5.1.2 TESAT SPACECOM, GERMANY

The Process Capability Approval (PCA) of the Hybrid Line of Tesat Spacecom, Backnang, Germany, has been certified by ESA in accordance with the requirements of ESCC Basic specification No. 2566000.

The associated PID includes Tesat'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
Tesat-Spacecom GmbH & Co. KG Gerberstraße 49 D-71522 Backnang Germany	Dr. – Ing. Jens Werner

5.1.2.2 Process Capability Approval

Certificate No.	Certified since:	Type Designation
341B	July 2016	Microwave Hybrid Integrated Circuits (MHIC) and High Density Integrated (HDI) RF Systems in Package (RF-SiP) using LTCC multilayer technology

5.1.2.3 Capability Abstract

TESAT's microwave hybrid manufacturing line capabilities are defined within the associated Process Identification Document (PID) 63.0200.005.00PID, Issue J.

This PID describes hybrid assembly, packaging, production screening, test and quality assurance processes for Microwave Hybrid Integrated Circuits (MHIC) and for High Density Integrated (HDI) RF-Systems in Package (RF-SiP) using LTCC multilayer technology. The manufacturing and screening lines are highly automated and provide up to man-less 24/7 operation mode.

The TESAT buried microwave technology offers the highest possible degree of circuit integration at extreme electromagnetic shielding levels.

The packaging standard is hermetic sealing but non-hermetic packaging has also been evaluated. Sealed packages are metal-ceramic based and apply thin-film, or LTCC technology.

Such hybrids are applied in various TESAT space equipment like linearizers, channel amplifiers, frequency converters, low noise amplifiers, SSPAs, modulators, data link electronics, DC-controllers and optical communication systems (likely the hermetic variants) but also in commercial terrestrial applications (non-hermetic variants). The frequency range reaches up to V-band.

TESAT hybrids are suited for radar applications (T/R-modules, TRX-modules for satellite constellations or high throughput satellites) or SSPA building blocks for beam-forming antennas.

TESAT's microwave hybrid manufacturing services are offered in-house and also externally (http://tesat.de/en/services/microwave-hybrid-manufacturing).

All space modules are screened according to ECSS-Q-ST-60-05C including burn-in and life test monitoring