

Low noise 89 GHz detector module for MetOp-SG

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Abstract

Presented is an 89 GHz waveguide coupled direct detector based on low-barrier Schottky diodes. The design aims for signal-to-noise ratio (SNR) values above 35 dB within 6 dB input power dynamic, with significant white and 1/f noise reduction. The fabricated detector is characterized and compared to simulation results, proving a high accuracy level of the design and fabrication process, as well as good knowledge of the applied Schottky diode. The results prove the suitability of the detector to be implemented in the 89GHz receiver for the second European meteorological operational satellite programme (MetOp-SG).