Abstracts

Automated Test Equipment for Phased-Array Modules

C.H. Dale and A.R. Howland. "Automated Test Equipment for Phased-Array Modules." 1972 Transactions on Microwave Theory and Techniques 20.1 (Jan. 1972 [T-MTT] (Special Issue on Automated Microwave Measurements)): 10-17.

A computer-controlled production test system for air-borne phased-array microwave modules is described. In the transmit mode accurate measurements of module output power and phase as a function of input power and frequency are made automatically on a pulse basis, and with 4:1 frequency translation from module input to output. Module receiver gain, IF output phase, and noise figure are measured as a function of frequency and local oscillator input power in the receive mode. Other measurements under computer control include dc levels, input and output VSWRS, gain compression, output pulse characteristics, spurious levels, and spectral purity. All test parameters are automatically compared to unit-specification limits as well as reference-standard (unit-to-unit) limits. The system errors are measured periodically through use of calibration standards, stored in memory, and applied as corrections to the measured data on the module under test. Input power, derived from a coherent microwave synthesizer, is automatically adjusted to the required level prior to each test. All test data are recorded on magnetic tape and available to the operator by means of a line printer when desired. The module test fixture incorporates precision (APC)-7 to module adapters, dc connections, an array simulator, and temperature control.

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