Abstracts

Miniature 8-18 GHz Four Channel Frequency Converter

S. Roos, P. Griffith, R. Sheehan, F. McMahon and M. Kumar. "Miniature 8-18 GHz Four Channel Frequency Converter." 1990 MTT-S International Microwave Symposium Digest 90.2 (1990 Vol. II [MWSYM]): 725-728.

A state-of-the-art 8-18 GHz Front End comprising four phase and amplitude matched Frequency Converters consisting of ten selectable 1 GHz wide sub-band channels has been developed. An Integrated Local Oscillator (LO) Distribution module consisting of five dielectric resonator oscillators (DRO) operating at 11, 12, 13, 14, 15 GHz provides the downconversion of the 8 - 18 GHz RF spectrum to a 2 - 3 GHz intermediate frequency range. The input noise figure of each converter module is 10 dB with an associated gain of 46 dB ± dB. The spurious-free dynamic range is greater than 47 dB. The DRO oscillator accuracy is ±5 PPM/°C over a temperature range of 0°C to 50°C. The downconverter utilizes a combination of MIC and MMIC components to obtain the state-of-the-art performance in a small volume of 1966 cubic centimeters.

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