

## **ABSTRACT**

*Today, the growth in the number of users is increasing and the community's needs are getting higher will increase technology that is able to support the needs of the community. In addition, wireless networks continue to grow to meet the needs. With this problem, the WLAN on the IEEE 802.11 standard introduced a new task force called IEEE.802.11ah. IEEE 802.11ah is a standardization of the development of IEEE 802.11 which has broad support that includes transmission, has lower energy consumption, and is able to provide many devices.*

*In this final project research will be carried out an analysis of changes in MCS and RAW Slots on the IEEE 802.11ah standard for VoIP services by comparing two codecs namely G.729 and G.711. The design of the simulation system is carried out with two skenarios, namely changes in MCS and RAW Slot. In this research simulation using a network simulator that is Network Simulator 3 on VoIP services by comparing two codecs namely G.729 and G.711 and see how they affect the network performance. In this case the average delay, throughput, and PDR (Packet delivery ratio) are the measurement parameters in this final project research.*

*The results of this study can be concluded that in the MCS change skenario, the use of MCS 8 (2Mhz Bandwidth, 7800 Kbps flat) with G.729 codec produces better performance among other MCS for VoIP services. Obtained delay value of 148 ms, PDR value of 57 %. But for throughput, using MCS 8 (2Mhz Bandwidth, flat 7800 Kbps) on the G.711 codec gets a higher throughput value of 0.499 Mbps. As for the RAW Slot change skenario, the G.729 codec also produces better performance than the G.711 codec by having a low and high delay value in the PDR value, but for the G.729 codec throughput the value is lower than the G.711 codec.*

**Keywords :** Codec, IEEE 802.11ah, MCS, RAW, VoIP.