

“A 60 GHz six-port based reflectometer for nondestructive characterization of materials”,
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Abstract - This paper describes a S-Parameter Measurements system based on a Six-Port topology using schottky zero bias diodes as power detectors. The system that operates at 60 GHz, called SPMS-60000, is built from a circulator-less topology to increase its suitability for fabrication in Microwave Monolithic Integrated Circuits (MMICs). The SPMS-60000 offers an interesting alternative to the conventional vector network analyzer (VNA), because of its easiness of use and its low cost compared to commercial VNAs. Measurement results are presented to show the accuracy and performance of the SPMS-60000 when measuring one-port devices. Applications of this system in the Non Destructive Evaluation (NDE) field are reported in this paper to demonstrate the validity and potentiality of the proposed system.