Government Contract Details

USSOUTHCOM intends to use IMSAR's X-band radar system which is based upon heritage FMCW NanoSAR™ technology to best achieve stated performance objectives and demonstrate performance. The scope of IMSAR's work includes supplying existing radar hardware, developing new hardware, and verifying radar performance.

2.3.2 RF Performance
- Center frequency: 9.6 – 10.6 GHz
- Bandwidth: ~150 MHz
- Peak transmit power (measured at the HPA output connector): ≥ 50W

Contracting Agency Name: USSOUTHCOM
Contract Number: FA8818-18-C-0003
Government Point-of-Contact Name: LTC Darrin Husmann
Government Point-of-Contact Phone: cell: 405-974-8672, DSN: 734-0049

Company and Technology Background

IMSAR LLC has radar technology that is able to track moving targets, image the surface of the earth, create digital elevation maps, assist in search and rescue operations, and detect small changes in a scene, such as the movement of a vehicle. Various branches of the US military, including the Navy, Army, and Air Force, as well as some commercial businesses, have expressed interest in this technology. The size, weight, power, and cost of IMSAR's Synthetic Aperture Radar (SAR) system, known as NanoSAR, are an order of magnitude less than similar systems.

IMSAR performs SAR tests from a small aircraft. Directional transmit and receive antennas are nominally pointed toward the earth. Reflected signals are collected and processed to create images of the ground. Transmission is a linear frequency modulated continuous wave (LFM-CW), or a "chirp," with the frequency being swept from the minimum to the maximum frequency 1000 times per second. A chirp signal is illustrated in Figure 1. Because the transmission sweeps are very rapid, the average power at any given frequency is extremely low, as is the likelihood of detection by (i.e., interference to) systems operating in the same frequency range.

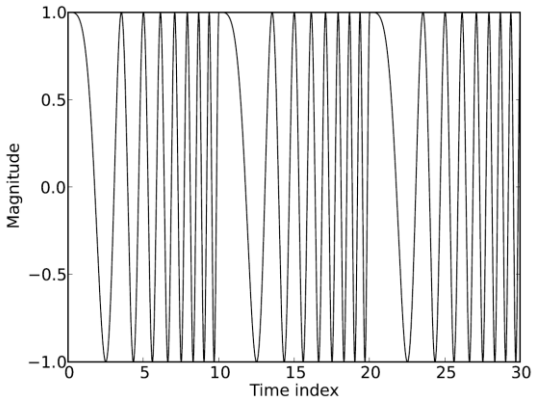

Figure 1. Example LFM chirp signal, increasing in frequency from left to right, then repeating.

An example of the geometry of a SAR is shown in Figure 2.

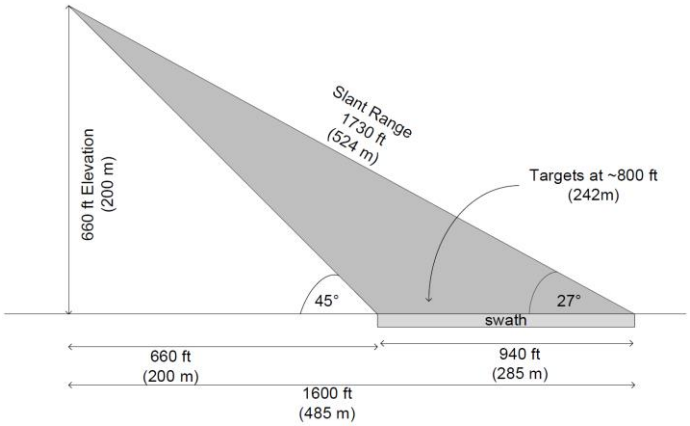

Figure 2. Example SAR geometry, from an airborne platform.