# Abstracts

## Improved 240-GHz subharmonically pumped planar Schottky diode mixers for space-borne applications

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Low-noise broad intermediate frequency (IF) band 240-GHz subharmonically pumped planar Schottky diode mixers for space-borne radiometers have been developed and characterized. The planar GaAs Schottky diodes are fully integrated with the RF/IF filter circuitry via the quartz-substrate upside-down integrated device (QUID) process resulting in a robust and easily handled package. A best double-sideband-mixer noise temperature of 490 K was achieved with 3 mW of local-oscillator power at 2-GHz IF. Over an IF band of 1.5-10 GHz, the noise temperature is below 1000 K. This state-of-the-art performance is attributed to lower parasitic capacitance devices and a low-loss waveguide circuit. Device fabrication technology and the resulting RF mixer performance obtained in the 200-250-GHz frequency range will be described.

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