		APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL Component Title: Capacitors, Ceramic, Chip, Type I, sizes 0402 to 2220 Executive Member: CNES Date: 03/12/2018			Page 1 Appl. No. 323B rev 2
Components (including series and families) submitted for Extension of Qualification Approval: 1					
ESCC COMPONENT NO.	VARIANTS	RANGE OF COMPONENTS	BASED ON	TEST VEHICLE / S	COMPONENT SIMILAR
3009/003 - 3009/004 3009/005	06 - 06 06	All values 16V to 100V	CEC2 02S - CEC4 02S CEC6 02S	300900306C47C0KE 300900306-1801KC 300900406C1002FC	See box 14 for qualified ranges.
3009/006 3009/022 3009/037	06 06 06	All values 16V to 100V	CEC7 02S CEC12 02S CEC14 02S	300900606-273KE	
3009/040	01 to 06	All values 16V to 100V	CEC2 04S to CEC14 04S	300904001C33C0JC 300904001C22C0JC	See comment in box 14
3009/042 3009/040	06 13	All values 10V to 25V, size 0402	CEC19 02S CEC19 04S	300904206-3000FY 300904206-1000FA 300904206-100FC (*) 300904013-1200FX	(*) 25V and 50V products share the same design. Manufactured and tested as a 50V part
Component Manufacturer EXXELIA Technologies		Location of Manufacturing Plant(s) EXXELIA 1, rue des Temps Modernes 77600 CHANTELOUP EN BRIE FRANCE		Date of original qualification approval: Date: 24/10/2012 Certificate Ref No. 323	
ESCC Specifications used for Maintenance of qualification testing: Generic: 3009 Issue: 1 to 4 Detail(s): 3009/003 Issue: 5 & 7 3009/004 4 3009/006 6 3009/040 1 3009/042 Issue: 2 3009/040 Issue: 2		Deviations to LVT testing and Detail Specification used: No <input checked="" type="checkbox"/> Yes <input type="checkbox"/> (supply details in Box 15) Deviation from current Specifications: No <input type="checkbox"/> Yes <input checked="" type="checkbox"/> (Supply details)		Qualification Extension Report reference and date: Reports 15/0725 & 16/0735-A – CEC2 02S 47pF, 100V Reports 16/0035 & 16/0736-A – CEC4 02S 10nF, 50V Reports 16/0089 & 16/0737 – CEC14 04S 33pF, 50V Report 16/0297 – CEC14 04S 22pF, 50V Report QUAL 0402-04-2017, 25 August 2017 SERMA Analysis report 16-3722-100, October 2016 Report 18/1365 – CEC2 02S 1.8nF 50V Report 18/1366 – CEC7 02S 27nF 100V	
Summary of procurement or equivalent test results during current validity period in support of this application (those to ESCC listed first) 8					
Project Name	Testing Level	LAT	Date code	Quantity Delivered	
ALTER Technology Thales Alenia Space EREMS ...	C	-	136 mots	Total 20 700 parts (85% 0603, 7% 1210, 5% 0805)	
	EM	-	6 lots		
	B	-	3 lots		
PID changes since start of qualification None <input type="checkbox"/> Minor* <input type="checkbox"/> Major* <input checked="" type="checkbox"/> *Provide details in box: 19			Current PID Verified by: CNES Name of Executive Representative Ref No: PID 623.03.390 Issue: Rev J Date: 18/10/2018 Rev Date: 18/09/2018		
Current Manufacturing facilities surveyed by: CNES on 28/11/2018 (Name of Executive Representative) (Date) Satisfactory: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explain Report Reference: See implementation status in appendix (M). CNES/DSO/AQ/CQ-2018.0022700					



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Failure Analysis, DPA, NCCS available: Yes ☒ No ☐ (Supply data)Ref. No's and purposes: NCCS 2CETE605 dealing with delay in delivering maintenance data is appended
NCCS 1CETE606 dealing with verification of qualification data is also appended

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: 03/12/2018

JP. BUSSENOT

(Signature of the Executive Coordinator)

Continuation of Boxes above:

Box 1, Range of Components :

Style	Detail Spec.	Model	Variants	Capacitance Range (pF)	Rated Volt. (V)	Tolerance (pF, ±%)
0805	3009/003 3009/040	CEC2 02S CEC2 04S	06 02	10 to 2 700 10 to 2 200 1 to 1 800 1 to 1 200	16 25 50 100	< 10pF 0,25 – 0,5 – 1 (pF)
1210	3009/004 3009/040	CEC4 02S CEC4 04S	06 04	10 to 15 000 10 to 13 000 10 to 12 000 10 to 6 800	16 25 50 100	≥ 10pF 1, 2, 5, 10 (%)
1812	3009/005 3009/040	CEC6 02S CEC6 04S	06 05	100 to 33 000 100 to 30 000 100 to 22 000 100 to 12 000	16 25 50 100	
2220	3009/006 3009/040	CEC7 02S CEC7 04S	06 06	470 to 68 000 470 to 56 000 470 to 47 000 470 to 27 000	16 25 50 100	
1206	3009/022 3009/040	CEC12 02S CEC12 04S	06 03	10 to 6 800 10 to 6 200 1 to 5 600 1 to 3 900	16 25 50 100	
0603	3009/037 3009/040	CEC14 02S CEC14 04S	06 01	10 to 1 000 10 to 680 1 to 560 1 to 330	16 25 50 100	
0402	3009/042 3009/040	CEC19 02S CEC19 04S	06 13	12 to 330 12 to 120 12 to 100	10 16 25	

ESCC 3009/040 covering Ceruflex variants was not originally proposed with the initial qualification. Based on customers' orders and performance of Lot Acceptance test on the two CEC14 04S test vehicles, qualification might be extended to Ceruflex SnPb / NiBa variants.

Box 7. Qualification Extension Report

Testing originally performed by EXXELIA did not conform to the agreement made with CNES, i.e. to perform a single LAT1 on the two lots 0805 47pF 100V DC1539 and 1210 10nF 50V DC 1602 (2 x 21 parts). EXXELIA only performed environmental / mechanical tests on these two lots and data were therefore extended to LAT1 as reflected in EXXELIA reports 16/0735-A and 16/0736-A, both dated January 2017. NCCS 2CETE605 refers. EXXELIA reports 18/365 and 18/366 dated October 2018 are part of the qualification programme initiated on the new DL1 production line. Available data cover currently ESCC qualified 50V and 100V ranges. Extended endurance tests (4Un) have been performed for evaluation purpose and are included in these reports. Reports should be read in conjunction with reports 18/1368 and 18/1369 dated October 2018 for type II types covered with certificate 324. DL1 production line is introduced in PID 623.03.390 revision J, August 2018. Procedures dedicated to DL1 line are identified in the appended summary presentation of the activity.



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Non compliance to ESCC requirements:

No.:	Specification	Paragraph	Non compliance

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

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Executive Manager Disposition

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Application Approval: Yes ☒ No ☐

Action / Remarks:

Date:

B. Schade, Head of ESA Product Assurance and Safety Department



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

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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:

CEC2 02S 47pF 100V DC 1539	CEC14 04S 33pF 50V DC 1605 CEC14 04S 22pF 50V DC 1613
CEC4 02S 10nF 50V DC 1602	

Detail Specification reference: 3009/003/004/040

Chart V	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental / Mechanical Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 384-1	1539 1602 1605	12 x 3	0	
	Adhesion	<input checked="" type="checkbox"/>	ESCC 3009, Para. 9.5	1539 1602 1605	4 x 3	0	
	Rapid Change of Temperature	<input checked="" type="checkbox"/>	IEC 68-2-14	1539 1602 1605	8 x 3	0	
	Visual Inspection	<input checked="" type="checkbox"/>	ESCC 3009, Para. 9.1	1539 1602 1605	12 x 3	0	
	Climatic Test Sequence	<input checked="" type="checkbox"/>	ESCC 3009, Para. 9.8	1539 1602 1605	12 x 3	0	
Endurance Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 384-1	1539 1602 1605	10 10 20	0	
	Operating Life	<input checked="" type="checkbox"/>	ESCC 3009, Para. 9.10	1539 1602 1605	10 10 20	0	
	Electrical Measurements during Endurance Testing	<input checked="" type="checkbox"/>	ESCC 3009, Para. 9.4.5	1539 1602 1605	10 10 20	0	
Electrical Subgroup (Elect. Meas.)	Mounting	<input checked="" type="checkbox"/>	IEC 384-1	1539 1602 1605 1613	3 3 6 6	0	
	Temperature Coefficient (Type I)	<input checked="" type="checkbox"/>	ESCC 3009, Para. 9.11	1539 1602 1605 1613	3 3 6 6	0	

	Temperature Characteristic (Type II)	<input type="checkbox"/>	ESCC 3009, Para. 9.12				NA
Electrical Subgroup (Ass. / Capab. Tests)	Solderability	<input checked="" type="checkbox"/>	IEC 68-2-20	1539 1602 1605 1613	2 2 4 4	0	
	Permanence of Marking	<input type="checkbox"/>	ESCC 24800				NA
Additional Tests		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					



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ANNEX 1 bis: LIST OF TESTS DONE TO SUPPORT QUALIFICATION OF 0402 chip size

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Tests conducted in compliance with:

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


Tests vehicle identification/description:

	CEC19 02S 10pF 50V DC 1611
CEC19 04S 120pF 16V DC 1614	CEC19 02S 330pF 10V DC 1611 CEC19 02S 100pF 25V DC 1611

Detail Specification reference: 3009/040/042

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	<input checked="" type="checkbox"/>	IEC 60384-1, 4.33	1614 1611 1611 1611	26 26 26 26	1 0 4 0	5 tombstoning parts
	Rapid Change of Temperature	<input checked="" type="checkbox"/>	IEC 60068-2-14	1614 1611 1611 1611	25 26 22 26	0	
	Steady State Humidity	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.2	1614 1611 1611 1611	25 26 22 26	0	
	Visual Inspection	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.5	1614 1611 1611 1611	25 26 22 26	0	
Endurance Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 60384-1, 4.33	1614 1611 1611 1611	52 52 52 52	1 0 2 0	1 lost part - 2 tombstoning parts -
	Operating Life	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.9	1614 1611 1611 1611	51 52 50 52	0	
Electrical Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 60384-1, 4.33	1614 1611 1611 1611	6 6 6 6	1 1 0 0	1 lost part 1 tombstoning part - -
	Capacitance-Temperature Characteristics	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.10	1614 1611 1611 1611	6 0 (*) 6 (**) 6	0	Done prior to mounting. (*) NA to low value 10pF. (**) OK after initial meas. pb
	Robustness of Terminations	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.7	1614 1611 1611 1611	5 5 6 6	0 3 (***) 0 0	(***) 20N applied instead of 5N - test not performed again based on other lots results
Ass. / Capab Subgr	Solderability	<input checked="" type="checkbox"/>	IEC 60068-2-58	1614 1611 1611 1611	6 6 6 6	0	

	Permanence of Marking	<input type="checkbox"/>	ESCC 24800				NA
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ANNEX 1 ter: LIST OF TESTS DONE TO SUPPORT PRODUCTION OF 0603 to 2220 50V and 100V ranges on DL1 Line

Tests conducted in compliance with:

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

Tests vehicle identification/description:

CEC2 02S 1.8nF 50V Lot V1804L004 (0805)	CEC7 02S 27nF 100V Lot V1804L001 (2220)

Detail Specification reference: **3009/003/006**

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	<input checked="" type="checkbox"/>	IEC 60384-1, 4.33	LV1804L004 LV1804L001	24 24	0	
	Rapid Change of Temperature	<input checked="" type="checkbox"/>	IEC 60068-2-14	LV1804L004 LV1804L001	24 24	0	
	Steady State Humidity	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.2	LV1804L004 LV1804L001	24 24	0	
	Visual Inspection	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.5	LV1804L004 LV1804L001	24 24	0	
Endurance Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 60384-1, 4.33	LV1804L004 LV1804L001	12 + 12 12 + 12	0	
	Operating Life	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.9	LV1804L004 LV1804L001	12 + 12 12 + 12	0	2000H / 2Un on 12 parts 2000H / 4Un on 12 parts
Electrical Subgroup	Mounting	<input checked="" type="checkbox"/>	IEC 60384-1, 4.33	LV1804L004 LV1804L001	3 3	0	
	Capacitance-Temperature Characteristics	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.10	LV1804L004 LV1804L001	6 6	0	Done prior to mounting.
	Robustness of Terminations	<input checked="" type="checkbox"/>	ESCC 3009, Para. 8.7	LV1804L004 LV1804L001	3 3	0	
Ass. / Capab. Subgroup	Solderability	<input checked="" type="checkbox"/>	IEC 60068-2-58	LV1804L004 LV1804L001	3 6	0	
	Permanence of Marking	<input type="checkbox"/>	ESCC 24800				NA

