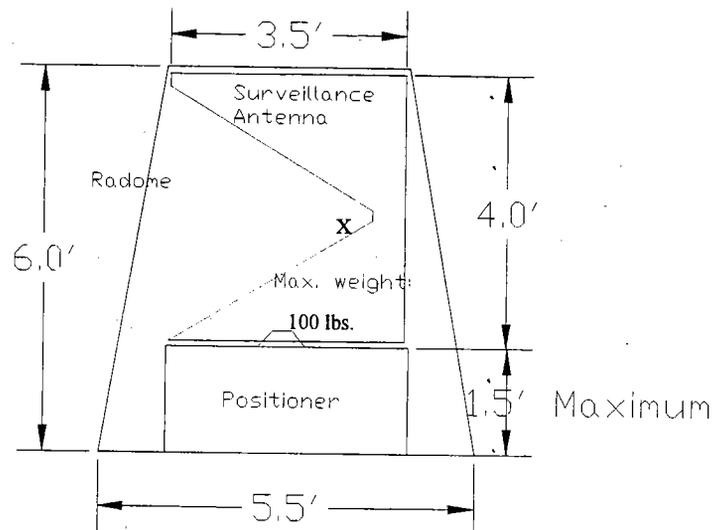


### Summary of Positioner Requirements:

Required is a positioner for an antenna approximately 3.5 ft. wide by 4 ft. high and 100 lbs. The positioner and antenna will be mounted inside a radome, approximately 5.5 ft wide by 6 ft. high as shown below.



The center of gravity for the antenna is located 24" up from base and 11" away from the feed as indicated by the "x" in the figure.

The positioner and control unit must meet the following mechanical and physical specifications:

1. Single axis, azimuth rotation, standard product line of company (off the shelf)
2. Maximum height: 14"
3. Maximum diameter: 16"

4. Computer control of position with standard interface (RS-232) and ICD provided and software for interfacing to be provided
5. Manual control as a secondary mode/option (e.g. a turning dial or joy stick)
6. Maximum power usage: 60 Hz / 120 volts AC @ 15 amps
7. Minimum full 360 degrees of travel
8. Minimum azimuth velocity: 18 deg/sec. (~3rpm)
9. Minimum rotational acceleration: 36 deg/sec.<sup>2</sup>
10. Minimum vertical load capacity: 100 lbs.
11. Minimum torque: 5 ft-lbs.
12. Minimum inertial load capacity: 0.23 slugs-ft<sup>2</sup>
13. Maximum backlash: 0.5 degrees
14. Maximum azimuth accuracy error: 1 degree
15. Positioner must perform satisfactorily with a cable run of 200ft.
16. If power is lost, accurate, current rotator position must be displayed on controller, after resumption of power
17. Controller must be standard 19" rack mounted

The following environmental specifications must also be met: (this assumes the positioner will be enclosed in a radome but may experience 100% humidity.)

1. Equipment exposed to weather (unsheltered): the positioner shall maintain viability and performance when exposed to the following conditions as specified by MIL-HDBK-2036:

Exposed- unsheltered – operating: -25 °C to +65 °C

2. Non-operating temperature range: the positioner shall not be damaged nor shall operational performance be degraded when restored to the operating temperature range after being subjected to the controlled environmental range.
3. Humidity: positioner should maintain specified performance when subjected to 100% relative humidity. Humidity test should be tailored in accordance with (IAW) IEC 68-2-30 or MIL-STD-810, Method 507, to simulate shipping and storage conditions, and when applicable installation in an uncontrolled environment.
4. Solar Radiation: positioner should not be damaged and should maintain specified performance when exposed to the sun at its service location. Solar radiation tests should be tailored according to IAW MIL-STD-810, Method 505, Procedure II.
5. Vibration (Operational): the positioner shall be capable of withstanding the Type I Vibration test of MIL-STD-167-1.

Vibration (non-operational): when packaged for shipment, the positioner shall withstand exposure to vibrations shown in Table 1 below in any axis and without consequent damage or degradation of performance.

Table 1 Vibration Handling Capabilities for Antenna Positioner

Frequency	Amplitude
5 to 27 Hz	+1.3g peak
27 to 51 Hz	0.036 inch double amplitude
52 to 500 Hz	+5g peak

6. Shock (Operational): the positioner shall be capable of withstanding the Grade 'A', type "A", Class I shock test as specified in MIL-S-901.
7. Shock (Transportation): the positioner shall suffer no damage when subjected to the drop test of MIL-STD-810, Method 516.3, Procedure IV.

\*\*Environmental requirements must either be tested and documented by manufacturer, designed and verified by analysis to meet above requirements by manufacturer, or be visually inspected by SSC-SD mechanical engineer to verify compliance to the above environmental specifications.

Lead time requirement:

Antenna positioner, antenna control unit, and cable must be delivered NLT June 15, 2004.