The invention relates to a circuit arrangement for television receivers for obtaining interference-free changing-over from one television channel to another television channel and with a memory for the reproduction of a still picture.

When changing over between signal sources which are not synchronised with each other, such as when changing channels or when switching to a video recorder for example, the reproduced picture is initially disturbed, since the receiver must first of all be synchronised with the new signal. It frequently takes a few hundred milliseconds before the picture is captured. In professional equipment therefore, the signals to be changed between are synchronised with each other before the changing-over. This however requires expenditure on circuitry that is not justified for domestic receivers, such that in this case interference when changing over is accepted.

The object of the invention is to make changing over from one channel to another free of interference, without major expense. This aim is achieved in a circuit arrangement of the type set out in the introduction, in that a coincidence stage is provided, which from the change-over signal and a picture synchronising pulse derived from a pulse clipper, generates a signal which enables the changing of the signal and simultaneously the release for reproduction of the picture stored in the memory of the previously received channel, and that a control circuit is provided, which is activated by way of the signal from the coincidence stage and which produces a signal which connects through the stored picture for reproduction for a given period of time, until the synchronisation to the signal of the television channel changed to has

occurred, after which the control circuit enables reproduction of the signal of the television channel changed to.

Further developments of the invention are given in the dependent claims.

The invention takes advantage of the fact that there are television receivers which can reproduce a still picture for which there is in the receiver a memory which statically reproduces a recorded picture when required.

An embodiment of the invention is hereafter explained with the aid of the drawing.

The figure shows the main parts of the invention in a block circuit diagram. The signal source 1 represents for example a tuner for the reception of several television channels, the signal 2 is a video recorder. Both signal sources can be selected by way of a switch stage 3. The signal source 1 can be changed to the various television channels with the aid of an adjust command from a microprocessor 4.

Hereafter there is described the mode of operation of the circuit represented in the drawing during the changing-over from one television channel to another. The tuner 1 is adjusted to a specific television channel. The intermediate frequency signal coming from the tuner 1 reaches the video signal processor 7 by way of a controllable amplifier 5 and an adder stage 6, reaching the television picture tube 8 from said video signal processor. The synchronising signals H & V at horizontal and vertical frequencies are generated in a sync signal clipper 9 for the deflection circuit

that is not further represented. A control circuit 10 provides by way of an inverter 11, a signal connecting through the amplifier 5 and a signal simultaneously blocking the amplifier 12. As soon as the tuner 1 is changed over to another television channel by a signal from the microprocessor at the data line 13, a change-over signal reaches the coincidence stage 15 by way of the line 14, said coincidence stage providing a signal on line 16, as soon as a vertical sync signal from the sync signal clipper 9 is at hand. The coincidence stage 15 enables the change-over by way of the line 17 only during the vertical fly-back of the picture. This guarantees that a complete picture of the television signal previously tuned in to is stored in the memory 18. The signal on line 16 also ensures that the picture temporarily held in memory 18 is retained. At the same time the control circuit 10 changes over its signal such that the amplifier 12 connects through and the amplifier 5 is blocked. The changing of the amplification of the two amplifiers 5 and 12 remains until reception is synchronised to the signal changed to. After a given time T, 100 milliseconds for example, the amplifier 5 connects through again and amplifier 12 is blocked. The visible interference of an as yet unsynchronised picture is thereby suppressed.

The change in gain with the aid of the signal k can occur abruptly from k = zero to k = 1. For the purpose of changing-over in the form of a soft fading, the signal k can also be continuously variably formed.

Claims

1. Circuit arrangement for television receivers for obtaining interference-free changing-over from one television channel to another television channel with a picture store for the reproduction of a still picture, characterised in that a coincidence stage (15) is provided, which from the change-over signal and a picture synchronising pulse derived from a pulse clipper (9) generates a signal, which enables the changing of the signal and simultaneously the release for reproduction of the picture, stored in the memory (18), of the previously received channel, and in that a control circuit (10) is provided which is activated by way of the signal from the coincidence stage (15) and which produces a signal which connects through the stored picture for reproduction for a given period of time, until the synchronisation to the signal of the television channel changed to has occurred, after which the control circuit (10) enables reproduction of the signal of the television channel changed to.

2. Circuit arrangement according to claim 1, characterised in that the control circuit (10) carries out the changing-over smoothly.

3. Circuit arrangement according to claim 1, characterised in that the changing-over command is carried out coincidentally with the vertical fly-back pulse of the television signal prevailing before the changing-over.

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