

## ABSTRACT

North Sumatra Police Department as province degree of police department is growing rapidly, both services and infrastructures. At this moment, North Sumatra Police Department's radio communication network kepolisian daerah Sumatera Utara has used to HT facility which used to communicate in operation zona it self.

In order to get communication of radio connection between operation zone, Police Department build a communication network using microwave. This final project design a transmission links microwave for North Sumatra Police Department's communication needed.

Based on planning result, links transmission microwave between Simarajarunjung area and Rantau Prapat areas far as 220,92 km divided became 6 hop. With capacity every link's 4 E1 can be used to voice communication 120 channel Utilizing of radio equipment made in Agilis get BER maximum every link  $10^{-6}$ . And availability minimum every link 99,995%.