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Abstract:A W-band planar injection-locked harmonic oscillator (ILHO) based on substrate integrated waveguide (SIW) is implemented. This ILHO has a free-running output frequency around 94.6 GHz while the technique of harmonic extraction from diodes is used as a frequency multiplier. It has an output locking bandwidth of 300 MHz (from 94.45 to 94.75 GHz) as injecting a signal around 47.3 GHz with the fundamental injection-locked behavior, and the output power is more than 5.8 dBm. The combination of simple synchronization with a low-frequency reference signal allows the generation of stable and low phase-noise W-band signals with a fully integrated planar source. © Springer Science+Business Media, LLC 2012.
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