Abstracts

Highly integrated RF-modules for Ka-Band multiple-beam active phased array antennas

J. Butz, M. Spinnler, J. Christ and U. Mahr. "Highly integrated RF-modules for Ka-Band multiple-beam active phased array antennas." 2002 MTT-S International Microwave Symposium Digest 02.1 (2002 Vol. I [MWSYM]): 61-64 vol.1.

This paper describes design and measurement results of RF modules intended for a proposed spaceborne multimedia Ka-Band multiple-beam transmit phased array antenna. The developed modules include a four-beam RF Control Module (CM) for amplitude and phase shaping, a Solid State Power Amplifier Module (SSPAM) for power amplification as well as a Radiating Module (RM). The CM is realised on a multilayer LTCC substrate with custom-designed 6-bit phaseshifter MMICs and 5-bit attenuator MMICs. The SSPAM is realised on thin-film substrates with GaAs MMIC amplifiers. The modules were designed to meet the electrical, mechanical and thermal requirements of the proposed antenna. Using the developed modules, a subarray demonstrator consisting of four radiating patches was realised. The measurement results show that specified key performance parameters are met and prove the feasibility of the antenna concept.

❑ Return to main document.