

5.1.2 SAFRAN ELECTRONICS & DEFENSE, FRANCE

The Process Capability Approval (PCA) of the Hybrid Line of Safran Electronics & Defense in Valence, France, has been certified by ESA in accordance with the requirements of ESCC Basic specification No. [2566000](#).

The associated PID includes Safran Electronics & Defense's manufacturing, assembly and test operations which have 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

5.1.2.1 *Contact Information*

Address	ESCC Chief Inspector
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5.1.2.2 *Process Capability Approval*

Certificate No.	Certified since:	Type Designation
346D	Dec. 2016	Thick Film, Hermetic and HTCC Hermetic, low power, single cavity, Hybrids

5.1.2.3 *Capability Abstract*

SAFRAN ELECTRONICS & DEFENSE's hybrid manufacturing line capabilities are defined within the associated Process Identification Document (PID) AQA 511 rev AD.

This PID describes hybrid assembly, packaging, production screening, test and quality assurance processes for Medium and Low power Hybrids Circuits using multilayer Thick film and HTCC (High Temperature Cofired Ceramics) technology.

Hybrids are used in equipment like power supplies, Video treatment, low noise amplifiers, data link electronics for telecom or scientific systems...

The hybrids are screened in house according to the PID. Regarding the Lot Acceptance Test SAFRAN ELECTRONICS & DEFENSE is compliant to Option 1 as default, but under customer agreement also the Option 2 can be applied (TRB, SPC, SEC).

According to the PID, the hybrids circuits are manufactured by encapsulation, of several types of active and passive components reported inside customized hermetic package: ASICs and digital/analog ICs, Transistors, Diodes, Capacitors, Resistors networks, Optocouplers, Magnetic devices, Thermistors. The PID includes technologies and processes covering Rakon hybrid oscillator.

The choice, definition and procurement of active and passive chips, material and mechanical parts, the incoming inspection and the User-LAT test are performed according to custom specifications or PID procedures.

In-house process capabilities:

- •Multilayer thick film printing
- •Static and dynamic thick film resistors trimming.
- •Single or double-sided hybrids
- •Bare dices and SMT components: automatic pick-and-place assembly
- •Automatic Wire bonding.
- •Seam sealing
- •Mix technologies on same hybrid circuit (HTCC+Thick film+Reflow soldering)
- •Internal Expertise Laboratory: Destructive Physical Analysis (DPA), Elements characterizations, Failure analysis