

ABSTRACT

Now days, In GSM (Global System for Mobile Communication) telecommunications network often encountered blank spot problems in both indoor and outdoor conditions. It make in the disruption of services provided to customers. Blank spot is due to several things including a power less of the BTS , the area is too far from the BTS, and the areas are difficult to receive signals (such as basement and elevator). To overcome this we need a repeater that serves as a tool that can strengthen and continue the signal received from BTS.

Passive repeater consists of two blocks, there are outdoor antenna and indoor antenna which is united by cable transmission channel coaxial. Outdoor antenna serves as a signal receiver from the building outside, then the signal transmitted by coaxial cable which has the smallest possible attenuation, and the signal re-emitted by indoor antenna which placed in the room minimal signal.

In this final project, has been realized Passive Repeater. For outdoor antenna is used Yagi-Uda Antenna unidirectional reflector 90^0 . It has center frequency at 925 MHz, bandwidth 85 MHz were larger than specification 60MHz. Other result from measurement this antenna overall specification has been appropriate such as gain 12,0838 dBi and $VSWR \leq 1.5$. In addition, for indoor antenna is used the corner reflector antenna 90^0 with dipole $\lambda/2$. As an indoor antenna that works at center frequency of 925 MHz with its range 884,375-1034,375 MHz. It means the bandwidth of its antenna was exceed the specification 60 MHz with its range 890-960 MHz. This Indoor antenna has gain 15,34 dBi, $VSWR \leq 1.5$. For the future, this repeater is expected to tackle the blank spot problem at GSM 900 MHz telecommunications network.

Key word : Passive Repeater, Yagi Antenna, Corner Reflector Antenna