PRODUCT BRIEF

RELEASE DATE 7/16/20

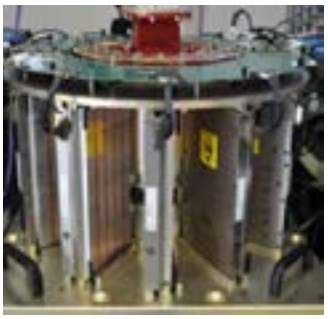
SOLSTx
Solid State Transmitter

Radar transmitters using Vacuum Electronics Devices (VED) such as Klystrons, Traveling Wave Tubes (TWT), Magnetrons and Crossed-Field Amplifiers (CFA) have high operational and sustainment (O&S) costs, require very high voltage power supplies, and the systems are not proven to have high reliability.

GaN-based Solid State Transmitter (SST) technology has a number of advantages over traditional systems. Compared to VEDs used in current transmitter designs, SOLSTx offers the following advantages:

- Significant increase in Mean Time Between Critical Failure (MTBCF)
- Substantial decrease in O&S costs
- Graceful degradation (as opposed to single point of failure/instantaneous shutdown) in the event of hardware failure
- Significantly lower Phase Modulation (PM) noise levels resulting in higher Clutter Improvement Factor (CIF)
- Significantly lower out of band emission reducing the interference with adjacent radars and commercial communication signals
- Reductions in size, weight, and power offer increased system efficiency
- Higher Duty Cycle (Up to 10%)
- Greater range of pulse widths (Up to 100µS)

Module replacement requires less than two minutes of down time



30kW S-Band GaN Solid State Transmitter Assembly

Embedded control

Low Out of Band Emission

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Current Markets and Platforms

UHF, L, S, C, X, and Ku Band radars for air traffic control, weather, telemetry, fire control, ISR, missile illumination, horizon search and long range surveillance.

Applications vs. Frequencies

	Long Range Surveillance (marine, Ground based)	Air Traffic Control	Threat Simulators	Weather Radar	SAR	Fire Control Radar	Airborne Surveillance	Communications / Datalink	Telemetry
UHF	●	●							
L-Band	●	●							●
S-Band	●	●	●	●					●
C-Band	●		●	●					●
X-Band			●	●	●	●	●	●	
Ku-Band					●			●	
Ka-Band			●						

Performance

- Out of band performance of SSPA is far better than a VED
- Phase Noise of SSPA is lower than the VED
- Uncorrelated combination of large number of SSPAs results to form SST results in lower phase noise and higher CIF

Value Proposition Across All Markets

- Long Term Sustainability: no diminishing sources of supply
- Transmitter Cost: comparable or lower than tube based transmitters
- Increased Operational Availability: "hot swap" amplifier replacement
- Performance: high clutter improvement factor, high power density, high reliability
- Modular Design: enables scalable power output