

Analog Communication

Presentation on



**Superheterodyne
Receiver**

**Submitted
To**

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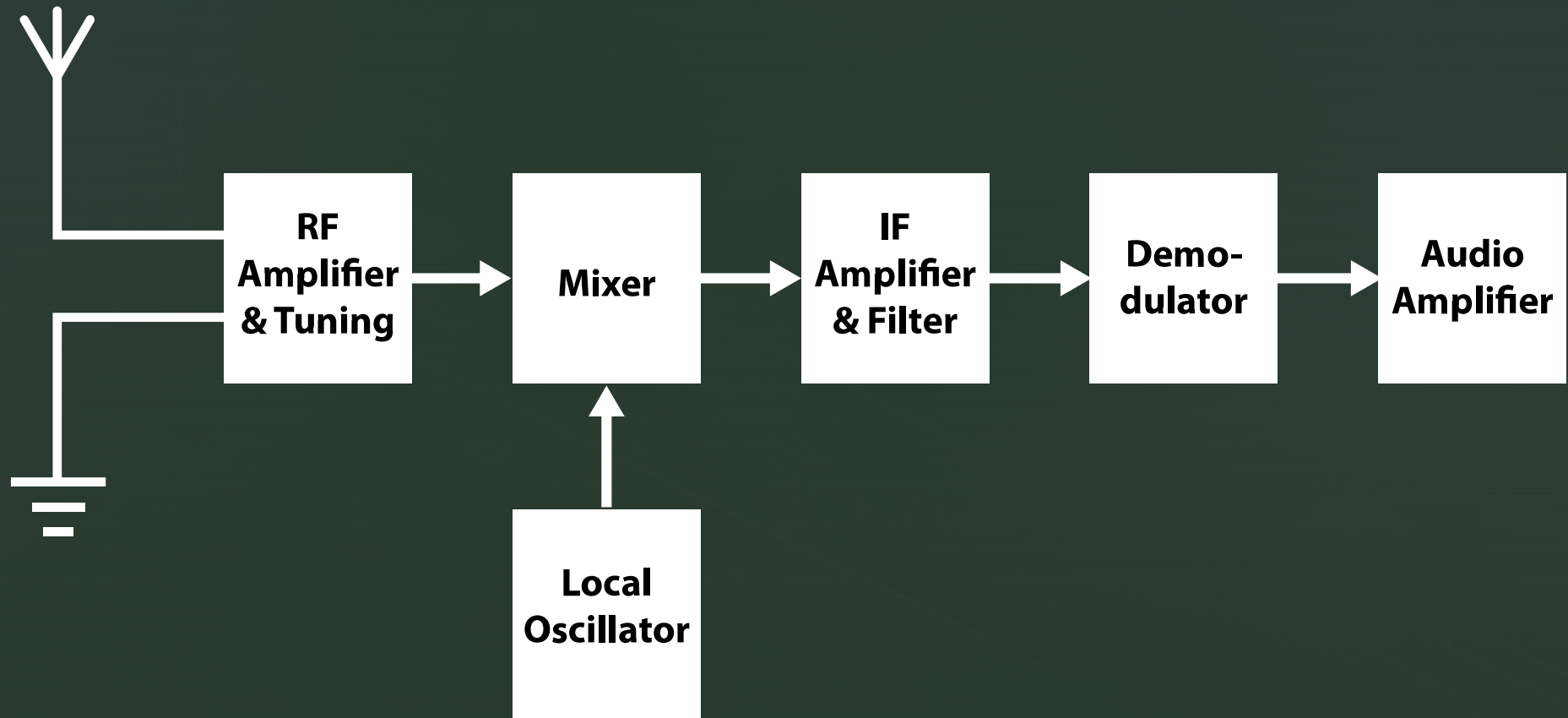
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Basics of Superheterodyne Receiver

- At High Frequency, Processing Cost of Circuit is High, So we Should Do Signal Processing at Low Frequency.
- At low Frequency, Transmission Cost of Signal is High with low Bandwidth, So Signal Transmission should be done at high Frequency.
- So, in Superheterodyne Receiver, We Take care of above points
 - ❑ Signal Transmission at High Frequency.
 - ❑ Signal Processing at lower Frequency

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- **The main types of circuit block used in the RF circuit design for superheterodyne receivers is given below.**
 - RF tuning & amplification
 - Local oscillator
 - Mixer
 - IF amplifier & filter
 - Demodulator
 - Audio amplifier

Block Diagram of Superheterodyne Receiver



▀ **Benefits of Superheterodyne Receiver**

- As it converts high frequency to low frequency, all processing takes place at lower frequencies. The devices are cheaper at such lower frequencies compare to higher frequencies.
- It is easy to filter IF signal compare to RF signal.
- It offers better sensitivity compare to homodyne receiver architecture.

Drawbacks of Superheterodyne Receiver

- It requires additional LOs (Local Oscillators) and RF Mixers to convert signal from RF to IF before conversion to baseband. This increases cost of overall receiver.
- Moreover filters are also needed to remove any LO leakage as well as undesired frequency components to prevent image frequencies. This also increases cost as well as complexity of the receiver.



THANK YOU

