



AXYOM 3-Axis Antennas



Presented by: Cary Bedford
Vice President of Sales and Marketing

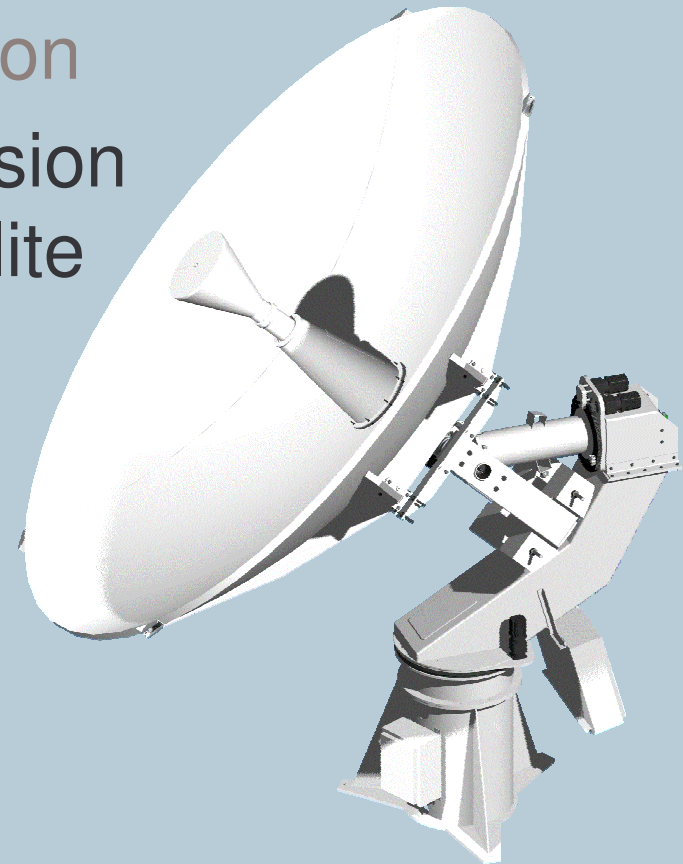
SeaSpace Corporation

Email: cbedford@seaspace.com



AXYOM Antenna Positioner

- **A**zimuth **X-Y** **O**ptimized **M**otion
- Antenna Positioner for Precision Low Earth Orbit (LEO) Satellite Tracking
- Model 20 is for ~1m to 3m antennas
- Model 50 is for ~3.6 to 6.1m antennas





WHY – AXYOM?

- **Conventional two-axis full-motion antenna positioners can have operational keyholes, or cones of silence, when tracking Low Earth Orbit (LEO) satellites**
- **Although some three-axis designs overcome many of the keyhole issues, they still require relatively high velocity and acceleration capabilities**
- **Some configurations are also operationally constrained by the ground station latitude and satellite inclination angle.**
- **The AXYOM antenna positioner design provides true full hemispherical coverage, without keyholes, for any satellite inclination angle and for any ground station latitude location.**
- **The AXYOM design also minimizes the axes velocity and acceleration requirements needed for precision tracking of LEO satellites with narrow beamwidth antennas.**



AXYOM Design Goals

- Provide true hemispherical coverage at all elevations above the horizon
- Completely eliminate operational keyholes
- Minimize or eliminate backlash, maximize pointing accuracy
- Minimize required tracking dynamics
- Maximize availability & reliability
- Minimize MTTR for all LRUs
- Low parts count, reasonable cost = best value



The Result: AXYOM

- 3-Axis, X-Y over Azimuth pedestal
- Lowest possible tracking dynamics
- Eliminates all operational keyholes
- Zero backlash from dual, bias drives on all 3 axes
- LRU's are externally located = low MTTR
- True full hemispherical coverage
- Unconstrained by satellite inclination angle and ground station latitude
- The best value solution for precision LEO satellite tracking





AXYOM APPLICATIONS

- Earth Observation and Meteorological Satellite Ground Stations
- Satellite Data Reception
- Wideband Data Links
- Positioning and Tracking Systems
- LEOP and Acquisition Aids
- LEO / MEO Satellite TT&C
- Smallsat Terminals
- Satcom Gateways
- Special Projects



Current Products

- **AXYOM Systems**
 - 4.5m X-Band
 - 6.1m S-Band
 - 6.1m X-Band (in process)
 - 1.5m Ka-Band (in process)
 - 2.4m Positioner



Current Products

- **AXYOM System Components**
 - Model 20 AXYOM Positioner
 - Model 50 AXYOM Positioner
 - Antenna Control Unit (ACU)
 - Autotrack Receivers
 - 720 MHz
 - 70 MHz
 - S-Band Tunable



Existing Customers

- Purdue University – USA (1) Model 50
- LAPAN – Indonesia (1) Model 50
- Bigelow Aerospace – USA (3+) Model 50s
- MacDonald Dettwiler (MDA) – Canada (1+) Model 20
- Lockheed Martin (LMCO) – USA (2+) Model 20s
- Vexcel / SAF – Chile (1) Model 50