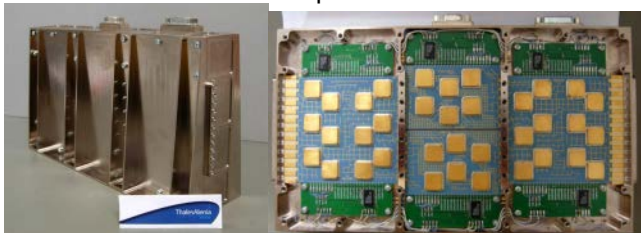


Title:	Very Large Order Switch Matrices using MEMS Technology		
Contract type	ARTES 5	Budget (K€)	750 K€
Company (-ies) (including country)	Thales Alenia Space- Italia (I); Thales Alenia Space – France (Fr); CNR (I); Technical Univ of Munich (D); FBK (I); Università degli studi di Perugia (I)		
Team (name of the participant in the project)			
(* Speaker (s))	Marziale Feudale	Email	Marziale.Feudale@thalesaleniaspace.com
Short Speaker Information (experience and involvement in this project)	Marziale Feudale joined Thales Alenia Space–Italia (formerly AleniaSpazio) in 1992 as MMIC designer for Space applications. From 2006 up to May 2010, he was responsible of RF Advanced Studies, dealing with many developments in the frame of ESA and ASI mainly related to Microwave Modules, High frequency MMIC, MEMS and Optical circuits. In 2014 he has been appointed expert in the frame of the TAS-I organization and presently is technical advisor for MMIC technologies in R&D and Design Authority Department.		
Summary of the activity (maximum 400 words)	<p>Scope of the activity was the study, design and implementation of a large order Switch matrix based of MEMS technology for applications to flexible satellite payloads. A 12x12 Switch Matrix Unit featuring silicon RF MEMS implemented on LTCC boards has been developed. It consists in a complete Engineering Model unit, housed in a aluminium box with RF and DC connectors for powering and commanding.</p> <p>The main advantages over conventional switch matrix units used in satellite communication so far, are:</p> <ul style="list-style-type: none"> - compact size - lightweight - lower production cost. <p>Compared to a standard switch matrix used on a recent commercial telecom satellite (2013), the MEMS based Switch Matrix resulted lighter with 2.4 Kg. against 9.5 kg.; Obtained size is 28x9x16cm versus the 32x26x12cm of the standard solution. This dramatic improvement has been achieved by a proper combination of RF MEMS switch technology (used for the basic building block), and multilayer LTCC technology, which allows routing of RF signals and DC line feeds together with hermetical packaging for the MEMS switches. Performances in line with expectations have been demonstrated up to C Band</p>		
			

(* The speaker needs to do the registration through the [website](#)