ABSTRACT

Ground Penetrating Radar (*GPR*) is a kind of radar which is used for detecting metal and non-metal underground object.

GPR Antenna transmits pulse signal to underground and receiver antenna will accept the reflection signal from detected object. The period, which is needed by the wave to propagate from one transmitter to another receiver, will be used to definite the object's location. Signal which is accepted by the receiver antenna does not just accept object's reflection but also all effects of *clutter* and *noise*. So that, a *signal processing* method is needed to separate the signal of object's reflection from clutter and noise which is unexpected and it is useable to identify and detect object easier later.

The pulse in use is Monocycle Gaussian with pulse width is 1 ns. In the receiver, the pulse will be changed after clutter and noise interferences. So that, the enhancement of receiver signal is implemented from *clutter* and *noise* by using *alignment* method *zero offset removal, clutter reduction, noise reduction,* dan *high pass filtering.*

Finally, by those methods, the GPR receive signal have enhancement of SNR value 17.696 dB from the GPR receive signal which have recovered yet.

Keywords : ***GPR, Clutter , Noise, Signal Processing***