Sub-Nyquist Radar Prototype
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Pulse Analog Xampler

- Input signal BW< 150MHz
- Crystal filter BW 70KHz
- Modular and flexible design
- Dynamic range 65dB

Supporting Hardware – NI System

3 NI Flex Rio 7965R FPGA and NI 5781 Baseband transceiver create 5 local oscillators waveforms with constant starting phase

System Challenges:
- Start all devices at the same time with skew less than 1nsec
- Good synchronization - Low clock jitter and small clock drifts between devices
- Connectivity - AWR RF simulation environment to LabView

RF signal – 10 MHZ width
Average SNR=0dB include 2 clutter targets

Delay-Doppler Map
Targets detected
Clutter filtered
4 channels sampled at 250 kHz each

Measurements Results
Xampling
DFT for each channel
Estimation Algorithm