Assignment

(Due Dec 22, 2022)

Statement:

Each student is required to write a computer program that computes the quality factor of a specific rectangular cavity resonator at **its first 2 resonances**. The program takes the conductivity of the waveguide metal, relative permittivity and loss tangent of filling material (at specific frequency), and the waveguide dimensions and gives out the resonance frequency, resonance bandwidth and the quality factor of resonator **at the first 2 resonances**. Assume b<a<d in your code.

You are required to submit a PDF document containing:

1. Your code (I should be able to copy paste it for verification) + version of software used.
2. The analytical calculations used to compute the values of resonance frequencies, resonance bandwidths and quality factors for **the first 2 resonance modes for a specific set of assumed dimensions (N.B.: code should work for any set of values a,b,d but analysis is for one set of dimensions chosen by student).** Any necessary clarification on your code should be written.

It is important that the report is the result of the student's individual work and meets the faculty's expectations of originality.

Grading:

10 marks out of 150.

Submission:

Format: A PDF file containing your name, section and BN attached to an email.
Deadline: Before 11:59 pm of December 22, 2022 (Late submission will be penalized).
Submission email address: m.nasr@eng.cu.edu.eg.
Title (Subject) of your email must exactly be: "ELC3050_2022_Assignment".
Please write your full name, and ID in the email body as well as in the PDF.
You will receive an automated reply that the email has been received.
Please do not share your assignment on drive. **Only email submission will be accepted.**

Good luck

Dr. Mohamed A. Nasr