

Frank van Vliet, Marc van Heijningen, Friedbert van Raay, Rüdiger Quay

**Abstract** – This paper presents a background on the use of recent GaN technologies for realising high power millimeter wave MMICs. An overview of state-of-the-art performance of GaN devices and MMICs for millimetre wave applications is given including details on the latest technology. Two Ka-band amplifier MMICs have been designed and fabricated in this technology. The small-signal and power measurement results are presented and show an excellent output power of 34.1 dBm at 27 GHz for the 2-stage power amplifier MMIC. Both MMICs have a very good yield and performance especially in regard of the current state-of-the-art.