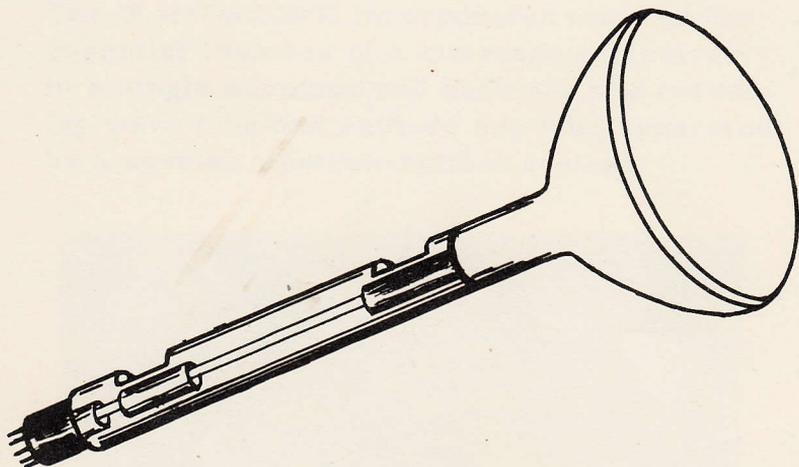


THE WAMOSCOPE



a new
MICROWAVE DISPLAY DEVICE



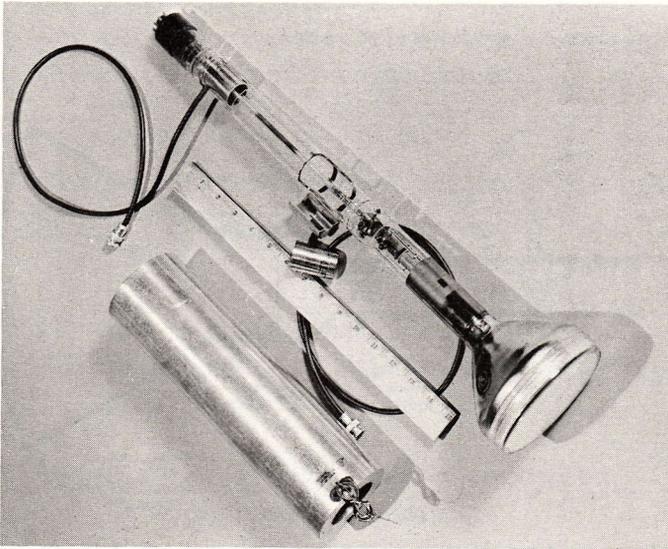
SYLVANIA

SYLVANIA ELEC. PROD. INC.
RESEARCH LABORATORIES
BAYSIDE, N.Y.

DESCRIPTION

The WAMOSCOPE is a new microwave display tube developed by Sylvania for use in microwave receiver-indicators with intensity modulated displays.

The WAMOSCOPE incorporates most of the essential features of a microwave receiver in a single envelope and consists of a traveling wave tube and cathode ray tube separated by a special electron-optical system.

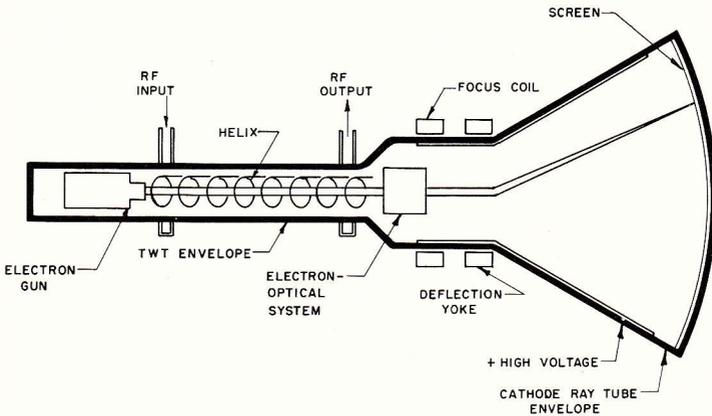


Although the WAMOSCOPE Type 6762 has a 5" bulb and a P-7 phosphor, there is no practical limitation to either the size of the face of the tube or the type of phosphor used.

OPERATION

The operation of the WAMOSCOPE is based upon velocity-sorting the electrons which emerge from the end of the helix of the traveling wave tube section. A dc beam of suitable voltage is passed down the helix. With an rf input, the beam interacts with the rf fields on the helix so that the beam is velocity and current modulated in accordance with the amplitude of the rf signals. The velocity-modulated beam enters the region where the

WAMOSCOPE TUBE DIAGRAM



special electron-optical system is located. By applying a suitable bias voltage to an aperture in the electron-optical system, the electrons whose velocity is greater than the dc velocity pass through the aperture and are allowed to impinge upon the screen of the cathode ray tube while the slower electrons are reflected.

APPLICATIONS

Applications of the WAMOSCOPE derive from two basic advantages of the tube:

1. The reduction in the number of tubes and components since the one envelope provides amplification, detection, and display of radio frequency information. The elimination of the local oscillator, mixer, intermediate frequency amplifier, detector, and video amplifier, and their associated circuitry increases the reliability of the equipment.
2. The relatively wide bandwidth of the tube which enables:
 - a) the amplification, reproduction, and display of extremely short pulses, and
 - b) display of information contained in wide-band systems.

Development Sponsored By
The Naval Research Laboratories

DATA ON WAMOSCOPE TYPE 6762

A. General Characteristics

ELECTRICAL

| | |
|--------------------------------------|-----------------------------|
| Heater Voltage | 6.3 ± 10% volts |
| Heater current | 0.9 ± 10% amps |
| Focusing method | magnetic |
| Deflecting method | magnetic |
| Deflecting angle (approx) | 52° |
| Phosphor | P-7 |
| Overall length | 23 3/8 ± 1/4 inches |
| Minimum useful screen diameter | 4 1/4 inches |
| Base | small shell duodecal 12 pin |

B. Typical Operating Conditions (Voltages Given With Respect To Cathode)

| | |
|----------------------------------------------------|------------------|
| Anode voltage (dc) | 15 k volts |
| Focus Electrode voltage (dc) | 0 volts |
| Gun Electrode voltage (dc) | 85 volts |
| Accelerator voltage (dc) | 650 volts |
| Gate Electrode voltage (dc) | -3 to +10 volts |
| Helix voltage (dc) | 670 volts |
| Deflection plates voltage for centering (dc) | 540 to 740 volts |
| Helix focusing solenoid field strength | 110 gauss |
| Cathode current | 1/2 milliampere |
| Center frequency | 3000 mc |
| Bandwidth | 300 mc |
| Sensitivity | -40 dbm |
| Maximum gain | 15 db |

C. WAMOSCOPE Solenoid No. H4-SK860-A (Supplied with tube Type 6762)

| | |
|----------------|----------------|
| Length | 12 1/16 inches |
| OD | 3 1/2 inches |
| ID | 2 1/16 inches |
| Weight | 9 lbs, 2 oz. |
| Gauss/ma | .85 |