



SNS COLLEGE OF TECHNOLOGY

**An Autonomous Institution
Coimbatore-35**



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A++' Grade(III Cycle)
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECB301-ANALOG AND DIGITAL COMMUNICATION

III YEAR/ V SEMESTER

UNIT 2 – RADIO TRANSMITTER & RECEIVER

TOPIC – PERFORMANCE PARAMETERS OF RECEIVERS



DEFINITION



A Radio Receiver is an electronic circuit that picks up a desired Radio Frequency(R.F) signal and **recovers the base band signal** from it.

- It not only demodulates the incoming message signal, but it is also required to perform some other system functions such as,

1.Carrier frequency tuning – To select the desired signal

2.Filtering – To separate the desired signal from other modulated signals.

3.Amplification – To compensate the loss of signal during transmission



RADIO RECEIVERS PARAMETERS



- There are several parameters commonly used to evaluate the ability of a receiver to successfully demodulate the signal.
- The most important characteristics of a radio receiver are,
 1. Sensitivity
 2. Selectivity
 3. Fidelity
- These characteristics are useful to judge the performance of a radio receiver.



SENSITIVITY

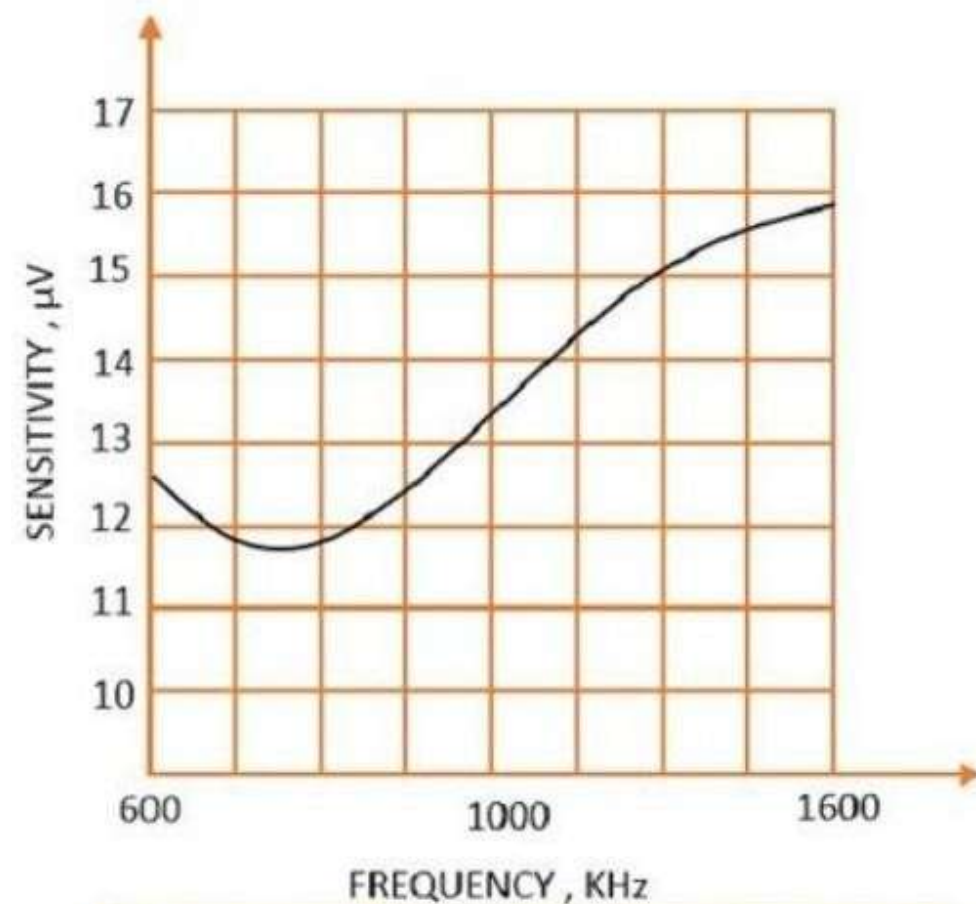


- The ability of a receiver to detect the weakest possible signal and amplify them is known as sensitivity.
- The Sensitivity of a receiver is the **minimum RF Signal** level that can be detected at the input to the receiver and still produce a usable demodulated information signal.
- The Sensitivity of a receiver is dependent on the **RF** and **IF** amplifier stages. By increasing the gains of these stages it is possible to increase the sensitivity of a receiver.



SENSITIVITY

- The best way to improve the sensitivity of the receiver is to **reduce the noise level.**



Sensitivity curve for a good receiver



SELECTIVITY



- Selectivity is a receiver parameter that is used to measure the ability of the receiver to select a **signal** of a **desired frequency** while rejecting all others.
- The selectivity decides the **adjacent channel rejection** of a receiver.
- **Higher** the **selectivity** is the **adjacent channels rejection** and **less** is the **adjacent channel interference**.
- Higher the Q-Factor of the tuned circuit used in the IF amplifier, selectivity is better.



FIDELITY



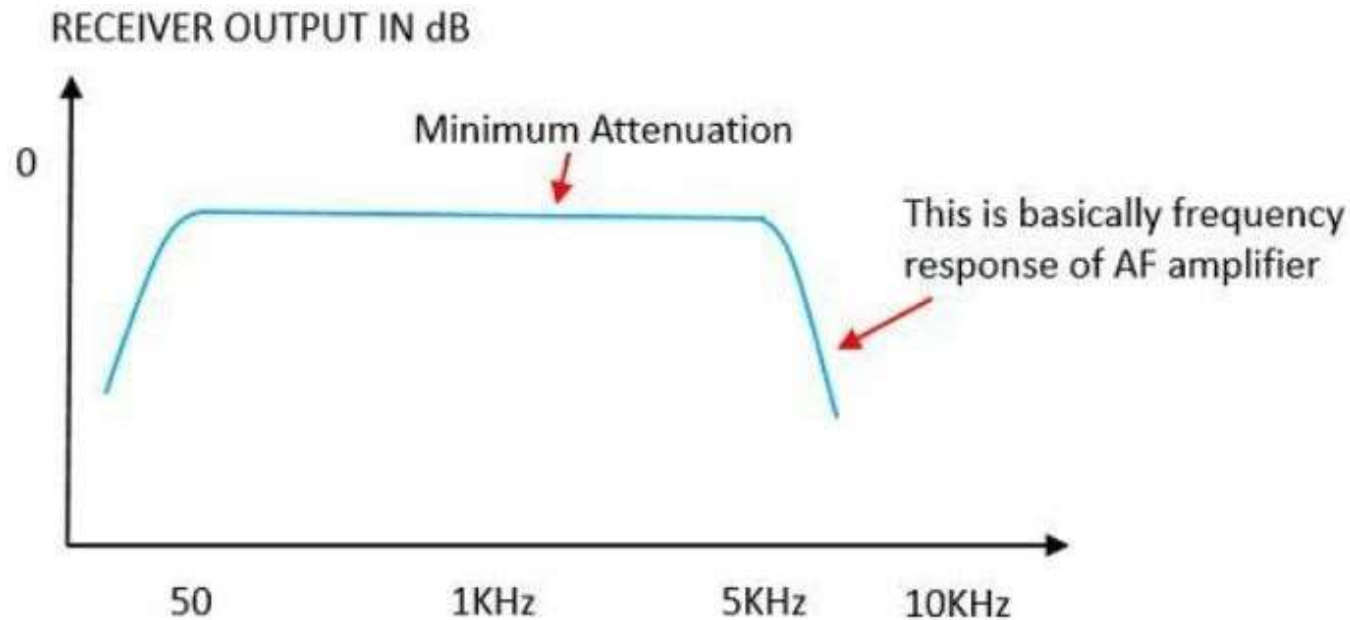
- Fidelity is the ability of the receiver to reproduce all the range of modulating signal at the output of the receiver, an exact replica of the original information.
- It basically depends on the frequency response of the AF Amplifier.
- If any component is missed, or attenuate considerably, fidelity suffers and the reproduce signal is distorted.



FIDELITY



- This feature is mainly decided by the bandwidth of audio amplifier which amplifies the baseband signal.





ASSESSMENT

1. Mention the functions of receiver.
2. Write the Q factor of the tuned circuit.



THANK YOU