Abstracts

Phase Adjustment Effects on Cascaded Reflex Klystron Amplifiers

K. Ishii. "Phase Adjustment Effects on Cascaded Reflex Klystron Amplifiers." 1960 Transactions on Microwave Theory and Techniques 8.4 (Jul. 1960 [T-MTT]): 445-449.

Reflex klystrons (type 2K25) were used as regenerative amplifiers for the X-band. Two 2K25 reflex klystron amplifiers were cascaded with a coupling circuit which contained a variable phase shifter. The effect of the phase adjustment was investigated in comparison with another coupling scheme which did not contain the phase shifter. The phase adjustment in the coupling circuit gave the amplifier system high gain (more than 50 db max.), and a reasonably low noise figure (8 db-17.5 db). High sensitivity was obtained. Proper phase adjustment of the two stage reflex klystron amplifier could give more than twice the gain in db of the single stage amplifier because of the regenerative feedback between stages. The linearity and dynamic range were considerably improved by the phase adjustment. But the frequency bandwidth became narrow (2 mc), and improvement in stability and directivity was not significant.

❑ Return to main document.