

The invention relates to a method for the compensation of the earth's magnetic field in a picture tube.

With picture tubes having a large format of the picture screen, a screening device is necessary in order to keep the earth's magnetic field away from the deflecting magnetic field within the picture tube. Because of its necessarily large size, this screening device is very expensive and for just this reason it is not therefore used. Circuit arrangements which compensate this earth magnetic field in an electrical manner are cheaper. If the influence of the earth's magnetic field is not removed, substantial quality losses in the form of distortions of the colour purity can arise.

It is known to compensate the earth's magnetic field with the aid of a coil placed on the picture tube. To this end, the known picture reproduction equipments have one or even more switches on their rear surfaces for the adjustment of currents of different magnitude and direction through this compensating coil which is connected between an operating voltage and earth potential. A current limiting resistor is located in series with the compensating coil. One part of this resistor can be bridged with the aid of a first switch whereby two different magnitudes of current can be sent through the compensating coil. A second e.g. three stage switch having two contact banks serves to connect the two ends of the compensating coil alternately to the series resistor and to earth potential in order to reverse the current direction through the compensating coil or even to cut it off completely.

However, an arrangement of this type has two big disadvantages. Firstly, the compensating current can only be switched between two fixed values and secondly the operation by means of a rearward arrangement of the switches is laborious and often not even possible when the picture reproduction equipment is built into a cupboard wall.

The object of the invention is to remove these disadvantages. This object is achieved by the measures given in the claim.

The invention has the great advantage that the adjustment of the current through the compensating coil can be undertaken continuously and without laborious handling as a consequence of a rearward operation of the equipment.

The invention will be explained hereinafter by means of an embodiment with the help of the drawing.

Figure 1 shows a basic assembly for explaining the manner of operation of the invention

Figure 2 shows a detailed embodiment of the invention

A receiver stage which amplifies remote control signals e.g. digitally coded infra-red light signals and passes these to a microprocessor 2 is referenced 1 in Figure 1. The latter converts the received signal into a rectangular signal that has a variable duty ratio and this is then passed to a digital/analog convertor 3. The converted analogue signal corresponds to a level which varies between zero volts and an operating voltage U_B . This level reaches the one end of the compensating coil via a power amplifier 4 and its other end is connected to a potential $U_B/2$ which corresponds to the half of the operating voltage U_B . This potential is produced by the voltage divider 6, 7 which is connected between the operating voltage U_B and earth potential.

The functioning of the circuit is such that with a level at the output of the power amplifier 4 having a magnitude of $U_B/2$, no current flows through the compensating coil 5, if the voltage at the output of the power amplifier 4 is greater then a current I_+ flows in dependence on the potential difference, if the voltage at the output is smaller then a current I_- flows through the compensating coil 5 in dependence on the potential difference.

It is illustrated in Figure 2 how the circuit in accordance with Figure 1 can be constructed in practice.

The pulses emerging from the microprocessor 2 at the output A reach the R-C member consisting of the resistor 8 and the capacitor 9 which forms the above-mentioned digital/analog convertor 3. The level occurring at the point B is extracted as a low impedance adjusting voltage U_s from the power amplifier 4 comprised by the transistors 10 and 11. The voltage U_s reaches, via a current limiting resistor 12, the compensating coil 5, whose other end is kept at a fixed direct voltage level $U_B/2$ with the aid of a Zener diode 13 that is connected via the resistor 14 to the direct voltage U_B .



Claim

1. Method for the compensation of the earth's magnetic field in a picture tube of a remotely controllable television receiver with the aid of a compensating coil, characterised in that, a remote control channel of the television receiver is provided for the production in the television receiver of a direct voltage (US) which is applied to the compensating coil (5) whose other end is connected to a stable voltage (UB/2) wherein the voltage (US) can be varied between the value 0 and UB.