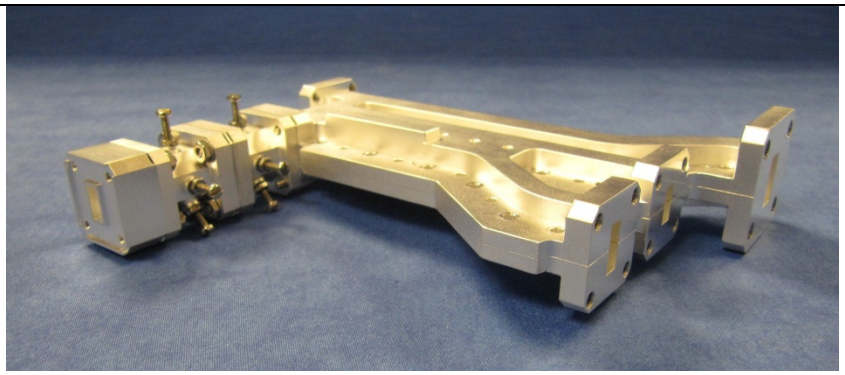
Title:	***" Ka-band Circular Waveguide Quadruplexer Development"***		
Contract type	**ARTES 5.2**	**Budget** *(K€)*	**275**
Company (-ies) *(including country)*	Airbus Defence and Space Ltd (UK)		
Team *(name of the participant in the project)*	Paul Booth Mark Harvey Mark Kunes Dave Kilroy Trevor Baker		
(*) **Speaker (s)**	Paul Booth	**Email**	paul.booth@astrium.eads.net
Short Speaker Information *(experience and involvement in this project)*	Paul Booth was the Lead Engineer on the project. As a member of the antenna department at Airbus D&S he works on the RF design of filters and feeds. He graduated from the University of Leeds in 1987 and has worked on a variety of RF projects for space applications and ground based telecommunications.		
Summary of the activity *(maximum 400 words)*	The programme was to develop a feed mounted Ka-band quadruplexer. This component will be developed for multi frequency antennas and will employ a combination of non-standard Tx and Rx bands. The filters were realised in a mixture of circular waveguide for the narrow band filters, traditional rectangular for wideband filters and a dual mode rectangular filter. Far-out-of-band rejection was provided where possible by integrating various techniques obviating the need for lowpass or 'cover' filters. The quadruplexer development focussed on the four bands detailed below: Tx1: 20.2GHz to 21.2 GHz Tx2: 25.5GHz to 27.0 GHz Rx1: 27.83GHz to 28.44 GHz Rx2: 30.0GHz to 31.0GHz With an operating band of over 10GHz the manifold design was critical and techniques were used to shift manifold generated resonances into unused bands. A key advantage that the design offers to the payload is the use of a single fed as opposed to a dual fed antenna or even a single antenna rather than two antennas. If the quadruplexer was part of the standard payload then there would be a very long run of waveguide operating at the extremes of its frequency range which has a significant impact on loss and over-moding. A dual fed reflector has mass implications and is usually a non-optimum solution.		

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