SABRE RADAR SYSTEM

SYSTEM DESCRIPTION

ECS is pleased to present the Sabre Radar Cross Section (RCS) Measurement System. Sabre is the latest generation of instrumentation systems offered by ECS following the acquisition of System Planning Corporation (SPC), leveraging close to 40 years of industry expertise, proven product performance and sustainability.

The Sabre architecture is a modular design that allows customers to tailor its capabilities to meet program requirements and expand to address emerging requirements. The design maximizes reliability and supportability while maintaining cost effectiveness and ease of use. This allows Sabre to be used for data collection against targets in a variety of environments for stationary and mobile ground, or airborne applications. Sabre is the ideal RCS measurement solution for performing signature assessments for R&D, production, maintenance, and operation applications.

SYSTEM DESCRIPTION

The Sabre Radar is the next generation of wideband, coherent, step-chirp, pulsed-IF measurement system. Sabre's digital subsystem incorporates a digital receiver architecture utilizing a 14-bit ADC, and achieves equivalent instantaneous bandwidth to the previous generation of instrumentation radar systems. Additionally, Sabre uses a 16-bit DAC to generate the IF pulse directly. This allows for significant advancement in arbitrary waveform modulation capabilities in an instrumentation system. Options are also available to incorporate high speed frequency synthesizers, frequency expansion capabilities, and custom enclosure and mounting configurations.

The Sabre user environment leverages heavily on the success of ECS's MkV radar. Data is collected in the standard file format utilized in MkV systems to ensure the customers' data processing tools are compatible. The user software interface has also been retained to provide users with similar control, functionality, configurability, and overall experience expected of a quality radar system. The Sabre Radar storage and processing workstations are prepared to customer requirements and utilize the latest high-performance COTS computing hardware, and industry-standard data processing software to produce real-time and offline SAR/ISAR imaging, IER, and other data products.

APPLICATIONS

- Radar Cross Section (RCS) Measurements
- Research and Development
- Ground & Airborne Measurement Platforms
- Quality Inspections/Repair Verification
- Synthetic Aperture Radar (SAR) & Inverse SAR (ISAR) Imaging
- Electronic Warfare Instrumentation
- Radar Threat Simulation

QUALITY ASSURANCE

- This product is manufactured by the Radar Physics Laboratory of ECS certified to ISO 9001:2008 by PJR

SUPPORT

- Standard Warranty Terms for 12 Months, extendable to 36 Months
- Optional on-site support
- Multiple levels of support options available including phone support, on-site service, spare parts, & preventive maintenance services

OPTIONS

- Expandable Frequency Coverage
- Uninterrupted Power Supplies
- High Speed Synthesizers
- Indoor, Outdoor, Mobile, & Maritime Enclosures
- Spare Parts Packages Available
- Range Testing & Validation Services
- Real Time & Post-Processing Image Edit & Reconstruct
- 2D & 3D SAR/ISAR imaging software & Image Edit/ Reconstruct (IER) options
- Additional Workstations & Support Equipment
- Antennas
- SAR Rails

SABRE

STANDARD SYSTEM CONFIGURATION

Sabre Digital Processor Unit

Sabre RF Converter

Transceiver

Wideband Frequency Synthesizer

Uninterruptable Power Supply

FEATURE	SPECIFICATION
Frequency Coverage	2 - 18 GHz, expandable
Chirp Mode	LFM, Step-chirp, Arbitrary
Phase Code	Poly-phase
Transmit Pulse Width	5 ns - 450 µs; 0.5 ns step size
Maximum Instantaneous Bandwidth	500 MHz, expandable
ADC Resolution/Sampling	High Speed 14-bit
Signal Integration	1 to 1 million, integer variable
Dynamic Range	65 dB instantaneous @ max VBW
Simultaneous Receive Channels	2, expandable
Intrapulse Modulation	Fixed, Linear, Arbitrary
Video Bandwidth Filtering	Digital
I/Q Demodulation	Digital
Pulse Generation	Digital-to-Analog Converter
RF Conversion	Wide band LO; fixed IF
Standard Test Loops	IF, RF, and HPA
Radar Control Software	National Instruments LabVIEW, Windows OS
Imaging	Real-time 2-D, with IER, 3-D in post processing
Position Control	Multi-Axis

SEI CMMI Level 3 | ITAR | ISO 9001: 2015 | ISO/IEC 20000-1:2011
ISO/IEC 27001:2013 | PMP