Antennas & Wave Propagation

Electronic Dep.

3rd Stage

Lecture Three

Characteristic Impedance

Prepared By

Asst. Lect. Ayad Q. Abdulkareem

The Ch/Cs Impedance

- The amplitude of the radiating fields is:-

$$E_\theta = \frac{\omega I_0 \, dl \sin\theta}{4\pi\varepsilon c^2 r}$$

$$H_\phi = \frac{\omega I_0 \, dl \sin\theta}{4\pi c r}$$

Impedance is, therefore,

$$\eta = \frac{E_\theta}{H_\phi}$$

For free space $\varepsilon = \varepsilon_0$

Therefore

$$\frac{E_\theta}{H_\phi} = \sqrt{\frac{\mu_0}{\varepsilon_0}}$$

$$\eta = 120\,\pi \text{ ohms}$$

Thanks for Listening

Any Question Please…