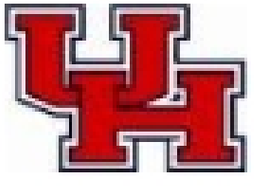
ECE 4371, Fall, 2014

Introduction to Telecommunication Engineering/Telecommunication Laboratory



Zhu Han

Department of Electrical and Computer Engineering

Class 6

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Overview

- Cochannel interference
- Analysis of Noise
  - Math model (good thing, not required)
  - Noise shape, preemphasis/deemphasis
  - FM threshold effects
- Security basics
- Homework 1 hints
- Good news: This is the last class for exam 1

Co-channel Interference

- Source: $A\cos w_c t$, Interference: $I\cos(w_c+w)t$
- $r(t)= A\cos w_c t+I\cos(w_c+w)t=E(t)\cos(w_c t+\psi)$
- $\psi=\tan^{-1}(I\sin wt/(A+I\sin wt))\sim=(I/A)\sin wt$
- PM: $y=(I/A)\sin wt$, FM $=(Iw/A)\cos wt$
- When A is large, suppress weak interference better than AM.
- Capture effect
  - Winner takes all
  - 35dB for AM
  - 6 dB for FM/PM
- White Gaussian noise
  - Noise increases linearly with frequency in FM.