



APPLICATION FOR EXTENSION OF ESCC TECHNOLOGY FLOW QUALIFICATION APPROVAL

Technology Flow: Crystal SAW Filters within NORSE-C1 (crystal) and NORSE-A1 (assembly) processes
Executive Member: ESA Date: 20/06/2024

Page 1
Appl. No. 313F

Technology Flow submitted for Qualification Approval:

Table with 3 columns: SUMMARY DESCRIPTION, TEST STRUCTURES, COMPONENTS PROPOSED FOR QUALIFICATION. Row 1: Crystal SAW filters, Transversal SAW filter designs, 3502/002, all variants.

Table with 3 columns: Component Manufacturer (KONGSBERG DEFENCE & AEROSPACE), Location of Manufacturing Plant(s) (Norway), Date of original qualification approval (24/08/2011).

Table with 3 columns: ESCC Specifications used for Maintenance of qualification testing, Deviations to LVT testing and Detail Specification used, Qualification Extension Report reference and date.

Summary of procurement or equivalent test results during current validity period in support of this application (those to ESCC listed first)

Table with 5 columns: Project Name, Testing Level, LAT, Date code, Quantity Delivered. Rows for 'Several' projects with ESCC and ESCC-equivalent testing levels.

Table with 2 columns: PID changes since start of qualification (Major checked), Current PID Verified by (S. Hernandez, ESA) with Ref No, Issue, and Rev Date.

Table with 2 columns: Current Manufacturing facilities surveyed by (S. Hernandez, ESA on 20/04/2022), Satisfactory status (Yes checked), Report Reference (MoM-SAW-TF-042022).



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Page 2
Appl. No.
313F

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


12

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 ESA as the responsible Executive Member for ESCC qualification status to be extended to the component(s) listed herein.

13

Date: 28/06/2024


(Signature of the Executive Coordinator)

Continuation of Boxes above:

14

- Technology Flow Abstract
1. Technology Flow – unchanged vs. initial qualification in 2011
 2. Design – unchanged vs. initial qualification in 2011
 3. Fabrication – unchanged vs. initial qualification in 2011
 4. Assembly – unchanged vs. initial qualification in 2011
 5. Test – unchanged vs. initial qualification in 2011
 6. Radiation – unchanged vs. initial qualification in 2011

CONTINUATION OF BOX 9 – PID EVALUATION

The technical note NORSE\SAW\SAWTFQ\TPF\TNO021 issue 6 of 20-Jun-2024 provides the PID change record summary



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Component title: Crystal SAW Filters within NORSE-C1 (crystal) and NORSE-A1 (assembly) processes

Executive Member: ESA

Date: 20/06/2024

Page 3

Appl. No.

313F

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:

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



APPLICATION FOR EXTENSION OF ESCC QUALIFICATION APPROVAL

Page 4

Component Title: Crystal SAW Filters within NORSF-C1 (crystal) and NORSF-A1 (assembly) processes

Appl. No.

Executive Member: ESA

Date: 20/06/2024

313F

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

18

Tests conducted in compliance with:

- ESCC 3502 generic specification; Chart F4 (for ESCC/QPL parts); Requalification testing was performed without intermediate electrical testing between mechanical shock, vibration and constant acceleration tests. Only initial and final electrical tests for the one mechanical subgroup. Good results.
- PID- 534 issue 9 (for ESCC/QML parts)
PID- 630 issue 9 (for ESCC/QML parts)
- TFD (for ESCC/QML parts) TNO629 issue 7. A change of company name in the ESA certificate is requested.

Tests vehicle identification/description:

NORS/SAW/SQF6200/DJF/ESCC350200201SQF6200 Package type A 6 pcs from date code 2326 (Endurance) 6 pcs from date code 2404 (Environmental/mechanical)	
NORS/SAW/SQF6320/DJF/ESCC350200210SQF6320 Package type G 2 pcs from date code 2323	Re-qualification 2024
NORS/SAW/SLC6330/DJF/ ESCC350200210SLC6330 Package type G 1 pcs from date code 2314	
NORS/SAW/SQF6851/DJF/ ESCC350200201SQF6851 Package type A 6 pcs from date code 2248	Qualification maintenance 2023

Detail Specification reference: 3502/002

Substrate	<input checked="" type="checkbox"/>	MIL-STD-883, 2002, B	2326	6	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 2007, A	2326	6	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 2001, B	2326	6	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 1014, CH2	2326	6	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 2009	2326	6	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 1010, B	2326	6	0		
	<input checked="" type="checkbox"/>	ESCC 3502, 8.12 MIL-STD-883, 1010, B	2326	6	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 1014, CH2	2326	6	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 2009	2326	6	0		
	Substrate	<input checked="" type="checkbox"/>	MIL-STD-883, 1005	2326	6	0	
<input checked="" type="checkbox"/>		MIL-STD-883, 1014, CH2	2326	6	0		
<input checked="" type="checkbox"/>		MIL-STD-883, 2009	2326	6	0		
Substrate	<input checked="" type="checkbox"/>	MIL-STD-883, 1018	2323		0		
	<input type="checkbox"/>	ESCC 24800					N/A as the packages are laser-marked
	<input checked="" type="checkbox"/>	IEC 60068-2-20, test Ta	2323 2314	3	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 1013	2323 2314	3	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 2011	2323 2314	3	0		
	<input checked="" type="checkbox"/>	MIL-STD-883, 2003	2323 2314	3	0		
Substrate	<input type="checkbox"/>						
	<input type="checkbox"/>						
	<input type="checkbox"/>						

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.