ABSTRACT

Technological developments have increased the need for an internet connection anytime and anywhere, one of which is in flight using the aircraft. Currently the service internet expected to be available anywhere and everywhere, including in flight using the aircraft. Unfortunately, the condition when in flight took place in general is one of the conditions in which the user isn't allowed to access the internet. Although some foreign airlines have provided facilities to access the internet during the flight, not every aircraft has already been installed with this technology, including Boeing 737-900ER aircraft type, which is one type of aircraft with large carrying capacity and is widely used by airlines today.

One of the solutions to overcome this problem is to install the WiFi technology in passenger cabin. As a first step of the solution, This thesis analyzed the coverage area planning of Wifi 809.11g that works on the 2.4.GHz frequency on Boeing 737-900ER which includes the determination of quantity of the cells needed, the cell wide, the cell radius, the user capacity of each cell, the location of each access point and the frequency that is used. The process is done using RPS (Radio propagation Simulation) software with indoor propagation COST 213 multiwall model as the propagation model.

From the calculation of capacity planning and link budget as well as simulation analysis that has been done. It was obtained that there are 2 access points needed to cover the area of passenger cabin. The result of the simulation analysis shows the best locations for the placement of access points are the trunk panel above row 9 and trunk panel on the left side of the row 31. In these positions the average coverage obtained is -57.96 dBm, The average SIR obtained is 55.41dB, the area are covered with received signal above -72dBm is at 84% and SIR $\geq$ 25dB is at 80%. The appropriate distance between access points in order to optimally cover the cabin area is 12 meter. At this distance the received signal obtained above -72dBm and SIR $\geq$ 25dB ratio is 88%. The widening gap between the access point will degrade the quality of signal received but increase the percentage ratio of SIR $\geq$ 25dB.

Key words : ***Coverage, WiFi,*** **Aircraft**