

I. Radios can tune in to different frequencies.

III. and I-IV. A radio circuit is a driven RLC circuit that we can solve for resonance using Faraday's Law. We tune to this resonance by adjusting the capacitance. The electromagnetic waves associated with the signal involves all of Maxwell's Eqs. The signal is picked up by an antenna that using the electric force (Lorentz force law) from the electric field of the signal acting on the charges in the antenna

J. A transformer can step up or step down voltage.

III. IV Transformers involve calculating the electromotive force (Faraday's Law) produced by changing the magnetic flux through a secondary due to the magnetic flux generated by the current in the primary. Ampere's Law states that a current in the primary produces a magnetic field.