



Engenius Premium miniPCI series radio modules perform extreme high power and economize the power consumption on the system platform. NMP-8603 Premium is mini-PCI types A module, supports dual-band (2.4GHz & 5GHz) high transmit output power up to 600mW in 5GHz and 1W in 2.4GHz. For outstanding performance on the extremely output power, it enables the longer transmit distance & provides the wider bandwidth & backhaul for 5GHz.

With enhanced features on the ESD protection, industrial-based operating temperature, industrial-best sensitivity than normal module, MMCX connectors, and stable heating protection design, makes the module is easily to integrate into a wide range of any platform.

Features	Benefits
600mW output power in 5GHz	Wider bandwidth & backhaul for 5GHz
1W output power in 2.4GHz	Improve high successful transmit range
Industrial-best sensitivity	-94 dBm @ 6 Mbps , -75 dBm @ 54 Mbps
Advanced power consumption management	Effectively reduce the total power consumption on the platform up to 2.6W
Improving the heat issue	MTBF reliability improvement and keeps the system free from heat issue
ESD protection	Make the module & platform more reliable and stable
Industrial-based operating temperature	Extended operating temperature -40~+85C
MMCX antenna connectors	Two MMCX connectors (One is for 2.4GHz, and the other is for 5GHz)
5/10/20 Channel bandwidth support	It's optional for special request, makes your RF management more flexible

* Theoretical wireless signal rate based on IEEE standard of 802.11a, b, g chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate.

** All specifications are subject to change without notice.

General information					
Chipset	Atheros 6th Generation, AR5413, AR5414 (Support SuperA/ Turbo)				
Radio operation	802.11a: 5GHz 802.11b/g : 2.4 GHz				
Interface	32-bit miniPCI Type III A				
Operatnig voltage	Mini_PCI Slot : DC 3.3 V ± 5% with Advanced DC Power management support With External Jump cable : DC 12 ~ 6 V ± 5%				
Antenna connectors	2 MMCX connectors (One is for 5GHz, the other is for 2.4GHz)				
Temepature range	- 40°C to + 85 °C (Working temperature) -30°C to + 90°C (Storage temperature)				
Security	WPA, WPA2, 64/128 bit WEP, TKIP, and AES. hardware-based IEEE 802.11i encryption engine				
Data rates	6, 9, 12, 18, 24, 36, 48, and 54Mbps (11a /11g) 1, 2, 5.5, and 11Mbps (11b)				
Tx channel width support	5MHz / 10MHz / 20MHz				
Standard/Compliance	WECA (Wi-Fi & Wi-Fi5 compliance), IEEE802.11, IEEE802.11a/b/g, RoHS and WEEE				
Regulation Certifications	FCC Part 15				
Radio frequency band					
	Data rate	Tx AVG. power (dBm)	Tolerance	Rx Sensitivity	Tolerance
802.11a (5.18~5.825GHz)	6 Mbps	26 dBm	+1/-2 dB	-93 dBm	+/-1.5 dB
	9 Mbps	26 dBm	+1/-2 dB	-92 dBm	+/-1.5 dB
	12 Mbps	26 dBm	+1/-2 dB	-90 dBm	+/-1.5 dB
	18 Mbps	26 dBm	+1/-2 dB	-89 dBm	+/-1.5 dB
	24 Mbps	26 dBm	+1/-2 dB	-85 dBm	+/-1.5 dB
	36 Mbps	24 dBm	+1/-2 dB	-82 dBm	+/-1.5 dB
	48 Mbps	22 dBm	+1/-2 dB	-76 dBm	+/-1.5 dB
	54 Mbps	20 dBm	+1/-2 dB	-73 dBm	+/-1.5 dB
802.11g (2.412~2.472GHz)	6 Mbps	27 dBm	+1/-2 dB	-95 dBm	+/-1 dB
	9 Mbps	27 dBm	+1/-2 dB	-94 dBm	+/-1 dB
	12 Mbps	27 dBm	+1/-2 dB	-92 dBm	+/-1 dB
	18 Mbps	27 dBm	+1/-2 dB	-91 dBm	+/-1 dB
	24 Mbps	27 dBm	+1/-2 dB	-87 dBm	+/-1 dB
	36 Mbps	25 dBm	+1/-2 dB	-84 dBm	+/-1 dB
	48 Mbps	24 dBm	+1/-2 dB	-78 dBm	+/-1 dB
	54 Mbps	23 dBm	+1/-2 dB	-75 dBm	+/-1 dB
802.11b (2.412~2.484GHz)	1Mbps	28 dBm	+1/-2 dB	-98 dBm	+/-1 dB
	2Mbps	28 dBm	+1/-2 dB	-97 dBm	+/-1 dB
	5.5Mbps	28 dBm	+1/-2 dB	-96 dBm	+/-1 dB
	11Mbps	28 dBm	+1/-2 dB	-93 dBm	+/-1 dB
Power offset table (Target power vs Actual output power)					
802.11a	7dB				
802.11b/g	9dB				
Current consumption information					
Tx current conmsumption	Continuous TX @ 802.11.a	≤ 2 A			
	Continuous TX @ 802.11.b/g	≤ 1.4 A			
Rx current consumption	Continuous RX	≤ 400 mA			
Card on Current	Data Communicating with AP	≤ 400 mA			
Sleep Current	Sleep mode	≤ 100 mA			
Advanced DC Power consumption management					
Jump wire on	Support External DC power in , Voltage 5 , 9 ~ 24 V				
Jump wire off	Only support DC Power from mini-PCI slot				

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Cable dimension		TBD
Attachment procedure		See Appendix 1
ESD protection / Ground cable specification		
Cable dimension		TBD
Attachment procedure		See Appendix 1
Driver information		
Windows driver		Windows driver XP/2000
Linux driver		Mad WiFi

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