ABSTRACT

Open BTS is a substitute for traditional infrastructure of GSM technology, from the Base Transceiver Station (BTS) to the back that is traffic terminated in the same box by forwarding data to Asterisk as PBX via SIP and Voice Over Internet Protocol (VoIP). As for the air interface using Software Defined Radio (SDR) on Universal Software Radio Peripheral (USRP).

In this Final Project will implement voice services on OpenBTS multi sites with two USRP devices as OpenBTS network transmission media. This experiment was conducted to see the OpenBTS system running on a multi-site network so that it could be applied to remote areas. The Universal Serial Radio Peripheral (USRP) used is the USRP B205 mini and USRP B210 that are connected to a USB port on a laptop, with the USRP Hardware Driver (UHD) as the driver software.

From the results of this Final Project test, at 1 meter idle conditions get RxLevel of -98dBm for B210 and -106dBm for B205Mini, and the dedicated condition as far as 1 meter gets RxLevel of -68 dBm, RxQual in number 3 for B210 and RxLevel of -65dBm , RxQual is number 3 for B205Mini. And for VoIP we got throughput of 0.136 Mbit / s for B210 and 0.037 Mbit / s for B205Mini, with an average delay of 0.01 seconds for each USRP and jitter of 3.48 ms for B210 and 1.30 ms for B205Mini.

Keyword: OpenBTS, USRP, SDR (*Software Defined Radio*), BTS, VoIP, GSM