Ball Aerospace delivers industry-leading, low-profile, affordable phased array SATCOM terminal solutions for air, land and sea markets. Ball’s innovation, extensive product heritage and proven phased array capabilities enable reliable, high data rate connectivity in Ka frequency bands for government, military, intelligence, consumer and enterprise markets. Ball’s SATCOM experience covers L-, X-, Ku- and Ka-Band spectrums. Our 50 years of phased array design gives us in-depth knowledge of regulatory standards and an understanding of a diverse range of satellite systems.

GO BEYOND WITH BALL®
Ball’s Ka-Band airborne SATCOM terminals enable affordable, reliable broadband communication. Our fully electronically steerable antennas eliminate moving parts, providing long-term reliability with lower maintenance costs. Our modular, low-profile phased array technology enables us to meet a broad set of connectivity demands by integrating multiple subarray panels to achieve desired performance. Our architecture allows independent scaling of transmit and receive antenna sizes and supports distributed antenna solutions.

Ball’s architecture brings cost effective, fully electronically steerable terminals to the market. We have solved the tough mmWave design challenges, simplified the electronics and avoided unproven materials. We have enabled high-volume manufacturing by utilizing highly integrated semiconductor devices, standard circuit card materials, automated assembly processes and automated test. Like historical communications equipment, cost will be reduced by leveraging manufacturing economies of scale and the industries design for manufacturing capabilities.

**OVERVIEW**

Ball’s Ka-Band airborne SATCOM terminals enable affordable, reliable broadband communication. Our fully electronically steerable antennas eliminate moving parts, providing long-term reliability with lower maintenance costs. Our modular, low-profile phased array technology enables us to meet a broad set of connectivity demands by integrating multiple subarray panels to achieve desired performance. Our architecture allows independent scaling of transmit and receive antenna sizes and supports distributed antenna solutions.

**SYSTEM PERFORMANCE**

**RF**
- Frequency
  - Transmit: 27.5 to 31 GHz
  - Receive: 17.7 to 21.2 GHz
- EIRP
  - 54.8 dBW at boresight
  - 52.4 dBW at 45°
- G/T
  - 15.3 dB/K at boresight
  - 12.9 dB/K at 45°
- Polarization: RHCP/LHCP (Electronically Switchable)
- Axial Ration: <2.0 dB (Electronically Controlled)
- Coverage
  - Azimuth: 360°
  - Elevation: 25° to 90° (Top Mount)

**TRACKING**
- Beam Update Rate: 300 μs (any position, any polarization)
- Pointing Accuracy: <0.2°

**MECHANICAL/ENVIRONMENT**
- Size/Weight
  - Antenna: 22” W x 48” L x 2” H, 100 lbs
  - ACU: 8.5” W x 9.5” L x 3.5” H, 7.5 lbs
  - FCU: 8” W x 11” x 2” H, 7 lbs
- Power: 1000 to 1250 W @ 28 V dc nominal
- Operating Temp: -55 °C to 55 °C
- Compatible with RTCA/DO-160G and MIL-STD-810G

**INTERFACE**
- Ethernet
  - User: Webserver or UDP
  - Modem: Open AMIP, Custom
- IRU: ARINC 429, RS-422 or ethernet

**REGULATORY COMPLIANCE**
- FCC, ITU and MIL-STD-188-164C

**SYSTEM COMPONENTS**

- Low cost modular array building blocks enable scalable terminal solutions to meet any connectivity demands
- Operation resiliency on GEO, MEO and LEO satellite constellations
- Fast, agile, accurate steering improves satellite acquisition and tracking for highly mobile platforms
- Dual beam capable and fast update rates to support satellite switching and TDMA architectures
- Modem agnostic to work with most commercially available modems, supporting Open AMIP/BMIP and custom interfaces
- Low profile package provides minimal visual signature and low drag
- Aperture integrated radome for reduced cost, increased performance and lowest profile
- Software defined beamformer enables unique beam shaping capabilities
- Distributed amplifiers facilitate reliable connectivity with graceful degradation
- Capable of top mount or saddlebag installation for increased coverage and flexible platform integration
- Minimal inboard equipment including Antenna Control Unit (ACU) and Frequency Conversion Unit (FCU)