

**PERFORMANCE EVALUATION OF SECURITY ENABLE IEEE  
802.11b WIRELESS NETWORK**

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## **Abstract**

High bandwidth wireless local area networks are gaining popularity. Along with this popularity has come a well-publicized series of vulnerabilities in the IEEE standard implementations. In response, a number of standards from wired networking (e.g. 802.1x and IPSec) are being adopted to wireless. Vendors are also developing and selling proprietary security solutions. The normal security risk assessment/risk mitigation process can be complicated by a misunderstanding of the range of available options and the strengths and weaknesses of each. However, the nature of wireless technology raises the stakes in performing a proper risk assessment and deploying a wireless network that meets local security requirements.

This thesis first describes the wireless LAN technology & attack techniques. Then describe the generic mechanisms available for authentication of users and the protection of the privacy and integrity of the data. I conduct a series of performance evaluation tests for 802.11b networks were conducted to provide an overview about the performance and throughput aspects of these networks. Based on the experiments result, in a single client, adding security features MAC & WEP 40-bit encryption not decrease the performance, but WEP -128 bit encryption significantly decrease the performance, while adding the more clients (i.e. Loading network traffic) performance will decrease more rapidly and in all mechanisms significantly decrease the performance. Especially WEP 128-bit encryption decreases the performance more than other mechanism when we adding security features. Based on the VPN Model test result, wired network performance is higher than wireless, and both cases, it is clear that MPPE encryption has virtually no effect in performance when the data size is high. However, when the data size is small, it is degrades the performance in both wired & wireless network.