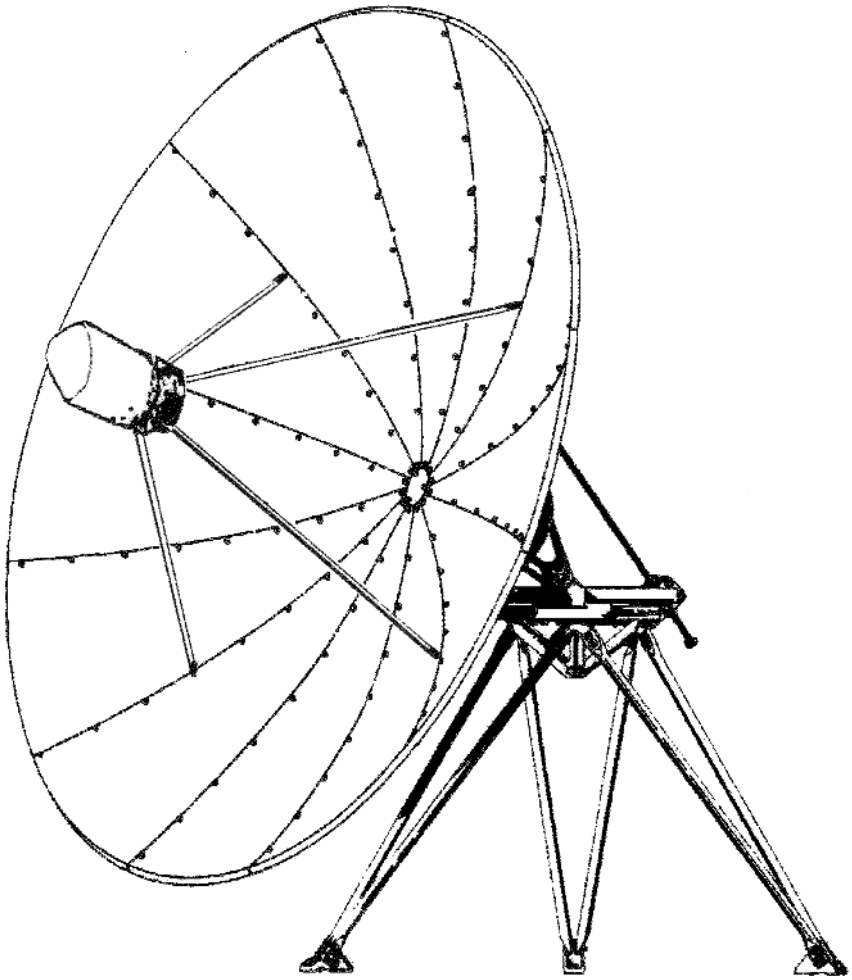
1.3 Equipment Description

The Series 8345 earth station antenna (Figure 1-1) is designed for quick and easy installation without special tools or hoisting equipment.



A concrete pier foundation kit is available as an economical alternative to a concrete slab foundation. The pier foundation is designed for steady 110 mph windloads. It consists of three cast pier inserts. A steel framework bolts the inserts into a triangle, which is lowered into three augered holes containing prepared re-bar cages; the holes are then filled with concrete. Installing the pier foundation is less time-consuming and less expensive than pouring a concrete slab foundation.

A standard elevation-over-azimuth mount is provided with the 4.5-meter antenna for both ease of operation and pointing accuracy. This mount provides continuous satellite arc coverage from any location in the contiguous United States. Pointing of the antenna is rapid and accurate. A 5° to 90° elevation range is provided for maximum pointing capability. Complete 360° azimuth coverage eliminates the need to align the

foundation to a specific heading, thereby also eliminating the possibility of installation errors associated with foundation centerlines.

The paraboloidal reflector consists of twelve precision, stretch-stamped steel panels for consistent surface accuracy. The twelve panels are uniform and completely interchangeable for handling convenience, lower shipping costs, and easy installation. After a foundation has been prepared, two people can install the antenna in one day. No special tools are required and no single part weighs more than 140 pounds (45 kg).

Each of the optional feeds offered with the 4.5-meter earth station antenna provides consistent high quality and unusual economy in a mid-sized antenna system. The Ku-band Feed provides dual-polarization, receive-only capability in the 10.9 to 12.75 GHz range. The C-band Feed provides dual-polarization, receive-only capability in the 3.7 to 4.2 GHz range.

1.4 Equipment Application

The 4.5-meter earth station antenna is designed for a wide range of applications and is especially well-suited for CATV operations receiving video programming from domestic satellites. Feeds are available for 3.7 to 4.2 GHz receive-only applications, 10.9 to 12.75 GHz receive-only applications.

1.5 Standard Features

The Series 8345 earth station antenna provides cost-effective high performance for a wide range of applications and includes the following features:

- Ease of installation
- Minimum maintenance
- Minimum shipping and installation costs
- Minimum site preparation requirements
- Full satellite arc coverage from any location in the contiguous United States (5° to 90° continuous elevation; 360° continuous azimuth)
- Elevation-Over-Azimuth Mount for ease of operation
- Interchangeable, stamped reflector panels for consistent surface accuracy (no panel adjustment or testing required)
- Protected environment for LNAs/LNBs
- Ku-band compatible

1.6 Options

For added ease of installation and a wider range of applications, the following options are available:

- Pier Foundation Kit (a low-cost alternative to the concrete slab foundation)
- C/Ku-band Feed (for receive-only applications in the 10.9 to 12.75 GHz range)
- Multi-beam Feed (for receiving up to 5 satellite beams – from satellites spaced 2° to 8° apart --with one dish)

1.7 Specifications

The Series 8345 earth station antenna has been designed and tested to meet the specifications listed in Table 1-1.

Table 1-1. Series 8345 Antenna Specifications[1]

Characteristic	Specification
ELECTRICAL	
Operating frequency	C-band 3.7 to 4.2 GHz Ku-band 10.9 to 12.75 GHz
Feed types	Ku-band, dual polarization C-band, dual polarization C-band dual-beam
Antenna gain	43.6 dBi at 4 GHz 53.1 dBi at 12 GHz
VSWR (Referenced at output of OMT)	1.3:1 maximum
Polarization	Dual linear
Polarization adjustment	360° continuous
Axial ratio	35 dB minimum on axis
Isolation between ports	35 dB minimum for dual linear operation
Half-power beam width (-3dB reference)	C-band 1.1° nominal @ 4 GHz Ku-band 0.4° nominal @ 12 GHz
First sidelobe	C-band -22.5 dB @ 4 GHz Ku-band -20 dB @ 12 GHz
Antenna noise temperature	C-band 24K at 30° elevation Ku-band 28K at 30° elevation

Table 1-1. Series 8345 Antenna Specifications[1]

Characteristic	Specification
Radiation pattern	C-band main beam <= theta <7.0 <29.0 - 25.0 (log (theta)) dbi Ku-band 1.0 <= theta < 7.0: <29.0 – 25.0 (log (theta)) dbi C- & Ku-band 7.0 <= theta < 9.2: < +8.0 dBi 9.2 <= theta < 48.0: <32.0 – 25.0 (log (theta)) dBi 48.0 <= theta < 180.0: < -10.0 dBi
Feed interface	CPR-229 flange (C-band) WR-75 flange (Ku-band)
GENERAL	
Antenna type	Prime-focus, paraboloidal
Antenna diameter	4.5-meter (14.83 ft)
Reflector construction	Stretch-stamped, 12-panel, 4.5-meter diameter
Mount configuration	Elevation-over-azimuth
Azimuth coverage	360° continuous
Elevation range	5° to 90° continuous
Satellite coverage	Any satellite in the visible geosynchronous arc, from any location in the contiguous U.S.
ENVIRONMENTAL	
Pointing accuracy	.054° rms in 30 mph winds gusting to 45 mph @ 59° F
Temperature range (operational)	-40°C to 65°C (-40° F to +149° F)
Survival[2]	Antenna designed to withstand steady winds up to 110 mph @ 59° F, 107 mph @ 32°F no ice, 99 mph @ -40° F no ice, 67 mph @ 32° F with 2-inch radial ice. (Ref. American National Standard Building Code Requirements, ANSI A58.1, with an effective velocity pressure of 30.9 psf.) Winds gusting to 125mph may cause some localized yielding.
Solar radiation	1. 1 mW/mm^2
Atmospheric conditions	Salt, pollutants and corrosive contaminants as encountered in tropical temperature, marine, and moderate industrial areas.

[1]Specifications subject to change without notice.

[2]All conditions assume proper installation and adjustable components securely clamped.