APPLICATION FOR EXTENSION OF ESCC TECHNOLOGY FLOW QUALIFICATION

Component Title: Molded SMD Custom Magnetics Components, Linear (CCM Winding Technology)

Executive Member: CNES Date: 22/05/2025

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Appl. No. 356C

1 Technology Flow submitted for qualification

Summary Description of Technology flow	Detailed Technology Flow Description No.	BASED On Technology	Test Structures	Components Proposed for Qualification
The Technology Flow covers custom magnetic components at Exxelia, Illange, France. See more information in "QML CCM.pdf"	These SMD inductors, chokes and transformers use linear winding (CCM technology) assembled on a lead frame and molded with epoxy resin.	CCM (Types 4, 5, 6, 20 and 25)	CCM4, CCM5, CCM6, CCM20, CCM25	3201 011 var. 01 to 05

2 Component Manufacturer

Exxelia SAS

3 Location of Manufacturing Plant

13, Parc d'activités du Beau Vallon,
F-57110 Illange

4 ESCC Specification used for Qualification

Generic: 3201 Issue 7

Detail/s: 3201/011 issue 2

5 Qualification Report Reference and date:

PV25-02-14 VOQ CCM25.pdf

Date: 01/02/2025

6 **PID** used for manufacturing Qualification Lot

Ref No: PID 101
Issue: Issue 5 rev 1
Date: 01/09/2023

7 **PID** changes since Original Qualification or last extension of Qualification.

None ☐
Minor ☐
Major ☒ See box 22

8 Current **PID** Verified by: CNES

Name of Executive Representative

Ref No: PID 101
Issue: Issue 6
Date: 06/03/2025

9 Current Manufacturing facilities surveyed by: CNES (Name of Executive Responsible) on 09/07/2023 (Date)

Satisfactory: Yes ☒ No ☐ Corrective Actions closed out Yes ☒ No ☐ N/A ☐

10 Quality and Reliability Data

Evaluation testing performed Yes ☐ No ☒

Report Ref. No.: Date:

Equivalent Data:

Certification:

Failure analysis, DPA, NCCS available Yes ☐ No ☒

(supply data)

Ref. Nos. and purpose: NCCS 2CEXX302 : see box 22

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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: 22/05/2024

Fontaine Lya Signature numérique de Fontaine Lya Date : 2025.05.22 09:50:11 +02'00'

L. FONTAINE

(Signature of the Executive Coordinator)

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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:

14

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Executive Manager Disposition

15

Application Approval: Yes ☒ No ☐

Action / Remarks:

Date: 26/06/2025

Signature, ESA Representative
A. Zadeh: Head of the Avionics and EEE Division

ANNEX : LIST OF TESTS DONE TO SUPPORT EXTENSION OF QUALIFICATION

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Tests conducted in compliance with:

- ESCC 3201 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD [redacted] (for ESCC/QML parts)

Tests vehicle identification/description:

ESCC 320101101EXJ449A DC2435	ESCC 320101102EXJ224A DC2436	ESCC 320101103EXJ506A DC2416
ESCC 320101104EXJ094A DC2326	ESCC 320101104EXJ228A DC2436	ESCC 320101105EXJ259A DC2437
ESCC 320101105EXJ230A DC2436		

Detail Specification reference: ESCC 3201/011

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental / Mechanical Subgroup (Column 1)	Mechanical Shock	☒	MIL-STD-202	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Vibration	☒	MIL-STD-202	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Immersion	☐	MIL-STD-202				N/A (See Para 2.1.1.1 of ESCC 3201/011
	Moisture resistance	☒	ESCC 3201, Para 8.13	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	External Visual Inspection	☒	ESCC 20500	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
Environmental / Mechanical Subgroup (Column 2)	Thermal Shock	☒	MIL-STD-202	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Barometric Pressure	☐	MIL-STD-202				N/A (See Para 2.1.1.1 of ESCC 3201/011
	Temperature Rise	☒	ESCC 3201, Para. 8.7	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Overload	☒	ESCC 3201, Para. 8.8	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Resistance to Soldering Heat		ESCC 3201, Para. 8.9	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
Endurance Subgroup	Operating Life	☒	ESCC 3201, Para. 8.14	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Electrical Measurements during Endurance Testing	☒	ESCC 3201, Para. 8.3	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	

	External Visual Inspection	☒	ESCC 20500	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Permanence of Marking	☐	ESCC 24800	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	N/A Laser marking
Assemby / Capability Subgroup	Solderability	☒	ESCC 3201, Para. 8.16	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	
	Terminal Strength	☒	ESCC 3201, Para. 8.17	2435 2436 2416 2326 2437	2 2+2+2 2 2 2	0	

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.