

ABSTRACT

xDSL is one of digital transmission technology that using copper wire as the medium. By using the working frequency of the twisted copper pair (from 0 to 100 MHz) so we can transmit data using the pair cable in the high speed access by using the high frequency.

HDSL (*High bit-rate Digital Subscriber Line*) is one of the variant of symmetric xDSL technology that can offer high speed access. Access speed that was offered by this system is until 2.320 kbps for upstream and downstream. With this capability, so HDSL system can be one of the solutions for the E1 transmission.

HDSL technology for E1 transmission can be implemented over three pairs of twisted copper lines and two pairs of twisted copper lines. The next generation of HDSL implements single pair of twisted copper lines to transmit the entire E1 bandwidth. Until now days, two pairs system still implemented in many country even though the single pair system has been developed in last five years.

In this final project, HDSL *1-pair* and *2-pair* system will be analyzed and compared in some parameters such as signal quality, reach, *delay* and including the installation and the maintenance.