The invention is based on a television apparatus according to the preamble of Claim 1.

A video signal generator for a colour video signal, for example a video recorder, a camera or a character generator, can be connected to the SCART socket of a television receiver. The colour video signal of such a generator is currently applied to pin No. 20 of the SCART socket. On the other hand there are also video signals generators which supply the video signal on the one hand and the modulated chrominance carrier F on the other hand at separate outputs. This type of signal transmission employed in super VHS (S-VHS) has the advantage that no cross-talk occurs between the luminance signal and the chrominance carrier, and that the chrominance carrier trap in the path of the luminance signal is not required. In the case of such a signal, the video signal without the chrominance carrier is fed to pin 20 and the modulated chrominance carrier is fed to pin 15 of the SCART socket.

Both of the aforementioned two types of signal require different processing in the apparatus. Therefore it is known to provide a manually operated change-over switch in the apparatus, with which the appropriate switch-over, for example between VHS and S-VHS, is possible. This switch-over thus necessitates an additional manipulation. The risk also exists that in the presence of a S-VHS signal a black/white reproduction will take place although a colour television signal is in fact present.

A circuit is also known (EP-A2- 0 309 891) wherein a change-over switch connects the input of the colour decoder in its rest position via a chrominance carrier filter to pin 20 and in a second position to pin 15. A switching voltage which is generated in the colour decoder and which indicates the presence of a chrominance carrier brings the change-over

switch into its rest position when a chrominance carrier is present at pin 20 and into the second position when no chrominance carrier is present at pin 20. This ensures that when a chrominance carrier is present at pin 20, thus a colour video signal, only this signal is analysed, and when a chrominance carrier is absent at pin 20 the colour channel is switched to pin 15. The latter is necessary as then the luminance signal Y occurs at pin 20 and the chrominance carrier occurs at pin 15 in separate fashion.

When a colour video signal with no chrominance carrier is present at pin 20, for example in the case of a black/white transmission, this circuit would switch over the colour channel to pin 15 and thus switch on the operation for a signal separated into video and colour although such a signal is not in fact present. This is undesirable because in this case in order to avoid disturbances the operation for a colour video signal should be maintained.

The aim of the invention is to further develop the last described circuit in such manner that in the case of a colour video signal with no chrominance carrier the operation for a colour video signal automatically remains switched on.

This aim is fulfilled by the invention as described in Claim 1. Advantageous further developments of the invention are described in the sub-claims.

Thus in accordance with the invention by the logic analysis of clearly recognisable criteria in the two different signals, a test procedure is performed as a result of which the manual switching on the respective optimal operating mode takes place. The manual operation of a switch is no longer necessary. The apparatus is also prevented from operating in an operating mode which is not optimal for the

respective signal and for example in the case of S-VHS from effecting a black/white reproduction although a signal with a colour video content is present. The circuitry outlay is low because to a very large extent already existing circuit means are used.

The invention can basically be employed in television apparatus which are supplied with the aforementioned different signals, in particular in television receivers, monitors, video recorders and other studio circuits. The invention can be applied to all colour television systems, such as for example PAL, NTSC and SECAM, and also in devices with a multi-standard chroma decoder.

In the following the invention will be described in the example of a television receiver which is selectively supplied, at the SCART socket, with a colour video signal from a VHS video recorder or a signal separated into video and colour from a S-VHS video recorder. In the drawing:
Fig. 1 is a block circuit diagram of the television receiver designed in accordance with the invention and
Fig. 2 is a diagram in explanation of the test procedure.

Fig. 1 illustrates a part of the circuit of a television receiver with the microprocessor 1, the SCART socket 2, the chrominance carrier trap 3, the switch 4 which bridges the chrominance carrier trap 3, the delay stage 5 which serves to compensate the propagation time, the video processor 6, the picture tube 7, the colour decoder 8, the band filter 9 tuned to the frequency of the chrominance carrier, the change-over switch 11 and the controllable attenuator 10.

Different colour television signals can be applied to the SCART socket 2 from a video signal generator. A colour video signal is fed to pin 20 of the socket 2. On the connection of a S-VHS video recorder which supplies the

video signals on the one hand and the chrominance carrier F or colour signals on the other hand on separate lines, the video signal is applied to pin 20 and the modulated chrominance carrier F to pin 15. The manner in which the circuit illustrated in Fig. 1 can recognise these different signals at pin 20 or at pin 20 and 15 and undertake the appropriate switch-over procedures will be described in the following.

In the rest position the switch 4 is open and the change-over switch 11 occupies position a. When a chrominance carrier is present at pin 20, the latter is fed via the band filter 9, the change-over switch 11 and the attenuator 10 to the input d of the colour decoder 8. In the colour decoder 8 by analysis of the colour synchronization signal in the circuit anyhow provided for the automatic blockage of the colour channel (colour killer), at output e a voltage U1 or U2 is generated which indicates the presence or absence of the colour synchronization signal and thus also of the modulated chrominance carrier. If the presence of the chrominance carrier is determined in the colour decoder 8, the voltage U1 occurs at the output e and is fed to an input of the processor 1. As the presence of a chrominance carrier is now determined at pin 20, and the latter can only be due to an applied colour video signal, the two switches 4, 11 are maintained in the illustrated rest positions by the processor 1 via the line 12 with the switching voltage Us1. The colour video signal present at pin 20 is thus processed in the usual way. The luminance video signal is fed via the chrominance carrier trap 3 and the delay stage 5 to the video processor 6. The chrominance carrier F is fed via the band filter 9, the switch 11 and the attenuator 10 to the input d of the colour decoder 8 which generates the colour difference signals U, V at its outputs f, g. The processor 6 generates the three colour signals R, G, B for the picture tube 7.

If, in the illustrated position of the switches 4 and 11 in the colour decoder 8, no colour synchronization signal and thus no chrominance carrier is registered, initially uncertainty exists. Thus it is possible that a black/white signal with no chrominance carrier may be present at pin 20 or that a S-VHS signal is present in the case of which the chrominance carrier F is applied to pin 15 separately from the video signal. Now the voltage U2 which indicates the absence of the chrominance carrier is generated. The processor 1 thus generates the switching voltage Us2 which via the line 12 brings the change-over switch 11 into the position b so that now the pin 15 is connected to the input d of the colour decoder 8. The colour decoder 8 now again determines whether a chrominance carrier is present. If the presence of a chrominance carrier is determined, this means that a chrominance carrier F is present at pin 15. The processor now supplies the switching voltage Us2 which maintains the change-over switch 11 in position b in order to analyse the chrominance carrier at pin 15. At the same time the switch 4 is closed by Us2 and thus the chrominance carrier trap 3 is bridged. This is advantageous because now a chrominance carrier F is no longer present in the video signal at pin 20 and thus a suppression of the corresponding frequency range with the chrominance carrier trap 3 would only be disadvantageous.

If, however, in the position b of the change-over switch 11 no chrominance carrier is determined in the colour decoder 8, this means that no colour synchronization signal and no chrominance carrier are present at pin 15, and thus no S-VHS signal is present. Here it has been assumed that the S-VHS signal always contains the colour synchronization signal even in the case of a black/white picture. As also at the start of the test phase no chrominance carrier was determined in the signal at pin 20, a video signal with no

chrominance carrier F, thus a black/white signal, must be present at pin 20. Therefore the processor 1 again generates the switching voltage Us1 which switches back the change-over switch 11 into the rest position a. In this case the switch 4 can remain closed because the video signal at pin 20 is a black/white signal and contains no chrominance carrier.

Thus the circuit always effects an automatic adaptation to the three conceivable possibilities, namely

1. colour video signal at pin 20 with colour content
2. video signal at pin 20 and chrominance carrier F at pin 15, e.g. from a S-VHS recorder
3. colour video signal at pin 20 with no chrominance carrier, thus a pure black/white signal.

The attenuator 10 between the output c of the change-over switch 11 and the input d of the colour decoder 8 has the following function: The signal at pin 20 always unavoidably possesses carrier residues in the frequency range of the chrominance carrier which thus reach the input d of the colour decoder 8 and can lead to incorrect actuations. Therefore it is expedient, during the described test procedure according to Fig. 2, to attenuate the signal supplied to the input d by approximately 10 dB. Therefore during the test procedure T according to Fig. 2 via the line 13 the processor 1 in each case switches on the attenuator 10 with an attenuation of 10 dB. During the steady-state operation in one of the three described operating modes the attenuator 10 is switched off.

It is advantageous to store in the processor 1 that one of the three possible states which is determined in accordance with Fig. 2 in a test procedure T. Then for example when the receiver has been switched off and switched on again,

the state to be set up is already known and does not require to be determined. A new test process takes place whenever the AV button is re-actuated or pin 8 of the SCART socket 2 signals a new reproduction process.

Claims

1. A television apparatus for selectively processing a colour video signal or a signal separated into video and colour, with a first input (20) for the colour video signal or the video signal, a second input (15) for the separated chrominance carrier (F), a colour decoder (8), and a change-over switch (11) which in its rest position (a) connects the input (d) of the colour decoder (8) via a chrominance carrier filter (9) to the first input (20) and in a second position (b) connects the said input (d) to the second input (15), where a switching voltage (Us1), which is generated in the colour decoder (8) and indicates the presence of the chrominance carrier (F), brings the change-over switch (11) into the rest position (a) when the chrominance carrier (F) is present and brings said change-over switch (11) into the second position (b) when the chrominance carrier (F) is absent, characterised in that when, in the second position (b), the switching voltage indicates that a chrominance carrier (F) is not present, the switching voltage (Us1) returns the change-over switch (11) to the rest position (a).

2. An apparatus as claimed in Claim 1, characterised in that the switching voltage in the colour decoder (8) is derived from the circuit for automatic blockage of the colour channel (colour killer).

3. An apparatus as claimed in Claim 1, characterised in that the first input (20) is connected via a chrominance carrier trap (3) to the video processor (6).

4. An apparatus as claimed in Claim 3, characterised in that when the change-over switch(11) is set in the second

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position (b), the chrominance carrier trap (3) is rendered inoperative.

5. An apparatus as claimed in Claim 1, characterised in that between the output (c) of the change-over switch (11) and the input (d) of the colour decoder (8) is arranged an attenuator (10), the attenuation of which is switched over during the test process to a value increased by approximately 10 dB.

6. An apparatus as claimed in Claim 4 and 5, characterised in that the voltage (U1, U2) generated by the colour decoder (8) is applied to a microprocessor (1) which generates the switching voltages (Us1, Us2) for the change-over switch (11), the chrominance carrier trap (3) and the attenuator (10).

7. An apparatus as claimed in Claim 1 characterised in that the determined state is stored in the processor (1).

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