

Matching Impedances

Q. How can I go about matching impedance of a tuner and the output or input impedance of an amplifier or preamplifier? H. T. Sutcliffer, Redwood City, Cal.

A. In audio work, it is rarely necessary to know the exact input or output impedance of a piece of equipment, though that of the output stage of a power amplifier and of some low-impedance input stages is somewhat more critical. With straight RC circuitry, all that is necessary is for the impedance of a stage being supplied with signal to be at least twice that of the driver. I usually establish this ratio at between five and ten to one. Cathode followers are of low impedance usually, and can be easily fed into amplifiers of many times their impedance without the use of matching equipment. The actual impedance of a cathode follower depends upon the tube employed and upon the cathode resistor. The input impedance to a particular amplifier or amplifier stage is roughly that of the load into which the coupling capacitor works. For example, the output impedance of a discriminator of an FM tuner is approximately that of the resistance between cathode and ground of the diode from which audio is derived (about 100,000 ohms, usually). The coupling capacitor should be 0.02 μ f. or larger. The output of the capacitor should be terminated in a stage whose input impedance is approximately 0.5 megohm.

The output of a conventional grounded cathode a.c. amplifier is roughly that of the plate load resistor, and again, the value of the capacitor used to couple the signal to the next stage can be neglected.