

Product Specifications

ZAP-680

IEEE 802.11a/b/g/n/ac Wireless concurrent

Ceiling Smart AP

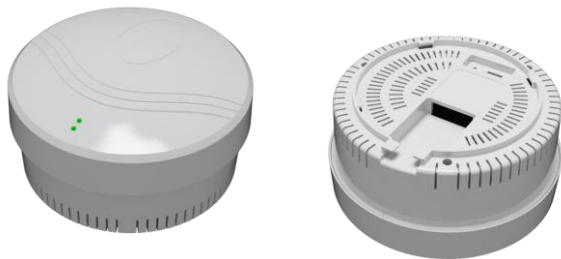
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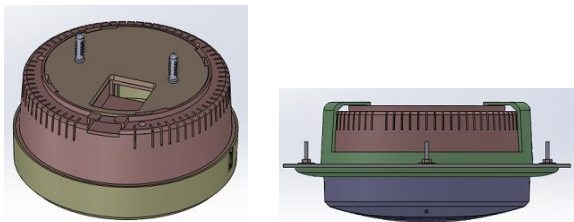
1. Revision History

Date	Version	Author	Description
2014/1/20	0.1	Samantha	1 st release
2014/5/15	0.2	Samantha	Base on C1 EVT test, modify Rx spec
2014/7/9	0.3	Samantha	LED definition
2014/7/14	0.4	Samantha	Base on 11ac PCI-e modify output power, Sensitivity add MCS23
2014/10/14	0.5	Samantha	VAC function disable
2014/10/31	0.6	Samantha	Modify antenna pattern
2014/11/3	0.7	Samantha	Modify SW spec smart antenna description
2014/11/5	0.8	Samantha	Modify LED behavior ; Modify Rx spec

2. Photo



** Installation **



3. Product Specification

3.1 Hardware Specification

The Hardware specifications of the product are as below:

Features	Additional Information													
Chipset Solution	CPU/2G RF: QCA9558 5G RF: QCA9880 Ethernet Phy: QCA8334													
SPI Flash	1 * 16Mbyte													
Memory (DDR II)	2 * 64Mbyte													
Standard compliance	IEEE802.3u MDI / MDIX 10/100 Base-T Ethernet IEEE 802.ab 1000 Base-T Ethernet IEEE802.11b/g/n wireless LAN standard IEEE 802.11ac wireless LAN standard													
Interfaces	2 * RJ45 support 10/100/1000Mbps 1 * Reset button 1 * Switch (SW switchable)													
Ethernet Interface	2 * 10/100/1000 BASE-T RJ-45 Ethernet connector ● LAN1 for Power over Ethernet (802.3af/at) with Cat5/5e/6 cable													
Antenna number	2G -> Smart antenna 5G -> Omni antenna													
Antenna pattern number	2G -> 64 patterns													
Antenna Gain	2G -> 5dBi 5G -> 5dBi													
PoE support	IEEE 802.3at Giga PoE support													
LED definition	PWR/SYS : Green/Yellow													
	<table border="1"> <thead> <tr> <th>Status</th> <th>Indicator</th> </tr> </thead> <tbody> <tr> <td rowspan="2">PWR</td> <td>ON</td> <td>Indicates that the device is power on</td> </tr> <tr> <td>OFF</td> <td>Indicates that the device is power off</td> </tr> <tr> <td rowspan="2">SYS</td> <td>ON</td> <td>Indicates that the device is operating and a wired LAN has been connected.</td> </tr> <tr> <td>OFF</td> <td>Indicates that the device a wired LAN not logged-in.</td> </tr> </tbody> </table>		Status	Indicator	PWR	ON	Indicates that the device is power on	OFF	Indicates that the device is power off	SYS	ON	Indicates that the device is operating and a wired LAN has been connected.	OFF	Indicates that the device a wired LAN not logged-in.
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	WLAN : Green/Yellow													
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	Status	Indicator												
WLAN1 (2.4G)	Flashing	Indicates that the 2.4G radio has been turn "ON"												
	OFF	Indicates that the 2.4G radio has been turn "OFF"												
WLAN2 (5G)	Flashing	Indicates that the 5G radio has been turn "ON"												
	OFF	Indicates that the 5G radio has been turn "OFF"												
IEC61000-4-2(Criteria B)														
Air: ±8kV														
Contact: ±4kV														
EN-61000-4-5 Criteria: B 8/20 us														
Power line: L to L ±1KV														
L to G ±2KV														
Signal line: L to G ±0.5KV														
Anti-static Grade														
Surge														

Current consumption	≤ 25W				
Data rate	<ul style="list-style-type: none"> - 802.11a: 6/9/12/18/24/36/48/54 Mbps & Auto fallback - 802.11b: 1/2/5.5/11 Mbps & Auto fallback - 802.11g: 6/9/12/18/24/36/48/54 Mbps & Auto fallback - 802.11n: up to 450Mbps - 802.11ac: up to 1300Mbps 				
Data modulation type	<ul style="list-style-type: none"> - IEEE 802.11 a/b/g <ul style="list-style-type: none"> • DSSS (DBPSK, DQPSK, CCK) • OFDM (BPSK, QPSK, 16-QAM, 64-QAM) - IEEE 802.11gn <ul style="list-style-type: none"> • OFDM (BPSK, QPSK, 16-QAM, 64-QAM) - IEEE 802.11ac <ul style="list-style-type: none"> • OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) 				
Operating Frequency & Channels	<p>IEEE 802.11b/g/n 20MHz ISM Band</p> <ul style="list-style-type: none"> • USA (FCC): 2.412GHz~2.462GHz • Europe (ETSI): 2.412GHz~2.472GHz • Japan(ARIB) : 2.412GHz~2.472GHz <p>IEEE 802.11gn 40MHz Band</p> <ul style="list-style-type: none"> • USA (FCC): 2.422GHz~2.452GHz • Europe (ETSI): 2.422GHz~2.462GHz • Japan (ARIB): 2.422GHz~2.462GHz <p>IEEE 802.11a/an 20MHz/40MHz ISM Band</p> <ul style="list-style-type: none"> • USA (FCC): 5.15GHz~5.25GHz; 5.725GHz~5.85GHz • Europe (ETSI): 5.15GHz~5.35GHz; 5.47GHz~5.725GHz • Japan (ARIB): 5.15GHz~5.35GHz; 5.47GHz~5.725GHz 				
Output Power ¹ @ 25°C (per chain ±2 dBm) <i>**All modes are measured via single chain.</i>	IEEE 802.11b	1~11Mbps		20	
	IEEE 802.11g	6~54Mbps		20	
	IEEE 802.11gn	HT20	MCS 0~23		20
		HT40	MCS 0~23		20
	IEEE 802.11a	6~48Mbps		5180、5240	17
				5260、5320、5500、5600、5745、5825	20
		54Mbps		5180、5240	15
				5260、5320、5500、5600、5745、5825	18
IEEE 802.11an	HT20	MCS 0~6, 8~14, 16~22	5180、5240	17	
			5260、5320、5500、5600、5745、5825	20	
		MCS7/15/23	5180、5240	15	

¹ 1. We just list the Target Power here, the exact EMI Conducted Power will be set in the CTL Table of the Card (base on EMC regulation), and the driver will limit the output power according to the CTL Table, thus sometimes the actual output power will be lower than the target power. For the detailed CTL Table Settings, please contact with our support engineers.

2. Disable 5600~5650MHz due to Environment Canada weather satellites operating in the band are protected.

3. Disable 5250~5350MHz & 5470~5725MHz due to DFS band at FCC domain.

		HT40	MCS 0~6, 8~14, 16~22	5260、5320、5500、 5600、5745、5825	18		
				5180、5240	17		
				5260、5320、5500、 5600、5745、5825	18		
				5180、5240	19.5		
				5260、5320、5500、 5600、5745、5825	20		
			MCS7/15/23	5180、5240	15		
				5260、5320、5500、 5600、5745、5825	18		
				VHT20	MCS 0~6	5180、5240	17
						5260、5320、5500、 5600、5745、5825	20
					MCS 7	5180、5240	15
5260、5320、5500、 5600、5745、5825	18						
MCS 8	5180、5240	14					
	5260、5320、5500、 5600、5745、5825	16					
802.11ac		VHT40	MCS 0~6	5180、5240	17		
				5260、5320、5500、 5600、5745、5825	20		
			MCS 7	5180、5240	15		
				5260、5320、5500、 5600、5745、5825	18		
			MCS 8	5180、5240	14		
				5260、5320、5500、 5600、5745、5825	16		
		VHT80	MCS 0~6	5180、5240	17		
				5260、5320、5500、 5600、5745、5825	20		
			MCS 7	5180、5240	15		
				5260、5320、5500、 5600、5745、5825	18		
			MCS 8	5180、5240	14		
				5260、5320、5500、 5600、5745、5825	16		
MCS 9	5180、5240、5260、 5320、5500、5600、 5745、5825	13					
	Sensitivity (PER <10%, per chain>=Spec; dBm)	IEEE 802.11b	11Mbps	-88			
IEEE 802.11g	6Mbps	-88					
	54Mbps	-72					
IEEE 802.11a	6Mbps	-92					
	54Mbps	-75					

	IEEE 802.11gn	HT20	MCS0/8/16	-88
			MCS7/15/23	-68
		HT40	MCS0/8/16	-86
			MCS7/15/23	-66
	IEEE 802.11an	HT20	MCS0/8/16	-92
			MCS7/15/23	-74
		HT40	MCS0/8/16	-89
			MCS7/15/23	-69
	IEEE 802.11ac	VHT20	MCS0 1~3ss	-90
			MCS6	-70(1~3ss)
			MCS7 1~3ss	-66
			MCS8 1~3ss	-64
		VHT40	MCS0 1~3ss	-87
			MCS7 1~3ss	-67
			MCS8 1~3ss	-63
			MCS9	-61(1~3ss)
VHT80		MCS0 1~3ss	-84	
		MCS7 1~3ss	-64	
		MCS8 1~3ss	-60	
		MCS9	-58(1~3ss)	

3.2 Firmware Specification

The firmware specifications of the product are as below:

Features	Additional Information
Standard Compliance	<ul style="list-style-type: none"> - IEEE 802.3 and 802.3u 10Base-T and 100Base-TX physical layer specification - IEEE 802.11g specification compliance for wireless LAN - IEEE 802.11b specification compliance for wireless LAN - IEEE 802.1x security standard support - Power over Ethernet, IEEE 802.3at compliant
Operating Mode	<ul style="list-style-type: none"> - Thin AP mode - Fat AP mode
Thin AP	<ul style="list-style-type: none"> - FIT AP zero configuration - DHCP option43 - DHCP detection - Static IP detection - N backup
Multiple BSSID	<ul style="list-style-type: none"> - Support up to 16 SSID Profile setting - Support up to 4 Strict Priority Queue at least and configuration of certain SSID corresponding to Strict Priority Queue so as to distinguish link service priority - Limitation of client connections (# is configurable, default: unlimited) - Bandwidth control
Spanning Tree Protocol	802.1d support
DHCP Client	<ul style="list-style-type: none"> - Ability to act as a DHCP client to get IP address from DHCP server from LAN port. - In DHCP client mode, if DHCP server is not available, then use default IP address.
DHCP Server	<ul style="list-style-type: none"> - Allow DHCP servers to assign, or lease, IP addresses to computers and other devices that are enabled as DHCP clients.
VLAN	<ul style="list-style-type: none"> - Support per SSID VLAN tagging - Support system VLAN tagging
VPN pass through	<ul style="list-style-type: none"> - IPSec, PPTP and L2TP pass through support - Support in AP and WDS modes, but not in client mode.
Transmit Power Adjustment	<ul style="list-style-type: none"> - Manually adjustable <ul style="list-style-type: none"> • Transmit power adjustable unit should be 1dBm • Transmit power adjustable range should be at least 8dB
Device Remote Management	<ul style="list-style-type: none"> - Support remote management via SSH, FTP, WWW, and SNMP - Administrator can specify the following method to allow for device management: <ul style="list-style-type: none"> • Interface (WLAN or Ethernet) • MAC address • IP address
System monitoring	<ul style="list-style-type: none"> - System status

Management	<ul style="list-style-type: none"> - Embedded Web Configuration management - Command-line interface: SSH support - FTP/Web for firmware downloading and configuration backup and restore. - Built-in Diagnostic Tool - SNMP Management (v1, v2C, C3)
Security	<ul style="list-style-type: none"> - MAC address filtering through WLAN (support 128 account) - IEEE 802.1x security (EAP-TLS, EAP-TTLS, PEAP, EAP-SIM, -FAST, -AKA) - 64/128-bits WEP - Both WPA/WPA2 PSK & Enterprise support - Mixed WPA& WPA2 mode (support both WPA and WPA2 clients)
Quality of Service	WMM support
Diagnostics Capabilities	<ul style="list-style-type: none"> - The access point can perform self-diagnostic tests. These tests check the integrity of the following circuits: <ul style="list-style-type: none"> • FLASH memory • DRAM • Ethernet port • Wireless port - Sys log <ul style="list-style-type: none"> • Error log • Trace log • Packet Log
Association Management	<ul style="list-style-type: none"> - 5G Priority: In a dual-band AP, 5GHz band has a higher STA association priority than 2.4GHz band. - 11n Priority: 802.11n standard gets a higher association priority than 802.11a/b/g standards - Support Air Time Fairness for clients compliant to different standards of 802.11a/b/g/n. - Support the setting of automatic Disassociation with low-level MCS users.
Integrated Spectrum Analyzer	<ul style="list-style-type: none"> - Ability to detect interference source and avoid interference by automatically selecting the best channel . <ul style="list-style-type: none"> • Ability to detect WLAN Devices Interference • Ability to detect Non WLAN Devices Interference
Newly-added MIB Nodes	<ul style="list-style-type: none"> - wlanStationTable <ul style="list-style-type: none"> • SNR (Signal-to-Noise Ratio) of STAs associated to AP should be measured in dB. • Physical layer Transmit Rate of STAs associated to AP • Packet Error Ratio of STAs associated to AP - wlanStatisticTable <ul style="list-style-type: none"> • Co-Channel Interference, CCI • Adjacent Channel Interference, ACI

	<ul style="list-style-type: none">• WLAN Devices Interference• Non WLAN Devices Interference
Smart Antenna	Smart antenna system consists of one printed and one stamp antenna connected to each Tx/Rx chains, and use S/W smart antenna algorithm selects best possible antenna combinations among different combinations of Stamped and Printed antennas to give best performance.

3.3 Physical specification

The Physical specifications of the product are as below:

Items	Description
Dimension	180 (L) mm × 180(D) mm × 94.5 (H) mm
Weight	1Kg
Housing type	Wall mount Ceiling mount

3.4 Environment Specification

The environment specifications of the product are as below:

Items	Description	Power Adapter Spec
Operating Temperature	0 to 55°C	0 ~ 40°C
Storage Temperature	-10 to 60°C	-10 ~ 75°C
Operating Humidity	15 to 90% RH	10 to 90% RH
Storage Humidity	15 to 90% RH	10 to 90% RH
Green	RoHS & Reach compliant	
Warranty	2 years	

3.5 Safety/Country Approval

The Safety/ Country Approvals of the product will do EMI pre-testing as below:

Items	Description
FCC	Part15 sub B Part15 sub C Part15 sub E
CE	EN301893 V1.7.1 EN300328 V1.8.1 EN301489 -1/-17 EN55022/24 EN60950-1

3.6 Packing Specification

The following items will be required for the complete packaging

Item	Comments
Carton	Suitable size and material to protect product
Brown Box	Suitable size and material to protect product
Cushion	Suitable size and material to protect product
PE bag	Suitable size and material to protect product
Wall mount	Suitable size and material to protect product

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