
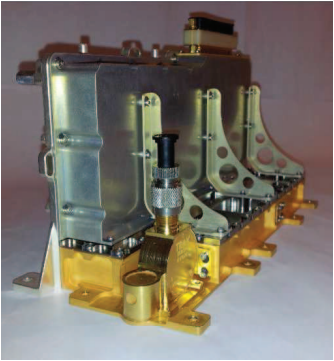


Activity Title:	<i>Development of a L-band 50W SSPA using European GaN Technology</i>		
Contract type	ARTES 5.2	Budget (k€)	900
Company (-ies) (including country)	TAS (France)		
Team (name of the participants in the project)	Contrat Manager: Martine Chaîne Project Manager: Benoit Lefebvre Design Engineers: Marc Zoyo / Benoit Lefebvre / Renaud Arnal / Patrick Ayouaz Tests Engineer: Fabien Baudeigne Development Engineer: Johann Bornet Mechanical Engineer: Sebastien Baron Thermal Engineer: Frédéric Michard Quality Manager: François Lavielle		
(*) Speaker (s)	Benoit Lefebvre	Email	benoit.lefebvre@thalesaleniaspace.com
Short Speaker Information (experience and involvement in this project – maximum 60 words)	Present position: Advance Microwave Study Engineer and Project Leader on the new generation of GaN SSPA for Telecom/Navigation/Observation space applications (L/S/C/X/Ku bands) Benoit Lefebvre has been in charge of the management of the project. He has been also involved in the microwave design activities: electrical budget, ADS simulation of different RF building blocks, linearization simulation and testing.		
Summary of the activity (maximum 400 words and 2 pictures)	In the frame of an ESA ARTES 5.2 study and with the support of CNES, Thales Alenia Space-France has developed a new EM L-band SSPA equipment using European GaN Technology from United Monolithic Semiconductors. This new equipment is dedicated to the entire renewal market of constellations of mobile communications satellites. The relevant characteristics of this new L-band GaN SSPA equipment are: # A GaN output power section based on MLA and HPA modules using the UMS GaN process and highly dissipative package solution. The power section includes also a high power isolator based on a vertical TNC output connector to facilitate implementation of the SSPA equipment during payload integration. # A low level GaAs RF chain including a linearizer module to compensate the non-linearities of the GaN power section. # An EPC-TMTC card dedicated to GaAs and GaN RF chain and designed to meet electrical&thermal challenges (new card vertically oriented to be compatible with reduced footprint SSPA and enabling an optimized thermal path and low weight design). # A vertical mechanical structure including thermal management solution in order to achieve footprint reduction and to guaranty a qualification temperature limits in operating mode from -10°C to +80°C. # The EM L-band SSPA has been measured with different type of signals. With a CW signal, at hot temperature and in the useful frequency bandwidth of [1,518 – 1,559 GHz], the equipment delivers an output power of 43W with an associated PAE of 54%. Total mass of the EM L-band SSPA equipment is 1,3kg with dimensions L=240mm, W=105mm, H=124mm.		
			

(*) The speaker needs to do the registration through this website