

Collaborative Research: Enhancing Managed Spectrum Sharing with FR3- Cognizant Digital Twins

Presenter: Longfei Shangguan

Assistant Professor, CS, University of
Pittsburgh

Longfei@pitt.edu

Co-PI: Kyle Jamieson (Princeton)

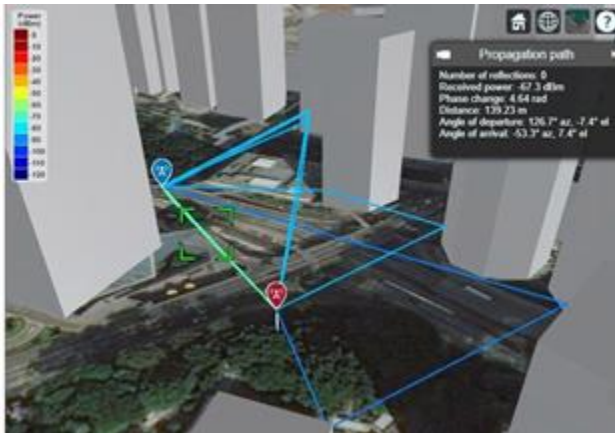
Collaborators: John Kaewell (InterDigital), Phil Pietraski (InterDigital),

Camillo Gentile (NIST), Jelena Senic (NIST), Nada Golmie (NIST)

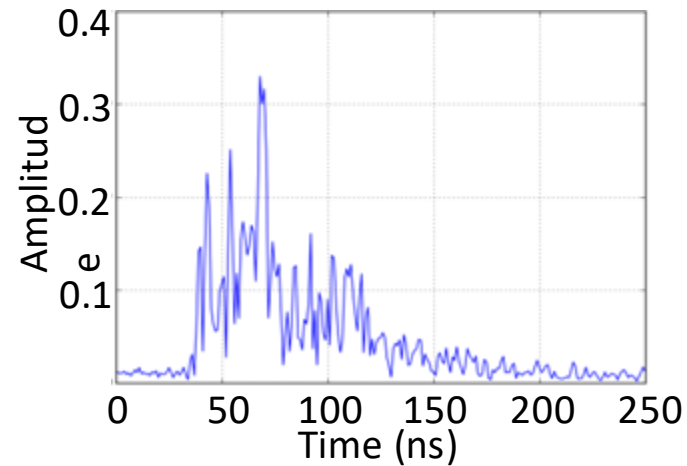


Wireless Channel Digital Twin: The Primer

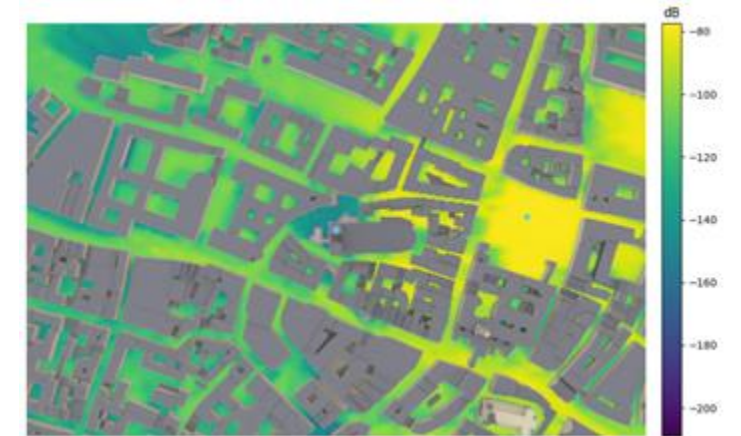
- Wireless channel digital twin is a virtual representation of the physical channel that can:



Model radio environments



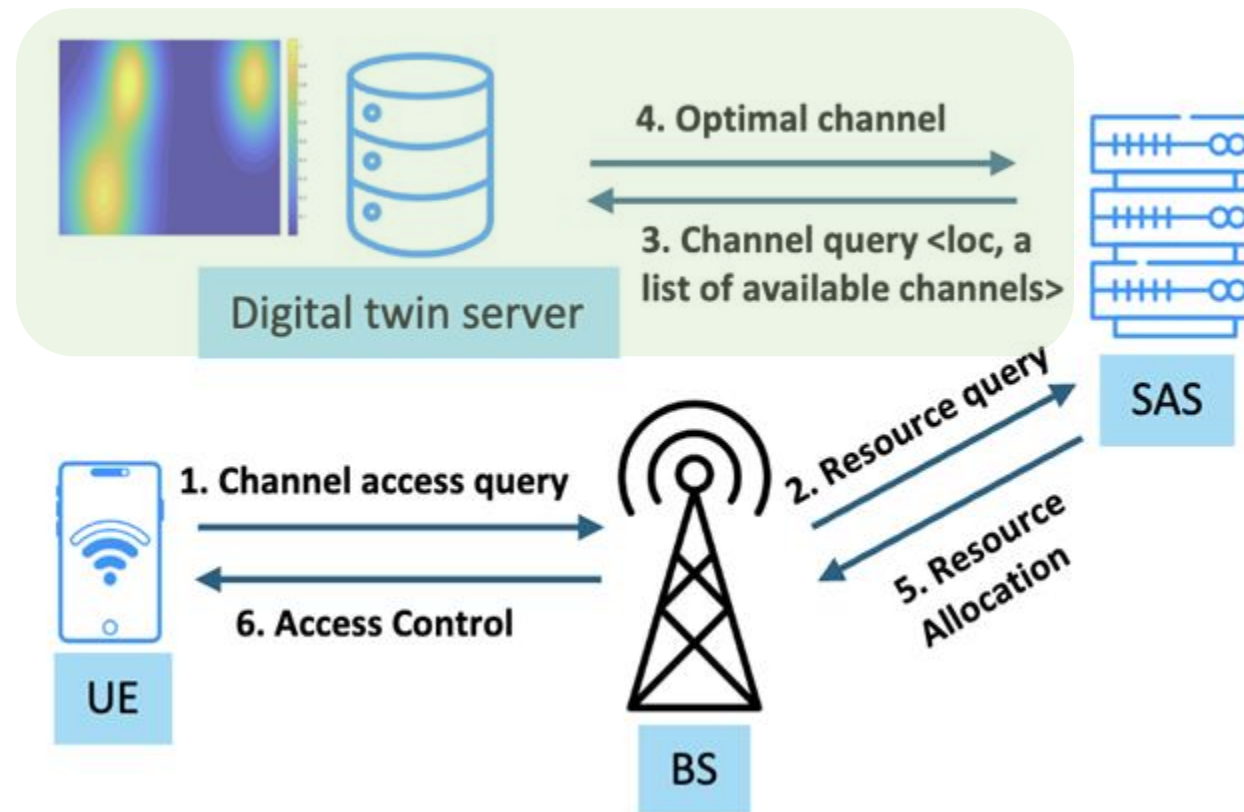
Predict link-level channel state



Predict Radio Map

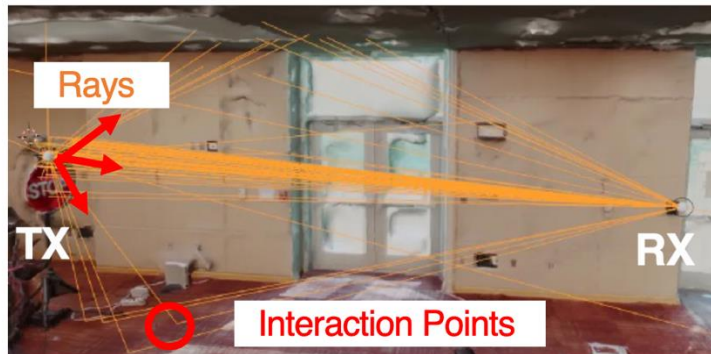
Wireless Spectrum Management Needs a Wireless Channel Digital Twin

- Tell not only which channels are available, but also which channels are optimal at a given user location and service time.
- Minimizing interference and maximizing spectrum efficiency.

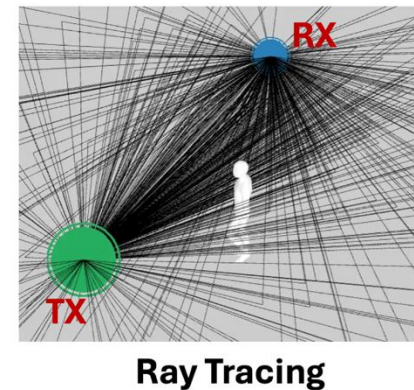
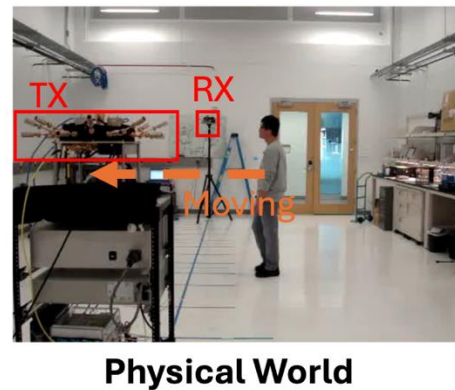


Research Roadmap

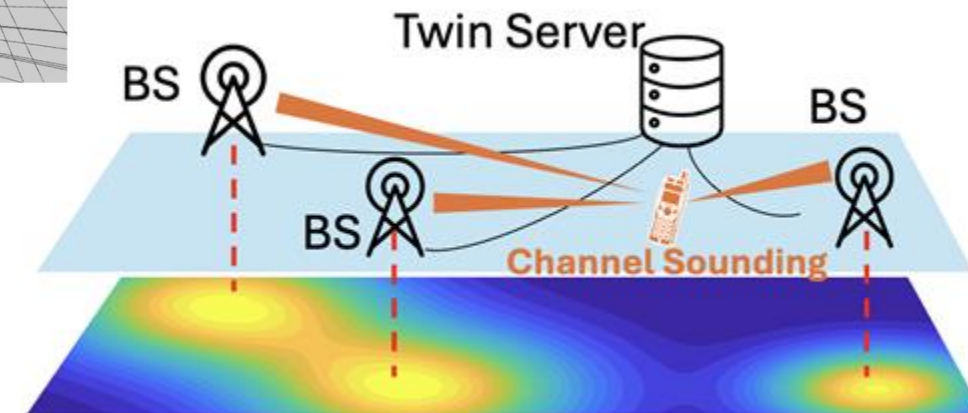
- Thrust One: Building a Wireless Digital Twin in Quiet Environments.



- Thrust Two: Dynamic Wireless Digital Twin in the Presence of Environment Dynamics

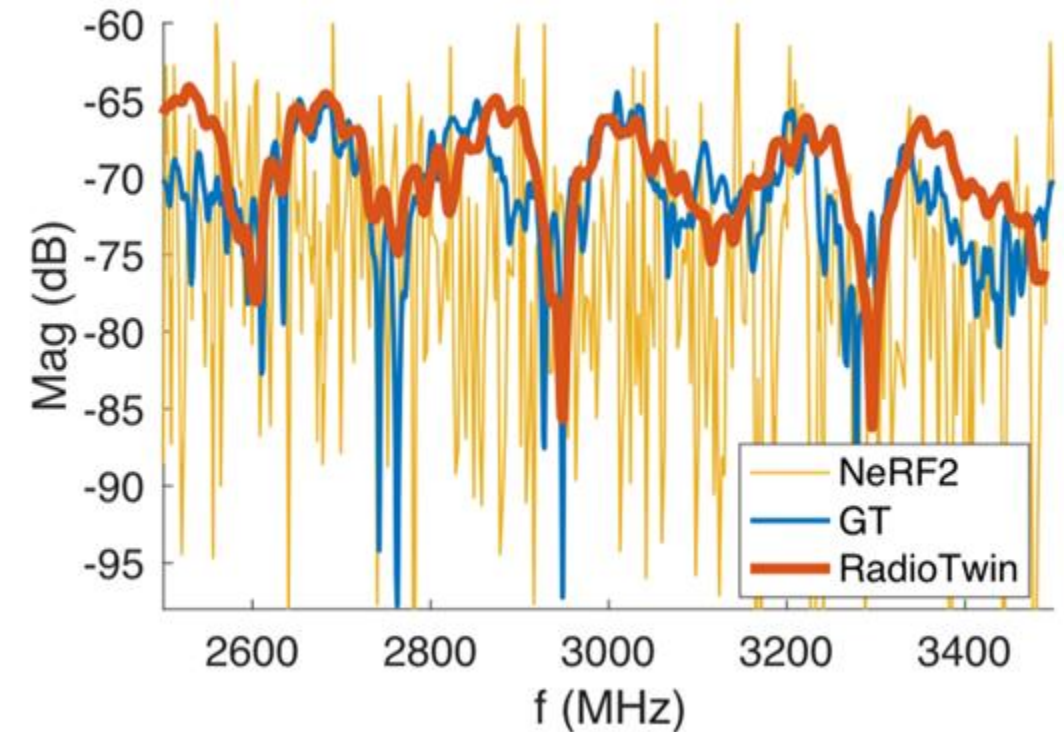
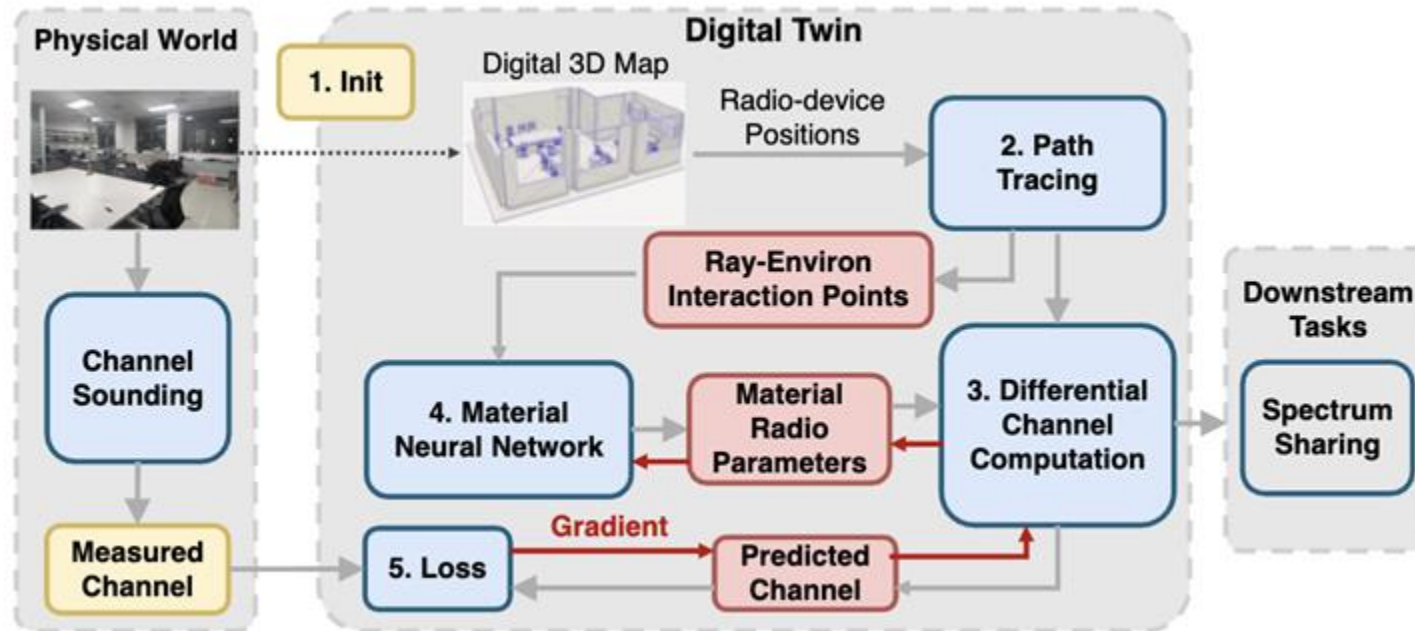


- Thrust Three: Wireless Digital Twin Construction Adhere to Spectrum Sharing Regulations



Current Research Results

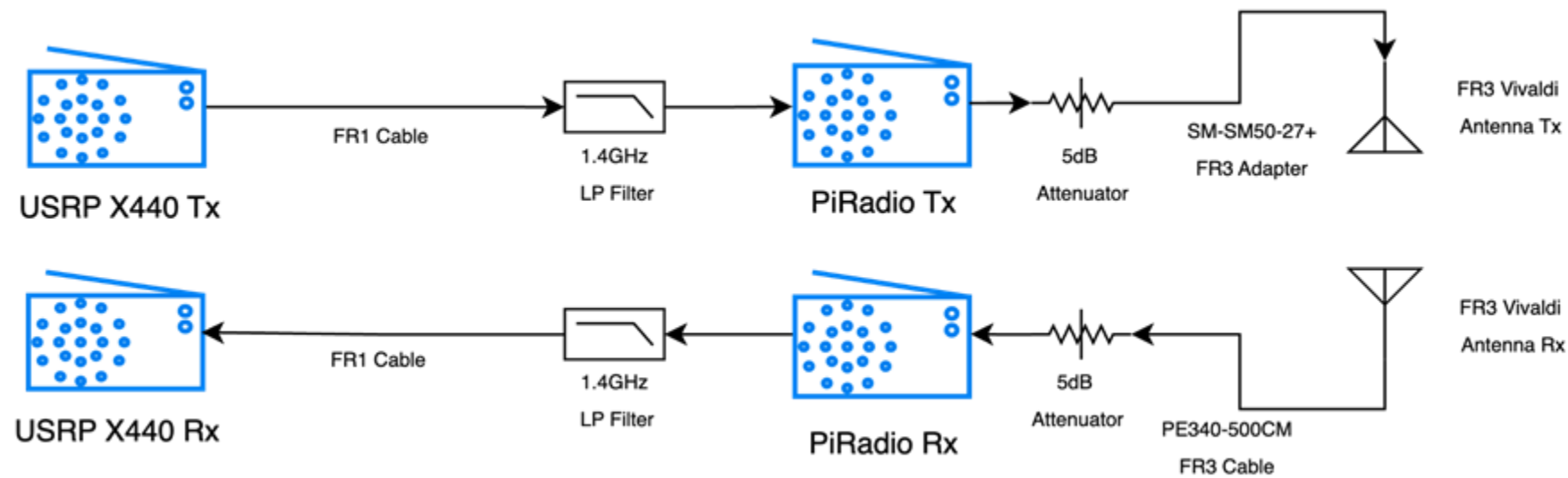
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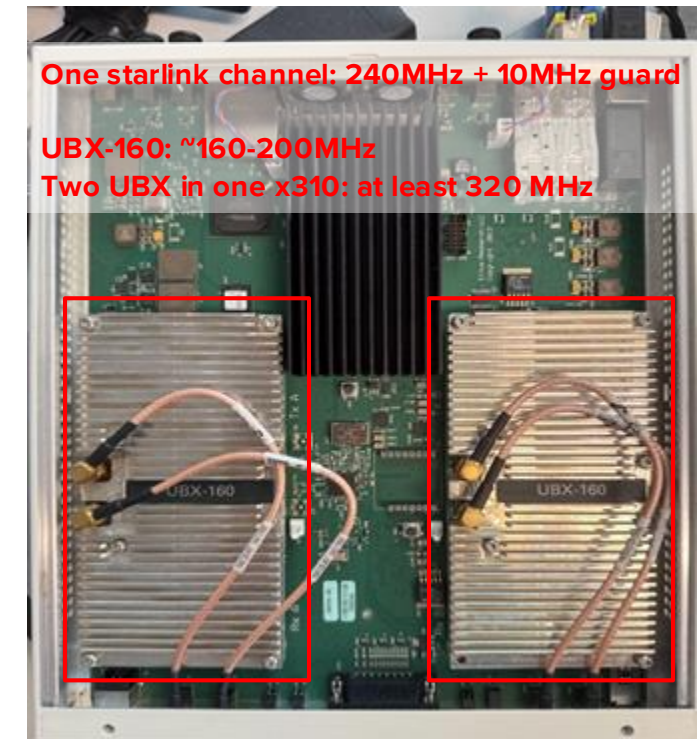
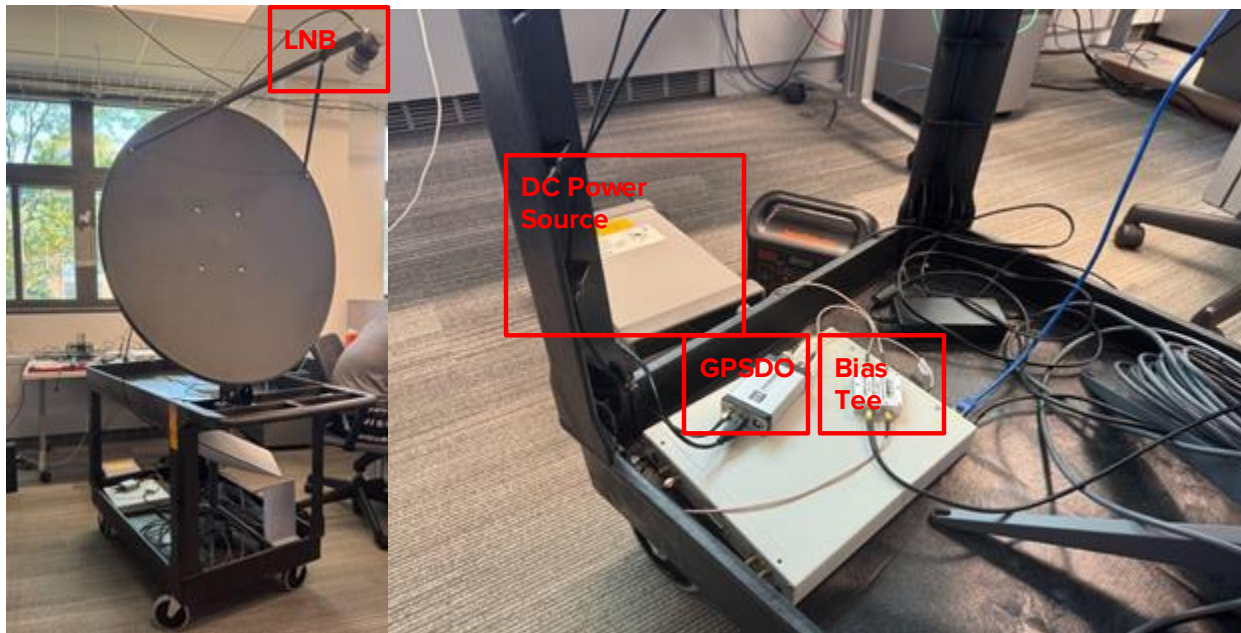
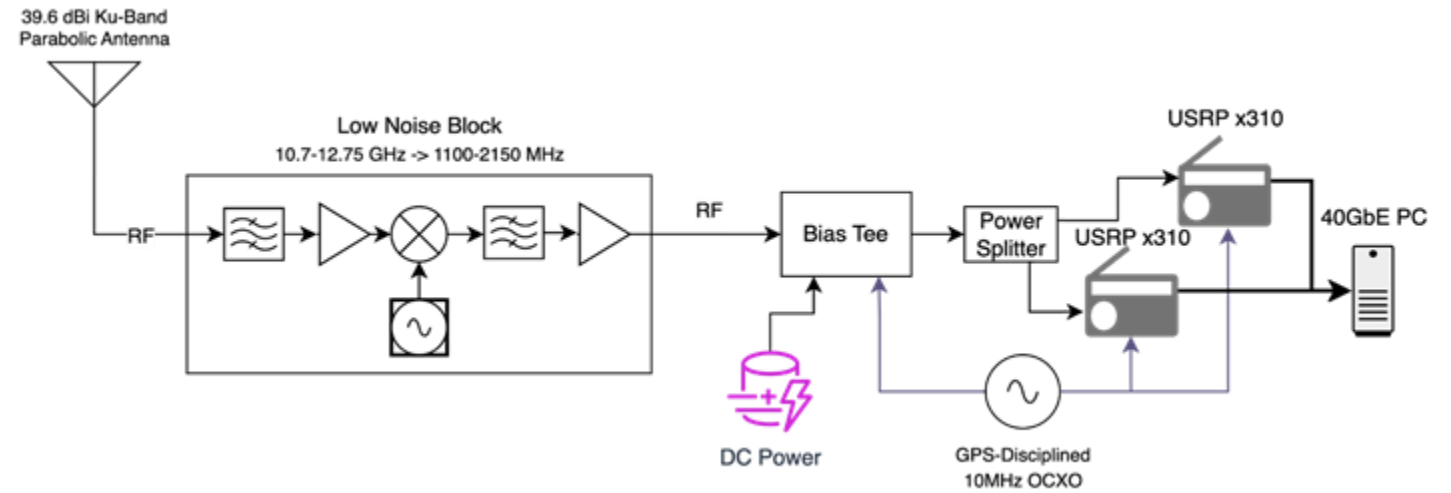
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FR3 data collection system for indoor scenario



Current Research Results

- Starlink Ku-band LEO data collection system



Thank you!