APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: Capacitors, Ceramic, Chip, Type II, sizes 0402 to 2220

Executive Member: CNES Date: 19/01/2023

Appl. No. 324D

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
3009/008 - - - 3009/039 - - - 3009/009 3009/039 -	06 & 07 - - - 02 & 14 - - - 06 & 07 04 & 16 -	16V to 100V (See box 14)	CNC2 02S - - - CNC2 04S - - - CNC4 02S CNC4 04S -	300900807-103KE 300900807-104KC 300900807-473KE 300900807-473K 300903902-104KA 300903914-334KX 300903914-394KX 30009039141-04KC 3009009073-34KC 300903904-224KC 3009039044-74KX	See box 14 for qualified ranges (Corrected).
3009/010 3009/039 3009/011 3009/039	06 & 07 05 & 17 06 & 07 06 & 18	16V to 100V (See box 14)	CNC6 02S CNC6 04S CNC7 02S CNC7 04S	3009010564KC - - -	
3009/023 3009/039 - 3009/038 - 3009/039	06 & 07 03 & 15 - 06 & 07 - 01 & 13	16V to 100V (See box 14)	CNC12 02S CNC12 04S - CNC14 02S - CNC14 04S	- 300903915105KX 300903915104KE 300903806-152KE 300903806-223KX 300903901-103KC 300903913-104KX (2)	
3009/039 3009/043	25 & 26 06	10V to 50V (See box 14)	CNC19 04S CNC19 02S	- -	

2 Component Manufacturer

EXXELIA Technologies

3 Location of Manufacturing Plant(s)

EXXELIA
1, rue des Temps Modernes
77600 CHANTELOUP EN BRIE
FRANCE

4

Date of original qualification approval:
Date: 24/10/2012

Certificate Ref No. 324

5 ESCC Specifications used for Maintenance of qualification testing:

Generic: 3009 Issue: 4

Detail(s): 3009/008-038-039-009-010-011-023-043 Issue: 7-5-4-7-6-6-7-4

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:

20-1127 iB/20-1110 iB/21-1007 iB/ 20-0386 iB/20-0967 iB/ 21-0126 iB/21-0071 iB/20-1350 iB/20-0855 iB/20-0963 iB/20-1042 iB/22-0086 iB 21-0023i.B/20-1063 i.C/20-1081 i.C/21-0019 i.A/22-0227 i.B/21-0373 i.A/20-1345 i.C

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
Airbus Defence and Space Alter technology TUV TERMA A/S TESAT-SPACECOM GMBH & CO.KG THALES ALENIA SPACE ...	-	-	Lots delivered in 2020/2021/2022	197 138 pièces (59.6% 0603, 24.3% 0805, 10.8% 1206, 1.7% 2220, 1.4% 0402, 1.1% 1812)

9 **PID** changes since start of qualification

None ☐
Minor* ☒
Major* ☐

*Provide details in box: 19

10 Current **PID** Verified by: JP Bussenot, CNES

Name of Excutive Representative Agency

Ref No: PID 624.03.390
Issue: Rev K Date: 23/03/2021
Rev Date: 23/03/2021

11

Current Manufacturing facilities surveyed by: L. Fontaine, CNES on 14/09/2022

(Name of Executive Representative Agency) (Date)

Satisfactory: Yes ☒ No ☐ Explain

Report Reference: 2022-0014770

12

Failure Analysis, DPA, NCCS available: Yes ☒ No ☐ (Supply data) 1CETE901, 2CETE001

Ref. No's and purposes: NCCS 1CETE901 on field failures on CNC2 47nF 50V, superseeded with NCCS 2CETE001 Open in March 2020, Production failed delivering 50V and 100V X7R products – Investigations were completed and corrective actions put in place. Testing results are satisfactory.

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: 12/02/203

G.QUADRI

(Signature of the Executive Coordinator)

14

Continuation of Boxes above:

Box 1, Range of Components :

Style	Detail Spec.	Model	Variants	Capacitance Range (pF)	Rated Volt. (V)	Tolerance (±%)
0805	**3009/008**	**CNC2 02S**	**06**	1 000 **to 150 000**	**16**	**5, 10, 20**
				1 000 **to 100 000**	**25**	
				1 000 to 47 000	**50**	
				1 000 to 10 000	**100**	
			07	1 000 **to 390 000**	**16**	
				1 000 **to 150 000**	**25**	
				1 000 to 100 000	**50**	
				1 000 to 47 000	**100**	
	3009/039	**CNC2 04S**	**02**	1 000 **to 150 000**	**16**	
				1 000 **to 100 000**	**25**	
				1 000 to 47 000	**50**	
				1 000 to 10 000	**100**	
			14	1 000 **to 390 000**	**16**	
				1 000 **to 150 000**	**25**	
				1 000 to 100 000	**50**	
				1 000 to 47 000	**100**	
1210	**3009/009**	**CNC4 02S**	**06**	2 200 **to 560 000**	**16**	
				2 200 **to** 390 000	**25**	
				2 200 to 220 000	**50**	
				2 200 to 56 000	**100**	
			07	2 200 **to 820 000**	**16**	
				2 200 **to 560 000**	**25**	
				2 200 to 390 000	**50**	
				2 200 to 220 000	**100**	
	3009/039	**CNC4 04S**	**04**	2 200 **to 560 000**	**16**	
				2 200 **to** 390 000	**25**	
				2 200 to 220 000	**50**	
				2 200 to 56 000	**100**	
			16	2 200 **to 820 000**	**16**	
				2 200 **to 560 000**	**25**	
				2 200 to 390 000	**50**	
				2 200 to 220 000	**100**	
1812	**3009/010**	**CNC6 02S**	**06**	3 900 **to 1 200 000**	**16**	
				3 900 **to 680 000**	**25**	
				3 900 to 470 000	**50**	
				3 900 to 120 000	**100**	
			07	3 900 **to 1 800 000**	**16**	
				3 900 **to 1 200 000**	**25**	
				3 900 to 820 000	**50**	
				3 900 to 470 000	**100**	
	3009/039	**CNC6 04S**	**05**	3 900 **to 1 200 000**	**16**	
				3 900 **to 680 000**	**25**	
				3 900 to 470 000	**50**	
				3 900 to 120 000	**100**	
			17	3 900 **to 1 800 000**	**16**	
				3 900 **to 1 200 000**	**25**	
				3 900 to 820 000	**50**	
				3 900 to 470 000	**100**	
2220	**3009/011**	**CNC7 02S**	**06**	22 000 **to 2 700 000**	**16**	
				22 000 **to 1 500 000**	**25**	
				22 000 to 1 000 000	**50**	
				22 000 to 270 000	**100**	
			07	22 000 **to 3 900 000**	**16**	
				22 000 **to 2 200 000**	**25**	
				22 000 to 1 800 000	**50**	
				22 000 to 1 000 000	**100**	
	3009/039	**CNC7 04S**	**06**	22 000 **to 2 700 000**	**16**	
				22 000 **to 1 500 000**	**25**	
				22 000 to 1 000 000	**50**	
				22 000 to 270 000	**100**	

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:

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

			18	22 000 to 3 900 000 22 000 to 2 200 000 22 000 to 1 800 000 22 000 to 1 000 000	16 25 50 100	
1206	3009/023	CNC12 02S	06	1 800 to 270 000 1 800 to 180 000 1 800 to 82 000 1 800 to 27 000	16 25 50 100	5, 10, 20
			07	1 800 to 1 000 000 1 800 to 270 000 1 800 to 100 000 1 800 to 120 000	16 25 50 100	
	3009/039	CNC12 04S	03	1 800 to 270 000 1 800 to 180 000 1 800 to 82 000 1 800 to 27 000	16 25 50 100	
			15	1 800 to 1 000 000 1 800 to 270 000 1 800 to 100 000 1 800 to 120 000	16 25 50 100	
0603	3009/038	CNC14 02S	06	270 to 33 000 270 to 22 000 270 to 10 000 270 to 2 700	16 25 50 100	
			07	270 to 100 000 270 to 33 000 270 to 22 000 270 to 12 000	16 25 50 100	
	3009/039	CNC14 04S	01	270 to 33 000 270 to 22 000 270 to 10 000 270 to 2 700	16 25 50 100	
			13	270 to 100 000 270 to 33 000 270 to 22 000 270 to 12 000	16 25 50 100	
0402	3009/043	CNC19 02S	06	68 to 12 000 68 to 8 200 68 to 5 600 68 to 3 300	10 16 25 50	5, 10, 20
	3009/039	CNC19 04S	25	68 to 12 000 68 to 8 200 68 to 5 600 68 to 3 300	10 16 25 50	

Updating : Harmonization of lowest values as per PID and correction of a mistake (1210 25V 2C1 range up to 390nF instead of 330nF).
Updating : Back to qualified range of 50V to 100V X7R products (2CETE001 closed).

Test Vehicles:

Lots manufactured prior to delivery difficulties observed on CNC12 16V 1µF et CNC14 16V 100nF (*),

designation	lot	F3	Chart F4			
			1	2A	2B	3
CNC14 02 S 22nF +/-10% 16V *(1)	V20030044	-	20		6	6
CNC2 04 S 390nF +/-10% 16V *	V20030075	-	20			
CNC4 04 S 470nF +/-10% 16V *(1)	MG313201000820	-	20		6	6
CNC14 04 S 100nF +/-10% 16V *	MG313200600042	-		20		

(1) : Design 25V – Burn-in should have been performed at 50V (32V mentioned on lot V2003044, See NCCS 1CETE203)
(2) : Variant 01, AgPd, non qualified but valid for reliability testing

Lots manufactured with adapted process within the limits of the manufacturing procedures (**),

designation	lot	F3	Chart F4			
			1	2A	2B	3
CNC2 04 S 330nF +/-10% 16V **	MG313210200433	20	20			
CNC12 04 S 1µF+/-10% 16V **	MG313210100705	10		10		
CNC14 04 S 100nF +/-10% 16V **	MG313220100146	20		20		

Additional lots from stocks (***)

designation	lot	F3	Chart F4			
			1	2A	2B	3
CNC2 02 S 10nF+/-10% 100V ***	MG313201200092	-	20		6	6
CNC14 02 S 1500 pF 100V ***	MG313200500034	-	20	20	6	6
CNC2 04 S 100nF +/-10% 25V ***	MG313191000010	-	20	20	6	6
CNC14 04 S 10nF +/-10% 50V ***	V20060010	-		20	6	6
CNC4 04 S 220nF +/-10% 50V ***	V20060020	-	20	20	6	6

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

18

Tests conducted in compliance with:

- ESCC 3009 generic specification; Chart V (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

300903902-104KA DC 2049 (CNC2.04S 100nF 10% 25V) 300903914-394KX DC 2022 (CNC2.04S 390nF 10% 16V) 300900807-103KE DC 2045 (CNC2.02S 10nF 10% 100V) 3009039143-334KX DC 2208 (CNC2.04S 330nF 10% 16V) 300903904-224KC DC 2029 (CNC4.04S 220nF 10% 50V) 3009039044-74KX DC 2105(CNC4.04S 470nF 10% 16V) 300903915-105KX DC 2109 (CNC12.04S 1µF 10% 16V) 300903913-104KX DC 2210 (CNC14.04S 100nF 10% 16V) 300903806-152KE DC 2102 (CNC14.02S 1.5nF 10% 100V) 300903806-223KX DC 2026 (CNC14.02S 22nF 10% 16V) 300903901-103KC DC 2029 (CNC14.04S 10nF 10% 50V) 300903913-104KX DC 2039 (CNC14.04S 100nF 10% 16V)	Back to qualification K4600 : 300900807-104KC DC 2105 (CNC2-02S) 300900807-473KE DC 2040 (CNC2-02S) 300900807-473K DC2049 (CNC2-02S) 30009039141-04KC DC2107 (CNC2-04S) 3009009073-34KC DC 2214 (CNC4-02S) 3009010564KC DC2111 (CNC6-02S) 300903915104KE DC 2101 (CNC12 04S)

Detail Specification reference: 3009/008/038/039/009/010/011/023/043

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental / Mechanical Subgroup	Mounting	☒	IEC 60384-1, 4.33	**2049** **2022** **2045** **2208** **2029** **2105** **2102** **2026** 2105 2040 2049 2107 2214 2111 2101	**20** **20** **20** **20** **20** **20** **20** **20** 20 20 20 20 20 20 20	**0**	
	Rapid Change of Temperature	☒	IEC 60068-2-14	**2049** **2022** **2045** **2208** **2029** **2105** **2102** **2026** 2105 2040 2049 2107 2214 2111 2101	**20** **20** **20** **20** **20** **20** **20** **20** 20 20 20 20 20 20 20	**0**	
	Steady State Humidity	☒	ESCC 3009, Para. 8.2	**2049** **2022** **2045** **2208** **2029** **2105** **2102** **2026** 2105 2040 2049 2107 2214 2111 2101	**20** **20** **20** **20** **20** **20** **20** **20** 20 20 20 20 20 20 20	**0**	

	Visual Inspection	☒	ESCC 3009, Para. 8.5	**2049** **2022** **2045** **2208** **2029** **2105** **2102** **2026** 2105 2040 2049 2107 2214 2111 2101	**20** **20** **20** **20** **20** **20** **20** **20** 20 20 20 20 20 20 20	**0**	
	Mounting	☒	IEC 60384-1, 4.33	**2049** **2029** **2109** **2210** **2102** **2029** **2039** 2105 2040 2049 2107 2214 2111 2101	**20** **20** **10** **20** **20** **20** **20** 40 40 40 40 40 40 40	**0**	
	Operating Life	☒	ESCC 3009, Para. 8.9	**2049** **2029** **2109** **2210** **2102** **2029** **2039** 2105 2040 2049 2107 2214 2111 2101	**20** **20** **10** **20** **20** **20** **20** 40 40 40 40 40 40 40	**0**	**1 000H** **1 000H** **1 000H** **1 000H** **1 000H** **1 000H** **1 000H** 2 000H 2 000H 2 000H 2 000H 2 000H 2 000H 2 000H
Electrical Subgroup	Mounting	☒	IEC 60384-1, 4.33	**2049** **2045** **2029** **2105** **2102** **2026** **2029** 2105 2040 2049 2107 2214 2111 2101	**6** **6** **6** **6** **6** **6** **6** 6 6 6 6 6 6 6	**0**	
	Capacitance-Temperature Characteristics	☒	ESCC 3009, Para. 8.10	**2049** **2045** **2029** **2105** **2102** **2026** **2029** 2105 2040 2049 2107 2214 2111 2101	**6** **6** **6** **6** **6** **6** **6** 6 6 6 6 6 6 6	**0**	**Normally done prior to mounting**

	Robustness of Terminations	☒	ESCC 3009, Para. 8.7	**2049** **2045** **2029** **2105** **2102** **2026** **2029** 2105 2040 2049 2107 2214 2111 2101	**6** **6** **6** **6** **6** **6** **6** 6 6 6 6 6 6 6	**0**	
Ass. / Capab. Subgroup	Solderability	☒	IEC 60068-2-58	**2049** **2045** **2029** **2105** **2102** **2026** **2029** 2105 2040 2049 2107 2214 2111 2101	**6** **6** **6** **6** **6** **6** **6** 6 6 6 6 6 6 6	**0**	
	Permanence of Marking	☐	ESCC 24800				**NA**

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.