

RADIO ENGINEERING
MICROWAVE RADIO
ANTENNA SPECIFICATIONS
KS-19530, 6-FOOT, 6/11-GHz

CONTENTS	PAGE	3. EQUIPMENT DESCRIPTION
1. GENERAL	1	3.01 The KS-19530 antenna consists of a 6-foot spun-aluminum dish, a composite circular feed assembly, a radome, and a mounting frame for attaching the reflector on a tower or other structure.
2. TRANSMISSION CHARACTERISTICS	1	3.02 A low-loss radome fits over the front face of the reflector and is required for the antenna to meet the design wind load requirements. The radome provides the feed assembly clamp and is required for feed assembly support and protection. Dish and feed heaters are not available.
3. EQUIPMENT DESCRIPTION	1	3.03 The feed assembly consists of a composite circular feed assembly mounted in front of the reflector at a focal length of 48 inches. Two WR-90 waveguides and one WR-159 waveguide are extended from the network feed to the edge of the reflector where they terminate in gasketed flanges. Polarization may be changed by rotation of the feed assembly around the edge of the dish.
4. REFERENCES	2	3.04 The mounting frame provides for independent azimuth and elevation adjustment. A fine adjustment of ± 6 degrees on azimuth and ± 4 degrees on elevation is possible with the mounting frame design.
1. GENERAL		3.05 The reflector and feed assembly weighs approximately 100 pounds. The mounting frame and radome weigh approximately 125 and 75 pounds, respectively. The mounting frame and antenna with radome are designed for a wind load of 40 pounds per square foot.
1.01 The KS-19530 antenna is a 6-foot parabolic dish antenna for use on short-haul 6- and 11-GHz radio routes, such as TL and TM microwave radio systems operating in crossband diversity.		3.06 The equipment information is shown in Table C.
1.02 The 3-port construction of the feed assembly provides the capability of operating with one polarization in the 6-GHz frequency band and two polarizations in the 11-GHz frequency band.		
2. TRANSMISSION CHARACTERISTICS		
2.01 The gain-frequency characteristics are shown in Table A. Other transmission characteristics are shown in Table B.		
2.02 The minimum return loss of 23 dB corresponds to a voltage standing wave ratio of 1.15 to 1.		
2.03 Smoothed horizontal-plane directivity patterns are shown in Fig. 1 for the 6-GHz band, and in Fig. 2 and 3 for the 11-GHz band. The pattern plotted for the 6-GHz band is representative for either vertical or horizontal polarization. These curves envelop the minor lobes that are likely to occur within the frequency band and are used as a worse-case situation when making interference computations.		

4. REFERENCES

SD-3C041-01 Short-Haul Radio—Parabolic Reflector Antennas, Passive Reflectors, and Outdoor Waveguide Systems

940-340-131* Microwave Radio—Waveguide Systems—Design Considerations

AA266.091 Antennas, Passive Reflectors, and Radomes for Microwave Communication Systems—Toll Systems

TABLE A
GAIN-FREQUENCY CHARACTERISTICS

FREQUENCY (GHz)	GAIN MIN (dB) WITH RADOME
5.925	37.5
6.175	37.9
6.425	38.3
10.7	42.1
11.2	42.5
11.7	42.9

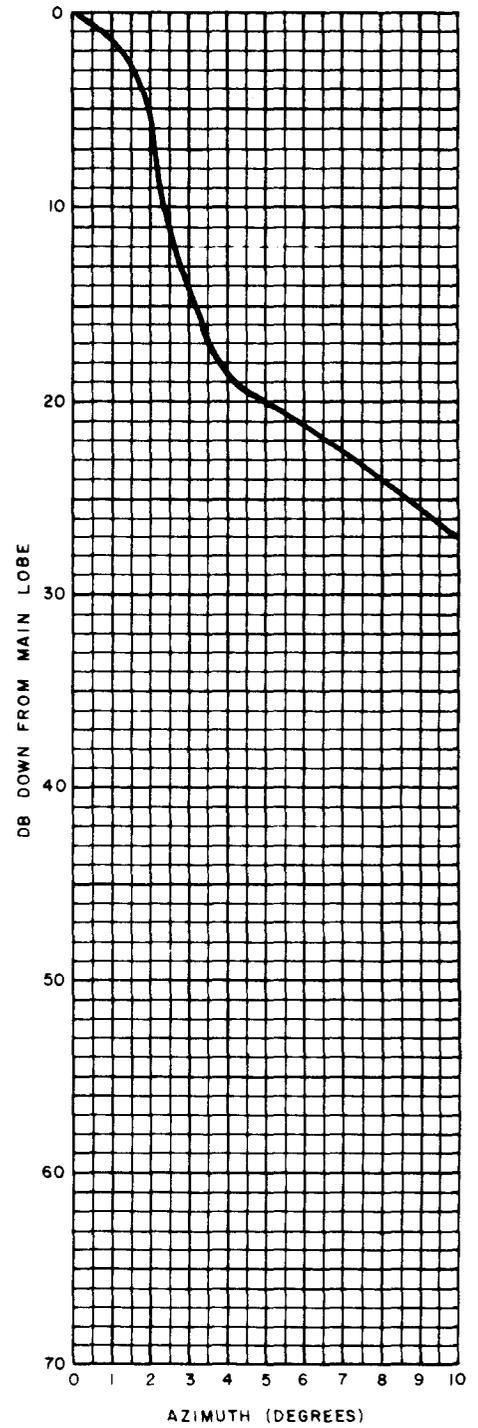
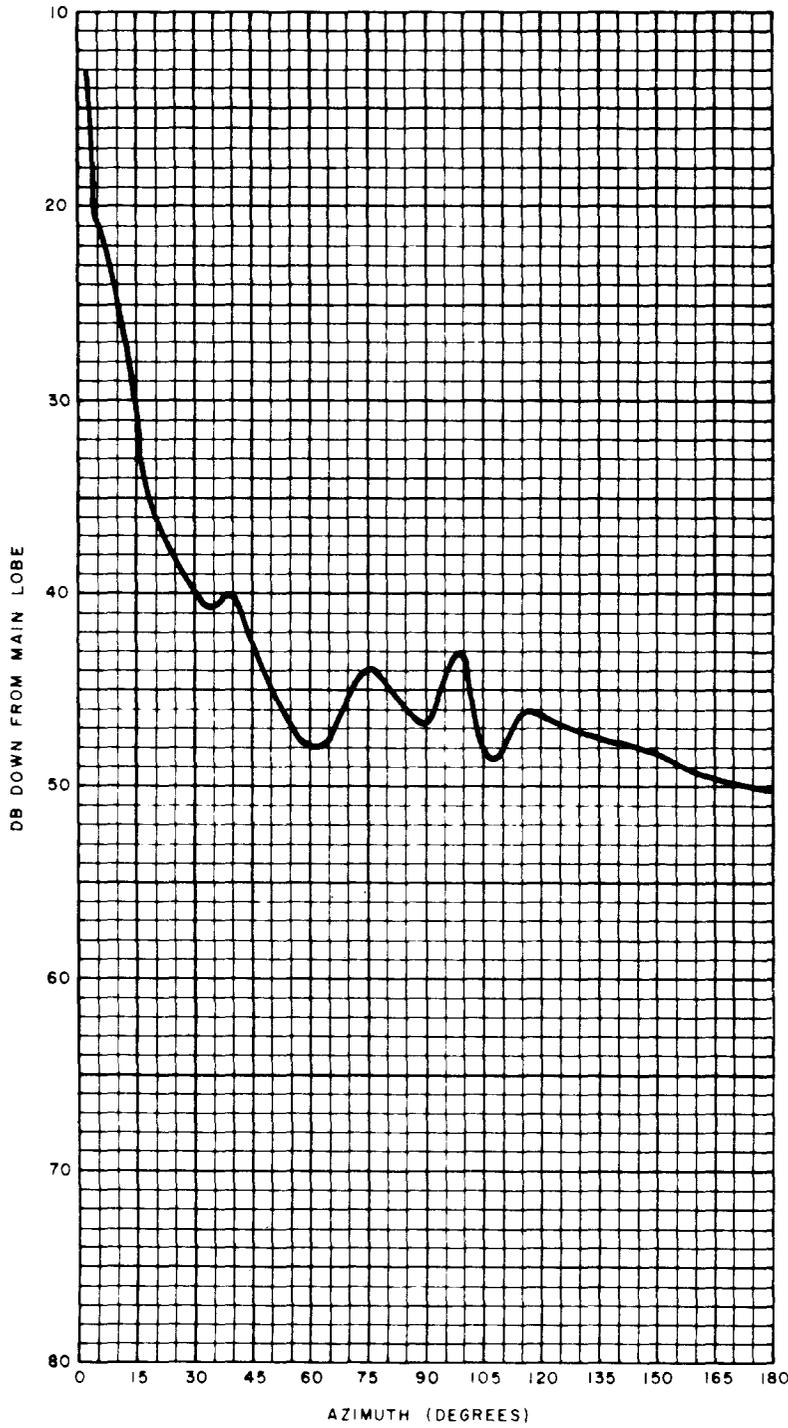
*This section may not be issued. Consult the latest numerical index.

TABLE B
TRANSMISSION CHARACTERISTICS

CHARACTERISTIC	FREQUENCY	
	6.175 GHz	11.2 GHz
Half-Power Beam Width	2.1 degrees	1.1 degrees
Major Sidelobe Suppression	18.0 dB MIN	13.0 dB
Radome Insertion Loss	0.6 dB	1.2 dB MIN
Return Loss	23 dB MIN	
Polarization Discrimination	18 dB MIN	

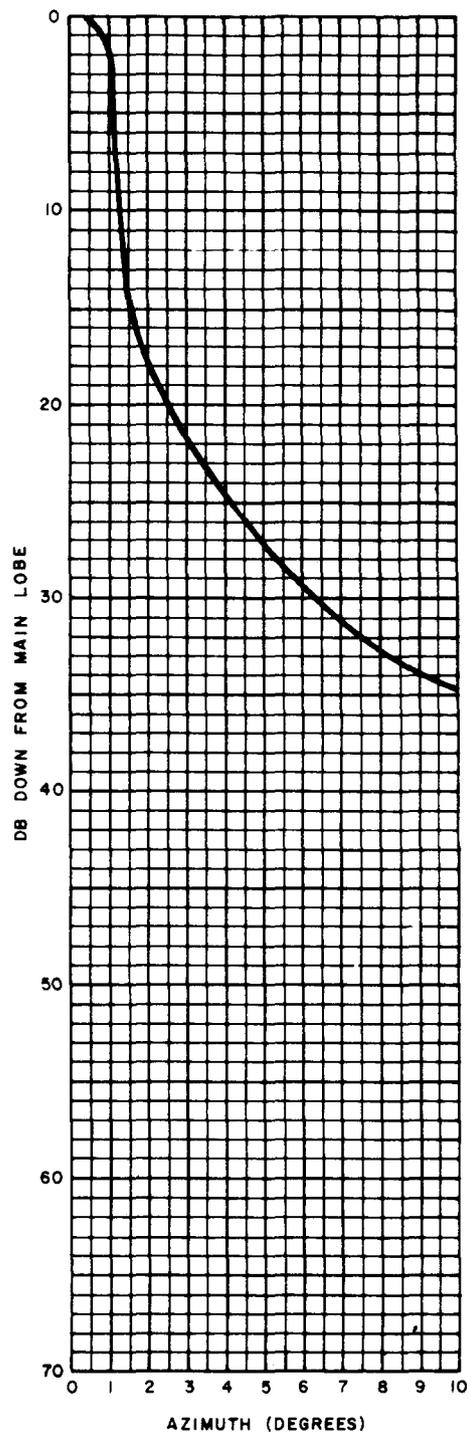
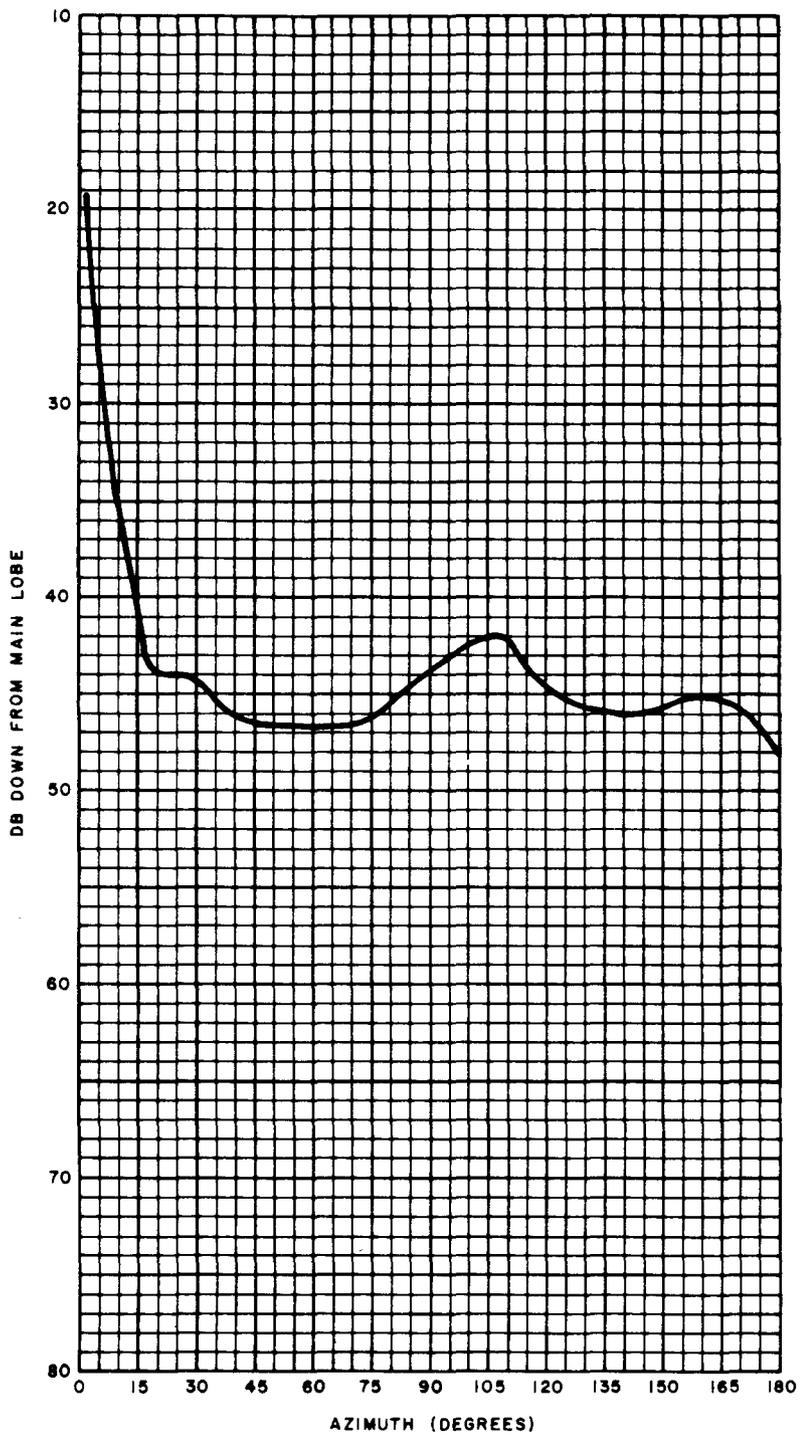
TABLE C
EQUIPMENT INFORMATION — KS-19530

List 1	6-foot parabolic reflector
List 2	Feed assembly
List 3	Mounting frame
List 4	Radome



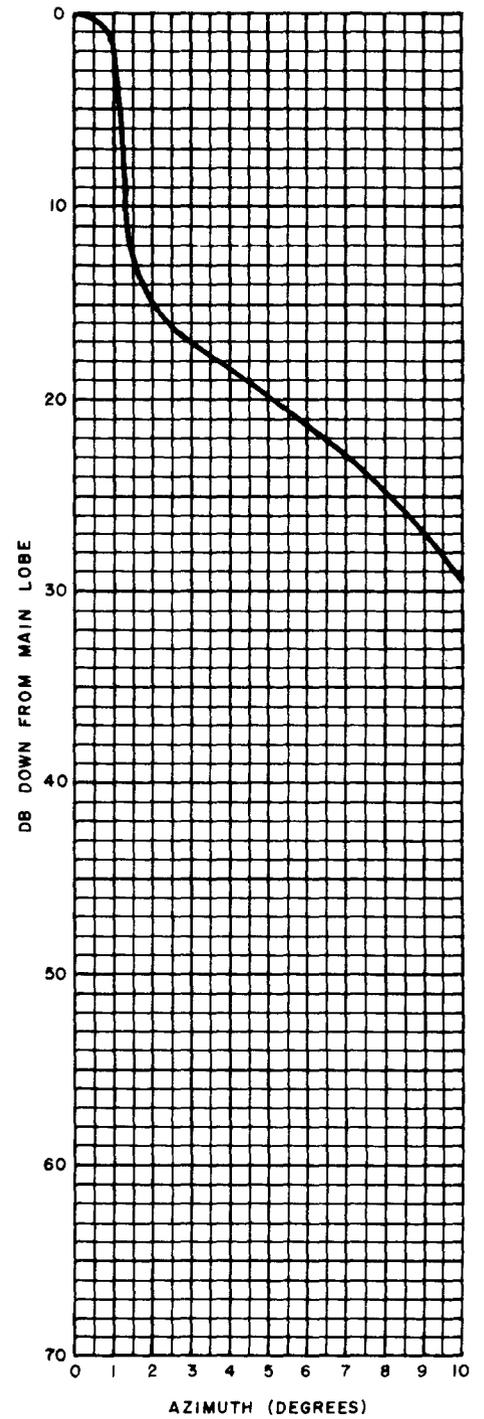
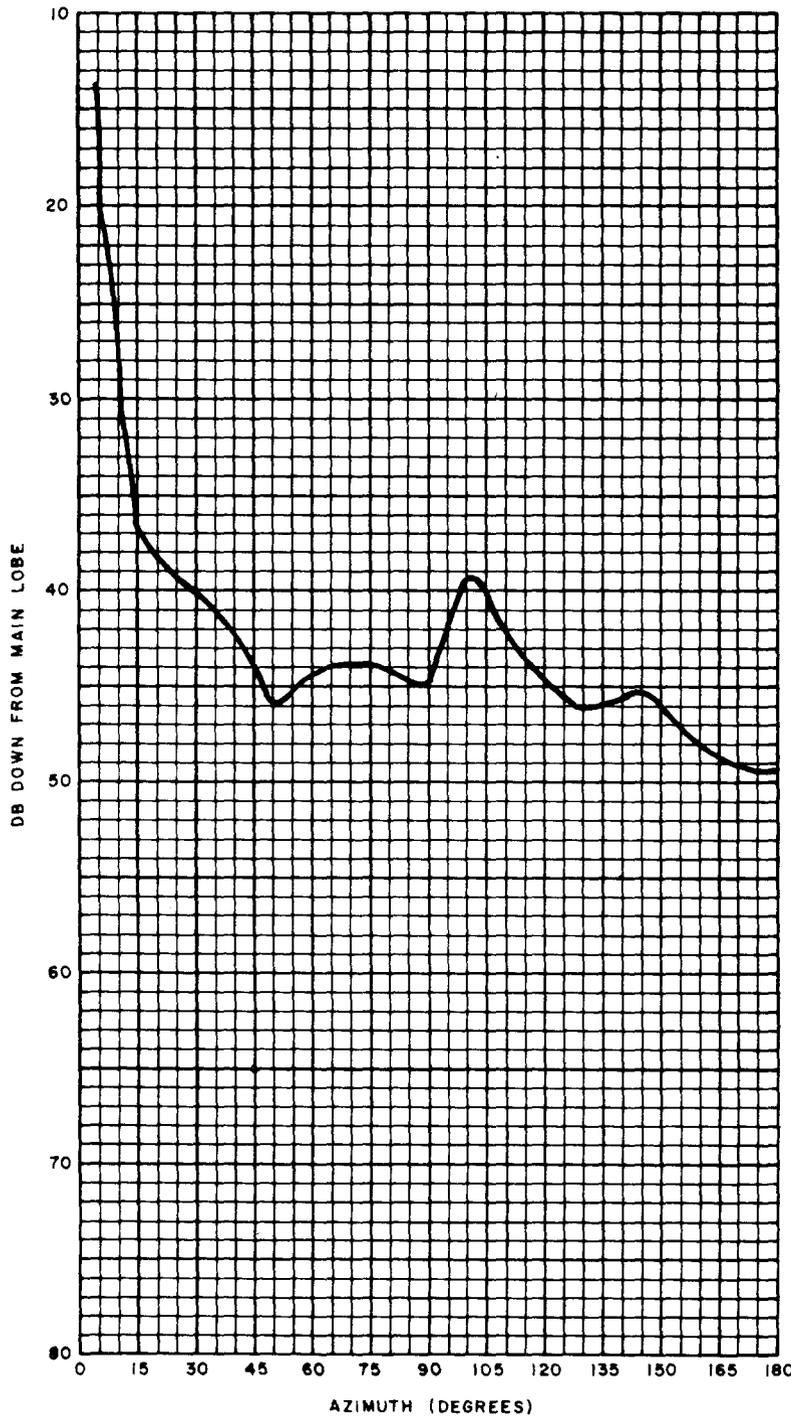
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Fig. 1—Discrimination Characteristics of Antenna KS-19530 Arranged for Either Vertical or Horizontal Polarization, 6 GHz—Horizontal-Plane (Azimuthal) Directivity



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Fig. 2—Discrimination Characteristics of Antenna KS-19530 Arranged for Vertical Polarization, 11 GHz—Horizontal-Plane (Azimuthal) Directivity



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Fig. 3—Discrimination Characteristics of Antenna KS-19530 Arranged for Horizontal Polarization, 11 GHz—Horizontal-Plane (Azimuthal) Directivity