +01'00'

B. Schade: Head of the Product Assurance and Safety Department

ANNEX 1: LIST OF TESTS DONE TO SUPPORT EXTENSION OF QUALIFICATION

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Tests conducted in compliance with:

- ESCC 3401 generic specification; Chart V (for ESCC/QPL parts);
- Or PID-TFD [redacted] (for ESCC/QML parts)

Tests vehicle identification/description:

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Level 1 Environnemental and Mechnical subgroup

Traceability	N°	Connector Description	C&K Part Number	Date Code	Contact Description / C&K Part Number	Date Code	Wiring	Wire Type	Crimp Tool	Locator	Selector Position	Accessories / Backshells
Appendix 3	1.1	DAM15PNMBOL3 340100101B	C115371-5154	2105A	15 cts D*M Pin #20 OL3 SD Straight PCB	/	Not Applicable	/	/	/	/	/
Appendix 4		DAMA15SNMB-FO 340100201B	C115370-5013	2105B	15 cts D*MA Skt #20/20 340100502B C031-8996-101H	2105	Applicable	AWG20	M22520/2-01	M22520/2-08	7	/
Appendix 5	1.2	DEMA15PNMB-FO 340100202B	C115368-5031	2111A	15 cts D*MA Pin #22/22 340100507B C330-8998-101H	2105A	Applicable	AWG22	M22520/2-01	M22520/2-09	4	Backshell 340102281B C115366-2274C DC2105A
Appendix 6		DEBMA15PSNMB-FO 340102002B	C115368-6015	2105A	15 cts D*MA Savers #22/22 340102102B C031-8992-101H	2107A	Not Applicable	/	/	/	/	/
Appendix 7		DEM15SNMBOL3 340100102B	C115371-6601	2105A	15 cts D*M Skt #22 OL3 HD Straight PCB	/	Not Applicable	/	/	/	/	Lightweight Backshell 340107205B NMBA-A174 C115366-2586D DC2105A
Appendix 8	1.3	DAM26PNMB 340100102B	C115371-6852	2105A	26 cts D*M Pin #22/22 Soder Bucket	/	Applicable	AWG22	Solder Iron			/
Appendix 9		DAMA26SNMB-FO 340100202B	C115368-5033	2105B	26 cts D*MA Skt #22/22 340100508B C031-8998-101H	2105A	Applicable	AWG22	M22520/2-01	M22520/2-06	4	/

Level 2 Endurance Subgroup

Traceability	N°	Connector Description	C&K Part Number	Date Code	Contact Description / C&K Part Number	Date Code	Wiring	Wire Type	Crimp Tool	Locator	Selector Position	Accessories / Backshells
Appendix 10	2.1	DBMA25PNMB-FO 340100201B	C115370-5014	2105A	25 cts D*MA Pin #20/26 340100503B C330-8997-101H	2107A	Applicable	AWG26	M22520/2-01	M22520/2-08	7	/
Appendix 11		DBM25SNMB 340100101B	C115371-5015	2108A	25 cts D*M Skt #20/20 Soder Bucket	/	Applicable	AWG26	Solder Iron			/
Appendix 12	2.2	DBM5W5PNMB 340100101B	C115371-5016	2105B	2 cts Coax Pin Crimp Braid 340100415B C053740-0013C	2105A	Applicable	50CIS ESCC 3902/001	HX4 M22520/5-01	/	Closure B	/
					3 cts Power Pin Crimp Braid 340104011B C115224-3010C	2108A	Applicable	AWG 12	M300BT	UH2-5	1	
Appendix 13		DBM5W5SNMB 340100101B	C115371-5017	2108A	2 cts Coax Skt Crimp Braid 340100416B C053742-0014C	2105A	Applicable	50CIS ESCC 3902/001	HX4 M22520/5-01	/	Closure B	/
					3 cts Power Skt Solder Braid 340104004B C115224-2020C	2107A	Applicable	AWG 12	Solder Iron			

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Level	N°	Contact Type	Contact Reference	C&K Part Number	Date Code	Batch N°	Tracability
2	1 to 10	Skt D*MA Standard # 20/20 Crimp Type	340100502B	C031-8996-101H	2105A	20-2294	Appendix 2
	1 to 10	Savers Pin/Skt D*BMA #22	340102102B	C031-8992-101H	2107A	20-2043	Appendix 3
	1 to 10	Skt D*MA Standard # 22/22 Crimp Type	340100508B	C031-8998-101H	2105A	20-1321	Appendix 4
	1 to 10	Skt D*MHD-OL3-NM-AS-T12	/	C031-8999-101	/	20-1953	Appendix 5
	1 to 10	Skt D*M-SOLDER-NM-AS-T12	/	C031-8919-101	/	20-2227	Appendix 6
	N°	Contact Type	Contact Reference	C&K Part Number	Date Code	MO	Tracability
	1 to 10	Pin D*M Coaxial Crimp Braid Type	340100415B	C053740-0013C	2105A	M219660	Appendix 7
	1 to 10	Skt D*M Coaxial Crimp Braid Type	340100416B	C053742-0014C	2105A	M219670	Appendix 8
	1 to 10	Skt D*M Power Solder Braid Type	340104004B	C115224-2020C	2107A	M224650	Appendix 9

See page 5/6 of the report D210162C

ABSTRACT OF RESULTS OF TESTS

PLANT NAME AND ADDRESS : *C & K components SAS.* *B.P. 359* *39105 DOLE CEDEX* *FRANCE*	**Generic specification number :** - Generic specification ESCC 3401 - Issue 5 - March 2018 **Detail specification number :** - Detail specification ESCC 3401/001 - Issue 11 - November 2017 - Detail specification ESCC 3401/002 - Issue 12 - April 2020 - Detail specification ESCC 3401/004 - Issue 4 - April 2014 - Detail specification ESCC 3401/005 - Issue 8 - October 2015 - Detail specification ESCC 3401/020 - Issue 9 - December 2020 - Detail specification ESCC 3401/021 - Issue 5 - October 2015 - Detail specification ESCC 3401/022 - Issue 13 - June 2019 - Detail specification ESCC 3401/040 - Issue 6 - April 2014 - Detail specification ESCC 3401/072 - Issue 10 - June 2020 - Applicable documents : ECSS-Q-ST-70-26C - Rev1 - 15 March 2017 - Applicable documents : ECSS-Q-ST-70-08C - 6 March 2009	**Test report number :** D210162C **Test report date :** March 10th 2021 **Product :** Connectors : D*M / D*MA / D*BMA

Test or Group	ESCC 3401	Number Tested	Number Passed	Number Failed	Remarks
LEVEL 1					
Wiring	§ 9.10				Appendix 1 pages 1 to 4
- voltage drop					Not Applicable Electrical measurements sheet IV only
- connection resistance					
- low level contact resistance					
Climatic sequence : dry heat	§ 9.13.2				Appendix 1 page 5
- insulation resistance	§ 9.1.1.1				Appendix 1 page 6
Climatic sequence : damp heat	§ 9.13.3				Appendix 1 page7
Climatic sequence : cold test	§ 9.13.4				Appendix 1 page 8
Climatic sequence : low air pressure	§ 9.13.5				Appendix 1 page 9
- voltage proof	§ 9.1.1.2	9	9	0	Appendix 1 pages 10
Climatic sequence : damp heat	§ 9.13.6				Appendix 1 page 11
- insulation resistance	§ 9.1.1.1				Appendix 1 page 12
- voltage proof	§ 9.1.1.2				Appendix 1 page 13
- visual examination	§ 9.13.7				Appendix 1 page 14
Permanence of marking	§ 9.19				Appendix 1 page 15
Corrosion	§ 9,22				Appendix 1 pages 16 & 17
- visual examination	§ 9,22				Appendix 1 page 18
Seal test	§ 9.9				Appendix 1 page 19
Plating thickness	§ 9,14				Appendix 1 page 20
LEVEL 2					
Wiring	§ 9.10				Appendix 2 pages 1 to 3
- voltage drop					Not Applicable Electrical measurements sheet IV only
- connection resistance					
- low level contact resistance					
Rapid change of temperature	§ 9.16				Appendix 2 page 4
- insulation resistance	§ 9.1.1.1				Appendix 2 page 5
- voltage proof	§ 9.1.1.2				Appendix 2 page 6
- visual examination	§ 9.16				Appendix 2 page 7
Contact retention	§ 9.17				Appendix 2 page 8
⇒non-removable contacts	§ 9,17				
Maintenance aging	§ 9,27				Appendix 2 pages 9 & 10
⇒removable contacts	§ 9,27				
- visual examination	§ 9,27				Appendix 2 page 11
- contact retention	§ 9,17				Appendix 2 pages 12 to 14
- contact insertion and withdrawal forces	§ 9,27	4	4	0	Appendix 2 pages 15 & 16
Endurance	§ 9.18				Appendix 2 page 17
Initial measurements :					
- low level contact resistance	§ 9.1.1.3				Appendix 2 pages 20 to 22
- mated shell conductivity	§ 9.1.1.4				Appendix 2 page 25
- mating / unmating forces	§ 9.20				Appendix 2 page 18
Final measurements :					
- visual examination	§ 9.18				Appendix 2 page 19
- mating / unmating forces	§ 9.20				Appendix 2 page 18
- low level contact resistance drift	§ 9.1.1.3				Appendix 2 pages 20 to 22
- mated shell conductivity	§ 9.1.1.4				Appendix 2 page 25
- insulation resistance	§ 9.1.1.1				Appendix 2 page 23
- voltage proof	§ 9.1.1.2				Appendix 2 page 24
Seal test	§ 9.9				Appendix 2 page 26
Joint strength	§ 9.15,1				Appendix 2 pages 27 to 29

NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION EXTENSION APPROVAL

ENTRIES

Form heading	shall indicate: - the title of the component as given in its detail specification or the name of the series, family; - the Executive Member; - the entering date; - the certificate number and its sequential suffix.
Box 1	shall provide details given in the table; in particular there shall be listed: - the variants or range of variants; - the range of components (the ESCC code is recommended to indicate the values or values range, the tolerance, the voltage, etc); the designation given in the detail specification as 'base on'; - under Test Vehicle enter either an ESCC code or the specific characteristic capable of identifying the component tested (e.g., voltage of coil for a relay); - under component similar enter a cross if relevant.
Box 2; 3 and 4	As per QPL entry; otherwise, an explanation of the changes must be supplied.
Box 5	Will show the ESCC Generic and Detail specifications, including issue number and revision letter, current at the time the tests reported were performed. If the specifications are different from those current on the date of the application, see Box 6.
Box 6	Will show the deviations from the Generic and Detail Specifications listed in Box 5, in particular deviations from testing. In case of deviations this must be listed in Box 15. In case the referenced specification in Box 5 have currently a different issue and/or revision indicate also whether the test data deviates or not from such current documents.
Box 7	Must reference the report(s) supplied in support of the application.
Box 8	Should provide the details of procurement to the full ESCC System, documentation of all of which should already have been delivered to the ESCC Executive under the terms of the relevant Generic Specification. An appropriate table has been drawn in this box.
Box 9	If the PID evolved after the Original Qualification or after the last Extension of Qualification, adequate details of such evolution shall be provided together with the reasons for the changes. Major changes shall be clearly marked.
Box 10	Identify the current PID issue status, date and actual date of verification. The date of verification of the current PID should be arranged as close as possible to the required date of extension.
Box 11	This box can be completed only after a physical visit to the plant to confirm that no unexplained changes occurred and that the practices, procedures, material, etc. used in manufacturing the components are as described in the PID. This survey shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and its findings shall be recorded.
Box 12	Provide details of, or reference to, any Destructive Physical Analysis (DPA) and Failure Analysis reports as well as any Nonconformance(s) (NCCS) occurred during the qualification validity period, stating if established corrective action have produced satisfactory results.
Box 13	Enter only the name of the Executive Member (i.e., CNES, DLR, ESTEC, etc.) and the signature of the responsible Executive Coordinator.
Box 14	To be used when there is a need to expand any of the boxes from 1 through 12. Identify box affected and reference the Box 14 in the relevant Box. Box 14 can be broken into 14a, 14b, etc. if several boxes have to be expanded.
Box 15	Fill in Table as requested.
Box 16	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 17	All Executive Manager recommendations on the application itself, special conditions or restrictions, modifications of the QPL or QML entry, letters to the manufacturer, etc. shall be entered clearly in Box 19, signed by the representative for ESA, and dated.
Box 18	Fill in Table as requested.
Box 19	Confidential Details of PID changes including those of a confidential nature, shall be provided.
Box 20	State noncompliance with reference to specification(s) and paragraph(s). To simplify reference in Box 16 each nonconformance shall be sequentially numbered. If relevant state 'None'.
Box 21	Any additional action deemed necessary by the Executive Member to bring the submitted data to a standard likely to be accepted by the ESCC Executive should be listed herein or the reason(s) to accept the noncompliance.
Box 22	Additional Comments.