

1. DESCRIPTION

1.1. GENERAL

The Marconi R.F. Power Meters Types TF 1020A and TF 1020A/1 are direct-reading absorption instruments for use at any frequency up to 250 Mc/s. Each model has two measurement ranges of 50 and 100 watts full scale; from d.c. to 100 Mc/s, the accuracy of measurement is 5% of full scale and from 100 to 250 Mc/s the accuracy is $7\frac{1}{2}\%$ of full scale. The TF 1020A has an input impedance of 75 ohms and the TF 1020A/1 an input impedance of 50 ohms. For both models, the v.s.w.r. is less than 1.1. from d.c. to 100 Mc/s and less than 1.25 from 100 to 250 Mc/s.

1.2. DESIGN DETAILS

The dissipative element in the TF 1020A and TF 1020A/1 consists of a heavy-duty high-stability resistor (R1) which has a tubular ceramic former with a conducting outer coating of cracked carbon. The resistor is mounted in an upward-slanting position to assist cooling by convection and forms the central conductor of a slab line of relatively large dimensions. Suitable air vents are provided in the case to allow free air flow; also the interior of the case and certain parts are sprayed black to assist in heat dispersion.

Connection of the power source is made to a type N coaxial socket (SK1) on the front panel, the input being fed to the "live" end of the load resistor by an outward-taper constant-impedance section. From the "earthy" end of the resistor, connection is made back to the input socket through broad metal sheets which serve as the outer conductor to complete the slab line.

Indication of power level is achieved by means of a vacuum thermocouple (X1) and a moving-coil meter (M1); the thermocouple heater is fed from a tap near the "earthy" end of the main load resistor. The meter sensitivity is adjusted by two preset series resistors (RV1 and RV2), one for each power range; the appropriate preset resistor is brought into circuit by operation of the range switch (SW1) mounted on the front panel.