At a Glance

What it is
- The wideband, UHF/VHF circulator is used as the enabling device in a monostatic communication system to direct signal energy from one port to another.

How it works
- The circulator employs two saturated ferrite disks in conjunction with a crossover network and matching networks.
- The ferrite is a non-reciprocal material that can discriminate the signal direction. The crossover network has similar properties of a transformer to allow magnetic coupling between traces. The matching networks present the correct impedance to the crossover for circulation.
- The dimensions of the crossover network, the properties of the ferrite and the components of the matching networks are optimized to obtain the best tradeoff between isolation and bandwidth.

What it will achieve
- Provide the USMC with a device that will interface with a wideband VHF or UHF antenna.
- The circulator antenna assembly will form the core subassembly in a monostatic communication system to reduce visual signature.

Point of Contact
John Moniz
john.moniz@navy.mil

Research Challenge and Opportunities:
- Determination of bandwidth bounds to assure that the device is operating near its greatest bandwidth potential.