

## ABSTRACT

Requirement of flexible network in accommodating and new service there is, and also with cheap expense have triggered telecommunications operator to evaluate to return capacities requirement at network transport / their infrastructure backbone. Network matching with the requirement estimated will experience of insufficiency, since requirement this time do not only just communications voice however covering infokom requiring more wide bandwidth, so that need network which can serve the requirement. Hence from that one of way of which can be done by adding network capacities by using technology of Dense Wavelength Division Multiplexing ( DWDM) that is newest technology in telecommunications by media of optic fibre.

At this final duty formulated technological how far DWDM earn to improve capacities of optic fibre, identify pattern of implementation DWDM which used as *High Performance Back Bone ( HPBB )* in Sumatra and also analyse performance theoretically. From knowable the analysis of existing network condition ( goodness or bad). If this condition have bad hence need existence step to improve;repair among other things addition repeater, arrangement repeater or with peripheral replacement