Abstracts

A Broad-Band Traveling-Wave Maser for the Range 40-46.5 GHz (Short Papers)

N.T. Cherpak and T.A. Smirnova. "A Broad-Band Traveling-Wave Maser for the Range 40-46.5 GHz (Short Papers)." 1983 Transactions on Microwave Theory and Techniques 31.3 (Mar. 1983 [T-MTT]): 306-309.

A tunable traveling-wave maser (TWM) for the frequency range 40-46.5 GHz has been developed, which is characterized by an extended instantaneous bandwidth. Andalusite (Al/sub 2/SiO/sub 5/) doped with Fe^3 atoms is used as the active crystal. The slow-wave structure is a digit comb with broad-band matching particularly suitable for the millimeter range. The new type of isolator employed is based on textured hexagonal ferrite materials, namely BaNi/sub 2/Sc/sub x/Fe,/sub 16/-/sub x/O/sub 27/. The net gain within the tuning band is 20-35 dB. The instantaneous bandwidth at a -3-dB level is 150-100 MHz, dependhsg on the net gain. The noise temperature at the input does not exceed 25° K.

❑ Return to main document.