

AERIAL OUTFIT AFY

AFY

SUMMARY OF DATA

PURPOSE

This array of loop aerials provides for the directional reception of ship-shore (or other) HF signals.

BRIEF DESCRIPTION

Eight loops, spaced 4 m apart are connected by rigid 50 ohm transmission lines to form a bi-directional end-fire array. Four such arrays cross at their centres with angles of 45 degrees between lines. As one array is aligned north-south the axes of the reception lobes lie along the eight points of a compass, thus permitting the selection of a directional aerial throughout the 360 degrees. Each loop has a pre-amplifier in its central vertical tube and the combined loop-amplifier produces a broad-band element of effective height 1 m, constant over the frequency range. The end-fire arrays are connected at both ends to the receiver station by 50 ohm cables which also carry the dc supplies to the pre-amplifiers in the loops. Four multicouplers are built into one multiple multicoupler and two of these are required. The rf outputs from the multiple multicouplers are connected to the receivers through Common Aerial Outfits EAV(1) and (2) and Aerial Exchange Outfit EO or EV to provide flexible signal distribution; or receivers can be connected direct to multiple multicouplers.

This loop aerial array occupies a much smaller area than is needed for a rhombic or logarithmic array of similar frequency range and it is easier to maintain. A special Test Set 6625-99-527-2411 is associated with the outfit.

FREQUENCY RANGE

2 to 32 MHz

MAJOR UNITS

| | | |
|------------------|--------------------------------|----|
| 5820-99-523-6581 | Loop Antenna | 32 |
| 5820-99-523-6582 | Line Assembly, RF Transmission | 28 |
| 5820-99-523-6583 | Termination Assembly | 8 |
| 5820-99-523-6585 | Multiple Multicoupler | 2 |
| 5820-99-523-6586 | Power Supply | 4 |

PHYSICAL DATA

| | |
|-------------|---|
| Site Fence | dia. 36.6 m (120 ft) |
| Whole array | dia. 30 m (91 ft) approx., height 3 m (10 ft) approx., weight 270 Kg (600 lb) |
| Loop | dia 1 m (3.3 ft) weight 4.5 Kg (10 lb) |

ELECTRICAL CHARACTERISTICS

| | |
|------------------------|--|
| Polarisation | Vertical |
| Impedance | 50 ohm |
| Effective Height | 8 m (terminated array) |
| Approx. Gain | 5 dB at 2 MHz 8 dB at 5 MHz 10 dB at 10 MHz 13 dB at 20 MHz 14 dB at 30 MHz |
| Half Power Points | Azimuth $\pm 43^\circ$ at 5 MHz, $\pm 27^\circ$ at 30 MHz Elevation 80° at 5 MHz, 30° at 30 MHz |
| Front/Back Temperature | Better than 13 dB -40° to $+70^\circ\text{C}$ |

POWER REQUIREMENTS

240 V ± 10 V, 50 to 60 Hz

HANDBOOKS

BR 346 Handbook for Aerial Outfit AFY
BR 349 Handbook for Receiving Aerial Exchanges and Auxiliaries

RESTRICTED

BR 333(1)
Original

ESTABLISHMENT LIST

S1647

INSTALLATION SPECIFICATION

B 1182

MAINTENANCE SCHEDULE

Cat. No.

COMMERCIAL EQUIVALENT

Hermes Electronics Ltd. Loop Antenna Array 4R/8E13
Test Set LTS10