

PRODUCT SPECIFICATION
802.11a/b/g/n, 3T3R mini-PCle Module
WPEA-127N
(AR9380)

Version:0.91

Revised History

Version	Purpose	Date	Editor
0.90	Initial Doc	2010/09/07	Jason Lee
0.91	1.Rename WPEA-130N as WPEA-127N	2010/9/14	Jason Lee

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1. Product Features

- Up to 450Mbps data rate
- 3 antennas to support 3T3R MIMO Technology
- Mini PCI Express
- Enhanced wireless security: 64/128/152-bits WEP, WPA, WPA2
- Support Linux

2. Product SPECIFICATION

2.1 Main Chipset

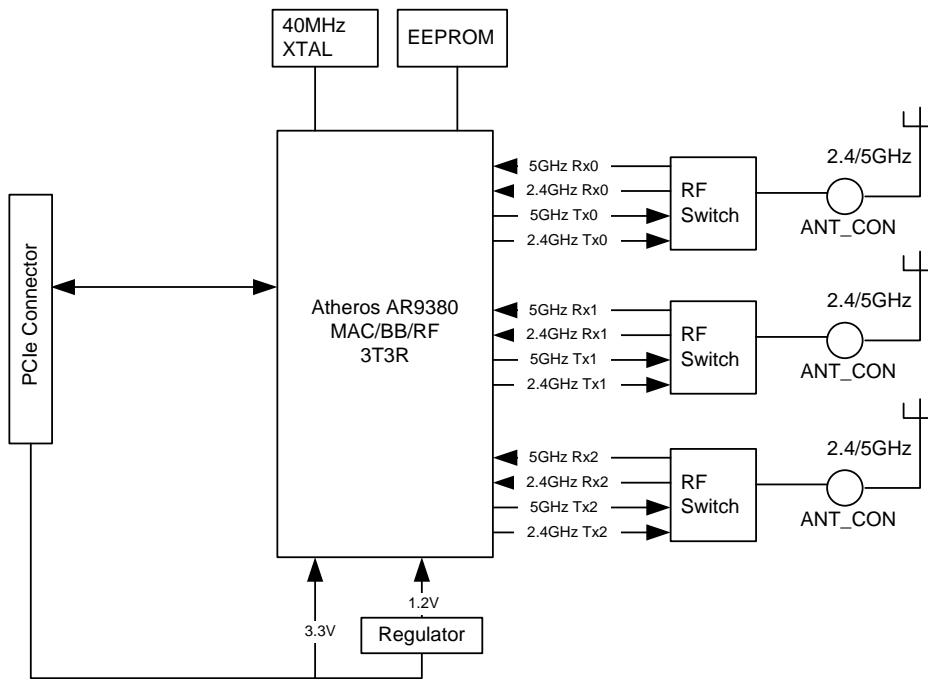
MAC/BB/RF: Atheros AR9380

2.2 Function Specification

Form Factor	●mini-PCIe
Interface	●PCIe
LED	Pin44 on mini card Interface
Antenna	● UFL antenna x3 (3T3R)
Input Power	●DC 3.3V \pm 5%
Data Rate	11b: 1/2/5.5/11Mbps 11g: 6/9/12/24/36/48/54Mbps 11n (20MHz): MCS0-23, up to 216Mbps 11n (40MHz): MCS0-23, up to 450Mbps

Operating Frequency	2.4000 ~ 2.472GHz (Industrial Scientific Medical Band) 5.180 ~ 5.825GHz		
Transmit Output Power (Tolerance: ±1.5dBm)	802.11b: 18dBm	802.11g: 17dBm	802.11n: 2.4G: 17dBm
		802.11a: 11dBm	802.11n: 5G: 13dBm
Receive Sensitivity (Tolerance: ±2dBm) [To be confirmed]	802.11b: 8%PER ●-90dBm	802.11g: 10% PER ●-80dBm	802.11n: 2.4G 10%PER ●-72dBm@HT20 ●-70dBm@HT40
		802.11a: 10% PER ●-78dBm	802.11n: 5G 10%PER ●-70dBm@HT20 ●-63dBm@HT40
Power consumption	Tx Mode:(@5V) ●	Rx Mode :(@5V) ●	Standby Mode: (@5V) ●
Security	64/128-Bit WEP Key, WPA, WPA2, 802.1x		
Driver	Linux		

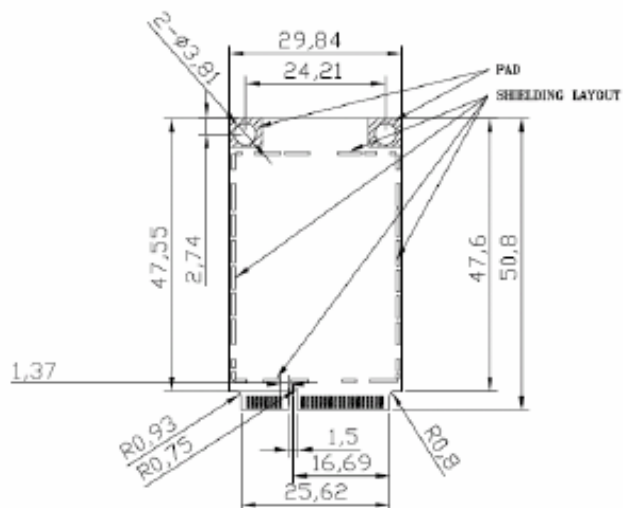
2.3 Block Diagram



2.4 Mechanical Drawing

Dimension: 3.3(H) x 29.85±0.15(W) x 50.8±0.15(D) mm

Weight: 0.25 oz (7g)



2.5 Tx Power & Rx Sensitivity

	Data rate	Tx Output Power (dBm)	Rx receive Sensitivity (dBm)
802.11n (2.412 ~2.472GHz)	MCS0	17.3 ~ 19.6dBm@HT20	-91 ~ -94dBm@HT20
		17.4 ~ 18.8dBm@HT40	-89 ~ -91dBm@HT40
	MCS7	14.7 ~ 16.8dBm@HT20	-76 ~ -77dBm@HT20
		14.0 ~ 16.7dBm@HT40	-73 ~ -75dBm@HT40
	MCS8	17.8 ~ 19.5dBm@HT20	-92 ~ -93dBm@HT20
		17.4 ~ 18.9dBm@HT40	-89 ~ -90dBm@HT40
MCS15	11.8 ~ 13.7dBm@HT40	-73 ~ -75dBm@HT20 -70 ~ -72dBm@HT40	
802.11n (5.180~5.825GHz)	MCS0	10.8 ~ 14.5dBm@HT20	-91 ~ -93dBm@HT20
		12.3 ~ 14.6dBm@HT40	-89 ~ -90dBm@HT40
	MCS7	6.8 ~ 10.1dBm@HT20	-73 ~ -76dBm@HT20
		7.0 ~ 10.7dBm@HT40	-67 ~ -72dBm@HT40
MCS8	11.1 ~ 14.5dBm@HT20	-90 ~ -93dBm@HT20	
	11.8 ~ 14.8dBm@HT40	-87 ~ -89dBm@HT40	
MCS15		-71 ~ -73dBm@HT20	

	5.7 ~ 9.1dBm@HT40	-67 ~ -70dBm@HT40
MCS16	10.7 ~ 14.4dBm@HT20	-89 ~ -91dBm@HT20
	11.7 ~ 14.1dBm@HT40	-83 ~ -88dBm@HT40
MCS23	3.0 ~ 8.4dBm@HT20	-68 ~ -71dBm@HT20
	3.2 ~ 8.0dBm@HT40	-61 ~ -67dBm@HT40

	Data rate	Tx Output Power (dBm)	Rx receive Sensitivity (dBm)
802.11a (5.180~5.825GHz)	54Mbps	8.9 ~ 12.2dBm	-77 ~ -80dBm
	48Mbps		
	36Mbps		
	6~24Mbps	11.2 ~ 14.5dBm	-91 ~ -93dBm
802.11g (2.412 ~2.472GHz)	54Mbps	15.8 ~ 17.7dBm	-78 ~ -80dBm
	48Mbps		
	36Mbps		
	6~24Mbps	17 ~ 19dBm	-91 ~ -93dBm
802.11b (2.412 ~2.472GHz)	11Mbps	17 ~ 19dBm	-88 ~ -90dBm
	1Mbps	17 ~ 19dBm	-97 ~ -99dBm

3. Pin Assignment

PIN#	Pin Name		PIN#	Pin Name	
1	WAKE_L	YES	2	+3.3Vaux	YES
3	RESERVED	NC	4	GND	YES
5	RESERVED	NC	6	+1.5V	NC
7	CLKREQ_L	YES	8	UIM_PWR	NC
9	GND	YES	10	UIM_DATA	NC
11	REFCLK-	YES	12	UIM_CLK	NC
13	REFCLK+	YES	14	UIM_RESET	NC
15	GND	YES	16	UIM_VPP	NC
17	UIM_C8	NC	18	GND	YES
19	UIM_C4	NC	20	W_DISABLE_L	YES
21	GND	YES	22	PERST_L	YES
23	PERn0	YES	24	+3.3Vaux	YES
25	PERp0	YES	26	GND	YES
27	GND	YES	28	+1.5V	NC
29	GND	YES	30	SMB_CLK	NC
31	PETn0	YES	32	SMB_DATA	NC
33	PETp0	YES	34	GND	YES
35	GND	YES	36	USB_D-	NC
37	RESERVED	NC	38	USB_D+	NC
39	RESERVED	NC	40	GND	YES
41	RESERVED	NC	42	LED_WWAN_L	NC
43	RESERVED	NC	44	LED_WLAN_L	YES
45	RESERVED	NC	46	LED_WPAN_L	NC
47	RESERVED	NC	48	+1.5V	NC
49	RESERVED	NC	50	GND	YES
51	RESERVED	NC	52	+3.3Vaux	YES

4. EEPROM Information

Reg Domain	WW or EU
Reg Domain Code	
Device ID	
Vendor ID	

5. Environmental

5.1 Operation

Operating Temperature: 0 to +50 °C

Relative Humidity: 10%-90% (non-condensing)

5.2 Storage

Temperature: -20 to +60 °C

Relevant Humidity: Max. 95% (non-condensing)

5.3 Operation power

DC 3.3V \pm 5%

6. Regulation

Regulation	Description	Remark
FCC	Part 15B	By project
	Part 15C	
	Part 15E	
	DFS	
CE	EN300328	By project
	EN301489-1	
	EN301489-17	
	EN301893	
	DFS	
	EN60950-1	

7. Ordering Information

Model Name	Description
WPEA-127N	<ul style="list-style-type: none"> ▪ 802.11a/b/g/n 3T3R mini-PCIe Module ▪ Bulk package