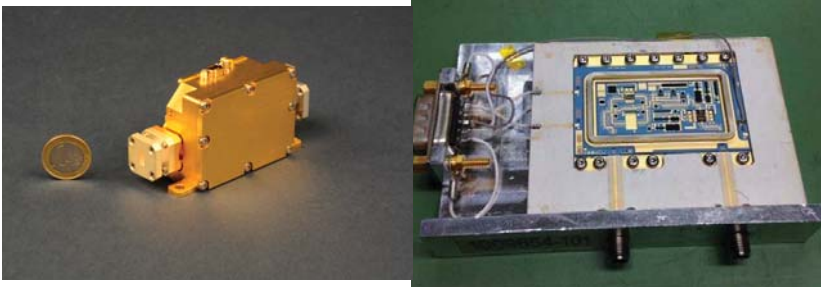


<b>Activity Title:</b>	<b><i>Generic Sub-elements and Ka-band LNA development</i></b>		
<b>Contract type</b>	<b>ARTES 5.2</b>	<b>Budget (k€)</b>	<b>3.5 MEuro</b>
<b>Company (-ies) (including country)</b>	RUAG Space AB, Sweden		
<b>Team (name of the participants in the project)</b>	Project Manager: Håkan Janson Project Engineer: Fredrik Uddgren Design Engineers: Dennis Kleen, Martin Löfgren, Robert Eriksson, Jonas Larsson, Sven-Henrik Wollersjö		
<b>(*) Speaker (s)</b>	Robert Petersson	<b>Email</b>	robert.petersson@ruag.com
<b>Short Speaker Information (experience and involvement in this project – maximum 60 words)</b>	Worked as Design Manager for Microwave Electronics since 1999. The involvement in this project was coordination, responsible for resources, technical support and participation in design reviews.		
<b>Summary of the activity (maximum 400 words and 2 pictures)</b>	<p>The project objectives were to develop subelements for future highly integrated microwave equipment. An EM of a Ka-band LNA unit for Telecom payloads were also developed and tested.</p> <p>Four LNA MMIC were developed and tested:</p> <ol style="list-style-type: none"> <li>1. 30 GHz LNA MMIC</li> <li>2. 18 GHz LNA MMIC</li> <li>3. 14 GHz LNA MMIC</li> <li>4. 6 GHz LNA MMIC</li> </ol> <p>The LNA MMICs were designed using the OMMIC D01MH process which is a very low noise process.</p> <p>Complete LNA chain BBs were developed to validate the MMIC performance in a typical package. The RF chain included a VGA for temperature compensation as well as an output amplifier with naked die transistors.</p> <p>Two linear output amplifiers were also developed and tested:</p> <ol style="list-style-type: none"> <li>1. 12 GHz PA MMIC</li> <li>2. 4 GHz PA MMIC</li> </ol> <p>The PA MMICs were designed using the UMS PPH25x process for high linearity. An LTCC package was developed to house the developed PA MMIC together with a driver MMIC.</p> <p>Finally a Ka band LNA EM unit was designed manufactured and tested. The EM unit included secondary voltage regulators, temperature compensation circuits and a hermetic package with the LNA RF chain.</p>		
			

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