		APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL			Page 1 Appl. No. 73R
Component Title: CMOS B, 4000B Series		Executive Member: CNES			Date: 30/05/2018
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
As per QPL				HCC4002BK	As per QPL
				HCC4071BK	
Component Manufacturer STMicroelectronics		Location of Manufacturing Plant(s) Rennes, FRANCE		Date of original qualification approval: Date: 01/04/1981 Certificate Ref No. 73	
ESCC Specifications used for Maintenance of qualification testing: Generic: 9000 Issue: 9 Detail(s): Issue: ESCC 9201/042 issue 4 ESCC 9201/063 Issue 4		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: HCC4002BK ID33318003RZ DC 1648A HCC4071BK ID33328001Z7 DC1701A	
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	
Various	ESCC9000 Issue 9		Lots delivered from January 2016 to November 2017	33 865	
PID changes since start of qualification None <input type="checkbox"/> Minor* <input checked="" type="checkbox"/> Major* <input type="checkbox"/> *Provide details in box:		Current PID Verified by: CNES Name of Executive Representative Ref No: ESCC PID GENERIQUE Ref. 8097046 revision 17.0, 14/12/2017, PID CMOS Ref. 8237618 rev.10.0, 20/12/2017 Issue: Date: 20/02/2018 Rev Date:			
Current Manufacturing facilities surveyed by: CNES on 27/03/2018 (Name of Executive Representative) (Date)					11
Satisfactory: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Explain					
Report Reference: ST-AUDIT-STATUS 2018					



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component title: CMOS B, 4000B Series

Executive Member: CNES

Date: 30/05/2018

Page 2

Appl. No.

73R

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: 30/05/2018

JP. BUSSENOT

(Signature of the Executive Coordinator)

Continuation of Boxes above:

[7] Qualification Extension reports :

The extension is based on collection of 54HC MOS and CMOS 4000B data :

Catane:

HCC4002BK ID33318003RZ DC1648A - ESCC 9000 Chart F4 sq1-3

HCC40193BK ID33602606ZZ DC1602A – ESCC 9000 Chart F4 sq1-3

AMK 4" and 5":

HCC4071BK ID33328001Z7 DC1701A - ESCC 9000 Chart F4 sq1-3

HCC4060BD ID33325006ZQ DC1601A – ESCC 9000 Chart F4 sq1-3

HCC4081B ID3312800AZ8 DC1741A – ESCC 9000 Chart F4 sg1&3 – ESCC 9000 sg2 (2000h completed)

AMK 6":

HCC40109BK ID33548003ZY DC1607A – ECSS 9000 Chart F4 sq1-3

HCC4093BK ID3352300CZZ DC1525A – ESCC 9000 Chart F4 sq1-3

HCC4049BK ID33524005ZZ DC1526A – ESCC 9000 Chart F4 sq2

Package qualification:

Dual in Line : M54HC157D ID33402008ZC DC1648A - ESCC 9000 chart F4 sg1-3

Flat pack : HCC4071BK ID33328001Z7 DC1701A - ESCC 9000 chart F4 sq1-3

Cover the validation of packages for both families as agreed by Qualification Board at its march 2001 meeting (minute 11.1 refers).

[9] Minor PID changes :

- Revision of specification dates due to new test equipment ASL1K
- Removal of Catane wafer fab specifications because ST stop all the products coming from Catane wafer fab



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component title: CMOS B, 4000B Series

Executive Member: CNES

Date: 30/05/2018

Page 3

Appl. No.

73R

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 noncompliance:

16

Executive Manager Disposition


17

Application Approval: Yes ☐ No ☐

Action / Remarks:

Date:


Signature, ESA Representative

	APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL Component Title: CMOS B, 4000B Series Executive Member: CNES Date: 30/05/2018	Page 4 Appl. No. 73R
---	---	----------------------------

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

18

Tests conducted in compliance with:

- ESCC 9000 generic specification; Chart F4 (for ESCC/QPL parts);
- Or PID-TFD (for ESCC/QML parts)

Tests vehicle identification/description:

AMK 4", 5" and 6": HCC4002BK ID33318003RZ DC1648A HCC4071BK ID33328001Z7 DC1701A	
Dual in Line : M54HC157D ID33402008ZC DC1648A Flat-pack : HCC4071BK ID33328001Z7 DC1701A	Cover the validation of packages for both families as agreed by Qualification Board at its march 2001 meeting (minute 11.1 refers).

Detail Specification reference:

Chart F4	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Environmental/Mechanical Subgroup	Mechanical Shock	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2002	Dual in Line : M54HC157D ID33402008ZC DC1648A Flat-pack : HCC4071BK ID33328001Z7 DC1701A	15 x 2	0	
	Vibration	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2007		15 x 2	0	
	Constant Acceleration	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2001		15 x 2	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1014		15 x 2	0	
	Intermediate and End-Point Electrical Measurements	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements in the Detail Specification		15 x 2	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500		15 x 2	0	
	Thermal Shock	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1011		15 x 2	0	
	Moisture Resistance	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1004		15 x 2	0	
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1014		15 x 2	0	
	Intermediate and End-Point Electrical Measurements	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements in the Detail Specification		15 x 2	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500		15 x 2	0	



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Component title: CMOS B, 4000B Series

Executive Member: CNES


Date: 30/05/2018

Page 5

Appl. No.

73R

Chart F4	Test	Tick when done	Conditions	Date Code Diffusion Lot	Tested Qty	No. of Rejects	Comments if not performed. Comments on Rejection
Endurance Subgroup	Operating Life	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1005	Catane: HCC4002BK ID33318003RZ DC1648A HCC40193BK ID33602606ZZ DC1602A	15 x 8	0	
	Intermediate and End-Point Electrical Measurements	<input checked="" type="checkbox"/>	Intermediate and End-Point Electrical Measurements in the Detail Specification		15 x 8	0	HCC4081B 2 000H completed
	Seal (Fine and Gross Leak)	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 1014		15 x 8	0	
	External Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20500	AMK 4" and 5": HCC4071BK ID33328001Z7 DC1701A HCC4060BD ID33325006ZQ DC1601A HCC4081B ID3312800AZ8 DC1741A AMK 6": HCC40109BK ID33548003ZY DC1607A HCC4093BK ID3352300CZZ DC1525A HCC4049BK ID33524005ZZ DC1526A	15 x 8	0	
Assembly Capability Subgroup	Permanence of Marking	<input type="checkbox"/>	ESCC Basic Specification No. 24800	Dual in Line : M54HC157D ID33402008ZC DC1648A			Not applicable
	Terminal Strength	<input checked="" type="checkbox"/>	MIL-STD-883, Test Method 2004		5 x 2	0	
	Internal Visual Inspection	<input checked="" type="checkbox"/>	ESCC Basic Specification No. 20400	Flat-pack : HCC4071BK ID33328001Z7 DC1701A	5 x 2	0	
	Bond Strength	<input checked="" type="checkbox"/>	MIL-STD-883 Test Method 2011		2 x 2	0	
	Die Shear or Substrate Attach Strength	<input checked="" type="checkbox"/>	MIL-STD-883 Test Method 2019 or 2027		2 x 2	0	
Additional Tests		<input type="checkbox"/>					
		<input type="checkbox"/>					
		<input type="checkbox"/>					

	<p align="center">APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL</p> <p>Component title: CMOS B, 4000B Series</p> <p>Executive Member: CNES Date: 30/05/2018</p>	<p align="center">Page 7</p> <p align="center">Appl. No.</p> <p align="center">73R</p>
<p align="center">NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC QUALIFICATION EXTENSION APPROVAL</p>		
<p>ENTRIES</p>		
Form heading	<p>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>	
Box 1	<p>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>	
Box 2; 3 and 4	<p>As per QPL entry; otherwise, an explanation of the changes must be supplied.</p>	
Box 5	<p>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>	
Box 6	<p>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>	
Box 7	<p>Must reference the report(s) supplied in support of the application.</p>	
Box 8	<p>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>	
Box 9	<p>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>	
Box 10	<p>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>	
Box 11	<p>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>	
Box 12	<p>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>	
Box 13	<p>Enter only the name of the Executive Member (i.e., CNES, DLR, ESTEC, etc.) and the signature of the responsible Executive Coordinator.</p>	
Box 14	<p>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>	
Box 15	<p>Fill in Table as requested.</p>	
Box 16	<p>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>	
Box 17	<p>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>	
Box 18	<p>Fill in Table as requested.</p>	
Box 19	<p>Confidential Details of PID changes including those of a confidential nature, shall be provided.</p>	
Box 20	<p>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>	
Box 21	<p>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>	
Box 22	<p>Additional Comments.</p>	