

Operational Description of Ground Penetrating Radar

The impulse GPR is a device that is intentionally designed to directionally and locally radiate very small average electromagnetic power downwards into the ground to be detected.

The developed GPR is composed of a pulse transmitter, a receiver, a transmitter antenna, a receiver antenna, and a laptop computer. Except the computer, all the components are installed in a plastic box. Once a 12VDC power is supplied, the GPR starts to work.

To facilitate the FCC testing (Part 15), the GPR working environment and parameters are described below.

When the GPR is at work, it is always setup on the ground surface to maximize the energy coupling into ground. The parameters of the developed GPR are given below:

- (1.) Dimension: $13.5 \times 13.5 \times 7.5$ inch³;
- (2.) Power supply: 12 VDC @ 370mA;
- (3.) Center frequency: 400MHz;
- (4.) Radiation pulse time duration: 2.5ns
- (5.) Radiation pulse P-P amplitude: 500mV;
- (6.) System Clock: 25KHz