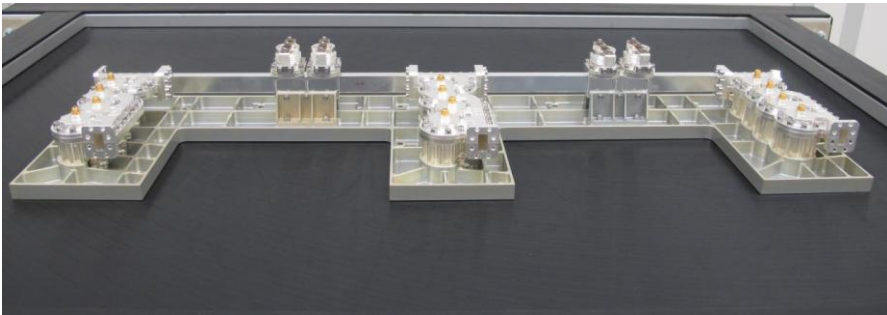


<b>Title:</b>	<i>“Temperature Compensation Techniques for Waveguide Filters, Manifold and Multiplexers”</i>		
<b>Contract type</b>	<i>ARTES 5.1</i>	<b>Budget (K€)</b>	<b>500K€+80K€ (CCN)</b>
<b>Company (-ies) (including country)</b>	TESAT Spacecom (Germany)		
<b>Team</b> <i>(name of the participant in the project)</i>	C. Arnold, J. Parlebas, M. Abele, G. Binder, M. Franz		
<b>(*) Speaker (s)</b>	Christian Arnold	<b>Email</b>	Christian.arnold@tesat.de
<b>Short Speaker Information</b> <i>(experience and involvement in this project)</i>	Christian Arnold is an RF Engineer in the Passive Products Department at Tesat Spacecom. His focus areas are temperature compensated and tuneable filters. In this program, he was technically responsible for all development, manufacturing and test activities.		
<b>Summary of the activity</b> <i>(maximum 400 words)</i>	<p>The scope of the activity was to design a temperature compensated omux in Ka-band. The omux is a three channel omux manufactured from aluminium half-shells. The length of the manifold is sufficient to accommodate 12 channels. The channel filters can be integrated with the manifold in a common aluminium half-shell. They are operated in TE011 mode, which is very suited for applications with non-contacting tuning plungers.</p> <p>The filters employ temperature compensation units to compensate the thermal expansion of the aluminium. The compensation unit consists of a housing containing a bimetal and a tuning plunger. The bimetal moves the tuning plunger into the filter cavity as the temperature becomes higher, thus shortening the resonator.</p> <p>A similar compensation mechanism is used for the manifold, a resonator in parallel to the manifold is used to compensate the phase change due to manifold expansion.</p> <p>The omux is operated in the ka-band (frequency range 19.7-20.2 GHz). The channel filters can sustain input powers of more than 250 W in nominal as well as in band-edge operation.</p>		
			

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