

# EMS Knows Antennas

## Especially advanced antennas for mobile platforms...

Our innovative antenna systems serve the most formidable and demanding installations. When high data rates, complex communications, and seamless integration with unique vehicle and mission equipment are essential, EMS Technologies will meet these specialized needs. We have the experience and know-how to engineer an antenna system, including positioners, radomes and antenna control, for difficult mobile platform requirements.

At EMS, our reputation demands that we keep on the cutting edge of development. We've become a first-to-market leader, and the first or only source for:

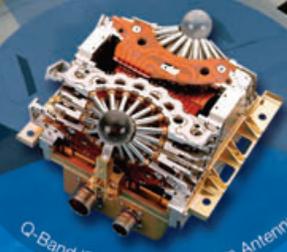
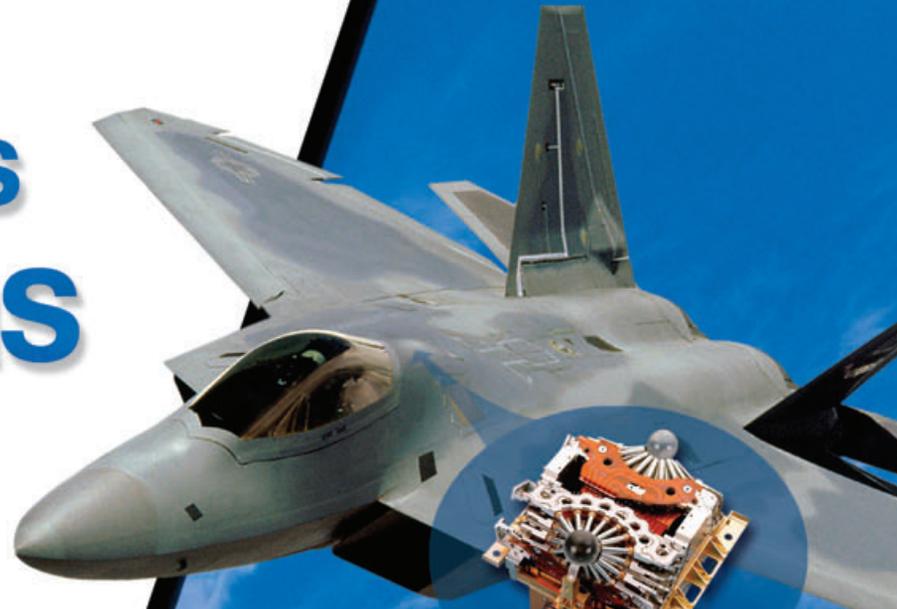
- Switched beam data link antennas on high-performance fighter aircraft
- Switched beam networks for UAVs
- Low observable, flush mount SATCOM and data link antennas for UAVs
- Ku-band SATCOM antenna systems on US commercial airlines

EMS designs, develops and manufactures to very exacting standards—yours *and* ours—and we can solve your antenna challenges, from concept development to production. Call us to discuss your specialized requirements, or visit our website.

### EMS Space & Technology Group / Atlanta

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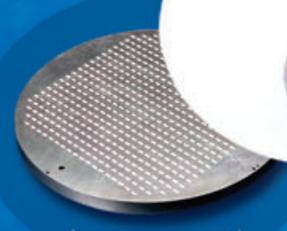
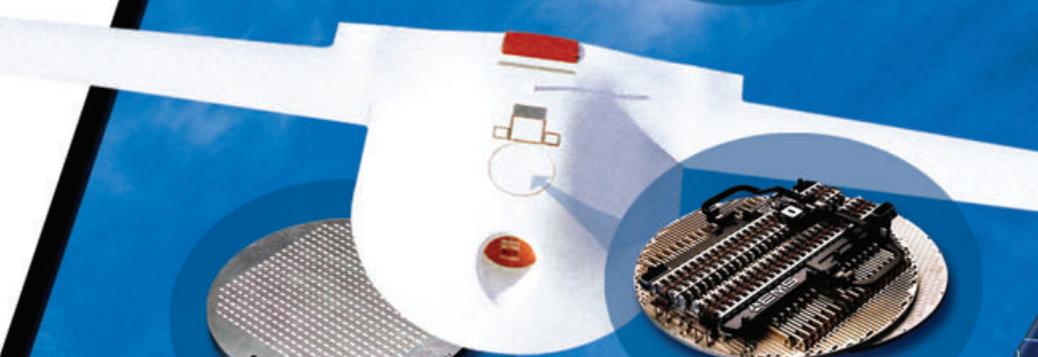
**EMS**Technologies



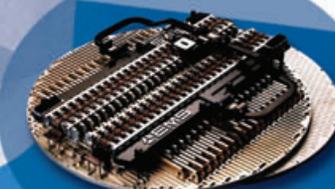
Q-Band IFDL Switched Beam Antenna



Ku-Band CDL Switch Network



X-Band CDL Slot Array



Ku-Band SATCOM Tx Phased Array



Ku-Band SATCOM DBS Rx Slot Array

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# EMS Capabilities and Experience

EMS Technologies possesses a wide range of antenna expertise developed over the past 30 years, and is known for providing innovative, practical solutions to previously unsolved problems and to meet difficult performance requirements. Our core competencies in advanced antennas include slot arrays, lenses, active and passive phased arrays, switched beam antennas, and mobile SATCOM subsystems. Our heritage is based on high performance ferrite systems including switches, circulators and phase shifters, beamforming systems, switch networks and autotrack modulators. Additional antenna experience includes position and polarization tracking; mechanical, electronic and hybrid beam steering; radome design, polarizer design, FSS and a detailed knowledge of ground, sea and airborne qualification / certification.

## EMS Antenna Products



### **F/A-22 Multi-Beam Antenna**

- Q-band, LPI, LPD, LO Intra-Flight Data Link
- High speed ferrite switches feed constant-K spherical lens aperture; 78 switched beams
- Over 70 units delivered; in Lot 4 production



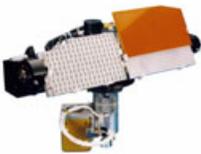
### **Darkstar UAV Ku-Band SATCOM Antenna**

- Electrical EI scanning; Mech. Az scanning
- Mechanically tracked linear polarization
- Resonant slot aperture fed by ferrite phase shifters through microwave network
- Low profile, LO aperture with FSS



### **Airborne DBS Slot Array**

- Patented Ku-band, DBS Antenna for commercial airline TV reception
- Autonomous tracking antenna system
- 2-axis mech. steered, dual simultaneous CP
- In production: 80 systems delivered to date
- Slot array minimizes area & lowers profile



### **ACTS SATCOM Antenna System**

- High data rate, full duplex, Ka antenna for aeronautical & ground mobile platforms
- 2-axis mech. steered, CP slot arrays
- Developed for use with ACTS satellite



### **Contiguous Paraboloid**

- Full duplex Commercial Ku SATCOM
- Patented low profile aperture
- Multiband feeds for Ku, Ka, AEHF
- SDD unit developed for FAB-T program

### **Predator CDL Switch Network**

- Ku-band data link ferrite switch network
- Switched Horn / Switched Beam Antenna
- Low Loss, High Power, Fast Switching
- Full Duplex



### **Geodesic Cone Phased Array**

- Electronically scanned in azimuth
- Wideband (Jammer: 7-18GHz)
- Comm / Radar / EW applications
- Omni, directional, & simultaneous beams
- DF & adaptive nulling / AJ capability



### **TDRS SATCOM Phased Array**

- Developed for NASA STARS program
- Ku Band TDRS SATCOM telemetry
- Electrically scanned in elevation
- Mechanically scanned in azimuth
- Flush mounted, low profile array



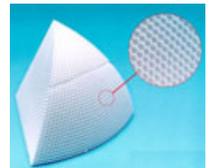
### **Missile Seeker Antennas**

- Light weight, low profile MMW aperture
- Monopulse tracking missile radar
- Patented, multi-layer (11) design
- Stacked polarizer slot array



### **Luneburg Lens**

- Tapered radial holes create dielectric gradient
- Continuous gradient lens
- Durable construction; avoids air gaps associated with foam shell approaches
- EMS patented technology



EMS Technologies pioneered the use of ferrite components in advanced RF microwave and millimeter wave subsystems, and has developed leading edge antenna technologies for numerous advanced applications. We design and produce leading edge technology hardware for military and space, as well as commercial platforms. EMS Space & Technology/Atlanta provides its customers with critical subsystems and components for terrestrial, airborne and space-based communication, radar and electronic warfare systems.

For more information, visit EMS on the World Wide Web at [www.emsstg.com](http://www.emsstg.com).