



APPLICATION FOR EXTENSION OF ESCC PROCESS CAPABILITY APPROVAL

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Appl. No.
349B

PROCESS CAPABILITY DOMAIN: **Low Frequency and Power Hybrid Line**

Executive Member: **ESA**

Date: 01/04/2025

Capability domain submitted for approval: **The Hybrid Manufacturing Line of Thales Alenia Space Belgium (TASB) in Charleroi, Low Frequency and Power Hermetic Hybrids, based on thick-film substrate Multi Chip Modules. Hermetic encapsulation is achieved with metal-based or HTCC packages**

Capability Domain Description	Process Capability Abstract	Based on Technology	Test Structures	Component Proposed for Qualification
Low frequency and Power Hermetic Hybrids	See appendix	See appendix	option 1	N.A. (renewal)

Manufacturer: Thales Alenia Space Belgium (TASB)	Location of manufacturing plant(s): Rue Chapelle Beaussart 101 B-6032 Mont-sur-Marchienne (Charleroi) Belgium	ESCC Specifications used for Process Capability Approval : ESCC 2566000, Issue 3 (2018)
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Report reference: references in box 12	PID used for initial Process Capability Approval: Reference No. : 9100.0683 Issue : 8.2 Revision : - Date: 30/01/2021
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PID Changes since start of Process Capability Approval None <input type="checkbox"/> Minor* <input checked="" type="checkbox"/> Major* <input type="checkbox"/>	Current PID verified by: A. Collado, ESA Name of Executive Representative Ref. No.: 9100.0683 Issue / Rev : 9.1 Date : 19/01/2023
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Current Manufacturing Facilities and Quality System surveyed by: ESA		
Executive Agency: ESA	Date: 12/01/2023	Report Reference Number: HYB-GEN-MM-0154-01-00
Satisfactory: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Corrective Actions Closed Out: Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	

Quality and Reliability Data	
Evaluation testing performed Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Report Ref. No.: All reports related to the evolution of the PID have been reviewed and accepted to support the extension of certification. dates: see box 12 Equivalent data: references in PID (provide details) Certification: yes	Failure Analysis, DPA, NCCS: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> (supply data) Ref. Nos. and purpose: DPA for extension of certification, references in box12.



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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 evidenced except as stated in box 13; that the reports and data are available at the ESCC Executive and therefore applies for ESCC Capability Approval status to be given to the capability domain defined herein.

Date:

Denis
Lacombe

Digitally signed by
Denis Lacombe
Date: 2025.08.04
16:15:04 +02'00'

(D. Lacombe, ESCC Executive Coordinator)

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Continuation of Boxes above:

from box [5]

qualification reports:

Qualification of the Hesse BJ653 ultrasonic wirebonder:

TG_HYB_PRE_220002-02-00 Test plan and description of the TV + test table

Qualification of the glass-frit seal process applied to HTCC package (TV: AMR):

Reference document: TASB_IND_TN_220068_ED01_R00 Test plan

Detail Specification: 8090.0840-1-Ed03-R00 AMR Detail specification

Presentation PPT: IND_TCH_HYB_PPT_220001 AMR Qualification - Presentation for ESA visit

from box [10]

DPA reports:

1 LPLC 80960214G01_VOL;Techno : MPCH (Multi Cavity Power Hybrid)

TASB-AQ-DIV-21003 80960214G01_VOL - F95437/42063A - SN04 - PID recertification (RGA & DPA) - DC:20-08

1 MOS4 80950040G05_VOL;Techno : HPKO (High Power KOvar hybrid)

TASB-AQ-DIV-21004 80950045G01_VOL - F95449/41351A - SN12 - PID recertification (RGA & DPA) - DC:19-21

1 HLS8 80900837G01_VOL;Techno : LLKO-Flat Pack (Low Level KOvar Flat-pack)

TASB-AQ-DIV-21005 80900837G01_VOL - F95388/41352A - SN03 - PID recertification (RGA & DPA) - DC:18-39



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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 Capability Approval or rationale for acceptability of noncompliance:
N/A

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Disposition:

Application Approval: Yes No

Action/Remarks:

Date: 30 August 2025

A. Zadeh,
Head of the Avionics and EEE Division

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Date: 01/04/2025

NOTES ON THE COMPLETION OF THE APPLICATION FORM FOR ESCC CAPABILITY APPROVAL [or its EXTENSION, see BOX 12 below]

- GENERAL** Whenever possible, all entries should be typed and in any case be suitable for legible reproduction by normal means.
- ENTRIES**
Form heading shall indicate: - the **title** of the capability domain or the technology as given in the Capability Abstract - the **Executive Member**; - the entering date; - the serial number and the suffix of the form.
- Box 1** shall provide under capability domain description the full name or a description statement of the capability domain – the number of the Capability Abstract document – the basic technology used for capability approval – the test structures specification numbers or identification numbers – the components which successfully passed component approval test and are proposed for qualification within the domain.
N.B. The capability abstract shall be attached as an Appendix.
- Box 2 and 3** Manufacturer's name and location of the plant(s) where the capability domain is situated.
- Box 4** The **ESCC basic** specifications (including issue number and date) used during Process Capability Approval.
- Box 5** **Reference** to test report(s) submitted in support of the application for capability approval and components proposed for qualification.
- Box 6** Enter details to identify the **PID** that was applicable at the time of manufacturing of samples for capability approval testing.
- Box 7** If the **PID** has been changed during or after capability approval testing, adequate details shall be provided together with the reasons for change. Major changes shall be clearly identified.
- Box 8** The box serves to identify the current PID and the **Executive Representative** that has verified it together with the date of this verification.
- Box 9** The box can be completed only after a physical visit to the plant to confirm that the practices, procedures, material, etc. used in manufacturing the components are as described in the PID. This **audit** shall be carried out in accordance with the requirements of ESCC Basic Specification No. 20200 and the results shall be formally recorded. The report number shall be referenced.
- Box 10** Details entered shall be sufficient to evidenced that an evaluation programme according to ESCC Basic Specification No. 24300 has been performed and that the results thereof are summarised in the audit and test reports. If the evaluation programme has not been carried out according to established ESCC Specifications, the applicant **Executive Member** shall provide alternative data and declare the assessed degree of satisfactory compliance with the **ESCC** requirements. Reference shall be made to the reports on **Destructive Physical Analysis (DPA)**, **Failure Analysis** reports as well as any Non Conformance (**NCCS**) issued during the Evaluation and/or capability approval testing.
- Box 11** Enter the **name** of the **Executive Member** (i.e., CNES, DLR, ESTEC, etc.) and the signature and date of the responsible **Executive Coordinator**.
- Box 12** To be used when there is a need to **expand** any of the boxes from 1 through 10. Identify the Box affected and reference Box 12 in the relevant Box. Box 12 can be broken into 12a, 12b, etc. if several boxes have to be expanded.
In the case of Application for the Extension of Capability Approval, the Box 12 may be used to provide a summary of lots of component types (types, date codes, quantity) manufactured and tested within the capability domain. Refer to ESCC 24300, paragraph 9.4.3 for complete requirements.
- Box 13** State **noncompliance** with reference to specification(s) and paragraph(s). To simplify reference in Box 14 each nonconformance shall be sequentially numbered. If relevant state 'None'.
- Box 14** 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 15** All **Executive Manager recommendations** on the application itself, special conditions or restrictions, modifications of the **ESCC** QPL entry, letters to the manufacturer, etc. shall be entered clearly in Box 15, signed by the representative for **ESA**, and dated.