

**Amin Hamidian, Andrea Malignaggi, Ran Shu , Ali M. K., and Georg Boeck, “A High Performance and Fully Differential V-Band CMOS Transmitter”, accepted to be published in IEEE Microwave and Wireless Components Letters, 2015.**

**Abstract:** This work presents the design of high performance components and their integration into a fully differential 60 GHz transmitter on 90 nm CMOS technology. The design is optimized to cover all four channels of the IEEE 802.11ad standard. Further, the effects of fully differential topology and transformer based design on different aspects of the transmitter performance are discussed. The measured results of the transmitter show average values of around 25 dB conversion gain, 15 dBm saturated output power, 13 dBm output power at 1dB compression point and -92 dBc/Hz phase noise at 1 MHz offset for all channels with a total chip size of 3.8 mm<sup>2</sup>.