5.1.4 THALES ALENIA SPACE, BELGIUM

The Process Capability Approval (PCA) of the Hybrid Line of Thales Alenia Space (TAS), Charleroi, Belgium, has been certified by ESA in accordance with the requirements of ESCC Basic specification No. 2566000.

The associated PID includes TAS' production flow (manufacturing, assembly and test operations which has been approved for the supply of Hermetic Hybrid products for use in ESA space systems as a Category1, Option 1 Manufacturer, in accordance with ECSS-Q-ST-60-05C Rev.1

Manufacturing activities will terminate by September 2026. Electrical testing (sealed hybrids), acceptance testing and LAT activities will continue until December 2026.

5.1.4.1 Contact Information

Address
Thales Alenia Space Rue Chapelle Beaussart 101 B-6032 Mont-sur-Marchienne (Charleroi) Belgium

5.1.4.2 Process Capability Approval

Certificate No.	Certified since:	Type Designation
349C	April 2018	Low Frequency and Power Hybrid Line

5.1.4.3 Capability Abstract

The associated Process Identification Document (PID) is referenced 9100.0683 Issue 10.0

The PCA covers the TAS-B activities in the field of manufacturing, testing, screening and Quality Assurance of Low-Frequency and Power Hermetic Hybrid technologies, produced to be embedded in modules assembled on TAS space equipment and sub-systems. TAS-B also delivers hybrids in direct to external customers (DC/DC converters…).

According to the PID, the hermetic modules are designed and manufactured for the integration of function as "thick film" MCMs. These hybrids integrate several types of active and passive add-on parts, inside customized hermetic package: analogic and digital ICs, ASICs, bare chips (transistors & diodes), Capacitors, Resistors, Inductors and transformers, Thermistors, Thin-Film and Thick-Film circuits. Various types of wires are used for interconnection on dies and substrates or package (Al, Au, Cu).

Various types of sealing are available to obtain a hermetic cavity under inert gas atmosphere. Depending of the application, the hermetic package is made of metal (Kovar or Alumium) with glass or ceramic feedthroughs. The use of ceramic HTCC package is also part of the PCA.

At the final step of production, hybrid modules are screened, according to the PID and to the generic procurement specification ECSS-Q-ST-60-05C Rev. 1.

The repair provision conditions (element replacement, re-bonding, de-lidding …), as well as the criteria for lot rejection are also given in the PID, in accordance with ECSS-Q-ST-60-05C Rev. 1.

The procurement of passive and active components, materials and mechanical parts are assured according to internal procurement specifications and incoming instructions, as detailed in PID. The associated internal tests namely include bondability, shear tests, and user-LAT carried out per ECSS-Q-ST-60-05C Rev. 1.

In matter of LAT, TAS-B validates the hybrid lots produced according to “Option 1” of ECSS-Q-ST60-05C Rev. 1.