

Prototyping of mm-Wave Components

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With ever-increasing demand for faster data rates, communications and radar systems keep going to higher and higher frequencies. Currently, 5G communications are expected to reach 60 GHz. Future standards may and probably will go to even higher frequencies. The benefits of going to higher frequencies include greater availability of spectral bandwidth and smaller physical device sizes. However, going to smaller sizes also means that fabrication becomes more challenging.

In this project fabrication methods will be investigated for creating prototype components at millimeter-wave frequencies. The fabrication methods that will be investigated are both additive (3D printing) and subtractive (milling) manufacturing.

It is expected that the student(s) will learn how to use several 3D-printing tools, a tabletop CNC machine, and how to design basic building blocks both for electrical performance characterization.