A NOVEL APPROACH TO DESIGN OF A SQUARED COSINE (Cos2) PULSE MODULATED POWER AMPLIFIER FOR AIRBORNE NAVIGATIONAL APPLICATIONS

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Abstract

A pulsed power amplifier that achieves stringent spectral requirements at RF frequencies using Cos2 - pulse modulation scheme is proposed in place of traditional Gaussian pulse. The advantage of the scheme compliance the requirements of MIL-STD 291 C, an interface standard for Tactical Air Navigation, TACAN signal. The Cosine baseband is generated digitally using an FPGA by employing a Look-Up table based method. The digital generation scheme forms an unique advantage over an conventional Gaussian pulsed analog scheme in order to control RF pulse characteristics and its Spectrum of a GaN RF Power amplifier in the frequency band of 1025MHz to 1150 MHz in step of 1MHz.

Keywords: Cosine; FPGA; GaN RF; TACAN