

NATIONAL RADIO ASTRONOMY OBSERVATORY
Green Bank, West Virginia

Suggested Specifications for 40-Ft. Transit Radio Telescope

1. Reflector and Feed Support

Paraboloid of revolution, 40-ft. diameter, 17-ft. focal length. Mesh surface with $3/8$ inch square holes. The root-mean-square surface deviation from the best fit paraboloid should not exceed $1/2$ inch, in any operating condition and available reflector attitude. The surface need not be adjustable.

Feed support may be a tripod, quadripod, two stiff legs and two cables, or something similar. It should be capable of supporting 200 pounds of equipment near the focal point. With this load, gravity deflections at the focus should not exceed $1/2$ ". Assuming a surface area near the focus of 10 square feet, deflections due to winds up to 40 mph should not exceed $1/4$ inch.

2. Mount

The mounting is to be transit-type, with motion in elevation only. Motion in elevation should permit the telescope beam to point at least 60° from the zenith, in either direction. A full 90° in either direction is desirable.

3. Drive

The drive system must be able to move the telescope about the elevation axis at a rate of about 20 degrees per minute. There must also be

a means of "setting" the telescope to within 1 minute of arc of a given position.

The drive system and/or mounting should be capable of holding the telescope in any given fixed position to within an accuracy of ± 1 minute of arc.

4. Indicators

A position indicator will be driven from the elevation axis shaft. The position indicator must have an accuracy of ± 1 minute of arc.

5. Operating Conditions

The telescope must be operable, with the above specifications met, in the following conditions:

- a) temperature range -10° to $+90^{\circ}$ fahrenheit;
- b) wind to 40 mph;
- c) ice and snow load -- 2 lbs./sq. ft. over entire surface.

The telescope must be capable of surviving, in a stowed position,

- a) wind to 100 mph;
- b) ice and snow loads of 15 lb./sq. ft.