NTNU – Trondheim
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TTT4212 RF/Microwave Design and Measurement Techniques

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1 Introduction

This report serves as the documentation of the work done in conjunction with the term project done in the course TTT4212 RF/Microwave design and measurement techniques. The goal of the project is to design an RF power amplifier using a single active device, the Cree CHG40010 GaN transistor, to simulate the performance parameters of the amplifier using the Keysight ADS software suite, and to verify the performance of the amplifier by building it and performing the required measurements.

2 Design of circuit

2.1 DC Bias point

2.2 Bias network

2.3 Matching network

3 Circuit Simulation

3.1 DC Bias point simulation

3.2 Linear S-parameter simulations

3.3 Nonlinear Harmonic balance simulation

4 Real-World Measurements

4.1 Gain

4.2 Power output

4.3 Stability

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