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ABSTRACT

This experimental study aimed to evaluate the signal strength performance of various IEEE 802.11 protocols in wireless networks. Specifically, it focused on the 802.11ac and Laptops were used to measure signal strength and were used during the experiment. The router was configured to various 802.11 protocols and subjected to obstructions such as glass and concrete; short, mid, and long distances; and, lastly, 2.4 GHz and 5.0 GHz as frequency. The Wi-Fi Analyzer application was used to determine signal strength. The statistical tools used in analyzing the gathered data were the mean and Mann-Whitney U-test to compare the signal strength performance of the 802.11 protocols. The findings showed from the 802.11 protocols for obstructions such as glass and concrete, respectively, that there was no significant difference in the signal strength of a wireless router. For the distances short, mid, and long, respectively, there was no significant difference in the signal strength of wireless routers according to distance when classified according to 802.11 protocols. However, at frequencies of 2.4 GHz and 5.0 GHz, there were significant differences in the signal strength of wireless routers when classified according to 802.11 protocols.

Keywords: Signal Strength, Wireless Network, IEEE 802. 11, Obstruction, Frequency.