EE430 Communications systems -- Summer 2004 -- Test #3 -- FM
In-class portion

Name_____

Student number _____

This portion is intended as an integrity check on your take home test.

There are 5 questions equally weighted. There is no partial credit.

1. In problem 1, you made some bandwidth calculations. In part c and d, you found the bandwidth of the signal, taking all frequency components higher that 1% of the unmodulated carrier. What is the actual bandwidth, containing all sidebands with levels higher that 10% of the unmodulated carrier?

2. Start with the transmitter in part 2. You need to change the design to use frequency triplers instead of doublers. Also, the fixed crystal oscillator has a frequency of 1.185185 MHz instead of 1.0 MHz. How does this change the design? Give a quick answer in words. What multiplication will you use? How many triplers?

3. Why did you choose the first intermediate frequency as you did?

4. The design of the receiver must be changed to use a 75 ohm antenna instead of 50 ohms. Redo your calculations to #4 for a 75 ohm antenna.

5. Redo 5d, counting sidebands with strength larger than .1 (instead of .01).