RADIO ENGINEERING
MICROWAVE RADIO
ANTENNA SPECIFICATIONS
KS-15837, 8-FOOT, 4-GHZ

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1. GENERAL

1.01 The KS-15837 antenna is an 8-foot parabolic dish antenna for use on lightly loaded 4-GHz radio routes, such as TD-2 or TD-3 operating as a spur off a main route.

1.02 The feed is capable of handling signals of only one polarization, either vertical or horizontal.

2. TRANSMISSION CHARACTERISTICS

2.01 The gain-frequency characteristics are shown in Table A. Other transmission characteristics are shown in Table B.

TABLE A

GAIN-FREQUENCY CHARACTERISTICS

FREQUENCY (GHZ)	GAIN (DB)
3.70	37.1
3.95	37.6
4.20	38.0

TABLE B

TRANSMISSION CHARACTERISTICS

CHARACTERISTIC	POLARIZATION	
	VERTICAL	HORIZONTAL
Half-Power Beam Width	2.5 degrees	2.3 degrees
Main Sidelobe Suppression	24 dB MIN	25 dB MIN
Return Loss	22 dB MIN	

2.02 The minimum return loss of 22 dB corresponds to a voltage standing wave ratio of 1.17 to 1.

2.03 Smoothed horizontal plane directivity patterns are shown in Fig. 1 and 2. The graphs show the response to the polarity of the signal for which the antenna is arranged, and also the response to a cross-polarized signal. 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.

2.04 The smoothed directivity curves for the KS-15837 antenna are identical to the curves for the KS-15640 antenna. (See Section 940-340-153.) The broadband feed provided for the later models of the KS-15640 is the same as the KS-15837 antenna feed and yields similar radiation patterns.

3. EQUIPMENT DESCRIPTION

3.01 The KS-15837 antenna consists of an 8-foot diameter spun aluminum dish, a broadband feed assembly, and a mounting frame for attaching

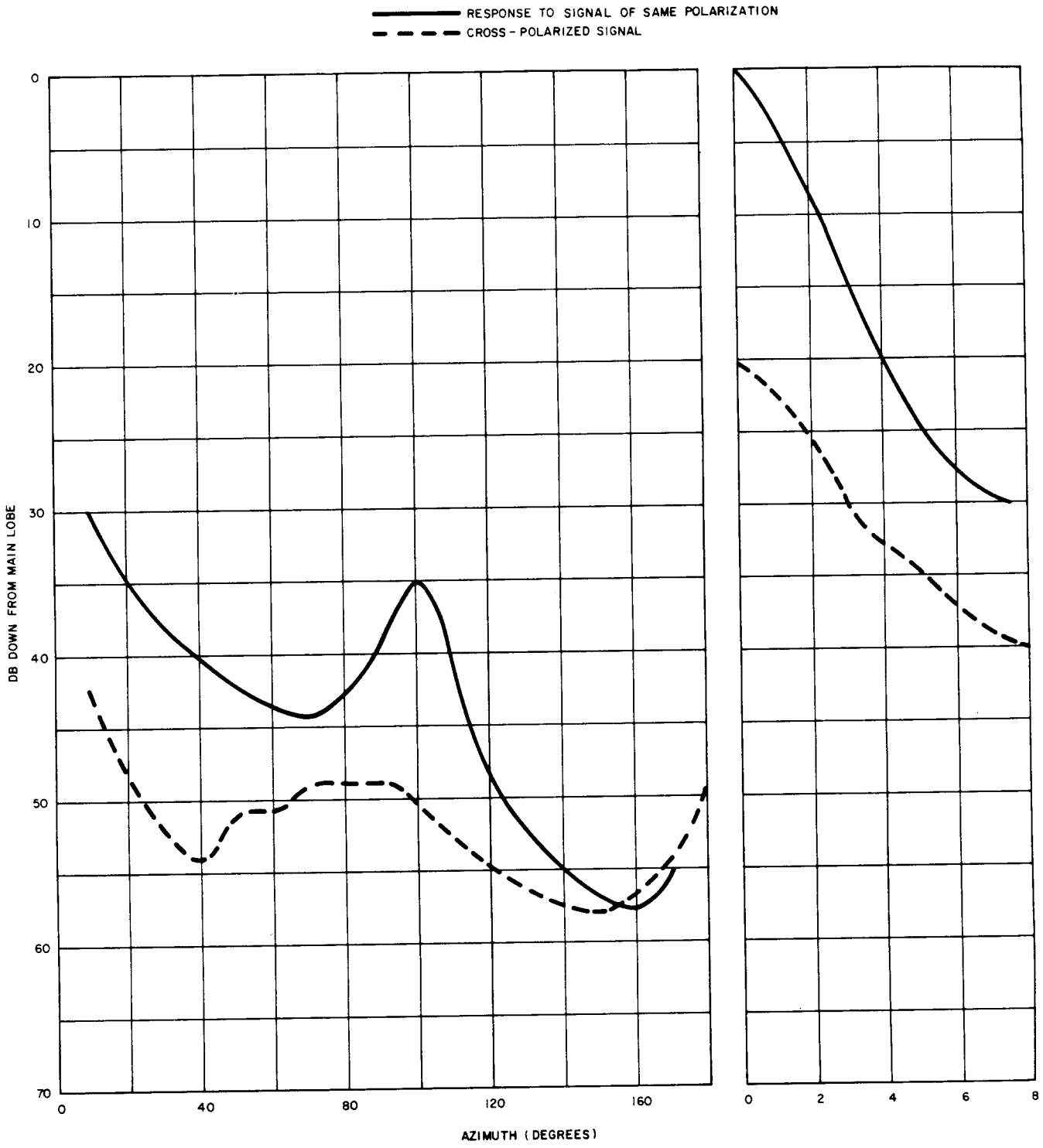

Fig. 1—Smoothed Horizontal-Plane Directivity—Vertical Polarization—4 GHz

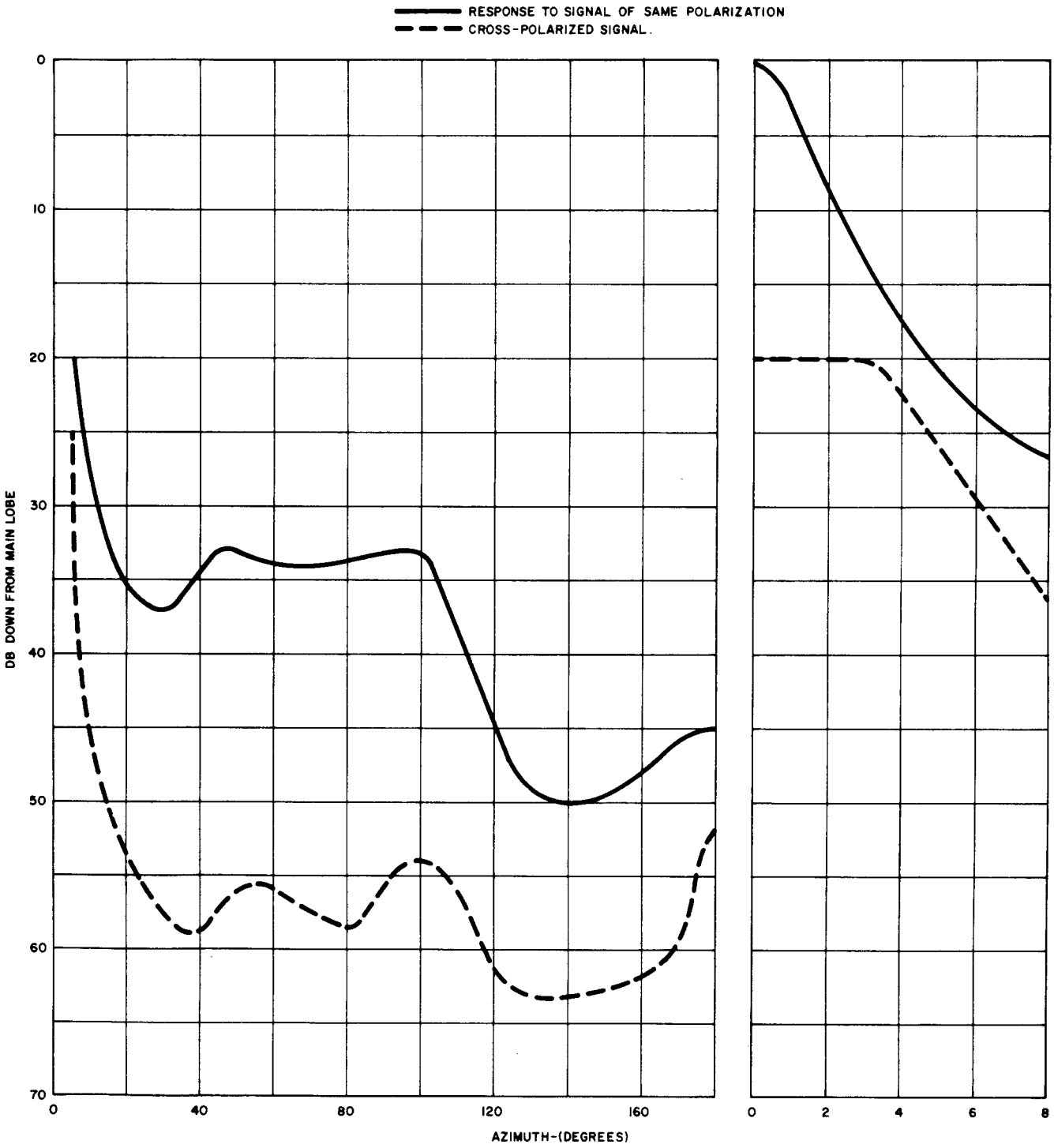

Fig. 2—Smoothed Horizontal-Plane Directivity—Horizontal Polarization—4 GHz

the reflector to standard towers. The mounting can be readily adapted for mounting on other structures.

3.02 While no radome is included in the specification for this antenna, one may be obtained from the supplier.

3.03 The feed assembly consists of a length of waveguide 39 inches long with a fixed focal length of 35.8 inches. The flange matches a WR229 gasketed waveguide. The assembly is arranged to be inserted or removed through the rear of the reflector.

3.04 The mounting frame provides for independent azimuth and elevation adjustment. A fine adjustment of ± 8 degrees on azimuth and ± 5 degrees on elevation is possible with the mounting frame design.

3.05 The weight of the reflector and feed assembly is approximately 160 pounds. With heaters the weight is increased by approximately 13 pounds. The mounting frame weighs about 227 pounds. The antenna and its mounting frame are designed for wind loads of 50 pounds per square foot.

3.06 Equipment information is shown in Table C. If replacement of the feed on older antennas becomes necessary, it is suggested that a Gabriel F8P-2J39 feed be used to replace the KS feed.

3.07 The reflector and feed assembly may be equipped with or without heaters. The reflector heater may be operated on either 115-volt or 230-volt ac service. The reflector will be arranged for 230-volt service unless specified otherwise. The feed heater operates only on 115-volt ac service. The heaters are controlled thermostatically and are preset to turn on at 40 ± 6 degrees Farenheit and to turn off at 55 ± 6 degrees Farenheit.

TABLE C

EQUIPMENT INFORMATION

List 1	8-foot diameter, spun-aluminum paraboloidal reflector (without feed and heater)
List 2	8-foot diameter, spun-aluminum paraboloidal reflector and 1500-watt heater (without feed)
List 3	Mounting frame assembly
List 6	Broadband antenna feed assembly (fixed flange — without heater)
List 7	Broadband antenna feed assembly (360-degree adjustable flange — without heater)
List 8	Broadband antenna feed assembly (fixed flange and 80-watt heater)
List 9	Broadband antenna feed assembly (360-watt adjustable flange and 80 watt heater)

4. REFERENCES

REFERENCE	TITLE
SD-3C041-01	Short Haul Radio—Parabolic Reflector Antennas, Passive Reflectors, and Outdoor Waveguide Systems
402-436-200	KS-15837, KS-15838, and KS-15924 Parabolic Antennas—Assembly and Installation
940-340-131*	Microwave Radio—Waveguide Systems—Design Considerations
AA266.091	Antennas, Passive Reflectors, and Radomes for Microwave Communications Systems—Toll Systems

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