Specifications for 802.11a and b/g WLAN Router

RT1015W

Revision: 0.1

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Chapter 1 Introduction

RT1015W is an 802.11b/g Wireless Router device. This wireless broadband router is a multi-function device featuring a wireless 54Mbps Access point, a 4-port LAN switch and a WAN port, which extends the existing broadband Cable/ADSL connection. It allows the Internet connection to be shared through either the 54Mbps Access Point feature or the 10/100Base-TX Ethernet switch, which also eliminates the purchase of an additional hub or switch.

Chapter 2 Hardware Architecture

2.1 Hardware Diagram

TBD

2.2 Main Chip Set Information

The single-chip solutions: the AR5006AP-G chip set (AR2315) supports 802.11b/g WLAN and the AR5006AP-GS (AR2316) supports Super G WLAN.

The Atheros AR2315/AR2316 integrated MAC/baseband/radio and processor into a single chip for wireless access point and router application. It includes a 2.4GHz radio, MIPS 4000 processor; an 802.11 MAC/baseband processor; an 802.3 Ethernet MAC and MII interface; SDRAM controller, external memory interface for Flash; ROM or RAM; PCI bus interface or a flexible loacl bus, UART; GPIOs; LED controls.

The AR2315/AR2316 implements an 802.11 MAC/baseband processor supporting all IEEE802.11a/g data rates (6 to 54 Mbps) and all IEEE 802.11b complementary key coding (CCK) data rates (1 to 11 Mbps). In Atheros Super G™ mode, the AR2316 supports data rates up to 108Mbps. Additional features include forward error correction coding at rates for 1/2, 2/3, and 3/4, signal detection, automatic gain control, frequency offset estimation, symbol timing, channel estimation, error recovery, enhanced security, and quality of service (QoS). The AR2316 performs receive and transmit filtering for IEEE 802.3 and 802.11 networks.

The AR2315/AR2316 is an all CMOS, high-integrated single-chip solution that supports 802.11b/g WLANs.

Chapter 3 Hardware Specifications

WAN	H/W Interface	RJ-45×1
	Standard	IEEE802.3
	S/W Interface	100BASE-TX/10BASE-T (Auto MDI-X crossover)
	Transmission Speed	100Mbps/10Mbps
	Full/Half Duplex	Full/Half Duplex (Auto Switch)
LAN	H/W Interface	RJ-45×4
	Standard	IEEE802.3
	S/W Interface	100BASE-TX/10BASE-T (Auto MDI-X crossover)
	Transmission Speed	100Mbps/10Mbps
	Full/Half Duplex	Full/Half Duplex (Auto Switch)
Wireless LAN Interface	Specification	IEEE 802.11b Standard IEEE 802.11g Standard
	Frequency Band	2.4GHz frequency Band 2,412MHz ~ 2,472MHz, 2484MHz 1CH ~ 13CH, 14CH
	Modulation	802.11b mode DS-SS: IEEE802.11b 802.11g mode OFDM: IEEE802.11g
	Transmission Speed	802.11b mode (11Mbps & 5.5Mbps CCK `2Mbps DQPSK `1Mbps DBPSK) 802.11g mode (54Mbps & 48Mbps 64-QAM `36Mbps& 24Mbps 16-QAM `18Mbps & 12Mbps QPSK `9Mbps & 6Mbps BPSK)
	Indoor-Distance Range (Estimate)	54Mbps (20m) ~ 1Mbps (90m): 802.11g+b mode 11Mbps (20m) ~ 1Mbps (90m): 802.11b mode
	Outdoor-Distance Range (Estimate)	54Mbps (30m) ~ 1Mbps (300m): 802.11g+b mode 11Mbps (50m) ~ 1Mbps (300m): 802.11b mode
LED Function Status	POWER (Green)	□“Solid Green”: Power On □“OFF”: Power Off
	Wireless (Green)	□“Solid Green”: Wireless Enable □“Blinking Green”: Wireless Activity □“OFF”: Wireless Disable
	Internet (Green)	□“Solid Green”: Connected to Internet □“Blinking Green”: Data being Transferred □“OFF”: No Connected to Internet
	LAN1~4 (Green)	□“Solid Green”: Computer 1, 2, 3 or 4 linked to network □“Blinking Green”: Data is Transferring on computer 1, 2, 3 or 4 □“OFF”: Computer 1, 2, 3 or 4 not connect to network
	Dimension	Hardware: TBD(W)×TBD(D)×TBD(H)mm (not including Antenna) Stand: TBD(W) x TBD(D) x TBD(H) mm
	Power Adaptor	Input: 100VAC +/- 10% 50/60Hz, Output: 5VDC, 2A
	Power Consumption	7.5W (max)
	Current Consumption	1.5A (max) @ b, g modes
TX Power	11b mode 11g mode	18dBm@1Mbps & 11Mbps 18dBm@6Mbps; 14dBm@54Mbps
RX Sensitivity	11b mode 11g mode	-90dBm@1Mbps; -85dBm@11Mbps -88dBm@6Mbps; -68dBm@54Mbps

Chapter 4 Reliability Test

4.1 MTBF Calculation

MTBF = Hours (To be calculated)