Wireless Lan 802.11n

miniPCI

User's Manual

Version 1.0

WNR834M IEEE 802.11b/g with EWC

Mini-PCI Wireless LAN Module Specification

Product Name	WNR834M	
Host Interface	miniPCI	
Dimensions	59 x 89 x 3.5 mm (non standard size, for module only)	
Frequency Band	2.400 ~ 2.4835GHz (subject to local regulations)	
Number of Channel	USA and Canada: 11ch~ 1,2,3,4,5,6,7,8,9,10,11 (EWC 40MHz mode: 1&5,2&6,3&7,4&8,5&9,6&10,7&11)	Most European countries: 13ch~ 1,2,3,4,5,6,7,8,9,10,11,12,13 (EWC 40MHz mode: 1&5,2&6,3&7,4&8,5&9,6&10,7&11,8&12,9&13)
	France: 4ch~ 10,11,12,13 (EWC 40MHz mode: TBD)	Japan: 13ch (optional 14ch) 1,2,3,4,5,6,7,8,9,10,11,12,13 (EWC 40MHz mode: 1&5,2&6,3&7,4&8,5&9,6&10,7&11,8&12,9&13)
Modulation	802.11b: CCK, QPSK, BPSK 802.11g: 64-QAM, 16-QAM EWC: 64-QAM, 16-QAM, QPSK, BPSK	
Spreading	802.11b DSSS (Direct Sequence Spread Spectrum) 802.11g OFDM (Orthogonal Frequency Division Multiplexing) EWC: see Achievable Data-Rate Based on EWC	
Data Rate	IEEE 802.11b: 11, 5.5,2,1Mbps IEEE 802.11g: 54, 48, 36, 24, 18, 12, 9, 6Mbps EWC: see Achievable Data-Rate Based on EWC	
Operating Voltage	DC 3.3V +/- 10%	
Current consumption	Continuous TX: 570±10mA @ 802.11b, 14dBm Power Continuous TX: 560±10mA @ 802.11g, 14dBm Power Continuous TX: 580±10mA @ EWC mode, 14dBm Power	
Nominal Temp Range of Transmit Power	802.11b: 18 dBm@1TX; 20 dBm@2TX 802.11g: 17 dBm@1TX; 17 dBm@2TX EWC: 16 dBm@1TX; 19 dBm@2TX Tolerance: +/- 1.5dB	
Receive Sensitivity in room temperature	-86dBm @ 802.11b, 11Mbps PER≦8% -80dBm @ EWC, 6.5Mbps PER≦10% -71dBm @ EWC, 135Mbps PER≦10%	

Security	TBD- (Hardware 64/128-bit WEP; WEP weak key avoidance; TKIP; hardware AES engine, WPA, 802.1x and 802.11i)
Driver	?
Standards	IEEE 802.11b, 802.11g, EWC, Wi-Fi compliant (TBD)
Warranty	1 year
Temperature Range	0 ~ 65°C (Operating), -20~85°C (Storing)
Humidity	Operating Humidity 10% to 85% Non-Condensing Storage Humidity 5% to 90% Non-Condensing
Antenna	No, with 3 RF connectors
Operating Range	The transmission speed varies in the surrounding environment.
Roaming	Full mobility and seamless roaming from cell to cell and across access points (subject to access point)
Network Architectures	Infrastructure and Ad Hoc
Management Utility	Link config for network join and diagnostics
EMC certification	TBD(FCC part 15C/15.247; ETS 300 328-2; UL; IEC60950; EN301 489-1, 17; prEN50371; CE Mark; TELEC.)

Achievable Data-Rate Based on EWC

MCS Index	Nss	Modulation	R	NBPSC	NCBPS		NDBPS		Datarate(Mbps)			
									800nsGI		400nsGI	
					20MHz	40MHz	20MHz	40MHz	20MHz	40MHz	20MHz	40MHz
0	1	BPSK	½	1	52	108	26	54	6.5	13.5	7.200	15
1	1	QPSK	½	2	104	216	52	108	13.0	27.0	14.400	30
2	1	QPSK	¾	2	104	216	78	162	19.5	40.5	21.700	45
3	1	16-QAM	½	4	208	432	104	216	26.0	54.0	28.900	60
4	1	16-QAM	¾	4	208	432	156	324	39.0	81.0	43.300	90
5	1	64-QAM	2/3	6	312	648	208	432	52.0	108.0	57.800	120
6	1	64-QAM	¾	6	312	648	234	486	58.5	121.5	65.000	135
7	1	64-QAM	5/6	6	312	648	260	540	65.0	135.0	72.200	150
8	2	BPSK	½	1	104	216	52	108	13.0	27.0	14.444	30
9	2	QPSK	½	2	208	432	104	216	26.0	54.0	28.889	60
10	2	QPSK	¾	2	208	432	156	324	39.0	81.0	43.333	90
11	2	16-QAM	½	4	416	864	208	432	52.0	108.0	57.778	120
12	2	16-QAM	3/4	4	416	864	312	648	78.0	162.0	86.667	180
13	2	64-QAM	2/3	6	624	1296	416	864	104.0	216.0	115.556	240
14	2	64-QAM	¾	6	624	1296	468	972	117.0	243.0	130.000	270
15	2	64-QAM	5/6	6	624	1296	520	1080	130.0	270.0	144.444	300

MARVELL SEMICONDUCTOR
PROPRIETARY INFORMATION

WMIM-205GN
Block Diagram

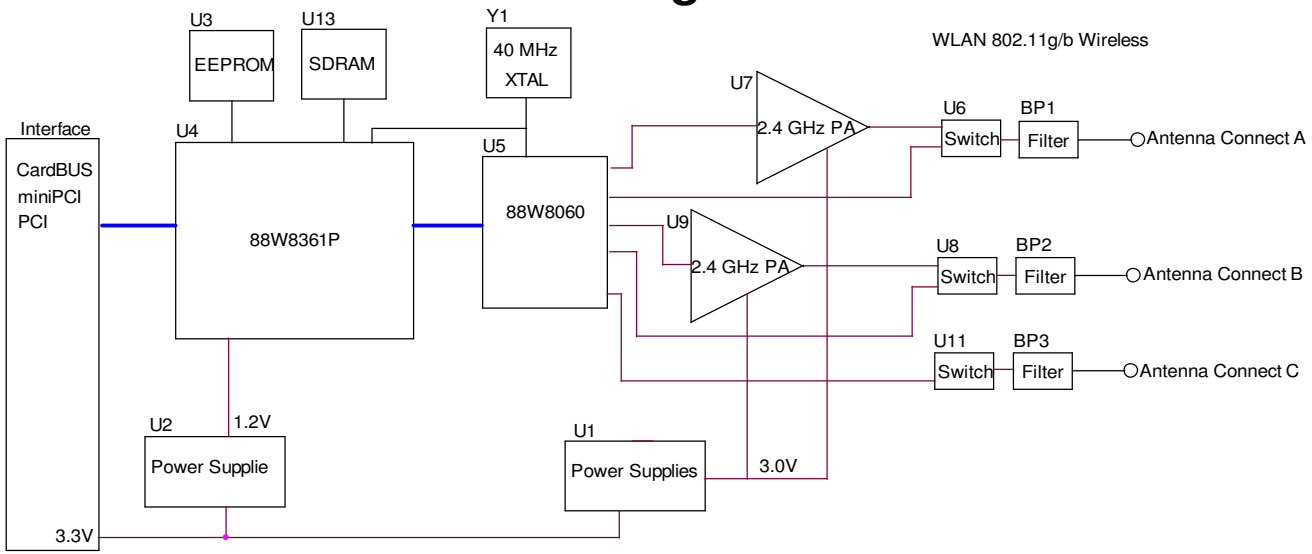


Table of Contents:

Design Schematic v1.1

Model name: WNR834M for NETGEAR

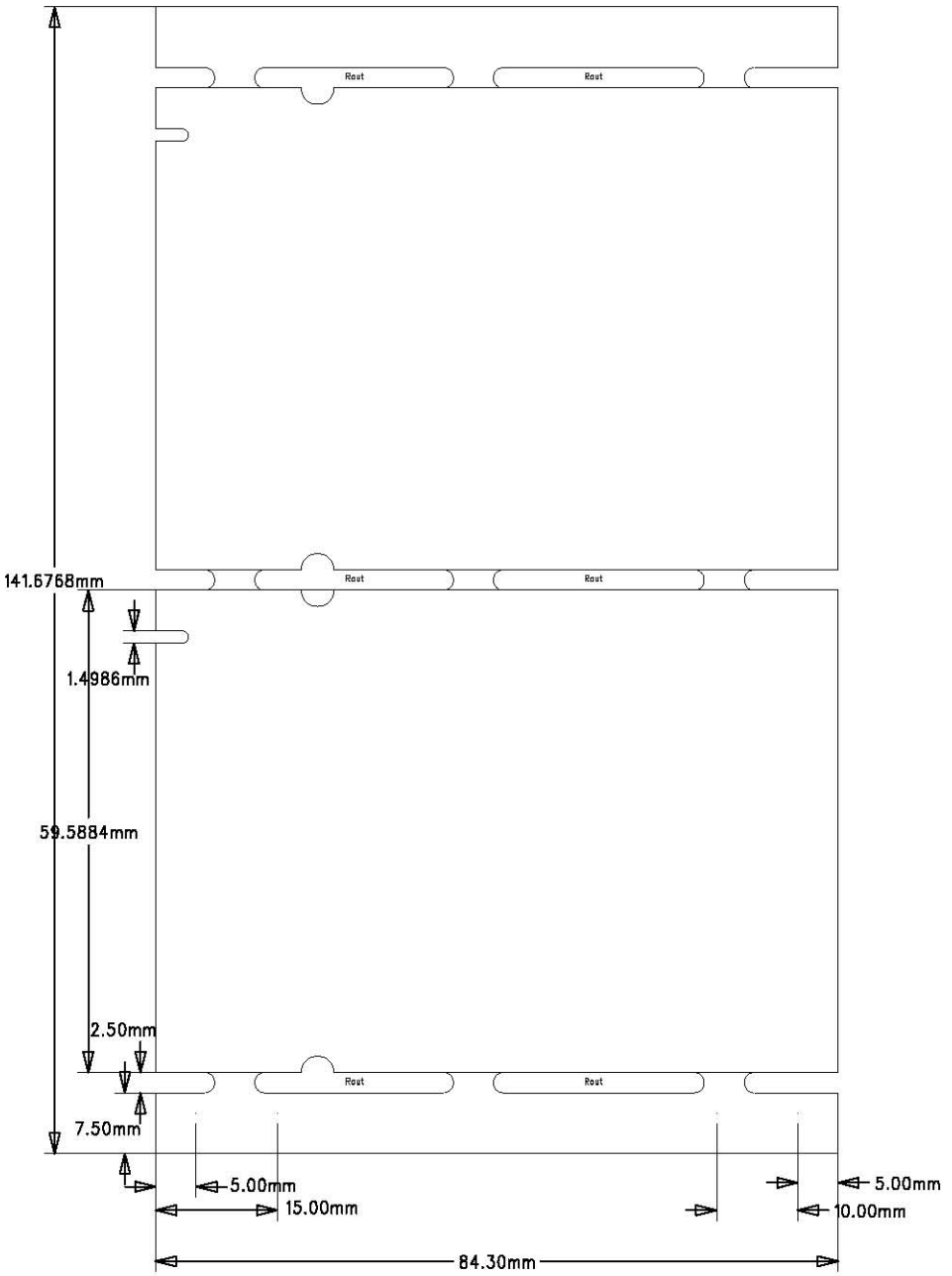
MARVELL

WLAN 802.11g/b 2x3 MIMO Reference Design Schematic MB-82 v1.0

NOTE: THIS SCHEMATIC IS AN ADVANCED DESIGN. MARVELL RESERVES THE RIGHT TO MAKE CHANGES TO THE SCHEMATIC AT ANY TIME WITHOUT NOTICE.

MARVELL SEMICONDUCTOR CONFIDENTIAL

Company	Marvell Semiconductor Inc. 5488 Marvell Lane Santa Clara, CA 95054, USA
Title	MB-82 v 1.0 Reference Schematic
Size B	Document Number MV-SR00101-01
Rev	-
Date:	Thursday, May 04, 2006
Sheet	1 of 7



Files Name	WMIM-205GN_V02	Date	03/31/2006		
Part No	19D-XG3-B001R	Layer	PAN		
Model No	WMIM-205GN	REV	02	UNIT	mm
Drawer	Douglas.Cheng	View	TOP		

IC statement

Operation is subject to the following two conditions:

1) This device may not cause interference and
2) This device must accept any interference, including interference that may cause undesired operation of the device.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

NETGEAR declares that WNR834M (FCC ID: PY306100038) is limited in CH1~CH11 for 2.4 GHz by specified firmware controlled in U.S.A.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users (for example: Access point, Router…etc). The final end product must be labeled in a visible area with the following: “Contains TX FCC ID: PY306100038”.

Manual Information That Must be Included

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the users manual of the end product which integrate this module.

The users manual for OEM integrators must include the following information in a prominent location “ IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.