USER'S MANUAL

ACCESS POINT

MODEL NAME: WP8722, WP8722-BT

BRAND: LITE-ON

Federal Communication Commission Interference Statement

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.

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 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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible. This device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi transmitter product procedures. Referring to the multi transmitter policy, multiple transmitter(s) and module(s) can be operated simultaneously without C2PC.

IMPORTANT NOTE: FCC 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 20 cm between the radiator & your body.

1. Product Description

The product is structured as SOC QCA9563 + Radio QCA9886. One radio offers 802.11n 300Mbps at 2.4GHz and another radio offers 802.11ac 866Mbps at 5GHz. See Figure-01

The product connects to the backbone network through Giga-bit Ethernet interface with 802.3af/at PoE PD which is able to be powered by PoE switch remotely. The product also supports DC12V power source option for the environment where PoE is not available.

Note: Optional features are not included in default SKU and to be quoted separately if required afterwards.

1.1 Product Deliverables

❖ The AP and its embedded software

❖ Standard Mounting kits (ceiling tie rail adapters for 15mm, 24mm and 38mm)

❖ User documentations (TBD)

  ▪ Getting Started Guide
  ▪ Regulatory flyer (TBD)
  ▪ Warranty/SLA (TBD, on website only)
  ▪ Registration card (TBD, con website only)

2. Hardware requirements

2.1 Main chipset

*(**Note:** all components equiped for product are commercial grade)*

❖ **SOC:** Qualcomm QCA9563 SOC

❖ **11ac RF:** Qualcomm QCA9886 (PCIe interface)

❖ **GE PHY:** Qualcomm QCA8033

❖ **PoE controller:** AS1138

❖ **Flash:** SPI NOR 64M Bytes

- 1× SPI NOR 64M Bytes (Default)

- 2× SPI NOR 32M Bytes (Optional)

❖ Flash: 128MB NAND Flash (optional, to be charged separately if required)

❖ **DDR2:** 128Mbytes

2.2 Enclosure and Mechanical

The dimension for the product as below:

❖ ME Dimension (L x W x D): 150mm × 150mm × 36.25mm

❖ 1× RJ45 connectors

    ✓ 1× 10/100/1000Mbps Full/Half Duplex Ethernet with PoE PD (comply with POE 802.3af/at)

❖ One external console port @RJ45 form factor

❖ 1×LED appearance

❖ One USB 2.0 port

❖ 12V DC input

❖ Factory default reset

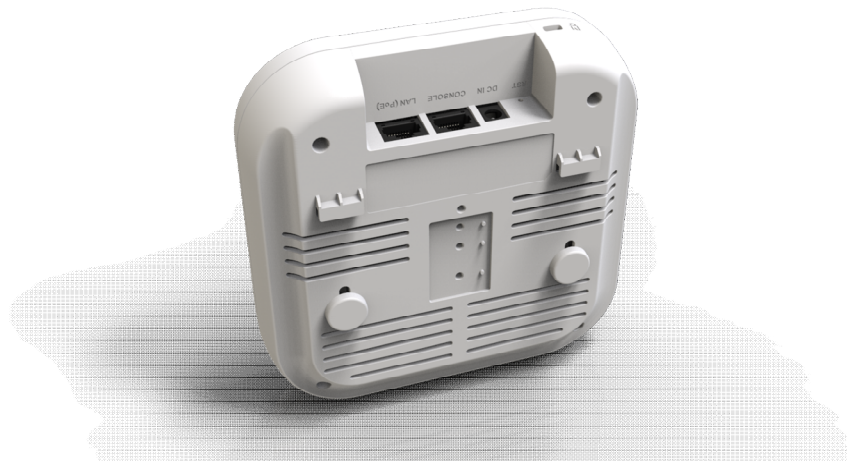❖ Plastic bottom case for thermal radiating

Figure-01 Reference for ID design

2.3 Mounting

❖ The ID has a Kensington lock hole on the enclosure.

❖ Standard mount: Ceiling mount through the recessed ceiling-tile rail mounting adapter to comply with 15mm, 24mm, and 38mm rails.

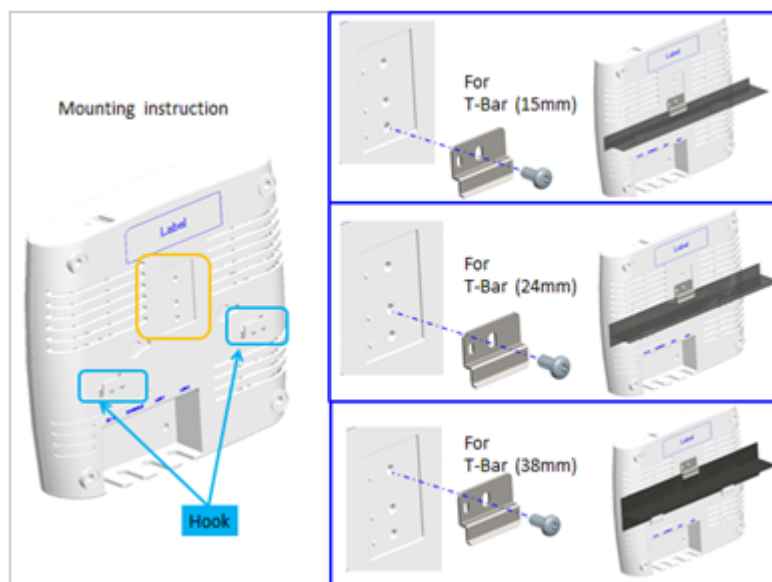❖ Rubber foot (x2) could be attached for table stand application.

Figure-02 Standard mount

❖ Hard flat surface mounting including wall and ceiling mount.

1) Standard, 2 key holes in the central part on the bottom case

2) Optional accessory, separate bracket (to be charged separately if required)

Figure-03 Optional premium mounting bracket for hard flat surface mount

2.4 Antenna and Wireless

The product shall deliver 2×2:2 wireless connections on both 2.4~2.4835GHz and 5.15~5.875GHz.

- Frequency: 2.4 ~ 2.4835GHz and 5.15 ~ 5.875GHz
  - ❖ The peak antenna gain (***Note:*** *measured including the AP, not antenna in free space)*
    - o ≧ 4 dBi ~ 6 dBi @ 2.4~2.4835GHz - internal
    - o ≧ 5 dBi ~7 dBi @ 5.15~5.875GHz - internal
- V.S.W.R
  - o ≤2.0 @ 2.4 ~ 2.4835GHz
  - o ≤ 2.0@ 5.15 ~ 5.875GHz
- Polarization: Linear
- Efficiency
  - o Single band
    - ✓ ≧ 50% @ 2.4~2.4835GHz - internal
    - ✓ ≧ 50% @ 5.15~5.875GHz – internal

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2.5 Ethernet port

❖ 1×10/100/1000 BASE-T Ethernet (RJ-45) port with PoE PD

2.6 LED Indicator Function Definition:

The LED shall be enabled and disabled by software. Please see the table below for detailed definition.

1) Blue: All Radios' are up and user are connected
2) Orange: One of the Radio are Down
3) Green: All Radios are up
4) Red: No Network or Backhaul

2.7 Power Supply

The product shall be powered by

❖ Power Over Ethernet, comply with PoE 802.3 af/at

*(**Note,** AP itself consumes less than 12.95W excluding USB usage)*

❖ External AC to DC power supply :12V DC, 1.5A

2.8 Factory Default Reset

The product shall support an external factory default reset mechanism. Press and hold the reset button *"in the order of 50 seconds" (for reference only)* to reset the AP to factory defaults.

*(**Note**: This hold time is controlled by software; please refer to software document separately)*

2.9 Debug port

❖ External console port @RJ45 form factor

3. Software Requirement

Lite-On provide the basic firmware to verify the quality of hardware. The basic firmware includes the below parts. See table-01.

Table-01 product SW platform

Boot loader:	u-boot
System	Linux kernel version 3.10
Wireless driver	V3.4.11c or upper version

(**Note,** *the system image is basing on QCA SDK indicated. Further SDK version changes maintained in software document separately)*

4. RF capability

4.1 Transmite power (Single chain)

The table below shows the design target for maximum transmit power per chain @ the different data rates.

Table-02 product Transmit power (single chain)

Maximum Transmit Power (per chain) ± 2 dBm		
	2.4GHz	**5GHz**
11 g (6Mbps)	19	-
11 g (54Mbps)	15	-
11 a (6Mbps)	-	18
11 a (54Mbps)	-	14
HT20(MCS 0/8)	19	18
HT20(MCS 7/15)	15	14
HT40(MCS 0/8)	18	17
HT40(MCS 7/15)	14	13
VHT80 256QAM @ 3/4 Code Rate	-	13
VHT80 256QAM @ 5/6 Code Rate	-	12

4.2 Rx Sensitivity (Single chain)

The table below shows the design target for minimum receive sensitivity per chain @ the different data rates. The value might be modified after each build if varried, like EVT,DVT,PVT etc.

Table-03 product Receive Sensitivity (single chain)

Receive Sensitivity (per chain) ± 2 dBm		
	2.4GHz	**5GHz**
11 g (6Mbps)	-89	-
11 g (54Mbps)	-73	-
11 a (6Mbps)	-	-89
11 a (54Mbps)	-	-72
HT20(MCS 0/8)	-89	-89
HT20(MCS 7/15)	-69	-69
HT40(MCS 0/8)	-85	-85
HT40(MCS 7/15)	-66	-66
VHT20 256QAM @ 3/4 Code Rate	-	-64

VHT20 256QAM @ 5/6 Code Rate	-	-62
VHT40 256QAM @ 3/4 Code Rate	-	-61
VHT40 256QAM @ 5/6 Code Rate	-	-59
VHT80 256QAM @ 3/4 Code Rate	-	-58
VHT80 256QAM @ 5/6 Code Rate	-	-56

5. Physical and Environmental

❖ Power consumption: 12.4W excluding USB
   *(**Note,** test condition under tthroughput mode: Run IxChariot for 2G upload Mode @11n HT20 MCS0 20dBm and 5G upload Mode @11n HT20 MCS0 18dBm to measure the total power consumption)*
❖ Device weight: 245g
❖ MTBF prediction: hours @25° C (**Note,** *by Calculation Model MIL-HDBK-217 FN2, Method I Case 3)*
❖ Operating:
   ▪ Temp: -20° C to +45° C (TBD, default is 0° C to +45° C, operating temperature from QCA chip is 0-70C, need further qualification AP's operating temperature range based on QCA chip)
   ▪ Humidity: 5 to 95% non-condensing
❖ Storage and Transportation Temperature Range:
   ▪ Temp: -20° C to +70° C (-40° F to +158° F) (TBD as operation temp)

6. Default Country List of Regulatory Certification

The product should be pre-tested

❖ FCC prescan