

ABSTRACT

High Altitude Platform System (HAPS) is the infrastructure of communications which places *platform* functioning as a repeater at altitude 18 - 25 km in stratosphere. This Infrastructure becomes a solution for the infrastructures of satellite and also terrestrial which are already had, and also becomes a new alternative in handling of communications which later instruct to *broadband, high speed access, and mobile access communications*. HAPS has two bodyworks, the first part is *platform*, which consists of peripheral propulsi, fuel, peripheral of communications for controlling-measuring and provision of energy. The second part is *payload*, consists of peripheral of telecommunications or broadcasting in the form of a kind of '*transponder*'.

This final project examines payload planning for multimedia service, consists of : *Full Motion Videophone Service (384 Kbps)*, and *High speed web Surfing, web TV and File transfer (2 Mbps)* with placing HAPS at altitude 1 km as *prototype*. Payload have the character of *transparent payload*. In this payload planning, it will be examined about link budget with *xia model pathloss*, power link budget, gain of inbound and outbound, and also *(C/N)* system for multimedia service. The shadowing channel model uses *Loo* channel model, representing merge of Rayleigh and Lognormal. With this channel model, know the performance of system, that is E_b/N_0 to BER for each shadowing level.

From the results of calculation and analysis, indicate the required gain of inbound equals to 130,1956897 dB, outbound equals to 95,21167995 dB. Optimalization must be done, especially in suburban residential and rural area, in order to get the maximum value for the efficiency of payload gain. Optimalization is made by the reduction of user power transmit, diameter of antennas: HAPS and Gateway. *(C/N)* of each service will decrease with progressively ever greaterly used bit rate. Other result of analysis also indicates that performance of system is very influenced by shadowing level. Heavy shadowing condition causes the big influence for BER degradation.