

EE 614 – Midterm No. 2 Review – Wed. May 23, 2007

Covers: through and including Paul Ch. 10 on Shielding and homework due Monday May 21.

Note that a number of old midterms and exams have been posted on my web site <http://www.ece.osu.edu/~newman/>

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

Note: bring a straight edge - graph paper will be provided if needed.

1. Fourier Analysis

- Eval. and sketch envelope of $c^+(f)$ for a trapezoidal pulse.

2. Differential and Common Mode Fields and Currents

- Far zone fields of differential and common mode currents.
- Sketching asymptotic envelope differential or common mode fields of a trapezoidal pulse as a function of frequency.
- Controlling common and differential mode fields by adjusting parameters of T-line and trapezoidal pulse .
- Measuring common mode currents by a current probe and computing common mode fields.
- Controlling common and differential mode currents (and fields) by ferrite beads.

3. T-line Susceptibility

- Circuit models for E and H field pickup (importance of polarization).
- Relation between antenna gain and incident fields.

4. EM Shielding

- Direct Transmission Through Shield Walls.
 - i. Plane wave RL, AL, and total SE.
- Apertures
 - i. Def. of aperture trans. coef. τ and effective cross section (τA).
 - ii. (τA) for a small circular hole and long thin slit.
 - iii. Cutoff waveguide effects for apertures in thick screens.