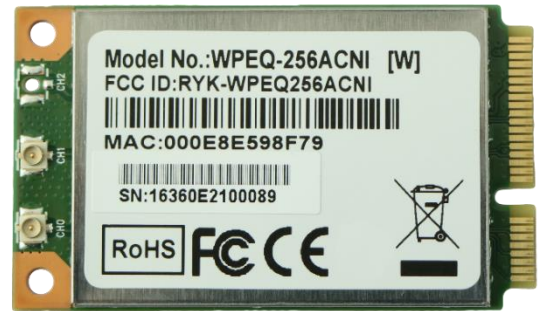


## WPEQ-256ACNI

802.11ac/a/b/g/n Dual-Band  
2T2R Mini PCIe Module



### High Performance Mini PCIe Module for Embedded Solution

The WPEQ-256ACNI is powered by Qualcomm Atheros radio chip and features 2x2 11ac technology for higher throughput performance, reliability and range. It is designed to meet the demanding performance requirements of critical embedded applications

#### Embedded Application

Applications include medical devices, wireless connectivity for Industry 4.0, In-Vehicle, Video Streaming, Robotic, Testing Equipment, Enterprise AP/UTM/ Firewall/Gateway etc. M2M application.

#### Key Feature

- Qualcomm Atheros QCA9892
- Antenna: 2 x IPEX MHF1 connectors, 2T2R
- Data Rates: allows link speeds up to 867Mbps
- Support Linux driver

**Specification**

<b>Standards</b>	IEEE 802.11ac/a/b/g/n (2T2R)
<b>Chipset</b>	Qualcomm Atheros QCA9892-BR4B
<b>Data Rate</b>	802.11b: 11Mbps 802.11a/g: 54Mbps 802.11n: 300Mbps 802.11ac: 867Mbps
<b>Operating Frequency</b>	IEEE 802.11ac/a/b/g/n ISM Band: 2.412GHz~2.472GHz, 5.150GHz~5.825GHz *Subject to local regulations
<b>Interface</b>	WLAN: PCIe
<b>Form Factor</b>	Mini PCIe
<b>Antenna</b>	2 x IPEX MHF1 connectors
<b>Modulation</b>	Wi-Fi: 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM)
<b>Power Consumption</b>	TX mode: 1150mA (Max.) RX mode: 300mA (Max.)
<b>Operating Voltage</b>	DC 3.3V
<b>Operating Temperature Range</b>	-40°C~85°C
<b>Storage Temperature Range</b>	-40°C~85°C
<b>Humidity (Non-Condensing)</b>	10%~85% (Operating) 5%~90% (Storing)
<b>Dimension L x W x H (in mm)</b>	50.8mm(±0.3mm) x 29.8mm(±0.3mm) x 3.95mm(±0.3mm)
<b>Weight (g)</b>	7.5g
<b>Driver Support</b>	Linux
<b>Security</b>	64/128-bits WEP, WPA, WPA2, 802.1x

OUTPUT POWER & SENSITIVITY		
802.11b		
Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
11Mbps	18dBm	$\leq$ -76dBm

802.11g		
Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
54Mbps	15dBm	$\leq$ -75dBm

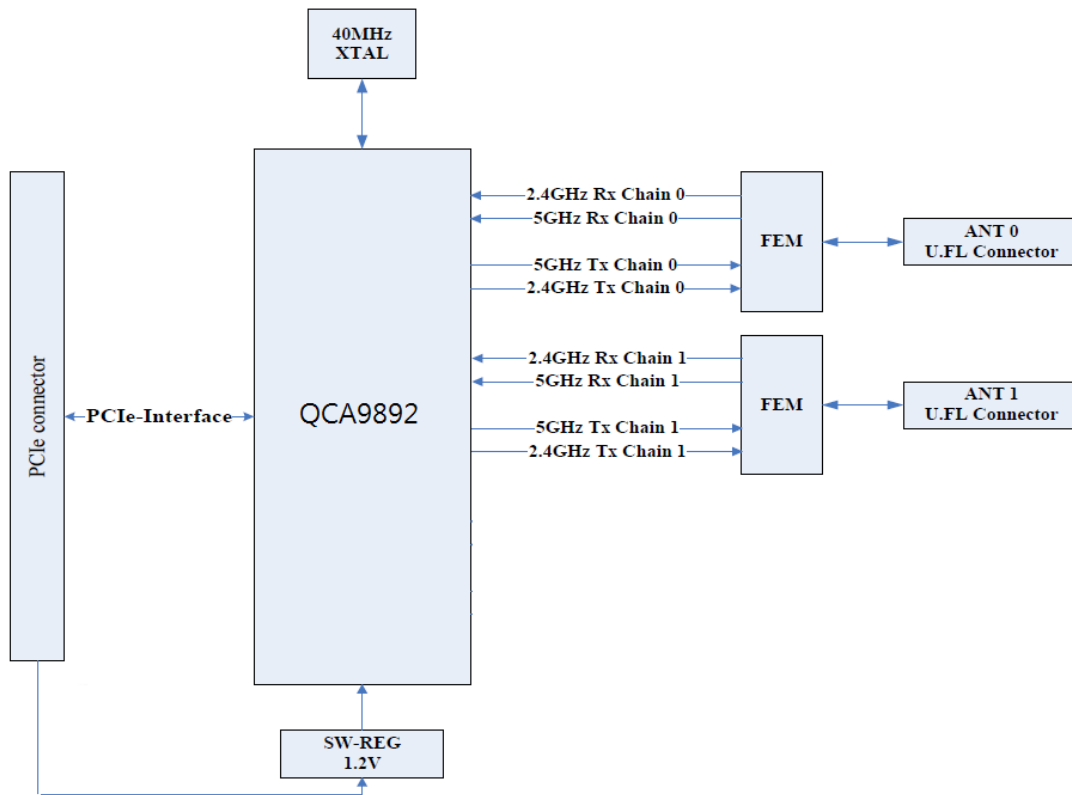
802.11n / 2.4GHz				
	Data Rate	Tx $\pm$ 2dBm (1TX)	Tx $\pm$ 2dBm (2TX)	Rx Sensitivity
HT20	MCS7	13dBm	16dBm	$\leq$ -72dBm
HT40	MCS7	13dBm	16dBm	$\leq$ -68dBm

802.11a		
Data Rate	Tx $\pm$ 2dBm	Rx Sensitivity
54Mbps	15dBm	$\leq$ -73dBm

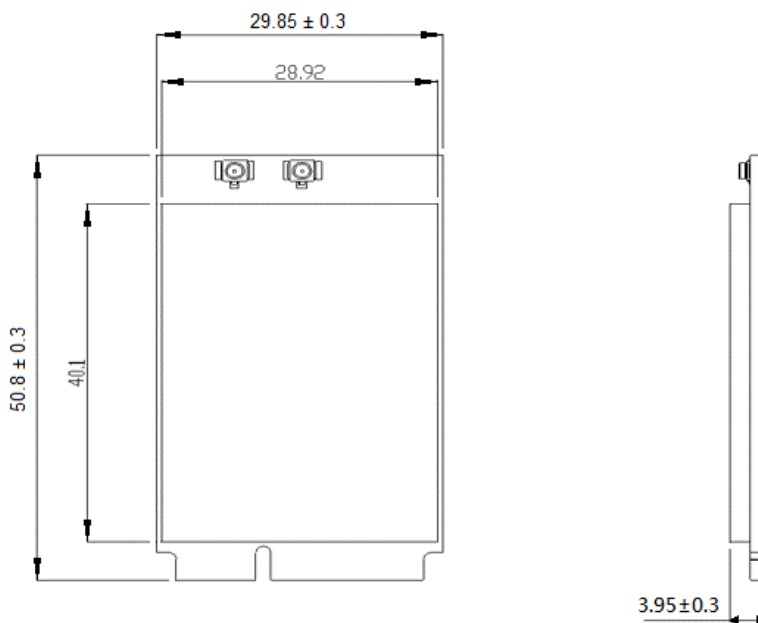
802.11n / 5GHz				
	Data Rate	Tx $\pm$ 2dBm (1TX)	Tx $\pm$ 2dBm (2TX)	Rx Sensitivity
HT20	MCS7	13dBm	16dBm	$\leq$ -70dBm
HT40	MCS7	12dBm	15dBm	$\leq$ -68dBm

802.11ac				
	Data Rate	Tx $\pm$ 2dBm (1TX)	Tx $\pm$ 2dBm (2TX)	Rx Sensitivity
VHT80	MCS9	10dBm	13dBm	$\leq$ -57dBm

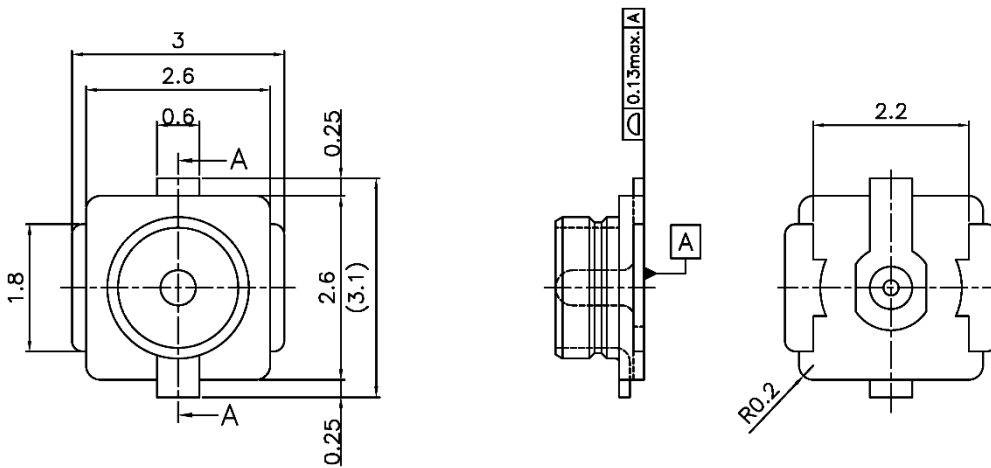
**Block Diagram**



**Mechanical Diagram (mm)**



### MHF1 connector spec.



Unit: mm

### Pin Assignment

Pin#	Pin Name	Description	Pin#	Pin Name	Description
1	WAKE_L(NA)	Output and open Drain active Low signal. This signal is used to request that the system return from a sleep /suspended state to service a function initiated wake event.	2	+3.3V	+3.3V
3	No Connection	-	4	GND	GND
5	No Connection	-	6	No Connection	-
7	CLKREQ_L	Output for reference clock request signal	8	No Connection	-
9	GND	GND	10	No Connection	-
11	REFCLK-	Input signal for PCI Express differential reference clock (100 MHz)	12	No Connection	-
13	REFCLK+	Input signal for PCI Express differential reference clock (100 MHz)	14	No Connection	-
15	GND	GND	16	No Connection	-
17	No Connection	-	18	GND	GND

Pin#	Pin Name	Description	Pin#	Pin Name	Description
43	GND	GND	44	LED_WLAN_L (OPT)	Output and open drain active low signal. This signal is used to allow the PCI Express Mini Card add-in card to provide status indicators via LED devices that will be provided by the system
45	No Connection	-	46	No Connection	-
47	No Connection	-	48	No Connection	-
49	No Connection	-	50	GND	GND
51	No Connection	-	52	+3.3V	+3.3V
35	GND	GND	36	No Connection	-

\*NA→No active, OPT →Optional

## Certification

### Dipole Ant.

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> FCC | <input checked="" type="checkbox"/> CE (RED EN 300 328 V2.2.2 / EN 301 893 V2.1.1) |
| <input type="checkbox"/> IC             | <input type="checkbox"/> MIC   |
| <input type="checkbox"/> NCC            | <input type="checkbox"/> ASNZS   |

## Ordering Information

Product Name	Part Number	Description
WPEQ-256ACNI	R9701890008	802.11ac/b/g/n Mini PCIe Module(2T2R)

## Optional Accessory

Product Name	Part Number	Description
AD-300N	R3410110219	Antenna Dual -Band 2.4GHz/5GHz 3dBi/5dBi Omnidirectional RP-SMA PLUG (BSMA)
AD-103AG	R3410110203	Antenna Dual-Band 2.4GHz/5GHz, 2dBi Omnidirectional RP-SMA (M)
CBIRF-NE150	R3470300025	RF Cable, I-PEXMHF4 to RP-SMA(F); L150mm; Coaxial 0.81 Black
CBIRF-NE250	R3470300026	RF Cable, I-PEXMHF4 to RP-SMA(F); L250mm; Coaxial 0.81 Black