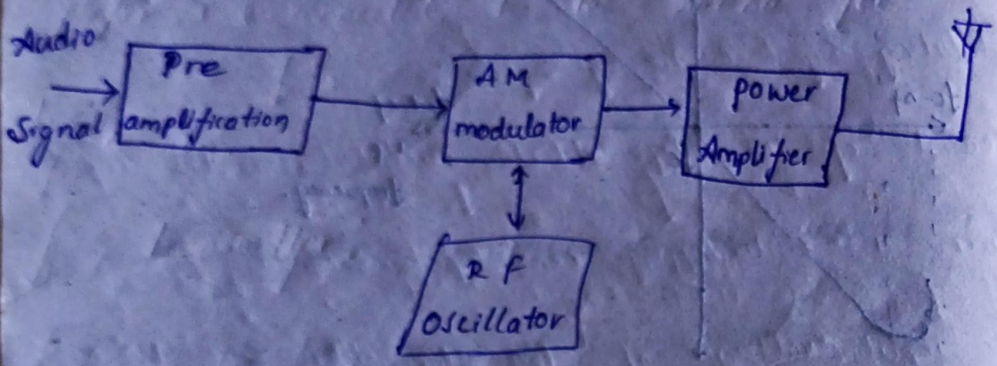
UNIT-V

Radio broadcasting and reception.

Am Transmitter



→ the above figure shows the block diagram of the Am transmitter.

→ the Transmitter can transmit the Am signals are knowns as Am Transmitter.

→ these transmitter are used in medium wave and short wave frequency bands for Am Broad cast.

→ the medium wave as frequency b/w the

→ the consists of the different blocks
i) Pre amplifier, Am modulator, RF oscillator, power Amplifier.

Pre amplifier:- the input to the pre Amplifier is audio signal that is low frequency signal. the strength of the signal is can be increase pre amplifier then its output amplified audio signal.

→ the output of the pre amplifier is connected to the Am modulator.

RF oscillator:-

→ In radio frequency oscillator the high frequency carrier wave is generated by using crystal control oscillator.

→ the output of the RF oscillator is connected to the Am modulator.

Am modulator:-

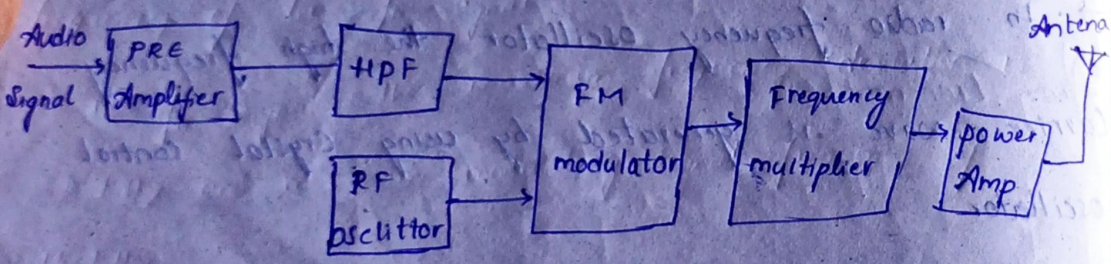
→ the inputs to the Am modulator is modulating the Af signal and Rf signal are mixed to produce the Amplitude modulated wave.

→ the output of amplitude modulator is connected to the power Amplifier.

power Amplifier :-

→ It is used to increase the power level of the amplitude moduted wave and output of power amplifer is connected to the Antena for Transmission.

fm transmittor :-



→ frequency modulation method is used in fm transmitter

→ In fm freqtency of the carrier signal is varied in accordance with amplitude of the modulating signal Keeping its amplitude is constant.

→ the transmitters find application in radio, TV audio broadcasting and police wireless communication.

→ the frequency band extenses from 88 - 108 MHz

→ the fm transmitter consists of the different block

pre Amplifier, High pass filter, RF oscillator, Frequency modulator, frequency multiplier, power Amplifier.

Pre Amplifier:-

→ the function of the pre amplifier is increase the strength of audio signal. and it provides amplified output to the high pass filter.

High pass filter:-

→ It allows only high frequency components and reject the low frequency components.

→ In this section high pass filter is used as pre-emphasis network by using high pass filter we can reduce the noise of the audio signal and improve the signal to noise ratio of the audio signal.

RF oscillator:-

↔ By using radio frequency oscillator we can generate the ~~freq~~ carrier signal

→ It is a high frequency carrier signal.

frequency modulator:-

→ the inputs to the frequency modulator is amplified audio signal and carrier signal.

→ By using direct method or indirect method we can generate the fm wave.

frequency multiplier:-

→ By using frequency multiplier we can increase the frequency of the fm signal

→ In fm signal the maximum frequency deviation is ±75 KHz and maximum modulating signal frequency of 15 KHz

power Amplifier:-

→ the power of the carrier signal is then amplified in the power amplifer stage that is it can provides the required audio frequency power.

→ the output of the power Amplifier is connected to the Antena Transmission.

Radio Recivers :-

→ the primary requirement of the communication recievers is should have the ability to select the desired signal from among a no. of signals prisent and it provides sufficent amplification to recover the modulating signal.

→ Recivers perform the following functions:

1) Collect the electro magenetic waves by transmitter.
2) ~~desire~~ Select the desire signal and reject all other undesigned signal.
3) Amplify the selected modulated signal.
4) detect the modulating signal from the modulated signal
5) Amplify the modulating signal operate the loud speaker.

Parameters of reciver :-

1) Sensitivity
2) Selectivity
3) Fidelity.