

ABSTRACT

The development of telecommunications in the world, there are many new technologies, such as mobile phone technology (Wireless Phone). Cell is the smallest area of wireless phone or mobile phones service. Almost all the people in the world have a mobile phone, but the people who live in remote areas still poorly understood about how to using it. Therefore, OpenBTS is necessary as a breakthrough communication activities that the area does not receive the services from local mobile operators as well as in natural disasters area. In addition, OpenBTS also can be used as a new technology in education.

In this final project, USRP (Universal Software Radio Peripheral) and GSM 900 MHz. Transceiver antenna are used for OpenBTS hardware. They are utilized for transmitting radio signals that connected to a VoIP service in Asterisk. For software, Linux is used as operating system and UHD (USRP Hardware Driver) to control the USRP, OpenBTS to control the BTS operation, and the Asterisk telephone exchange as server on a VoIP service.

The performance of signal quality is carried by the distance range of OpenBTS network, while the clarity of the sound quality measurements performed using MOS (Mean Opinion Score). Signal quality performance measurement results show that the best quality OpenBTS network comply on distance 1-12 meter. According to standard MOS, OpenBTS sound quality the best clarity on 30 meters radius with a given value of MOS on average 3.5.

Key Word : ***OpenBTS, Asterisk, USRP, VoIP***