BeamFormer
Antenna Beamforming

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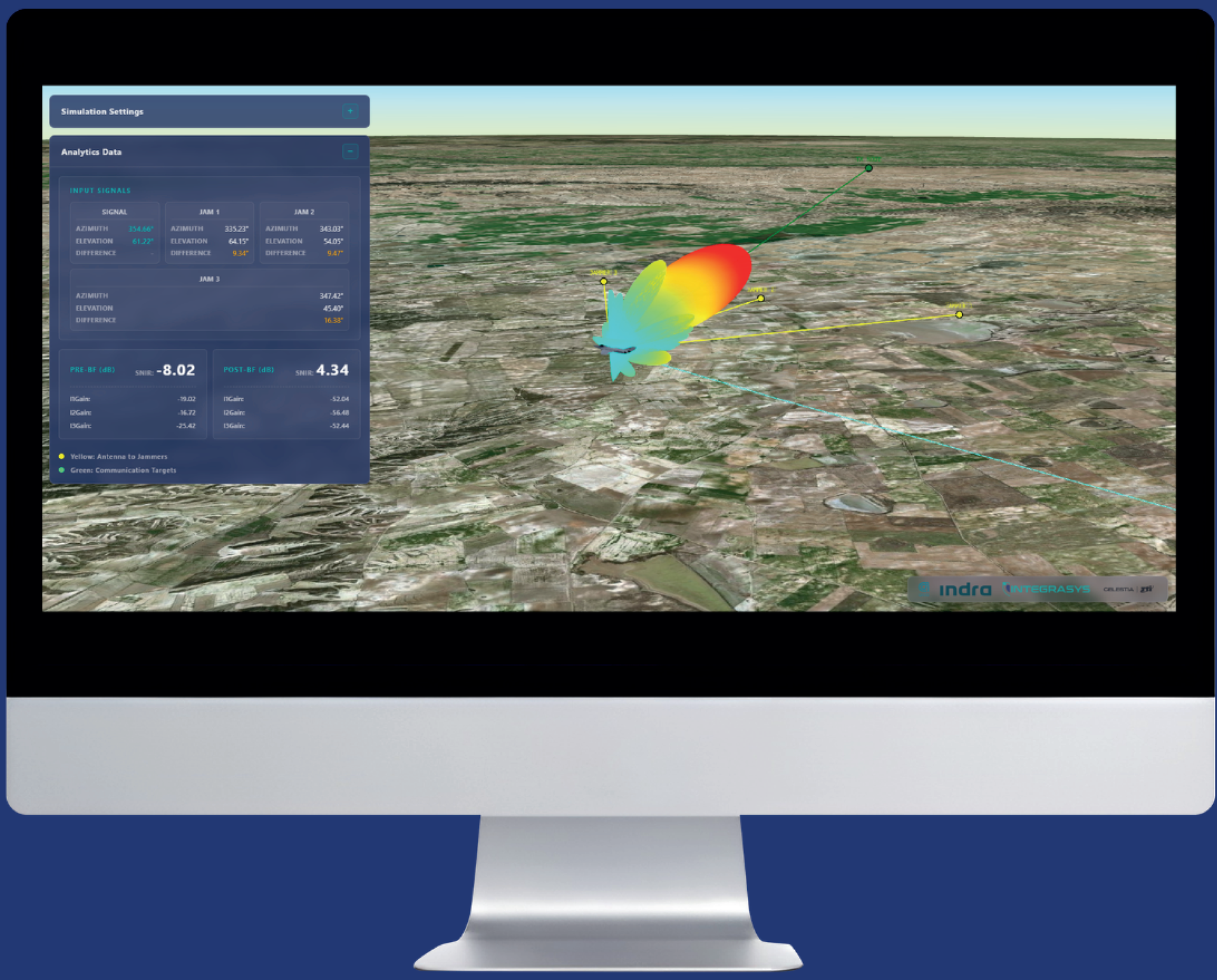
CAPEX or SaaS



BEAMFORMER SOLUTION

Steer and optimize RF signals in real time for resilient, interference-free communications

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Competitive Advantage

- Proven SNIR improvement of up to 12 dB in high-interference scenarios.
- Real-time adaptive beam steering with precise null positioning.
- Effective mitigation of multiple simultaneous jammers.
- Flexible, scalable architecture supporting analog, digital, and hybrid implementations.
- Validated across terrestrial, airborne, and satellite systems.
- Future-ready design aligned with evolving standards (5G, SATCOM, radar).

Features

- Dynamic main lobe alignment for optimal signal reception.
- Null steering to suppress interference precisely.
- Sidelobe reduction to minimize unwanted signal leakage.
- Multi-target tracking with simultaneous beam management.
- Automatic interference detection and classification.
- Real-time SNIR monitoring with low-latency processing.
- Configurable beam patterns with adaptive weighting algorithms.
- Software-defined architecture (currently Matlab, evolving to FPGA hardware).
- Hardware acceleration roadmap for FPGA and embedded systems.
- 3D visualization interface (Cesium-based) for scenario analysis.
- Touchscreen-optimized user interface (in development).
- Interoperability with existing RF front-ends and external tracking systems.

Benefits

- Resilient communications in contested or dense RF environments.
- Enhanced data throughput and improved link quality.
- Reduced packet loss and retransmissions.
- Lower operational risk for mission-critical applications.
- Improved quality of service (QoS) for end users
- Seamless operation across mobile platforms (aircraft, satellites, UAVs).
- Energy efficiency by focusing power only where needed
- Reduced dependency on mechanical steering systems.
- Improved situational awareness via cleaner signal acquisition.
- Faster, more reliable decision-making enabled by high-quality data links.

Company Awards