

Schottky diode based components for TeraSCREEN

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TeraSCREEN is an EU FP7 Security project aimed at developing and demonstrating in a live border control environment a safe, privacy respecting, high throughput security screening system which automatically detects and classifies potential threat objects concealed on a person. This will significantly improve both efficiency and security at border checks. TeraSCREEN will develop passive and active operation at several millimeter and submillimeter-wave frequencies to achieve this. The system developed will demonstrate, at a live control point, the safe automatic detection and classification of objects concealed under clothing, whilst respecting privacy and increasing current throughput rates. This innovative screening system will combine multi-frequency, multi-mode images taken by passive and active subsystems which will scan the subjects and obtain complementary spatial and spectral information, thus allowing for automatic threat recognition. This technology was developed for applications in Earth observation and astronomy and is now of increasing interest in ground based applications. The TeraSCREEN project will be an important demonstrator of this technology migrating into the commercial sector.

This paper will describe the development work at RAL on the 4th harmonic mixer operating at 360GHz for both active and passive subsystem, likewise the frequency multiplier sources up to 360GHz for the active subsystem. These components are all based on the Schottky diode technology. Simulation and measurement results of these components will be presented at the conference.

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References

1. TeraSCREEN: Multi-frequency multi-mode Terahertz screening for border checks (312496) - <http://fp7-terascree.com/>