

		<b>APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL</b>			Page 1
		Component Title: Executive Member:	Resistor, Heater, Flexible, Single and Double Layer, based on type FHK CNES	Date: 04/03/2020	Appl. No. 325C rev1
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
4009/003	01		FHK	FHK976 FHK1043	
				FHK1190 FHK1191 FHK1192	
	02	All		FHK587 FHK1207 FHK662 FHK1208 FHK726 FHK913	
	03			FHK1209	
Component Manufacturer MINCO SAS		Location of Manufacturing Plant(s) MINCO SAS, Zone Industrielle 09310 ASTON, FRANCE		Date of original qualification approval: Date: 22/03/2013 Certificate Ref No. 325	
ESCC Specifications used for Maintenance of qualification testing: Generic 4009 Iss.: 6 Detail(s) 4009/003 Iss.: 3, 4 DCR(s) 1329		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 checked="" type="checkbox"/> Yes <input type="checkbox"/> (Supply details)		Qualification Extension Report reference and date: TRESCC_24_0, March 2018 TRESCC_25_0, July 2019 TRESCC_29_0, September 2019 TRESCC_33_0 rev1, March 2020	
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	
Main Customers : OHB		None		2017 : 1 188 2018 : 1 210	
Airbus DS SAFT					
PID changes since start of qualification None <input type="checkbox"/> Minor* <input type="checkbox"/> Major* <input checked="" type="checkbox"/> *Provide details in box:		Current PID Verified by: <u>CNES</u> Name of Executive Representative Ref No: IC07 Issue: 3 Rev Date: 06/03/2019		Date: 18/03/2019	
Current Manufacturing facilities surveyed by: <u>ESA &amp; CNES</u> on <u>31/10/2019</u> (Name of Executive Representative Agency) (Date)					11
Satisfactory:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Explain		
Report Reference:	CNES/DSO/AQ/ CQ-2019/18402				



**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Page 2

Component title: Resistor, Heater, Flexible, Single and Double Layer, based on type FHK

Appl. No.

Executive Member: CNES

Date: 04/03/2020

325C rev1

12

Failure Analysis, DPA, NCCS available: Yes  No  (Supply data) [NCCS 2CMIN901, 2CMIN001](#)

Ref. No's and purposes: [2CMIN901: Bubbles on KOVAR transition pads \(MINCO tightened its procedure – Closed\)](#)  
[2CMIN001: Embedded foreign materials on 2 parts submitted to Chart F4 \(appended\)](#)

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: 17/03/2020

P. BUSSENOT

(signature of the Executive Coordinator)

14

Continuation of Boxes above:

Boxes 1, 5, 7:

Process improvements leading to potential increase of current density were already implemented in PID issue 3.  
See also MoM CNES/DSO/AQ/CQ-2019/18402, 31/10/2019



**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Component title: Resistor, Heater, Flexible, Single and Double Layer, based on type FHK  
Executive Member: CNES Date: 04/03/2020

Page 3  
Appl. No.  
325C rev1

Non compliance to ESCC requirements:

15

No.:	Specification	Paragraph	Non compliance

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

16

Executive Manager Disposition

17

Application Yes  No

Approval:

Action / Remarks:

Date  
:

 Digitally signed  
by Britta Schade  
Date: 2020.03.27  
10:01:19 +01'00'

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



**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Component Title: Resistor, Heater, Flexible, Single and Double Layer, based on type FHK  
 Executive Member: CNES  
 Date: 04/03/2020

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

18

Tests conducted in compliance with:

- ESCC 4009 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

FHK587 (400900302) Single Layer, Single Element, FEP, DC 1730AA FHK662 (400900302) Single Layer, Single Element, FEP, DC 1748AA	FHK913 (400900302) Single Layer, Double Element, FEP, DC 1836AA FHK976 (400900301) Single Layer, Single Element, WA, DC 1905AA
FHK726 (400900302) Single Layer, Single Element, FEP, Aluminium backing, DC 1739AA	FHK1043 (400900301) Double Layer, Single Element, WA, DC 1905AA

Detail Specification reference: 4009/003

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	N° of Rejects	Comments if not performed. Comments on Rejection
Environmental/ Mechanical Subgroup	Robustness of Terminations	<input checked="" type="checkbox"/>	IEC 60068-2-21	1836AA 1905AA	5 5 + 5	0	
	Climatic Sequence	<input checked="" type="checkbox"/>	ESCC 4009, Para. 8.7	1836AA 1905AA	5 5 + 5	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC 20500	1836AA 1905AA	5 5 + 5	0	
Endurance Subgroup	Operating Life	<input checked="" type="checkbox"/>	ESCC 4009, Para. 8.8	1730AA 1748AA 1739AA 1836AA 1905AA	5 5 5 5 5 + 5	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC 20500	1730AA 1748AA 1739AA 1836AA 1905AA	5 5 5 5 5 + 5	0	
	Permanence of marking	<input checked="" type="checkbox"/>	ESCC 24800	1730AA 1748AA 1739AA 1836AA 1905AA	2 2 2 2 2 + 2	0	
Additional tests		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					



**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Component Title: Resistor, Heater, Flexible, Single and Double Layer, based on type FHK  
 Executive Member: CNES  
 Date: 04/03/2020

Page 4bis  
 Appl. No. 325C rev1

**ANNEX 2: LIST OF TESTS DONE TO SUPPORT THE INCREASE OF CURRENT DENSITY FOR VARIANT 01 (DCR 1260)**

18

Tests conducted in compliance with:

- ESCC 4009 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

FHK1190 (400900301) Single Layer, Single Element, WA, DC 1910	FHK1191 (400900301) Single Layer, Single Element, WA, DC 1916
FHK1192 (400900301) Single Layer, Double Element, WA, DC 1919	

Detail Specification reference: 4009/003 (and DCR 1260)

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	N° of Rejects	Comments if not performed. Comments on Rejection
Environmental/ Mechanical Subgroup	Robustness of Terminations	<input checked="" type="checkbox"/>	IEC 60068-2-21	1910 1916 1919	5 5 5	0	
	Climatic Sequence	<input checked="" type="checkbox"/>	ESCC 4009, Para. 8.7	1910 1916 1919	5 5 5	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC 20500	1910 1916 1919	5 5 5	0	
Endurance Subgroup	Operating Life	<input checked="" type="checkbox"/>	ESCC 4009, Para. 8.8	1910 1916 1919	5 10 5	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC 20500	1910 1916 1919	5 10 5	0	
	Permanence of marking	<input checked="" type="checkbox"/>	ESCC 24800	1910 1916 1919	2 2 2	0	
Additional tests		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					



**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Component Title: Resistor, Heater, Flexible, Single and Double Layer, based on type FHK  
 Executive Member: CNES  
 Date: 04/03/2020

Page 4ter  
 Appl. No. 325C rev1

**ANNEX 3: LIST OF TESTS DONE TO SUPPORT THE INCREASE OF CURRENT DENSITY FOR VARIANT 02 & 03 (DCR 1329)**

18

Tests conducted in compliance with:

- ESCC 4009 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

FHK1207 (400900302) Single Layer, Single Element, FEP, DC 1927	FHK1208 (400900302) Single Layer, Single Element, FEP, DC 1928
FHK1209 (400900303) Single Layer, Double Element, FEP, WA patch, DC 1929	

Detail Specification reference: 4009/003 (and DCR 1329)

Chart F4	Test	Tick when done	Conditions	Date Code	Tested Qty	N° of Rejects	Comments if not performed. Comments on Rejection
Environmental/ Mechanical Subgroup	Robustness of Terminations	<input checked="" type="checkbox"/>	IEC 60068-2-21	1927 1928 1928 1929	5 5 6 5	0	
	Climatic Sequence	<input checked="" type="checkbox"/>	ESCC 4009, Para. 8.7	1927 1928 1928 1929	5 5 6 5	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC 20500	1927 1928 1928 1929	5 5 6 5	0 2 (*) 0 0	(*) NCCS 2CMIN001
Endurance Subgroup	Operating Life	<input checked="" type="checkbox"/>	ESCC 4009, Para. 8.8	1927 1928 1929	5 5 5	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC 20500	1927 1928 1929	5 5 5	0	
	Permanence of marking	<input checked="" type="checkbox"/>	ESCC 24800	1927 1928 1929	2 2 2	0	
Additional tests		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					

**APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL**

Page 6

Component title: Resistor, Heater, Flexible, Single and Double Layer, based on type FHK  
Executive Member: CNES  
Date: 04/03/2020

Appl. No.  
325C rev1

**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.