

“Heaven’s light is our guide”



# Rajshahi University of Engineering & Technology

## Lab Report

**Course No:** EEE 4118

**Course Title:** Radio and TV Engineering Sessional

**Experiment No:** 05

**Name of the experiment:** Fault Simulation of Integrated AM - FM Radio Trainer

### Submitted By:

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## Experiment No.: 05

**Name of the Experiment:** Fault Simulation of Integrated AM - FM Radio Trainer

### Objectives:

- ✓ To be familiar with radio trainer kit
- ✓ To observe the simulation of fault in both AM and FM

### Theory:

The role of communication network is becoming more and more important. The current network maintenance methods are still limited to regular maintenance and post-maintenance, do not have a complete network status monitoring function, cannot evaluate the network status, and it is difficult to maintain before the serious deterioration of the network. Network faults can only be solved by the professional knowledge of technicians, and the maintenance efficiency is not high, so it is impossible to diagnose and locate errors in time and accurately, and eventually it will be repaired forcibly at the cost of replacing network cables. A fault simulator evaluates how a digital circuit will behave in the presence of manufacturing defects. It was a necessary tool for grading the goodness of a vector set when chips were tested by feeding functional patterns into them and looking to see that the chip produced known good results. Scan test made fault simulation redundant by incorporating a small amount of additional logic into the chip that essentially turned a sequential test problem into a combinatorial problem. This had become necessary because test times were increasingly rapidly as chip designs became larger. Automatic Test Pattern Generation was also having increasing difficulty in producing a good and compact vector set to sue for manufacturing test. Fault simulation list is:

<b>Fault No.</b>	<b>Defective Circuit</b>	<b>Defective Component</b>	<b>Symptom</b>
01	DC power input	DC power line	System is not working
02	Stereo decoder	R9	Stereo indicator does not light
03	Audio output	C2	No left audio signal
04	Detector and MPX	IC1 pin6	Noises and weak signal output
05	FM IF stages	CF2	Weak FM signal output
06	AM IF stages	L1	No AM signal output
07	AM RF	R2	Weak and noises AM signal
08	AM oscillator	R1	Can not receive AM signal
09	FM tuner	R3	Can not receive FM signal
10	AM AGC	C14	No AM signal output

Experimental Setup:



Fig 01: Integrated AM - FM radio trainer kit

Experimental Data:

Fault Number	F3	F4	F5	F7	F9
Voltage (Variation)	0.6 – 256 mV	18 – 800 mV	44.1 mV	0.64 mV	2 – 347 mV

Discussion and Calculation:

At the end of the experiment, we observed that ten (10) types of faults in the (TEA 5712T 32) integrated AM - FM radio trainer kit. But the result isn't exactly as described in the manual book. In fault- 4 weak signal affair was mentioned but we got clear signal affair rather & also fault- 9 can't admit FM signal but we got some affair signal in this fault. But rest of the faults worked as mentioned. We followed the instruction fully manual based and trial is successfully.