

Sandia Miniaturized SAR

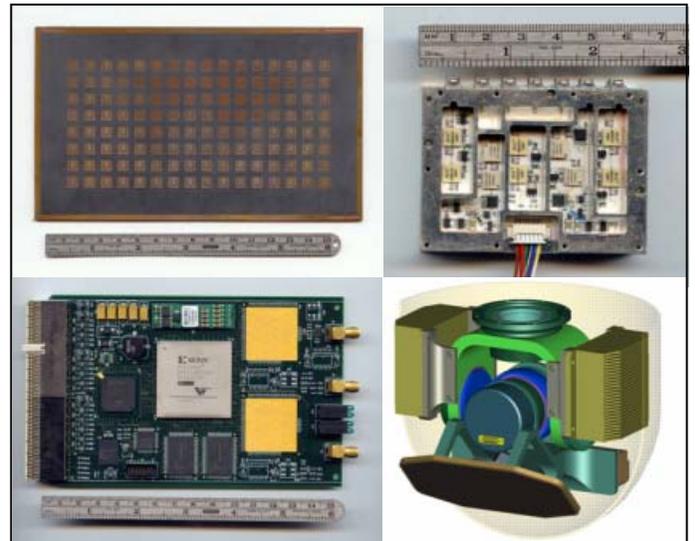


Date Revised: 07 JAN 04

VENDOR DESCRIPTION

MiniSAR:

- Internal project to develop lightweight (<30 lbs) high-performance SAR; currently in development.
- System performance/quality consistent with previous Sandia systems such as Lynx Radar.
- < 4 in. resolution @ > 10 km in 4 mm/hr rain
- Radar Electronics Assembly based on cPCI architecture.
- Includes Quadrature digital waveform synthesizer (QDWS), LTCC MCM miniaturized upconverter, lightweight gimbal with passive planar array, digital receiver IF (DRx- digital IF filtering and I/Q demod).
- Initial version will utilize mini-TWT; future version will utilize GaN solid state power amplifier. Other future enhancements include FPGA-based image formation, GMTI with monopulse antenna, and an active array front end.
- Prototype hardware completion date: 10/01/04. Near complete (1/03) subsystems include QDWS, DRx, LTCC-based miniaturized exciter, wideband passive array.



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Business Category: Large Business

SARMTI

Hardware		
RF Frequency: 15.2 GHz to 18.2 GHz	Height Beneath Platform: 10 in	MTBF: TBD
Power: 100 watts	Operating Altitude: 1 kft to 40 kft AGL	MTTR: TBD
Weight: 30 lbs (Ver. 1); 20 lbs (Ver. 2)	Operating Speed: 30 to 300 knots	Maintainability: LRM level
Dimensions: 200 x 200 x 200 mm (Radar); 250 x 250 x 300 mm (Gimbal/Antenna)	Operating Temp.: -40°C to +55°C	Cooling: Ambient air
Internal Volume: TBD	Storage Temp.: TBD	MNR: 23 dB
Receiver Weight: 5 lbs	Interface: Adaptable	RCS Calibration: 3 dB
Antenna Weight: 12 lbs (includes gimbal)	Bandwidth Required: 3 GHz	Processor Reserves: Scalable
Processor Weight: 5 lbs		Processor Onboard Platform: Real-time

SAR Strip Mode	SAR Spot Mode
Range: 25 km @ 0.3 m	Range: 19 km @ 0.1 m
Swath Width/Resolution: 900 m / 0.3 m	Size/Resolution: 300 x 400 m / 0.1 m
Pd 10 ² m Target less than: TBD	Pd 10 ² m Target less than: TBD
Rate: Continuous 113 km ² /hr	Rate: 60 spots/hr (19 km @ 0.1 m)
Angular Coverage: ±45° to ±135° AZ; 0° to -60° depression	Angular Coverage: ±45° to ±135° AZ; +0° to -60° depression
ATC or ATR or ATI: Yes/Compatible	ATC or ATR or ATI: Yes/Compatible
	View Size: 300 x 400 m @ 0.1 m
Map Image Latency: Aperture + 3 s	Map Image Latency: Aperture + 3 s