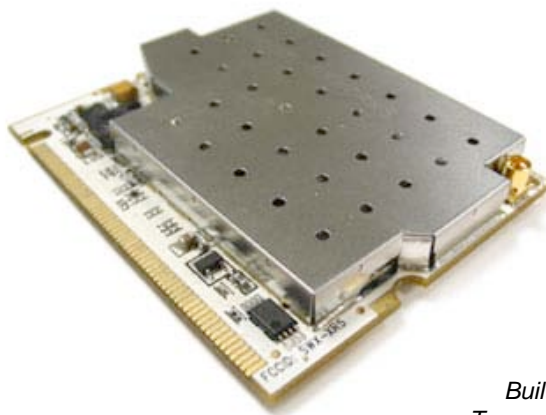# XTREME**Range5**

Carrier-Class 5GHz 802.11a Radio Module

UBIQUITI NETWORKS

The XtremeRange series of radio modules by Ubiquiti leverages the knowledge and experiences gained from customer interaction, field performance evaluations, and lab research -- and improves upon the original and highly successful SuperRange series of high-performance 802.11 radio cards. The XtremeRange5 represents the first true carrier-class 802.11a based 5GHz radio module specifically designed for mesh, bridging, and infrastructure applications requiring the highest levels of performance and reliability without compromise.
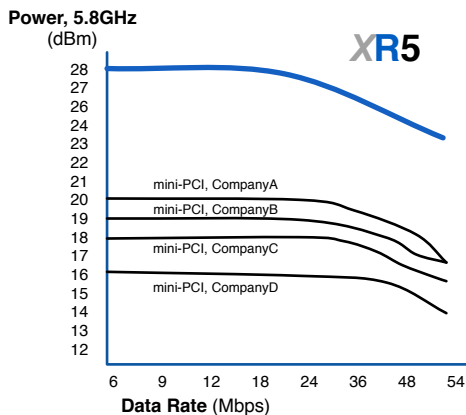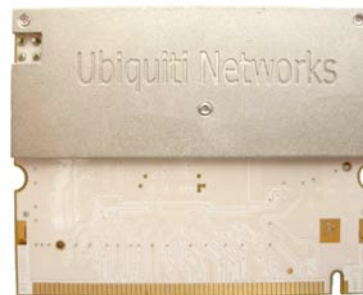
Designed to Link Farther and Faster

FEATURES

600mW Output Power
Industry-Best Sensitivity
Extended Temperature
Enhanced Filtering
5/10/20/40 MHz Channels
MMCX Ant. Connector

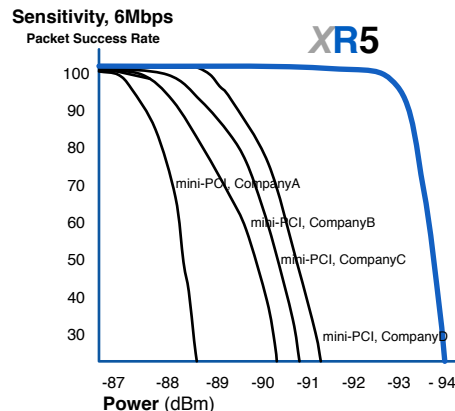*Hi-Performance PCB for Maximum RF Performance*

Built-in HeatSink for Temperature Performance

Built for Industrial / Rugged Applications

Power, 5.8GHz
(dBm)

X**R**5

28
27
26
24
23
22
21 mini-PCI, CompanyA
20
19 mini-PCI, CompanyB
18
17 mini-PCI, CompanyC
16
15 mini-PCI, CompanyD
14
13
12

6   9   12   18   24   36   48   54
Data Rate (Mbps)

Tested with and Optimized for

MikroTik
ROUTING THE WORLD
www.mikrotik.com

MADWiFi
MULTIBAND ATHEROS DRIVER FOR WiFi

Mikrotik is a trademark of Mikrotikls SIA, Latvia

Sensitivity, 6Mbps
Packet Success Rate

X**R**5

100
90
80
70   mini-PCI, CompanyA
60   mini-PCI, CompanyB
50   mini-PCI, CompanyC
40
30   mini-PCI, CompanyD

-87   -88   -89   -90   -91   -92   -93   - 94
Power (dBm)

XTREME**Range**5
TECHNICAL SPECIFICATIONS

CARD INFORMATION	
Chipset	Atheros, 6th Generation, AR5414 with SuperA/Turbo Support
Radio Operation	IEEE 802.11a, 5GHz
Interface	32-bit mini-PCI Type IIIA
Operation Voltage	3.3VDC
Antenna Ports	Single MMCX
Temperature Range	-40C to +80C (extended temp version up to +95C)
Security	WPA, WPA2, AES-CCM & TKIP Encryption, 802.1x, 64/128/152bit WEP
Data Rates	6Mbps, 9Mbps, 12Mbps, 24Mbps, 36Mbps, 48Mbps. 54Mbps
TX Channel Width Support	5MHz / 10MHz / 20MHz / 40MHz
RoHS Compliance	YES

REGULATORY INFORMATION	
Wireless Modular Approvals	FCC Part 15.247 (23dBi Antenna), IC RS210, CE with Notified Body Number

RADIO OPERATING FREQUENCY 5.20-5.825GHz

	TX SPECIFICATIONS					RX SPECIFICATIONS		
	DataRate	Avg.Power	Tolerance			DataRate	Sensitivity	Tolerance
802.11a OFDM	6Mbps	28 dBm	+/-1.5dB		**802.11a OFDM**	6Mbps	-94 dBm	+/-1.5dB
	9Mbps	28 dBm	+/-1.5dB			9Mbps	-93 dBm	+/-1.5dB
	12Mbps	28 dBm	+/-1.5dB			12Mbps	-91 dBm	+/-1.5dB
	18Mbps	28 dBm	+/-1.5dB			18Mbps	-90 dBm	+/-1.5dB
	24Mbps	28 dBm	+/-1.5dB			24Mbps	-86 dBm	+/-1.5dB
	36Mbps	26 dBm	+/-1.5dB			36Mbps	-83 dBm	+/-1.5dB
	48Mbps	24 dBm	+/-1.5dB			48Mbps	-77 dBm	+/-1.5dB
	54Mbps	23 dBm	+/-1.5dB			54Mbps	-74 dBm	+/-1.5dB

ADJUSTABLE CHANNEL SIZE SUPPORT (Increase Channel Capacity or Increase Throughput)

5MHz	10MHz	20MHz	40MHz (Turbo)

CURRENT CONSUMPTION INFORMATION

	TX CURRENT CONSUMPTION					RX CURRENT CONSUMPTION		
	DataRate	Current	Tolerance			DataRate	Current	Tolerance
802.11a OFDM	6Mbps	1.80 A	+/-100 mA		**802.11a OFDM**	6Mbps	300 mA	+/-100 mA
	9Mbps	1.80 A	+/-100 mA			9Mbps	300 mA	+/-100 mA
	12Mbps	1.80 A	+/-100 mA			12Mbps	300 mA	+/-100 mA
	18Mbps	1.80 A	+/-100 mA			18Mbps	300 mA	+/-100 mA
	24Mbps	1.80 A	+/-100 mA			24Mbps	300 mA	+/-100 mA
	36Mbps	1.50 A	+/-100 mA			36Mbps	300 mA	+/-100 mA
	48Mbps	1.30 A	+/-100 mA			48Mbps	300 mA	+/-100 mA
	54Mbps	1.10 A	+/-100 mA			54Mbps	300 mA	+/-100 mA

RANGE PERFORMANCE	
Indoor (Antenna Dependent):	Up to 150meters
Outdoor (Antenna Dependent):	Over 50km

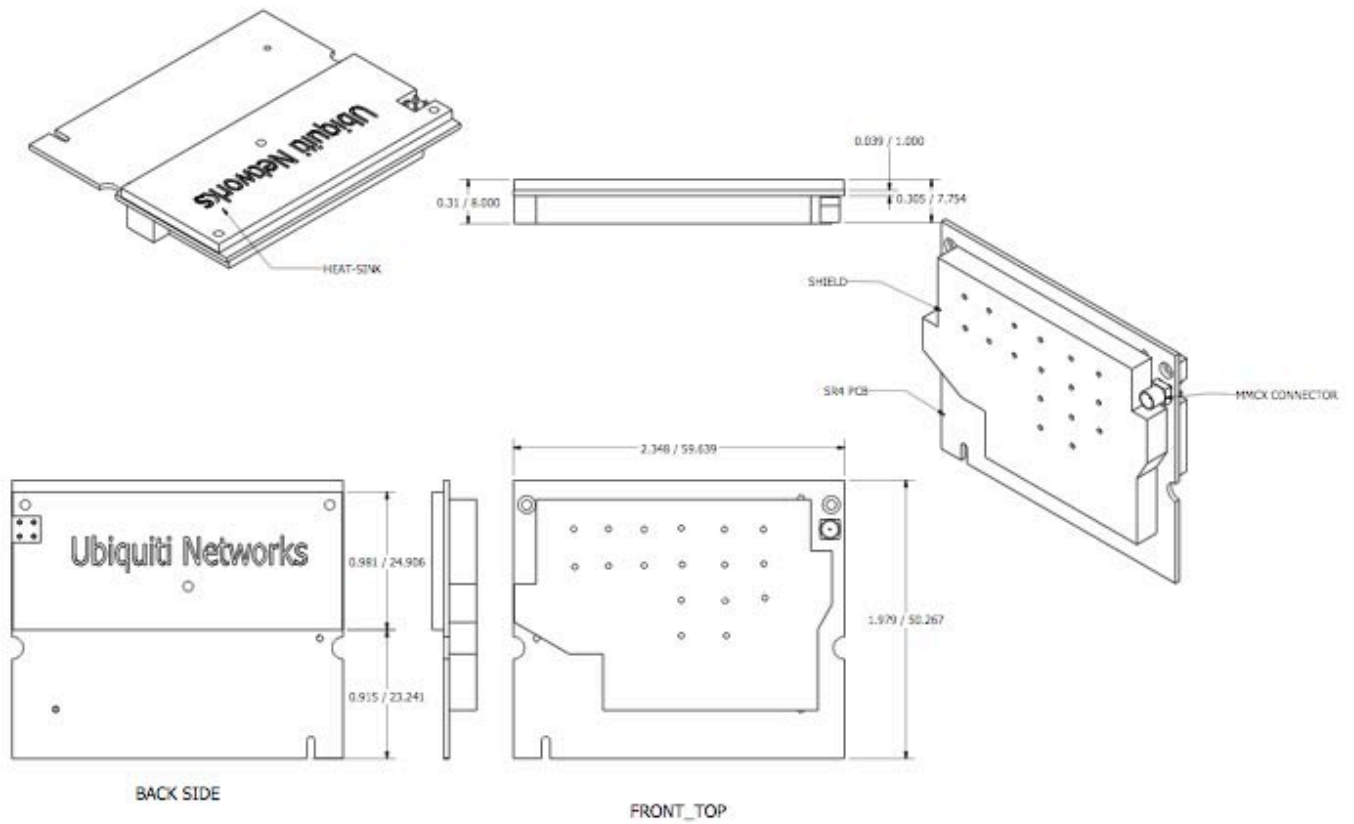| DRIVER INFORMATION	
Operating System Support	Linux MADWIFI, WindowsXP, Windows2000
Advanced Mobility / QuickHandoff	WindowsXP/2000 Utility with Enhanced Mobility Driver from Ubiquiti
Cisco Support	CCX 4.0 Certified Driver/Utility also available from Ubiquiti
For help with MADWIFI or other Special Driver Support, Please e-mail support@ubnt.com	

MINI-PCI INTERFACE PINOUT

#	InUse	Pin Name	Description	#	InUse	Pin Name	Description
1	X	TIP	1 Conductor, local loop wire pair	63	YES	3.3V	3.3 V Supply voltage
2	X	RING	1 Conductor, local loop wire pair	64	YES	FRAME#	Indicates Bulk Transfer
3	X	8PMJ-3	Pin 3 of optional 8-pin modular jack	65	YES	CLKRUN#	Stops clock on certain mobile PCI
4	X	8PMJ-1	Pin 1 of optional 8-pin modular jack	66	YES	TRDY#	Target Ready
5	X	8PMJ-6	Pin 6 of optional 8-pin modular jack	67	YES	SERR#	Catastrophic system error
6	X	8PMJ-2	Pin 2 of optional 8-pin modular jack	68	YES	STOP#	Target wishes to end transfer
7	X	8PMJ-7	Pin 7 of optional 8-pin modular jack	69	YES	GROUND	Ground
8	X	8PMJ-4	Pin 4 of optional 8-pin modular jack	70	YES	3.3V	3.3 V Supply voltage
9	X	8PMJ-8	Pin 8 of optional 8-pin modular jack	71	YES	PERR#	Indicates Parity Error
10	X	8PMJ-5	Pin 5 of optional 8-pin modular jack	72	YES	DEVSEL#	PCI Device Select
11	X	LED1_GRNP	Interface for external LEDs	73	YES	C/BE[1]#	Byte Enable
12	X	LED2_YELP	Interface for external LEDs	74	YES	GROUND	Ground
13	X	LED1_GRNN	RF Silent input	75	YES	AD[14]	Multiplexed Address/Data Bus
14	X	LED2_YELN	Interface for external LEDs	76	YES	AD[15]	Multiplexed Address/Data Bus
15	YES	CHSGND	Chassis Ground	77	YES	GROUND	Ground
16	X	RESERVED	-	78	YES	AD[13]	Multiplexed Address/Data Bus
17	X	INTB#	Interrupt Request B	79	YES	AD[12]	Multiplexed Address/Data Bus
18	X	5V	5 V Supply voltage	80	YES	AD[11]	Multiplexed Address/Data Bus
19	YES	3.3V	3.3 V Supply voltage	81	YES	AD[10]	Multiplexed Address/Data Bus
20	YES	INTA#	Interrupt Request A	82	YES	GROUND	Ground
21	X	RESERVED	-	83	YES	GROUND	Ground
22	X	RESERVED	-	84	YES	AD[09]	Multiplexed Address/Data Bus
23	YES	GROUND	Ground	85	YES	AD[08]	Multiplexed Address/Data Bus
24	YES	3.3VAUX	3.3 V supply-uninterrupted	86	YES	C/BE[0]#	Byte Enable
25	YES	CLK	PCI Clock	87	YES	AD[07]	Multiplexed Address/Data Bus
26	YES	RST#	PCI Reset	88	YES	3.3V	3.3 V Supply voltage
27	YES	GROUND	Ground	89	YES	3.3V	3.3 V Supply
28	YES	3.3V	3.3 V Supply voltage	90	YES	AD[06]	Multiplexed Address/Data Bus
29	YES	REQ#	PCI Bus Request	91	YES	AD[05]	Multiplexed Address/Data Bus
30	YES	GNT#	PCI Bus Grant	92	YES	AD[04]	Multiplexed Address/Data Bus
31	YES	3.3V	3.3 V Supply voltage	93	X	RESERVED	-
32	YES	GROUND	Ground	94	YES	AD[02]	Multiplexed Address/Data Bus
33	YES	AD[31]	Multiplexed Address/Data Bus	95	YES	AD[03]	Multiplexed Address/Data Bus
34	X	PME#	Power Management Event	96	YES	AD[00]	Multiplexed Address/Data Bus
35	YES	AD[29]	Multiplexed Address/Data Bus	97	X	5V	5 V Supply voltage
36	X	RESERVED	-	98	X	RESERVED_WIP5	-
37	YES	GROUND	Ground	99	YES	AD[01]	Multiplexed Address/Data Bus
38	YES	AD[30]	Multiplexed Address/Data Bus	100	X	RESERVED_WIP5	-
39	YES	AD[27]	Multiplexed Address/Data Bus	101	YES	GROUND	Ground
40	YES	3.3V	3.3 V Supply voltage	102	YES	GROUND	Ground
41	YES	AD[25]	Multiplexed Address/Data Bus	103	X	AC_SYNC	AC97 Sync
42	YES	AD[28]	Multiplexed Address/Data Bus	104	X	M66EN	Enables 66 MHz PCI bus
43	YES	RESERVED	-	105	X	AC_SDATA_IN	AC97 Data Input
44	YES	AD[26]	Multiplexed	106	X	AC_SDATA_OUT	AC97 Data Output
45	YES	C/BE[3]#	Byte Enable	107	X	AC_BIT_CLK	AC97 Bit Clock
46	YES	AD[24]	Multiplexed Address/Data Bus	108	X	AC_CODEC_ID0#	Identifier for AC97 CODEC
47	YES	AD[23]	Multiplexed Address/Data Bus	109	X	AC_CODEC_ID1#	Identifier for AC97 CODEC
48	YES	IDSEL	Initialization Device Select	110	X	AC_RESET#	AC97 Reset
49	YES	GROUND	Ground	111	X	MOD_AUDIO_MON	Modern Audio Monitor
50	YES	GROUND	Ground	112	X	RESERVED	-
51	YES	AD[21]	Multiplexed Address/Data Bus	113	YES	AUDIO_GND	Analog Ground for line-level audio
52	YES	AD[22]	Multiplexed Address/Data Bus	114	X	GROUND	Ground
53	YES	AD[19]	Multiplexed Address/Data Bus	115	X	SYS_AUDIO_OUT	Telephone Audio Out
54	YES	AD[20]	Multiplexed Address/Data Bus	116	X	SYS_AUDIO_IN	Telephone Audio In
55	YES	GROUND	Ground	117	X	SYS_AUDIO_OUTG	Analog Ground for telephone audio
56	YES	PAR	Parity Bit	118	X	SYS_AUDIO_IN_G	Analog Ground for telephone audio
57	YES	AD[17]	Multiplexed Address/Data Bus	119	X	AUDIO_GND	Analog Ground for line-level audio
58	YES	AD[18]	Multiplexed Address/Data Bus	120	YES	AUDIO_GND	Analog Ground for line-level audio
59	YES	C/BE[2]#	Byte Enable	121	X	RESERVED	-
60	YES	AD[16]	Multiplexed Address/Data Bus	122	X	MPCIACT#	MiniPCI Function Active
61	YES	IRDY#	Initiator Ready	123	X	VCC5VA	5V Analog
62	YES	Ground	Ground	124	X	3.3VAUX	3.3 V supply-uninterrupted

XTREMERange5

MECHANICAL DIMENSIONS

0.039 / 1.000

0.31 / 8.000

0.305 / 7.754

HEAT-SINK

SHIELD

SR4 PCB

MMCX CONNECTOR

2.348 / 59.639

0.981 / 24.906

1.979 / 50.267

0.915 / 23.241

BACK SIDE

FRONT_TOP