Abstracts

Phase Equalization Problems in a Phased-Array Transmitter

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Current radar systems employing programmed multiple antenna feeds to orient the antenna beam electronically require large numbers of parallel channels operating simultaneously with nearly identical phase-delay characteristics. These channels include active devices such as microwave amplifiers for which phase-delay, as well as gain and power output, must be identical to accomplish high pointing accuracy and maximum power addition. When the system is required to operate over a wide frequency band, all channels must track in phase. This paper describes problems encountered in the development of a prototype transmitter requiring multiple channel phase-delay equality. A new medium power pulsed TWT is described and measurements of its electrical length are discussed. Computer programming which reduced the vast amount of phase information derived from this development is described.

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