1. Introduction

The WMIA-123AG is a mini PCI solution for IEEE 802.11a/b/g wireless LAN. With 802.11b mode, it provides data rates of 1, 2, 5.5, and 11Mbps, supporting IEEE 802.11b network specification for Direct Sequence Spread Spectrum (DSSS) signaling. With 802.11a mode, it implements a half-duplex, orthogonal frequency division multiplexing (OFDM) technology supporting all IEEE 802.11a data rates (6 to 54Mbps). 802.11g mode is also provided to support 1 to 54Mbps with DSSS or OFDM technology. This card is a good solution for users who need mini PCI 802.11a/b/g WLAN functionality.

1.1. Product Features

 - High speed for wireless LAN connection: IEEE802.11b 11Mbps data rate by incorporating Direct Sequence Spread Spectrum (DSSS); IEEE802.11a 54Mbps data rate with Orthogonal Frequency Division Multiplexing (OFDM) and up to 108Mbps with Turbo mode; IEEE802.11g 54Mbps date rate with OFDM (108Mbps in Turbo mode) and 11Mbps with DSSS. Provide seamless roaming within the IEEE 802.11a/b WLAN infrastructure
 - IEEE 802.11a/b/g compatible: allowing inter-operation among multiple vendors
 - Support Wake on LAN (subject to software)
 - 64-bit, 128-bit, or 152-bit WEP encryption, set by ASCII and Hexadecimal mode
 - Smart selection function
 - Mini PCI type IIIB form factor
 - Site survey function.
 - Hardware Radio on/off function
 - Support MicroSoft Windows XP, 2000, ME, and 98SE
 - Interoperability – Complying with WiFi
 - WPA, WPA-PSK
 - Super A/G.

2. Hardware Architecture

2.1 Main Chipset Information

2.1.1 MAC/Baseband Processor

The Atheros AR5213 is part of the AR5004 solutions for 5GHz and 2.4GHz wireless local area networks. The AR5213 integrates multi-protocol media access control, a baseband processor, a PCI/Cardbus host interface, analog-to-digital, and digital-to-analog converters.

2.1.2 5GHz Radio Transceiver

The AR5112 chip is an integrated CMOS radio transceiver that supports the IEEE

802.11a, 802.11b, and 802.11g standard. The chip supports connection to an external output booster for higher performance.

2.2 Antenna Connector
Two antenna connectors (HRS U.FL-R-SMT) are provided to support antenna diversity.

2.3 LED Function

State	LED_0	LED_1
Power save mode	Slow-rate blink	OFF
Awake from power save mode, can be used to indicate power is applied.	ON	OFF
Looking for network association	Alternate blink between LED_0 and LED_1	Alternate blink between LED_0 and LED_1
Associated or joined with network; no activity	Slow-rate blink	Slow-rate blink
Associated or joined with network; blink rate increases with activity	Blink	Blink
Power off	OFF	OFF

2.4 Radio On/Off Mechanism Suggestion:
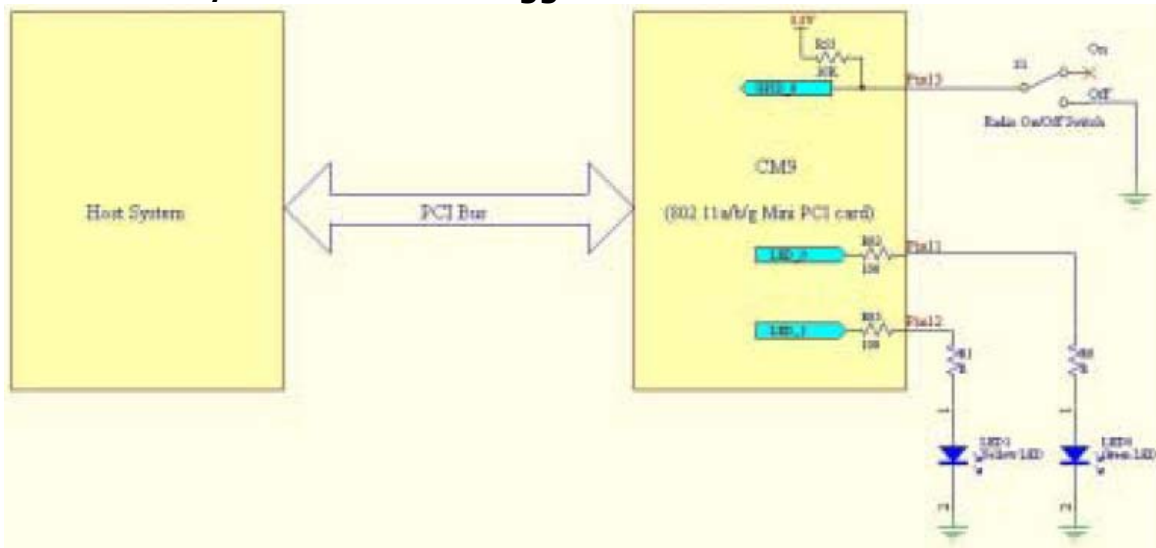
Note: The value of R82 and R85 is 187 ohm. The value of R0 and R1 is user defined for LED current limitation.