

**CHARACTERISTICS STUDY OF A SIMPLE PASSIVE MULTIBAND  
RECEIVER**

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## **ABSTRACT**

### **CHARACTERISTICS STUDY OF A SIMPLE PASSIVE MULTIBAND RECEIVER**

A passive multiband receiver is a one of the group of frequencies system which receives only. Basically, it is an amplified type of “crystal radio” designed to receive AM transmissions. The “passive” design uses no oscillators or other radio frequency circuitry capable of interfering with any communications system. This study discusses the characteristics of the passive multiband receiver by observe the effect of potentiometer, inductor and capacitor to the voltage range as replacement for the frequency range. This study was carried out by build a simple passive multiband receiver circuit. Then, measurement of the input voltage and output voltage is conducted. From the data obtained, calculation for voltage gain is made. This study found that the voltage range for the receiver will presented in the graph. Lastly, the multiband receiver is type of radio wave that is important to carry information from one place to another by using air as a medium.

# CHAPTER 1

## INTRODUCTION

### 1.1 Background of Study

Radio can be described as the wireless transmission of the signals through a free space by electromagnetic radiation with a frequency significantly of visible light in the range from 30 kHz to 300 GHz. Multiband is the name for a group of frequencies in the VHF radio spectrum allocated to radio communication in civil aviation that also referred to VHF or phonetically as "Victor". The different sections of the band are used for radio navigational aids and air traffic control. Each frequency range has a band designator that behaves differently and performs different functions (Cheney, Margaret, 1981).

**Table 1.1** Radio wave frequencies and their corresponding wavelengths

<b>Band</b>	<b>Frequency Range</b>	<b>Wavelength Range</b>
Very Low Frequency (VLF)	3 kHz – 30 kHz	10 km - 100 km
Low Frequency (LF)	30 kHz – 300 kHz	1 km - 10 km
Medium Frequency (MF)	300 kHz – 3 MHz	100 m - 1 km
High Frequency (HF)	3 MHz – 30 MHz	10 m - 100 m
Very High Frequency (VHF)	30 MHz – 300 MHz	1 m - 10 m
Ultra High Frequency (UHF)	300 MHz – 3 GHz	10 cm - 1 m
Super High Frequency (SHF)	3 GHz – 30 GHz	1 cm - 10 cm
Extremely High Frequency (EHF)	30 GHz – 300 GHz	1 mm - 1cm