

## **Master 2020**

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### **Realisation of a Dual Band GNSS Antenna with Integrated Low-Noise-Amplifier.**

#### ***ABSTRACT - Masterthesis***

In this masterthesis a dual-band antenna with low noise amplifier for the E1 and E6 bands of the Galileo satellites is developed. The dual-band antenna is a stacked patch antenna on Roger's TMM10i substrate. The amplifier is a two-stage low noise amplifier with two bipolar transistors BFP540. The antenna and the low-noise amplifier are designed and simulated with the Microwave Office program. For the manufactured antennas and the low-noise amplifier, the S-parameters are measured with a network analyzer. The network analyzer also measures the stability of the low-noise amplifier. Furthermore, the directional diagrams at the center frequencies of the E1 and E6 bands are measured for the antenna with and without the low-noise amplifier. The measurement showed that the development of such an antenna is well possible, however, a lot of attention must be focused on accurate manufacturing. This can be achieved by machine manufacturing.