Performance Evaluation of IEEE802.11b/g by Using Angular Diversity Antenna System

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Traditional omni-directional antennas are used as the antennas of SDMA (space division multiple access) for AP (access point) in WLAN (wireless local access network). The fading due to multi-path and co-channel interference are serious for the omni-directional antenna pattern. This will cause the higher bit error rate or lower transmission data rate. In this paper, an angular diversity antenna system as shown in Fig.1 is used instead of SDMA for AP in IEEE802.11b/g. The transmit pattern of AP is similar to that of the traditional SDMA system. The receive patterns are two sector angular patterns instead of omni-directional patterns. From the test results of AP equipped with SAS and SDMA in the environment of co-channel interference, they show that the performance of AP equipped with SAS will have higher SNR (signal to noise ratio) (Fig.3) and lower transmission time for 10 Mb data file (Fig.4).

Fig.1 AP equipped with SAS

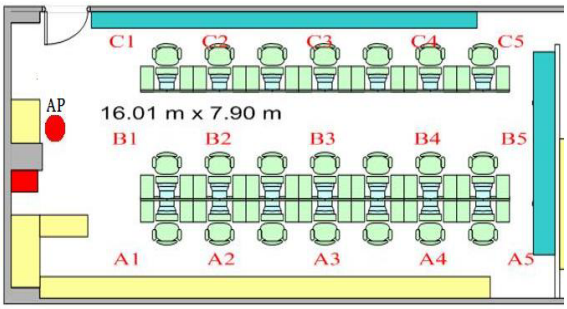

Fig.2 Measurement environment

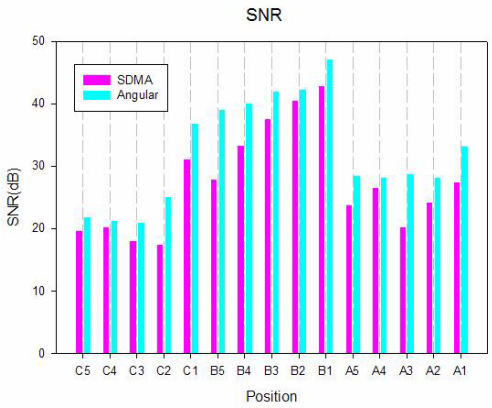

Fig.3 SNR at different positions

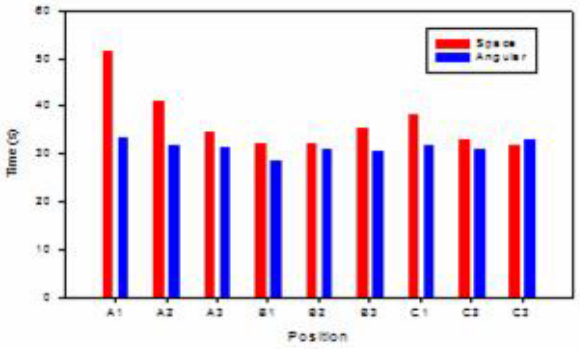

Fig.4 Comparison of transmit time