

Abstracts

An Experimental Gyro-TWT

R.S. Symons, H.R. Jory, S.J. Hegji and P.E. Ferguson. "An Experimental Gyro-TWT." 1981 Transactions on Microwave Theory and Techniques 29.3 (Mar. 1981 [T-MTT]): 181-184.

Three experimental gyro traveling wave tubes (TWT'S) have been built and tested. All tubes used a fundamental cyclotron resonance interaction with the circularly polarized $TE_{0/11}$ dominant waveguide mode. The tubes differed in the length of the single circuit section and in the amount of distributed loss used. The experiments were conducted at 5 GHz, with the object of producing a design that could be scaled to 94 GHz. Results on the third experiment include measurements of stable gain as high as 24 dB small signal and 18 dB saturated. A saturated power output of 120 kW at a total beam efficiency of 26 percent was measured with a 3-dB saturated power output bandwidth of 6 percent. The design features of the tubes and the experimental results are described fully.

[Return to main document.](#)