Abstracts

A 22-GHz-Band Low-Noise Down-Converter for Satellite Broadcast Receivers

K. Imai and H. Nakakita. "A 22-GHz-Band Low-Noise Down-Converter for Satellite Broadcast Receivers." 1991 Transactions on Microwave Theory and Techniques 39.6 (Jun. 1991 [T-MTT]): 993-999.

A simple low-cost and high-performance 22 GHz band down-converter is developed for a future direct-to-home satellite broadcasting system. The down-converter consists of a low-noise HEMT preamplifier, an image recovery mixer with a novel structure using dielectric resonator filters, a 21.4 GHz GaAs FET oscillator stabilized by a dielectric resonator, and an IF amplifier. These components are fully integrated using MIC technology into a small size. A total noise figure of less than 2.8 dB is obtained over the 22.5 -23.0 GHz frequency range. The local oscillator achieves a frequency variation of less than 600 kHz/sub p-p/ over a temperature range of -20° to + 60°C.

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