Developing an AC Power generator for wireless coupling in Radiation capsule Circuit

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TITLE: DEVELOPING AN AC POWER GENERATOR FOR WIRELESS COUPLING IN RADIATION CAPSULE CIRCUIT.

ABSTRACT

This Project main goal is to design a capsule inside and outside of Body for cancer treatment. A halfwave rectifier circuit was used to convert AC to DC current to drive the electromagnet inside the capsule. The inner capsule is moved up and down to control the opening and closing of the capsule. This is done using an electromagnet (solenoid). The electromagnet needs a DC current to move up or down. If there is an AC current to solenoid it will fluctuate. Input current should be sinusoidal because it minimizes harmonic distortion, reduces power losses and is compatible with most electrical devices and systems. Current through solenoid should be DC, because it produces a constant magnetic field within the solenoid coil, which is often required for various applications like electromagnets and inductors. For this circuit Frequency is 13.56MHz, and from that a DC current of 5mA is achieved, which is constant current. To test the circuit, an AC power signal generator is designed, and the Model of AC Power signal generator is XP-720 has 3 fully regulated supplies; The voltages range from 1.25 to 15 volts for both positive and negative voltages at 1 Ampere. Other voltages include 3 to 30V and 5V at 3 Amperes and the frequency of the AC power supply is limited to 60 Hz. After testing the AC power signal generator, an AC signal at 60 Hz was achieved.