



Heaven's Light Is Our Guide

Rajshahi University of Engineering & Technology

Course No: EEE 4118

Course Title: Radio and TV Engineering Sessional

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Experiment No. 06

Experiment Name: Study of Color TV using TV Trainer DL-2402

Objectives:

1. To learn about the working principle of Color Television
2. To learn the use and troubleshooting of Color Television
3. To learn about the simulation of various faults in Color Television

Theory:

In the experiment, the working principle of color television was analyzed and performed. The main feature of the trainer module was various types of fault simulation. There were 20 types of fault buttons in the Color TV trainer module. For each type of fault there was a specific change occurred in the TV. The faults and their result is given below as a list:

No. of Fault	Level	Location	Result
1	Simple	Remote Control	Remote Control is inactive
2	Simple	Keyboard Operation	Continuously switches from one program to another
3	Medium	Reset of Microcontroller	Power switch does not tune on any station
4	Medium	Audio	Inhibits the audio of the speaker
5	Simple to Medium	On Screen Display	Inhibits visualization of OSD
6	Simple to Medium	On Screen Display	Blue Component of OSD Message Missing
7	Simple to Medium	On Screen Display	Green Component of OSD Message Missing
8	Medium to difficult	RGB Stage	Picture Color is severely altered
9	Simple to Medium	On Screen Display	OSD Messages is Missing
10	Simple to Medium	On Screen Display	OSD Messages is Missing
11	Medium	Tuner	Permanently tuned to same program
12	Medium	Tuner	Permanently tuned to same program
13	Medium to difficult	Tuner	No Stations are Received
14	Medium to difficult	CPU	Sound and picture quality drops
15	Medium to difficult	IF Stage	No Stations are Received
16	Medium to difficult	IF Stage	TV Screen remains dark and no sound
17	Medium to difficult	IF Stage	TV Screen appears to be poor quality
18	Medium to complex	RGB Stage	TV Screen remains dark
19	Medium	Picture Control	Image become very light and missing contrast
20	Simple	Audio Amplifier	Speaker becomes off

Fig. 7.1: Fault list and their results on TV trainer module

Experimental Setup:



Fig. 7.2 : Experimental setup of TV trainer module

Observation:

Waveshapes at different points:

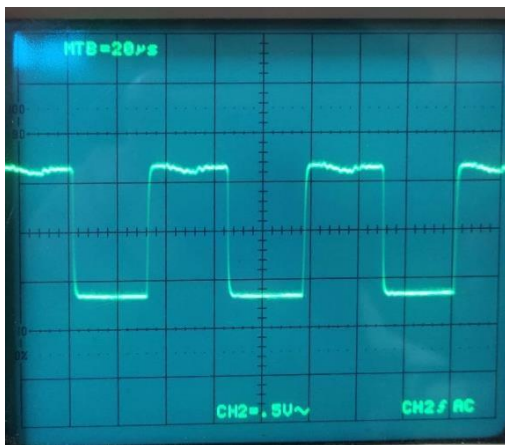


Fig. 7.3: Vertical Coil Output

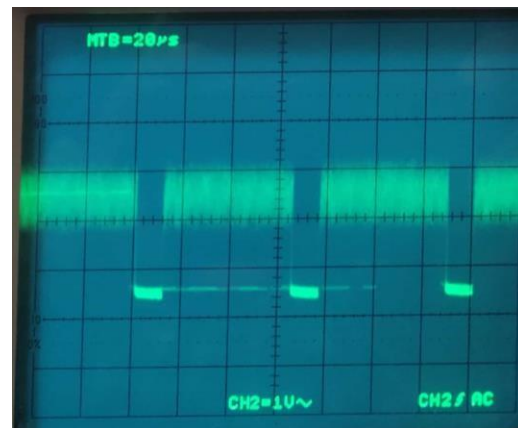


Fig. 7.4: RGB Color Amplifier Output



Fig. 7.5: HV Processor Output

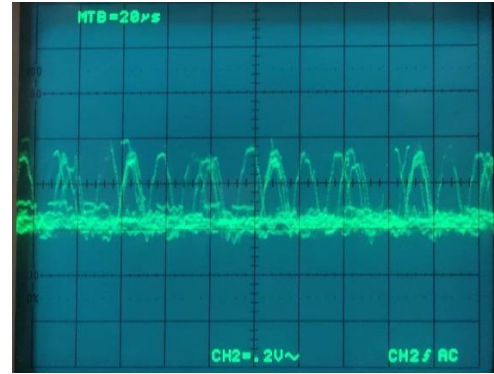


Fig. 7.6: Audio Amplifier Output

Discussion & Conclusion: In the experiment, the analysis of color television was performed using DL 2402 Color TV Training Module. The internal circuitry of the TV was visual, so the circuitry was observed and studied easily during the experiment. Also, various types of faults were simulated using the fault buttons and the result of the faults was observed and matched with the provided manual of the trainer module. So, the experiment was successfully completed.