

**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Component title: Relays, latching, Type EL415

Executive Member: CNES

Date: 13/05/2020

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98J rev2

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

Ref. No's and purposes:

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: 13/05/2020

JP BUSSENOT

(Signature of the Executive Coordinator)

Continuation of Boxes above:

PID's Changes :

- Add of the new final finish supplier and details about SnPb alloy rate and thickness. Applicable from date code 2020.
- Change in coil manufacturing flow chart (Implementation of Cu doped brazing material in the same way as for TL26 relays per NCCS 2CSTPI501 revA closed in May 2019)
- Update of coil manufacturing lot travelers (addition of Cu doped brazing solution reference)
- Update of plans and documents
- Update of the in-process control flow (add. of recorded RVT test; NOT APPLICABLE to EL415 relays)

NB: Implementation of SnCuAg brazing material for coils has been validated on TL26 relays which have been agreed to represent a worst case in terms of risk since the wire diameter is the smallest in STPI space production. Nevertheless, Coil Life has been performed successfully in 2019 on EL415 relays.



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Non compliance to ESCC requirements:

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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:

 Digitally signed  
by Britta Schade  
Date: 2020.06.09  
09:32:36 +02'00'

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

Tests vehicle identification/description:

SCC 3602 004 19 28V (Ref : EL 415 143 A M09 F70 / DC : 1836 / Lot : 1147029)	
SCC 3602 004 19 28V (Ref : EL 415 143 A M09 F70 / DC : 1838 / Lot : 1166489)	

Detail Specification reference: 3602 004

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	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 107	18-36, 18-38	6 + 6	0	
	Low Level Sine Vibration	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 204	18-36, 18-38	6 + 6	0	
	Random Vibration	<input type="checkbox"/>	MIL-STD-202, Test Method 214				
	Low Level Mechanical Shock	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 213	18-36, 18-38	6 + 6	0	
	Resistance to Soldering Heat	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 210	18-36, 18-38	6 + 6	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 112	18-36, 18-38	6 + 6	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500	18-36, 18-38	6 + 6	0	
Environmental / Mechanical Subgroup (Column 2)	High Level Sine Vibration	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 204	18-38	6	0	
	High Level Mechanical Shock	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 213	18-38	6	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 112	18-38	6	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500	18-38	6	0	
Endurance Subgroup 1 (Column 1)	Low Level Life	<input type="checkbox"/>	ESCC 3602 Para. 8.11.1				
	Inductive Life	<input checked="" type="checkbox"/>	ESCC 3602 Para. 8.11.2	18-38	3	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 112	18-38	3	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500	18-38	3	0	



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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	<input checked="" type="checkbox"/>	ESCC 3602 Para. 8.12	18-38	3	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 112	18-38	3	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500	18-38	3	0	
Endurance Subgroup 1 (Column 3)	Intermediate Current	<input checked="" type="checkbox"/>	ESCC 3602 Para. 8.13	18-36, 18-38	3 + 3	0	
	Mechanical Life	<input checked="" type="checkbox"/>	ESCC 3602 Para. 8.14	18-36, 18-38	3 + 3	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 112	18-36, 18-38	3 + 3	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500	18-36, 18-38	3 + 3	0	
Endurance Subgroup 2	Resistive Life	<input checked="" type="checkbox"/>	ESCC 3602 Para. 8.11.3	18-36, 18-38	6 + 6	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 112	18-36, 18-38	6 + 6	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500	18-36, 18-38	6 + 6	0	
Assembly Capability Subgroup	Solderability	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 208	18-36, 18-38	3 + 3	0	
	Overload	<input checked="" type="checkbox"/>	ESCC 3602 Para. 8.16	18-36, 18-38	3 + 3	0	
	Permanence of Marking	<input type="checkbox"/>	ESCC Basic Specification No. 24800				
	Terminal Strength	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 211	18-36, 18-38	3 + 3	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-202, Test Method 112	18-36, 18-38	3 + 3	0	
Additional Tests		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					

	<p align="center"><b>APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL</b></p> <p>Component title:     Relays, latching, Type EL415</p> <p>Executive Member:     CNES <span style="float: right;">Date:     13/05/2020</span></p>	<p align="right">Page 7</p> <p align="right">Appl. No.</p> <p align="right">98J rev2</p>
<p align="center"><b>NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION EXTENSION APPROVAL</b></p> <p><b>ENTRIES</b></p> <p>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.</p> <p><b>Box 1</b>                                      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.</p> <p><b>Box 2; 3 and 4</b>                      As per QPL entry; otherwise, an explanation of the changes must be supplied.</p> <p><b>Box 5</b>                                      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.</p> <p><b>Box 6</b>                                      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.</p> <p><b>Box 7</b>                                      Must reference the report(s) supplied in support of the application.</p> <p><b>Box 8</b>                                      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.</p> <p><b>Box 9</b>                                      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.</p> <p><b>Box 10</b>                                      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.</p> <p><b>Box 11</b>                                      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.</p> <p><b>Box 12</b>                                      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.</p> <p><b>Box 13</b>                                      Enter only the name of the Executive Member (i.e., CNES, DLR, ESTEC, etc.) and the signature of the responsible Executive Coordinator.</p> <p><b>Box 14</b>                                      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.</p> <p><b>Box 15</b>                                      Fill in Table as requested.</p> <p><b>Box 16</b>                                      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.</p> <p><b>Box 17</b>                                      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.</p> <p><b>Box 18</b>                                      Fill in Table as requested.</p> <p><b>Box 19</b>                                      Confidential Details of PID changes including those of a confidential nature, shall be provided.</p> <p><b>Box 20</b>                                      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'.</p> <p><b>Box 21</b>                                      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.</p> <p><b>Box 22</b>                                      Additional Comments.</p>		