Abstracts

Design and development of the frequency generation system for the ACeS spacecraft

L. Dayaratna, L.G. Ramos, M. Moser and C. Buondelmonte. "Design and development of the frequency generation system for the ACeS spacecraft." 1999 MTT-S International Microwave Symposium Digest 99.3 (1999 Vol. III [MWSYM]): 1051-1054 vol.3.

The ACeS Communication Satellite (Garuda-1), developed by Lockheed Martin CPC and due to be launched in 1999, will be the first mobile communications satellite employing a centralized frequency generation system (FGS) consisting of 420 synthesizers. In order to generate the local oscillator frequencies for the various frequency (up/down) converters, a centralized FGS is employed. Coherent signal processing is achieved by generating all local oscillator signals from a highly stable 10 MHz reference frequency source. The frequency conversion architecture utilizing a dedicated programmable synthesizer for each of the 364 payload converters and the associated FGS is unique to this type of payload. The design requirements of small size, low mass, and low power consumption were met by a unique design concept that is modular and easy to test.

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