

VDI December 2006 Newsletter

Dr. David Porterfield, Vice President and principal of VDI, will present a paper at the 2007 IEEE MTT-S International Microwave Symposium, June 3-8 in Honolulu, Hawaii. The presentation will cover recent advances in varactor tripler development at Virginia Diodes, Inc. An excerpt from the paper appears below.

“Design and experimental analysis of high-power and high-efficiency frequency triplers to the 220 GHz and 440 GHz bands are presented. Test data for the 220 GHz tripler show 23 mW output power with 16 % efficiency. Test data for the 440 GHz tripler show 13 mW output power with 12 % efficiency. The 3 dB bandwidth for both triplers is about 7 %. This performance is comparable to the best reported in the literature at these frequencies. There are no mechanical tuners and thus the triplers may be electronically swept to any frequency in the band. The triplers comprise a waveguide housing, a pair of quartz microstrip circuits and a Virginia Diodes (VDI) GaAs Schottky varactor chip. The simple circuit topology makes it easy to assemble the multipliers and bias the varactors. A version to 800 GHz has been designed and should be available for testing in 2007. The design is scalable to frequencies above 1 THz.”

Some measured data for these components is available on VDI's website and can be accessed using the links listed below. A link to the 2007 IMS website is also provided.

VDI webpage for the 440 GHz tripler: <http://www.virginiadiodes.com/T438.htm>

VDI webpage for the 220 GHz tripler: <http://www.virginiadiodes.com/T220.htm>

IMS 2007 website: <http://www.ims2007.org/>

For more information, please contact VDI at 434-297-3257 or visit our website at www.virginiadiodes.com . Send email inquiries to VDIRFQ@virginiadiodes.com .