ABSTRACT

The deployment of 5G networks in Indonesia is a follow-up to the frequency spectrum auction results determined by the government. One of the designated winners is PT Smartfren Telecom Tbk., which was allocated the 2.3 GHz band in Block A. In accordance with regulatory requirements, auction winners are obligated to undertake preparatory activities for the deployment of 5G services, including the execution of the Operational Feasibility Test (Uji Layak Operasi/ULO). Based on the ULO results, the service deployment was declared compliant with applicable technical standards and regulatory frameworks. This study focuses on the implementation of a 5G network in Cluster 1, located in the Pacitan Area, East Java Province, comprising two sites: ZMDU_0406 and ZMDU_0407. Network performance evaluation was conducted by measuring key parameters, including Downlink Throughput, Reference Signal Received Power (RSRP), and Signal-to-Interference-plus-Noise Ratio (SINR). The measurements were carried out in the field using the IDTrium-ATEL 5G CPE (SDX62) device to collect real-time data. The measurement results showed a peak downlink throughput of 126 Mbps and an average downlink throughput of 82 Mbps. Meanwhile, the SS-RSRP value was recorded at -73.54 dBm and SS-SINR at 45.17 dB indicating excellent 5G signal quality in the test area.

Keywords: 5G Network, 2.3 GHz frequency, Throughput, SRSP dan SINR