

Product Specification

PCE4552AH

V. 0.2

Revision History

Version	Date	Revision Description
0.1	2013/04/15	Preliminary
0.2	2013/10/25	Update the TX power and dimension information

PRODUCT DESCRIPTION

The PCE4552AH is adapting the next generation Wi-Fi technology, 802.11ac. It provides the great improvement in the performance compare with 802.11n. PCE4552AH is equipped with MMCX connector to provide more secure connection.

KEY FEATURES

- Main Chip: Qualcomm QCA9890B
- It support data rate at 1.3Gbps
- Operating frequency: 5GHz
- The module is using 4.2V input for PA.

PRODUCT SPECIFICATION

Hardware Specification			
Standard	IEEE802.11a;IEEE802.11n;802.11ac		
RF	For PCE4552AH: QCA9890		
Interface	64-bit PCI-E		
Operating Voltage	3.3V / 4.2V for PA		
Antenna Connectors	MMCX		
Radio specification			
Data rate	1300Mbps		
Channel	Data rate	Typical AVG. Power @ per chain (dB) with tolerance ± 1.5	Typical Rx Sensitivity @ per chain (dBm) with tolerance ± 1.5
Operating Frequency: 4.9~5.825GHz			
802.11a (5.18~5.825GHz)	6Mbps	23	-88
	54 Mbps	19	-72
802.11a/n_HT20(5.18~5.825GHz)	MCS 0 (BPSK)	22	-88
	MCS 1 (QPSK)	22	-86
	MCS 2 (QPSK)	22	-82
	MCS 3 (16-QAM)	22	-79
	MCS 4 (16-QAM)	22	-76
	MCS 5 (64-QAM)	21	-72
	MCS 6 (64-QAM)	20	-71

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	MCS 7 (64-QAM)	19	-69
802.11n_HT40	MCS 0 (BPSK)	22	-84
	MCS 1 (QPSK)	22	-81
	MCS 2 (QPSK)	22	-79
	MCS 3 (16-QAM)	22	-76
	MCS 4 (16-QAM)	22	-73
	MCS 5 (64-QAM)	21	-71
	MCS 6 (64-QAM)	20	-70
	MCS 7 (64-QAM)	19	-68
802.11ac_HT80	MCS 0 (BPSK)	22	-82
	MCS 1 (QPSK)	22	-80
	MCS 2 (QPSK)	22	-78
	MCS 3 (16-QAM)	22	-74
	MCS 4 (16-QAM)	22	-72
	MCS 5 (64-QAM)	21	-71
	MCS 6 (64-QAM)	20	-70
	MCS 7 (64-QAM)	19	-68
	MCS 8 (256-QAM)	17	-60
	MCS 9 (256-QAM)	15	-58
Package content			
	Bulk pack		
Environment & Mechanical			
Power consumption	5.9W (max)		
Temperature Range	-40°C ~ 70°C (Operating temperature for PCE4552AH) --45°C ~ 90°C (Storage temperature)		
Humidity (non-condensing)	5%~90% typical		
Dimensions	30(W) * 50(L) * 4.1(H) mm		
Weight	TBD		
Compliance Standard			
Radio Approvals	Prescan only (FCC Part 15.247, 15.407 CE EN300.328, EN301.893)		
MTBF	TBD		

* All RF parameters tolerance are +- 1.5dBm

Federal Communication Commission Interference Statement

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.

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.

- i. The module is limited to installation in mobile or fixed applications, according to Part 2.1091(b).
- ii. Separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations.
- iii. Authorized antennas per Part 15.204 (including ant. spec.).
- iv. Antenna installation requirements.

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.

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

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 52cm

between the radiator & your body. **This device is intended only for OEM integrators under the following conditions:**

- 1) The antenna must be installed such that 52 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

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 52 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains FCC ID: KNYPRW5000AB". The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User

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 user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

- i. Statements required per Part 15.19 and 15.21
- ii. End-users must be provided with transmitter/antenna installation requirements and operating conditions for satisfying RF exposure compliance:
 1. A separate section should clearly state "FCC RF Exposure requirements:"
 2. Required operating conditions for end users.
 3. Antenna/or transmitter installation requirements.
 4. Authorized antennas per part 15.204 (including ant. spec.).

Professional installation instruction

1. Installation personal

This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 52cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. External antenna

Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC limit and is prohibited.

4. Installation procedure

Please refer to user's manual for the detail.

5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

For Antenna information list:

Item	Model Name	Ant Type	Ant Connector	Gain(dBi)
1	WS-AO-DT05120N	Sector	N-Type	5
2	WS-AO-5D23009N	Panel	N-Type	23
3	WS-AO-DX13025N	Panel	N-Type	11.5
4	WS-AO-DX10055N	Panel	N-Type	8
5	Omni Stubby	Dipole	N-Type	2
6	Senao dipole 5G	Dipole	N-Type	7
7	SuperPass SP-G2HJ2H-6L	Sector	N-Type	7.2

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Antenna gain<10dBi

1	WS-AO-DT05120N	Sector	N-Type	5
4	WS-AO-DX10055N	Panel	N-Type	8
5	Omni Stubby	Dipole	N-Type	2
6	Senao dipole 5G	Dipole	N-Type	7
7	SuperPass SP-G2HJ2H-6L	Sector	N-Type	7.2

The devices listed below have been originally approved under FCC rule part 15.247. Based on the implementation of the rule changes from docket 13-49 these devices can no longer be manufactured, sold, imported or placed into operation after June 2, 2016. After this date these devices must comply with the new rule changes provided in docket 13-49.

The Memorandum of Opinion and Order issued on March 6 allows for these devices to be updated from 15.247 to compliance with new rules 15.407(b)(4)(ii) so long as there are no hardware changes or changes to output power. Devices approved under 15.407(b)(4)(ii) may be sold until March 2, 2020.

The following devices approved under 15.407(b)(4)(ii) may be marketed, sold and imported until March 2, 2020. After this date these devices must comply with the emission limits of 15.407.

Antenna gain>10dBi

2	WS-AO-5D23009N	Panel	N-Type	23
3	WS-AO-DX13025N	Panel	N-Type	11.5

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The following devices approved under 15.407(b)(4)(ii) may be marketed, sold and imported until March 2, 2018. After this date these devices must comply with the emission limits of 15.407.