

“Simulation and design of a chaotic gaussian frequency hopping communication chain”

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Abstract – This paper reports on the design of a communication chain based on chaotically determined frequency hops. This modulation technique intends to improve the protection and security levels of the transmitted data at the RF front end level. The technique is based on the auto-synchronization properties of chaotic oscillators which are realized through Sigma-Delta ($\Sigma\Delta$) frequency synthesizers. This modulation technique and the transmission chain have been simulated through a new system-level model of the $\Sigma\Delta$ frequency synthesizer. The realized chaotic emitter has been tested and a reception algorithm has been proposed.