

ABSTRACT
COVERAGE AREA ANALYSIS OF WIFI FOR NETWORK
QUALITY AT TELKOM PURWOKERTO INSTITUTE OF
TECHNOLOGY

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Information and Communication Technology (ICT) plays a crucial role in supporting various academic activities within higher education institutions. One of the essential infrastructures that enables this is Wi-Fi networks, which provide fast, flexible, and widespread internet access for all academic stakeholders. However, the increasing number of users and connected devices often leads to a decline in network performance, especially during peak hours. This study aims to analyze the performance of Wi-Fi networks in three yellow zone buildings at the Institut Teknologi Telkom Purwokerto, which has now become Telkom University Purwokerto. The buildings examined are DC, IoT, and TT. The research method involves measuring Quality of Service (QoS) parameters, including throughput, delay, jitter, and packet loss, as well as mapping signal distribution using heatmap software. The results show that the average throughput is 12.267 kbps, which is categorized as poor based on the TIPHON standard. The average delay is 171.961 ms, which falls into the good category, while the average jitter is 347.967 ms, also classified as poor. Based on these findings, network optimization is necessary by repositioning Access Points and adding devices in weak signal areas. These efforts are expected to improve the Wi-Fi network across the campus, providing more stable, evenly distributed, and high-quality internet services for all users.

Keywords: *Wi-Fi, Quality of Service (QoS), TIPHON, Heatmap, Access Point*