MICROWAVE ANTENNAS
KS-5708 LIST 2 NON-PERFORATED PARABOLIC ANTENNA
DESCRIPTION

CONTENTS PAGE

1. GENERAL

1.01 This section pertains to the KS-5708, List 2, Parabolic Antenna which is 58-3/32" in diameter and is not perforated. Circuit and equipment data are included, as well as transmission characteristics. Related photographs and figures are included.

1.02 This parabolic reflector antenna is suit able for use as a transmitting or a receiving antenna for line-of-sight broad band microwave radio systems of the portable pick-up variety.

1.03 The practical working range of the antenna described in this section is from 3880 to 4200 mc, when equipped with the KS-5710, List 2 Antenna Feed.

2. CIRCUIT DESCRIPTION

2.01 The layout of this antenna is shown in Fig. 4, pages 9 and 10. It has a waveguide feed at the focal point of the parabolic reflector and feeds the electromagnetic energy at it in the form of spherical waves. The waves in turn are reflected outward as essentially plane waves.

2.02 The narrowness of beam width is about 3.50 between 3-db points as shown in the directivity pattern in Fig. 1.

2.03 The gain of the antenna at 4100 mc is 31 db over a half-wave dipole as shown in Fig. 3.

2.04 The back-to-back pick-up by a like antenna is about 75 db down.

2.05 When used in conjunction with an antenna feed per KS-5710, List 2, the midband frequency is 4050 mc and the standing wave ratio is below 3.6 db over the range of 3880 to 4200 mc. These characteristics are shown in Fig. 2.

3. EQUIPMENT FEATURES

3.01 The parabolic dish antenna is a 19" focal distance, non-perforated aluminum sheet 58-3/32" in diameter. This includes an extruded aluminum supporting ring which is designed to mount a plexiglas dome KS-5708, List 3, which must be ordered separately. A supporting ring casting is provided on the rear for attachment to an antenna floor support KS-5708, List 52 or List 53 or to an antenna carriage KS-5744, List 1. Photographs A, B and C show the antenna mounted to KS-5708, List 52 and List 53 and KS-5744, List 1. Fig. 4 shows the antenna mounted to KS-5708, List 53.

3.02 The associated antenna feed KS-5710, List 2, which must be ordered separately, mounts on the RF unit of the TE-2 Radio System per J41616 and J41617 which in turn mounts on the aluminum ring casting.

4. TRANSMISSION CHARACTERISTICS

4.01 Transmission characteristics are as follows:

(a)	Gain in forward direction	31 db over half-wave dipole at 4100 mc
(b)	Beam width (horizontal)	3.5° (between 3 db points)
(c)	Back-to-back ratio (to like antenna)	about 75 db down

5. PHOTOGRAPHS AND FIGURES

(A) Photographs

(B) Figures

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Photo A - KS-5708, List 2 Antenna Mounted on
KS-5708, List 52 Floor Support

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Photo B - KS-5708, List 2 Antenna Mounted on
KS-5708, List 53 Floor Support

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Photo C - KS-5708, List 2 Antenna Mounted on
KS-5744, List 1 Antenna Carriage

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Fig. 1 - Horizontal Plane Envelope Pattern
at 4,000 Mc

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Fig. 2 - Voltage Wave Ratio

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Fig. 3 - Gain-Frequency Characteristic

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Fig. 4 - Antenna floor Support for TE-2 Radio
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Fig. 4 (Cont'd) - Antenna Floor Support
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