

Overview:

The Stingray system (TSC PN:288800) is a product Technology Service Corporation (TSC) has developed over the past year, which produces synthetic aperture radar (SAR) imagery that can be used in a variety of different scenarios and for different purposes. This technology leverages proven TSC designs but has emerged as a unique product. The Stingray system is a SAR radar which operates from 9.45-9.9GHz, primarily utilizes pulsed LFM waveforms, and produces less than 5.623kW of peak effective radiated power (ERP). Stingray will primarily be marketed as an airborne radar, researched, developed, and funded by TSC. The airborne radar solution has potential to be marketed to the military for a variety of different purposes. Flight testing of the Stingray system is a vital step in TSC's ongoing product development effort. Part of this product development effort is to improve the custom imaging software TSC has developed which utilizes state of the art imaging techniques. We see Stingray as being a solution which will enrich the spectrum of airborne SAR solutions available. TSC believes this program will produce valuable technology and provide future customers with an excellent and customizable solution to many emerging needs.

- a. **Theory of operation:** The Stingray system is a SAR radar which radiates RF energy from an airborne platform and illuminates the ground. The ground then produce radar returns which can be assembled into an image. The aircraft which will house the radar will be flown between 1000ft AGL – 12500ft AGL. The airborne SAR has the ability to capture images of land and/or sea (note: this flight scenario is a safe distance to radiate the Stingray system to any person on the ground, and is **NOT** a radiation hazard according to FCC OET bulletin 65). The scope of operation of Stingray under this license will be to perform product development and testing. The type of SAR images collected by this system will primarily target large bodies of water such as the Tennessee river and Gulf of Mexico. These landscapes provide ideal terrain to develop and mature the system performance.
- b. **Objectives:** Objectives under this license are to develop and test Stingray which can be marketed to multiple customers, military and/or commercial. Testing under this contract will likely produce hardware improvements, firmware improvements, tactical software improvements, imaging software improvements and overall product improvements.
- c. **Contribution to development:** As stated above; Flight testing of the Stingray system is a vital step in TSC's ongoing product development effort. Part of this product development effort is to improve the custom imaging software TSC has developed which utilizes state of the art imaging techniques. We see Stingray as being a solution which will enrich the spectrum of airborne SAR solutions available. TSC believes this program will produce valuable technology and provide future customers with an excellent and customizable solution to many emerging needs.