

## ***Abstract***

*Indonesia is a country located in the center ring of fire world. The meeting point of the Eurasian continental plate and the Pacific plate empties in the State Indonesia. This leads to the natural conditions in Indonesia there are many volcanoes. Therefore frequent tectonic earthquakes, volcanic eruptions, and tsunami due to the movement of the two plates. Flood and tornado winds are also often hit several regions in Indonesia. Natural disasters often cause outages in electricity supply. The condition can lead to the death of a communication device. It is difficult for rescue workers or volunteers to communicate in a natural disaster evacuate.*

*This tool is designed to meet the needs of the above problems. This machine works as a receiver and the sender station Terrestrial Radio Communications. Working as a liaison between the communication lines HT (Handy Talkie), this machine uses an antenna that can cover a broad range region. Portable device is designed so that the device can be easily carried and can be quickly installed. Portable repeater is designed for areas not covered by electricity. With solar panels as power supply, this machine does not depend on the source of electricity provided by PLN.*

*From the above design, resulting machine has the following specifications: Input AC (220 Volt / 50 Hz), DC Input (13,8V), Output Power Supply (8.36 Volt and 11.546 Volt), Battery Durability (idle) >14 hour, Battrey Durability (full transmit) 6 hour. Impedance Port TX & RX (50  $\Omega$ ), VSWR TX: RX 1.901 1.833 VSWR. With Radius transmit and receive 1,36 km.*

*Keywords: Antenna; Repeater; Solar Panel*