

Final Project

EC 303P Principles of Communication Systems

Goal of the final project to show the impact of jamming on AM and FM radios.

Part II: Impact of Jamming on AM and FM radios (Due November 10-17th)

1. Use the AM and FM radios designed in previous labs.
2. Transmit the desired signal (try both music and voice signals) at the frequency band of choice.
3. Jam this signal by transmitting one of the two signals (interferer) mentioned below at the same frequency.
 - a. White noise
 - b. AM/FM modulated signal
4. Change the power of the interferer w.r.t. the original signal, starting at -5 dB (Interferer weaker than desired signal) to 5 dB (interferer stronger than the original signal) in steps of 3 dB. Estimate the MOS score for each SNR. You will need to design your own MOS definitions here. An example is shown at the end.
5. Your results table should look something like this:

Interferer power/Original signal power (in dB)	AM Radio		FM Radio	
	White Noise	AM	White Noise	FM
-5 dB				
-2 dB				
1 dB				
5 dB				

6. Write your conclusions on
 - a. Ability of AM and FM to resist jamming. Which one seems to do better? Will changing the modulation index of the FM signal help?
 - b. If you are the jammer, what kind of jamming signal would you choose? Why?

MOS Score for the table. You will need to design your own MOS score. E.g.

Score 5: Original audio quality same as if without interferer

Score 4: Some interference but audio is intelligible more than 70-80% of the time

Score 3: Audio is intelligible for less than 30% of the time

Score 2: Audio unintelligible

Score 1: Hearing another signal completely.