APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component Title: **RELAY, ELECTROMAGNETIC, LATCHING, Type EL 215**

Executive Member: CNES Date: 25/01/2023

Appl. No. 167K

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
3602 009	03; 04; 05; 06; 13; 14;15; 16	Rated Coil voltage : 12 and 28 V	Type EL 215	3602 009 06 28V 3602 009 05 28V	All variants

2 Component Manufacturer
REL - STPI

3 Location of Manufacturing Plant(s)
St Jean de la Ruelle 45140 - France

4 Date of original qualification approval:
Date: 01/02/1990

Certificate Ref No. 167

5 ESCC Specifications used for Maintenance of qualification testing:
Generic: 3602 Issue: 4
Detail(s): 3602 009 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:
3795 Rapport de VOQ EL215 – 07/07/2022
3746 Rapport Chart F4 – 08/07/2021

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
EL215_Données de livraison 2021-2022				2021 : 4364 2022 : 3560

9 **PID** changes since start of qualification
None ☐
Minor* ☒
Major* ☐
*Provide details in box: 19

10 Current **PID** Verified by: L. Baczkowski, CNES
Name of Excutive Representative Agency
Ref No: PID EL 210 EL 215
Issue: R Date: 18/11/1995
Rev Date: 21/11/2022

11 Current Manufacturing facilities surveyed by: G. Quadri, CNES, L. Farhat, ESA on 18/10/2022
(Name of Executive Representative) (Date)

Satisfactory: Yes ☒ No ☐ Explain

Report Reference: 2022.0017036-CR-Fontaine-Visite-REL-STPI-Novembre-2022

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

Ref. No's and purposes: 2CREL103rev4

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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: 25/01/2023

G. QUADRI, CNES
(Signature of the Executive Coordinator)

Continuation of Boxes above:

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Box1: inclusion of the variant 15 (strong similarity with 13 and 5 variants)
Box 12 refers to an organic pollution issue. A deep investigation supported by the implementation of additional corrective actions allowed trespectively to verify the lack of impacts of such defects on EL215 test vehicles and to securize via additional controls the manufacturing line. See for more details the NCCS 2CREL103rev4 and its annexed parts.

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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

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

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Tests conducted in compliance with:

- ESCC 3602 issue 4 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

ESCC 3602 009 06 28V (EL215 147 A F70) DC 21-19
ESCC 3602 009 05 28V (EL 215 147 E F70) DC 22-18

Detail Specification reference: ESCC 3602 009 Issue 6

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)	Thermal Shock	☒	MIL-STD-202, Test Method 107	22-18	6	0	
	Low Level Sine Vibration	☒	MIL-STD-202, Test Method 204	22-18	6	0	
	Random Vibration	☐	MIL-STD-202, Test Method 214				Only applicable to relays with Rated Resistive Load Contact current less than 5A
	Low Level Mechanical Shock	☒	MIL-STD-202, Test Method 213	22-18	6	0	
	Resistance to Soldering Heat	☒	MIL-STD-202, Test Method 210	22-18	6	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-202, Test Method 112	22-18	6	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	22-18	6	0	
Environmental / Mechanical Subgroup (Column 2)	High Level Sine Vibration	☒	MIL-STD-202, Test Method 204	22-18	6	0	
	High Level Mechanical Shock	☒	MIL-STD-202, Test Method 213	22-18	6	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-202, Test Method 112	22-18	6	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	22-18	6	0	
Endurance Subgroup 1 (Column 1)	Low Level Life	☐	ESCC 3602 Para. 8.11.1				Only applicable to relays with Rated Resistive Load Contact current less than 5A
	Inductive Life	☒	ESCC 3602 Para. 8.11.2	22-18	3	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-202, Test Method 112	22-18	3	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	22-18	3	0	

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Endurance Subgroup 1 (Column 2)	Coil Life	☐	ESCC 3602 Para. 8.12				Coil Life and the subsequent tests shall only be performed for Qualification. They are not required for Periodic Testing except in the case of any significant change to the design.
	Seal (Fine and Gross Leak)	☐	MIL-STD-202, Test Method 112				
	External Visual Inspection	☐	ESCC Basic Specification No. 20500				
Endurance Subgroup 1 (Column 3)	Intermediate Current	☒	ESCC 3602 Para. 8.13	21-19 22-18	3+3	0	
	Mechanical Life	☒	ESCC 3602 Para. 8.14	21-19 22-18	3+3	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-202, Test Method 112	21-19 22-18	3+3	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	21-19 22-18	3+3	0	
Endurance Subgroup 2	Resistive Life	☒	ESCC 3602 Para. 8.11.3	21-19 22-18	6+6	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-202, Test Method 112	21-19 22-18	6+6	0	
	External Visual Inspection	☒	ESCC Basic Specification No. 20500	21-19 22-18	6+6	0	
Assembly Capability Subgroup	Solderability	☒	MIL-STD-202, Test Method 208	22-18	3	0	
	Overload	☒	ESCC 3602 Para. 8.16	22-18	3	0	
	Permanence of Marking	☐	ESCC Basic Specification No. 24800				Not applicable for laser marking
	Terminal Strength	☒	MIL-STD-202, Test Method 211	22-18	3	0	
	Seal (Fine and Gross Leak)	☒	MIL-STD-202, Test Method 112	22-18	3	0	
Additional Tests		☐					
		☐					
		☐					

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.