Enabling Spectrum Coexistence of 5G mmWave and Passive Weather Sensing

Formerly Channel Measurement Campaign for Data Analytics in Wireless Networks

About us

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  - Fun Fact: I’m old enough to have had an Eden account
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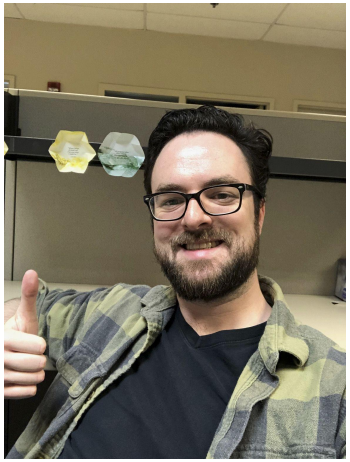

Overview

About:

- The demand for higher data rates has increased and newer mmWave bands are being used to achieve this.
- One of the bands in the spectrum, called the n-258, extends from 24.25 to 27.5 GHz, and is very close to weather sensing band which is around 23.665 to 23.95 GHz
- 5G transmissions can leak onto this adjacent band and can affect the prediction of weather precipitation patterns
- We will mimic these transmissions by using the IBM Phased Array Antenna Modules (PAAM) and detect the power leaked using a spectrum analyzer

Goal

- The goal is to use simulations and experiments to determine how normal operations of the 5G communication band will impact sensing on adjacent satellite weather bands.
- Longer term goal of building a pipeline for any sort of experiment that involves mmWave transmissions

Next week

- Build familiarity with Linux and ORBIT testbed
- Start working with GNU Radio to simulate transmitting and receiving of Orthogonal Frequency Division Multiplexing (OFDM)