# ABSTRACT

*5G New Radio (NR) technology is the fifth generation mobile communication technology standard formulated by the International Telecommunication Union (ITU) where 5G technology can support speeds of up to 10 Gbps on the uplink side and 20 Gbps on the downlink side. In this research, 5G NR planning is carried out by applying the inter-band carrier aggregation method. The 5G network is planned using the n40 band at a frequency of 2300 MHz with a bandwidth of 40 MHz as a PCell, and the n78 band at a frequency of 3500 MHz with a bandwidth of 100 MHz as a SCell. The planning area that is the focus of this research is the Tanjung Priok port area, North Jakarta using the Urban Macro (UMa) propagation model. The simulation results show an increase in the mean of each parameter after the application of the inter-band carrier aggregation method. The SS-RSRP parameter increased by 0.00% with an average value of -52.96dBm. The SS-SINR parameter increased by 0.29% with an average value of 13.65dB, and the data rate parameter increased significantly by 209.2% with an average value of 700.70Mbps. This research proves that the application of the carrier aggregation method can improve network quality and capacity, especially data rate because there is a combination of carrier components that can maximize bandwidth usage.*

***Keywords**: 5G NR, bandwidth, inter band carrier aggregation, SS-RSRP, SS-SINR, data rate.*