ABSTRACT

In today's technology development has become a human need, where the speed of access to information is increasing with the limited frequency provided by Radio Frequency (RF). Visible Light Communication (VLC) can provide access to information at high speed up to 10Gps and can be implemented to support 5G technologies such as Internet Of Things (IoT).

With the increasing need for access to information delivery, the Coded Random Access (CRA) method is proposed and implemented using the Non-Orthogonal Multiple Access (NOMA) technique. The use of NOMA in the communication system can give users the freedom to send information simultaneously without having to fight over the timeslot or frequency. CRA has an approach to Slotted ALOHA (SA) which has a channel coding technique to send information randomly and reduce packet collisions that sent or received. This also supported by NOMA by implementing Superposition Coding (SC) on the Transmitter and Successive Interference Cancellation (SIC) with value variations and iteration variations in decoding section.

Based on the simulation results, it is found that Offered Traffic (G) with the highest Throughput performance using CRA on the LOS channel has increased $\pm$ 33% and the Packet Loss Ratio (PLR) value has decreased $\pm$ 40% of the performance value using 300 Slot Node.

Keywords: VLC, CRA, NOMA, *Throughput*, PLR, *Degree Distributions*