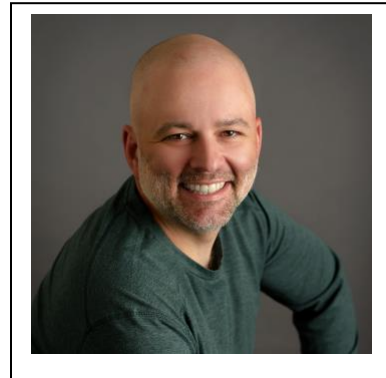


# GaAs & GaN MMIC Power Amplifier and Front-End Module Design for K-Ka Band Commercial Communication Systems

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## ABSTRACT

Consumer demand for data and ubiquitous connectivity is driving new development in K-Ka-band commercial communication systems. These include both terrestrial (e.g. 5G Fixed Wireless Access) and satellite (e.g. K/Ka-band Satcom uplink and downlink) based networks. GaAs and GaN MMIC solutions are attractive for use in the communication system front ends due to their high-power density, efficiency, and linearity. Some systems require maximum linear power from a single chip, such as ground based uplink transmitters. On-satellite applications require maximum efficiency nearer to a 1W output power level while meeting linearity targets. Phased array applications often require a Front-End Module (FEM, e.g. PA + LNA + Switch) to be used in both transmit and receive. State-of-the-art K-Ka-band PA and FEM requirements and performance will be discussed, along with future directions in GaAs and GaN MMIC design for supporting next generation communication systems.