ECE448 Spring 2026

L08-am-fm-receivers



SCHEDULE

Course schedule — see the ECE 448 syllabus.

Today

- FSK descriptions
- Broadcast FM (WBFM)
- Homework: Dual FM Receiver
- Narrow Band FM
- Homework: Rebroadcast

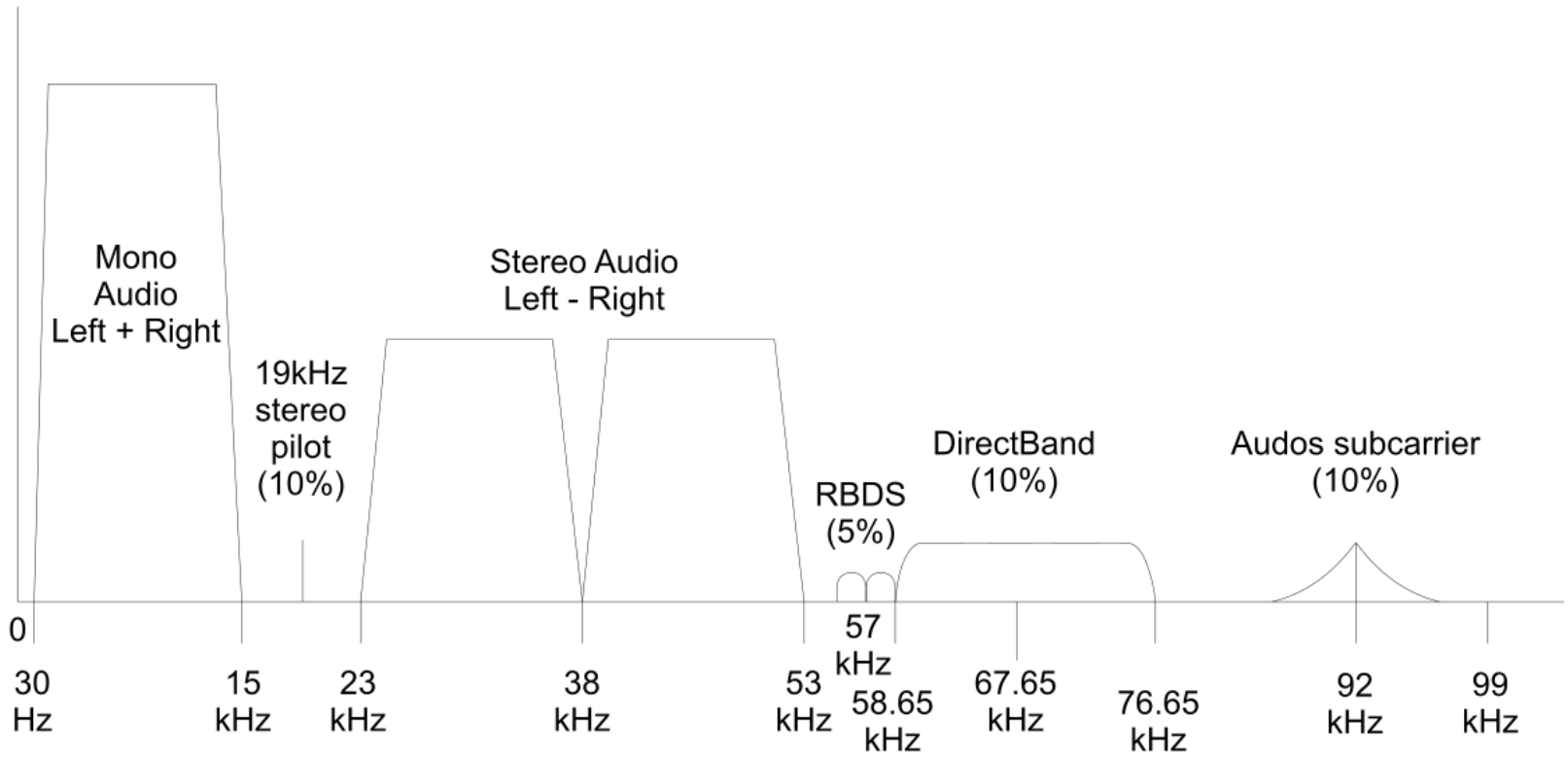
FM Lab

- f_d = _____
- f_m = _____
- Start with a = _____
- This means $\beta =$ _____
- Now, create the flowgraph...

Elements of the flowgraph

- _____
- _____
- _____
- _____
- _____
- _____
- Now, create the flowgraph...

Broadcast FM



Dual FM Receiver

Assignment

Create a flowgraph that allows you to listen to to two different FM stations at once.

Deliverables

- Audio of 2 FM stations
- Flowgraph (screenshot is ok)
- Report w/ description of flowgraph

Considerations

- Sample Rate/Bandwidth
- Frequency shift

NBFM

- File sink
-

Today

- FSK description
- FSK in GNURadio
- Parallel to Serial conversion (using byte data types)
- VCO block
- Save to file and view in audacity

Types of Modulation - AM, FM, PM

Amplitude Modulation

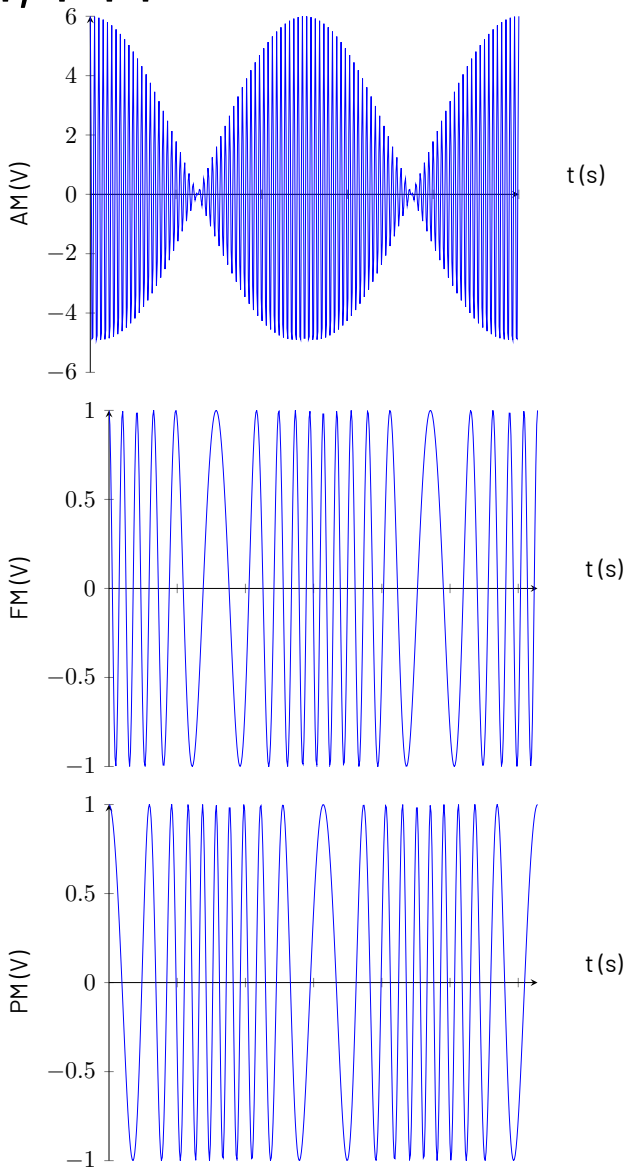
- Cheap, readily available technology
- Long distance transmission
- Uses less bandwidth

Frequency Modulation

- Noise Resistant
- Higer quality

Phase Modulation

- Noise Resistant
- Higer quality
- Used in cell phones



Types of Modulation - Analog vs. Digital

- Modulating a digital signal is exactly the same as modulating an analog signal!
- **ANY** data can be modulated for transmission

