EECS 216 – Winter 2008

Homework #7–Assigned March 4–Due Tuesday March 11

• Grading: Not all problems will be graded, but you should do all of them.

• Submission: Due in black box in room 4230 EECS before 5:00 Tues. March 11.

• Read: Text sections 4.4-4.5. Topic: Communications and sampling.

• Next week: More applications of Fourier transforms (mostly sampling).

• Simple Analog Communications Systems Problems:

1. (30 points: 10@3) Text #4.25. 10 sketches of spectra in an AM radio system.

2. (15 points: 5+10) Text #4.27. SSB radio. How could you make such a sharp filter?

3. (15 points: 10+5) Text #4.21. What is the spectrum of $x(t) + j\mathcal{H}\{x(t)\}$?
   The point of this is that SSB can be implemented using the Hilbert transform.

   • Why use L+R and L-R signals instead of just L and R signals?
   • If signal is weak, just use mono signal half as much noise).
   • The following problem is just a simple sampling problem.

5. (15 points: 5+10) Text #4.29. Should read: $x(t) = \frac{\sin(300\pi t)}{\pi t}$; $y(t) = \frac{\sin(700\pi t)}{\pi t}$. 