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NEONDET.ASC

This file shared with KeelyNet courtesy of Joel McClain.

Also take the diagram NEONDET.GIF, see also MAGALT.ZIP.

The schematic, NEONDET.GIF, is a derivative of a microwave detector described in the February, 1980, "Ham Radio" magazine. As originally created, the circuit's purpose is to detect microwave RF standing waves, but with minor modification, it can also be used as an effective scalar wave detector.

The schematic shows a round magnet epoxied to the NE-2 lamp, to help isolate it from EM signals. Additionally, the circuit should be enclosed in a metal box, or "Faraday Cage", with shielded I/O connectors.

The power source consists of eight 9V batteries. Battery life is very nearly the same as shelf life, because the lamp is operated in "starvation" mode, drawing approximately 0.1ma.

The 25K and 250K potentiometers are adjusted first to fire the NE-2, at approximately 60-70 volts, then adjusted until only the tip of the cathode electrode glows. The 100K pot is adjusted for optimum output gain.

Notes:

1. The 741 can be replaced with a 1458 cascade amplifier for better results.
2. The RF loops in the NE-2 leads are mandatory to reduce interference as well as lamp current noise.
3. Component values are not critical, and can be changed as required for the type of output device.
4. Removing the magnet and Faraday Cage, and adding a capacitively coupled loop antenna will permit use as a microwave EM detector.

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