

**ECE 614 – Midterm No. 1 Review – Spring 2007**  
**In Class - Wed. April 25, 2007**

**Covers: Assigned readings in Paul through Sec. 5.7 and homework due Monday April 23.**

**Allowed: Paul's text + class UniPrint notes + 1 8.5 x 11 in sheet (no Homework solutions – either machine copies or hand written)**

**Note: be sure to bring a straight edge to the exam. Graph paper will be provided if needed.**

**1. FCC regulations for conductive and radiated emissions**

**2. E Field Measurements**

- **Antenna factor and effective height**
- **Cable losses**
- **General relations for “far field”**
- **Far fields of small dipole and loops**

**3. Fourier analysis**

- **Fourier coefficients of a rectangular pulse**
- **$n^{\text{th}}$  harmonic fields of pulsed small dipoles or loops**

**4. Bode Plots - Asymptotic in dB**

**5. Non ideal behavior of resistors, capacitors and inductors**

- **Low and high frequency resistance of wires**
- **$(C_1, L_1)$  for various T-line configurations**
- **Relate  $(Z_C, v)$  to  $(C_1, L_1)$**
- **Backward Gamma model of R, L, C with leads**
- **Asymptotic dB Bode plot of  $Z(f)$  (esp.  $f_1$  and  $f_2$ )**
- **Asymptotic dB Bode plot of filter  $H(f)$**