

PERFORMANCE STUDIES OF IEEE 802.11 AC LABORATORY LINKS

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The increasing importance of wireless communications, involving electronic devices, has been widely recognized. Performance is a fundamental issue, resulting in more reliable and efficient communications. Wi-Fi has nominal transfer rates up to 11 (802.11b), 54 Mbps (802.11 a, g), 600 Mbps (802.11n) and 6.9 Gbps (802.11ac) [1]. The medium access control of Wi-Fi is carrier sense multiple access with collision avoidance (CSMA/CA). Security is also crucially important. Studies have been published on wireless communications, wave propagation [2,3], practical realizations of WLANs [4]. Laboratory measurements are presented about several performance aspects of Wi-Fi IEEE 802.11ac WPA2 point-to-point links. Our study leads to performance evaluation of this technology under WPA2 encryption, using available equipment (Cisco 2702i access points and Edimax AC1200, EW-7822UAC, USB 3.0 adapters). New results are presented from a devised solution that uses an experimental setup and method, to monitor signal to noise ratios (SNR) and noise levels (N), and measure TCP throughput (from TCP connections) versus TCP packet size, and UDP jitter and percentage datagram loss (from UDP communications) versus UDP datagram size. In the process of data acquisition, Iperf software [5] is used. The results are obtained in batch mode and recorded as data files to the client PCs disks. The statistical analysis, including calculations of confidence intervals, is done as in [6]. Comparisons are made to results obtained for corresponding IEEE 802.11n links [7]. Conclusions are drawn about the comparative performance of the links.

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References

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