NXP K64F radar shield board – control and GUI development

In NXP an activity has been executed to make a modular system to analyze the performance of various frontends for radar applications. The system block diagram is shown in figure 21, a photo of the board with a 122 GHz radar is shown in figure 2.
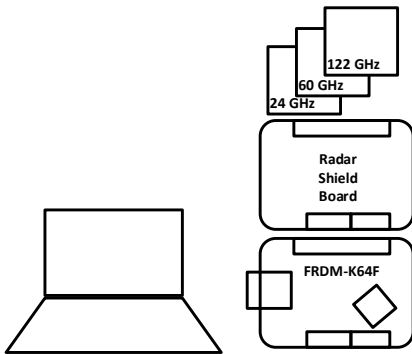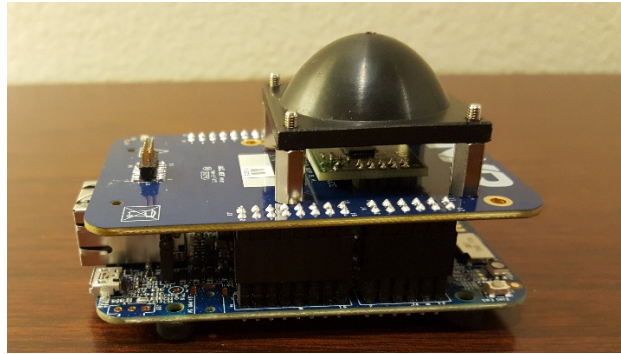

Fig 1. Block diagram of modular system

Fig 2. Photo of modular system with a 122 GHz radar

The board and prototype of the embedded software and GUI are available.
Next step is to improve the software to a level that system level analysis can be performed.

Tasks to be performed
- Understand
    - Radar system requirements
    - Split between embedded software and GUI
    - Basics of used design tools
        - FRDM-K64F: MCU Expresso, C;
        - PC USB driver & GUI: Visual Studio, C#
- What is made available
    - K64F with shield board
    - Frontends at 24, 60, 122 and 300 GHz
    - Source code of FRDM-K64F, USB driver and GUI
    - Contact with hardware and code developer
- Tasks
    - Perform bring up tests
    - Debug the prototype
    - Apply improvements in the embedded software and GUI
    - Add ROS functionality to the system
    - Show performance of the board with the available frontends at 24, 60, 122 and 300 GHz

Delivery at the end of the internship
- Source code for FRDM-K64F and GUI
- Description of code and rationale on choices
- User manual for system users

Allowance
    - The student is allegeable for an NXP Internship allowance