SESSION 15: SEMICONDUCTOR CONTROL AND FREQUENCY CONVERSION

SESSION CHAIRMAN: J. F. WHITE
MACOM INC.
BURLINGTON, MA

LARKEN HALL (B)
Friday, 8:30 AM

This session treats special semiconductor topics of continuing interest in the microwave field. These include octave and multi-octave phase modulator methods, a very high speed FET phase detector operated to 26 GHz, and a comprehensive analysis for high level varactor upconverters. The four papers were selected for the following respective contributions.

15-1, 8:40 AM
Octave-Band High Precision Balanced Modulator
Z. Adler, B. Smilowitz
Farmingdale, NY

This special balanced modulator gives 180° ± 2 phase shift and with only ± 0.3 dB loss variation over the full 5 to 10 GHz band.

15-2, 9:00 AM
Multi-Octave Phase Modulators
T. Tadeusz, J. Zborowska, P. Miazga
Technical University of Warsaw
Warsaw, Poland

This paper describes a phase shifter with 180° ± 5° control from 100 to 800 MHz using antiphase diode terminations for a hybrid coupler.

15-3, 9:20 AM
Novel GaAs FET Phase Detector Operable to Ka-Band
T. Kakano, Y. Tozawa, T. Shima, T. Kato, H. Komizo, H. Yatsuka
Fujitsu Ltd., Kawasaki, Japan

This phase detector has 30 millivolts per radian sensitivity at 26 GHz using a 19 dBm 100 MHz reference frequency, and is used with a 50 GHz phase locked oscillator.

15-4, 9:40 AM
A FET L-Band Phase/Amplitude Control Module
A. Presser
RCA Laboratories, Princeton, NJ

Design and performance of a lumped element analog amplitude and phase control module at L-band is presented. This miniature phaser uses the principle of vector manipulation and employs FET's in a low power consuming, passive configuration with good temperature stability.

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