Project title: Sensing and Suppression of Non-Linear Affects in Software Defined Transmitters

Brief Description of Design Project Goals:

Overview:
Any RF transmit chain will have a certain amount of non-linearity associated with it, these non-linearities cause distortion to the desired signal as well as a number of spurious emissions. In many designs the spurs are handled through the use of integrated filter, but in a software defined transmitter such a filter would limit the tuning range. However if the non-linear effects can be adequately characterized then additional signals can be injected into the transmitter to null the spurs at the output.

Specific MEng Contribution:
MEng's will be responsible for the design and characterization of a RF PCB capable of transmitting modulated data while simultaneous monitoring and suppressing its own distortion products.

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Number of MEng Students Needed: 1 - 2

Required Skills:
- Knowledge of analog design and microwave theory.
- Working knowledge of an RF circuit simulator such as Cadence, AWR, or ADS.
- Working knowledge of PCB layout software such as Eagle, KiCad, or Altium.
- Familiarity with RF test equipment.
- Embedded systems knowledge sufficient to generate pre-distorted data signals.

Estimated Project Time Frame:

2018-19 Academic Year, Two (2) Semesters