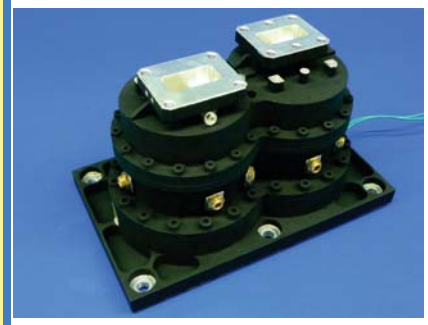
Activity Title:	***Ku Band OMUX 500 Watt per channel***		
Contract type	**ARTES 5**	**Budget** *(k€)*	**650**
Company (-ies) *(including country)*	Prime-Contractor:Tesat -Spacecom GmbH (Germany), Sub-Contractor: Aurorasat (Spain)		
Team *(name of the participants in the project)*	Franz-Josef Görtz(Tesat) Michael Franz (Tesat) Melanie Haussler (Tesat) Carlos P. Vicente Quiles (Aurorsat) Teresa Pinheiro (Aurorasat)		
(*) **Speaker (s)**	Franz-Josef Görtz	**Email**	Franz-Josef.Goertz@tesat.de
Short Speaker Information *(experience and involvement in this project – maximum 60 words)*	Dipl.-Ing. Franz-Josef Görtz was born in Hückelhoven,Germany, on October 08, 1954. He received the degree in electrical engineering Dipl. –Ing. (TH) from the Technical University RWTH Aachen in 1982.He is with Tesat-Spacecom GmbH & Co. KG, involved in development of passive components, filters, multiplexers and switches. Since 1982 he designed, developed and implemented microwave flight hardware for several satellite programs covering L- to Ka-band frequencies. Actually he is working on input multiplexers for Ka-Band. He is the technical RF Engineer at Tesat for the ESA activity in which this paper is based on. Tesat has performed the development, analysis and test of the presented High Power Filter in this paper.		
Summary of the activity *(maximum 400 words and 2 pictures)*	Special applications in future Ku-band communication satellites require output multiplexer with 500 Watt per channel in contiguous frequency schemes. This is challenging because classical INVAR filters cannot handle the power and filters from aluminium show too large frequency drift. A suitable technique is developed to combine stability in frequency while not exceeding mechanical and thermal limits. Aspect of high power effects like multipactor in vacuum and corona at ambient conditions are carefully analysed to minimize a risk for RF breakdown during testing and operation. A narrow band filter design in Ku Band with 500 Watt input power per channel is manufactured and tested and can be used in contiguous output multiplexers. Temperature compensation technique for aluminium design in overmoded TE114 mode is realised. Main Benefits • The overmoded design in TE 114 mode with bandwidth of 27MHz shows a low insertion loss of 0.5 dB, corresponding to an unloaded Q-factor of 20000. • High input power capability of 500 Watt per channel. • Multipaction and corona effects are carefully analysed for operation in vacuum and at ambient conditions with sufficient margins. • Maximum temperatures including out-of-band carrier operation are below long term temperature limits. • Frequency drift is <1.1 ppm and comparable to classic INVAR designs • Low foot print of 110 x 60 mm per channel • Low mass of 270 g without baseplate  Click here to add a picture		

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