

# PRODUCT SPECIFICATION

802.11a/b/g/n/ac, 2T2R Wireless LAN USB2.0 Module

**WN4517L**

**Realtek RTL8812AU**

Version 1.2

***LiteOn P/N: AAZ100365D0***

***TPV P/N: 317GAAWF651LON***

## Change History

| Revision    | Date       | Author     | Change List                               |
|-------------|------------|------------|-------------------------------------------|
| Version 1.0 | 2016/09/01 | Ben J Chen | Preliminary                               |
| Version 1.1 | 2016/09/22 | Ben J Chen | Update the thickness of gold flash plated |
| Version 1.2 | 2016/11/15 | Ben J Chen | Update Power Consumption                  |

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Version 1.2

**Networking B.U.  
Lite-on Technology Corporation  
Bldg. C, 90, Chien 1 Rd.,  
Chung Ho, New Taipei City 235, Taiwan, R.O.C.**

**Customer Approval:** \_\_\_\_\_ (Signature)

\_\_\_\_\_ (Title)

\_\_\_\_\_ (Company)

\_\_\_\_\_ (Date)

(Please Sign Back by FAX. For Confirming the Spec Only, not an Official Agreement for OEM/ODM Business)

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## **PRODUCT FEATURES**

- Operate at ISM frequency Band (2.4/5GHz)
- IEEE Standards Support, 802.11a, 802.11b, 802.11g, 802.11n, and 802.11ac
- USB 2.0 support for data rates up to 12Mbps full speed and 480Mbps high speed
- Enterprise level security supporting: WEP 64/128, WPA, WPA2, WAPI
- Support 2 transmission and 2 receiving, transmission rate can up to 300Mbps (Physical Rate) in 802.11n; and 866.7Mbps in 802.11ac
- Wi-Fi Direct supports wireless peer to peer applications
- RoHS compliance
- Low Halogen compliance

## PRODUCT SPECIFICATIONS

### MAIN CHIPSET

MAC/ Baseband/ RF: Realtek 8812AU-VS-CG

### FUNCTIONAL SPECIFICATIONS

| WiFi Function         |                                                                                                      |
|-----------------------|------------------------------------------------------------------------------------------------------|
| Standard              | IEEE802.11a; IEEE802.11b; IEEE 802.11g; IEEE 802.11n; IEEE802.11ac                                   |
| Bus Interface         | Universal Serial Bus (USB2.0)                                                                        |
| Data Rate             | <b>802.11b:</b><br>11, 5.5, 2, 1 Mbps                                                                |
|                       | <b>802.11a/g:</b><br>54, 48, 36, 24, 18, 12, 9, 6 Mbps                                               |
|                       | <b>802.11n:</b><br>MCS 0 to 15 for HT20MHz<br>MCS 0 to 15 for HT40MHz                                |
|                       | <b>802.11ac:</b><br>MCS 0 to 8 for HT20MHz<br>MCS 0 to 9 for HT40MHz<br>MCS 0 to 9 for HT80MHz       |
|                       |                                                                                                      |
| Media Access Control  | CSMA/CA with ACK                                                                                     |
| Modulation Techniques | <b>802.11b:</b><br>CCK, DQPSK, DBPSK                                                                 |
|                       | <b>802.11a/g:</b><br>64QAM, 16QAM, QPSK, BPSK                                                        |
|                       | <b>802.11n:</b><br>64QAM, 16QAM, QPSK, BPSK                                                          |
|                       | <b>802.11ac:</b><br>256QAM, 64QAM, 16QAM, QPSK, BPSK                                                 |
| Network Architecture  | Ad-hoc mode (Peer-to-Peer)<br>Infrastructure mode                                                    |
| Operation Channel     | <b>5GHz</b><br>12: – United States<br>19: – Europe<br>8: – Japan                                     |
|                       | <b>2.4GHz</b><br>11: (Ch. 1-11) – United States<br>13: (Ch. 1-13) – Europe<br>14: (Ch. 1-14) – Japan |
|                       |                                                                                                      |
|                       |                                                                                                      |
|                       |                                                                                                      |
| Frequency Range       | <b>802.11a/ac</b><br>5.15~5.85 GHz<br><b>802.11b/g</b><br>2.400 ~ 2.4835 GHz                         |

**Receiver Sensitivity**

**802.11a:**  
 -86 dBm@6Mbps  
 -69 dBm@54Mbps  
**802.11b:**  
 -88 dBm@1Mbps  
 -82 dBm@11Mbps  
**802.11g:**  
 -86 dBm@6Mbps  
 -69 dBm@54Mbps  
**802.11n(2.4/5GHz):**  
**20MHz**  
 -86 dBm@MCS0  
 -68 dBm@MCS7  
**40MHz**  
 -83 dBm@MCS0  
 -65 dBm@MCS7  
**802.11ac:**  
**20MHz**  
 -85 dBm@MCS0  
 -62 dBm@MCS8  
**40MHz**  
 -82 dBm@MCS0  
 -57 dBm@MCS9  
**80MHz**  
 -79 dBm@MCS0  
 -54 dBm@MCS9

**OS Supported**

Microsoft Windows Win7/Win8/Win8.1/Linux

**Operating Voltage**

5V ±10% I/O supply voltage

**Power Consumption**  
 Test Condition:  
 - Operate at HT40  
 - File Transmission

| Mode                  | Average |       | Peak  |       |
|-----------------------|---------|-------|-------|-------|
|                       | 2.4G    | 5G    | 2.4G  | 5G    |
| TX                    | 420mA   | 490mA | 700mA | 930mA |
| RX                    | 270mA   | 332mA |       |       |
| Unassociated idle     | 16mA    |       |       |       |
| Standby @Wake up mode | 20mA    |       |       |       |

**Antenna Type**

Metal Antenna on Board

## RECOMMENDED OPERATION CONDITIONS

For Module

| Symbol | Rating            | Min | Typ | Max | Units |
|--------|-------------------|-----|-----|-----|-------|
| VCC    | 5V Supply Voltage | 4.5 | 5   | 5.5 | V     |

For IC

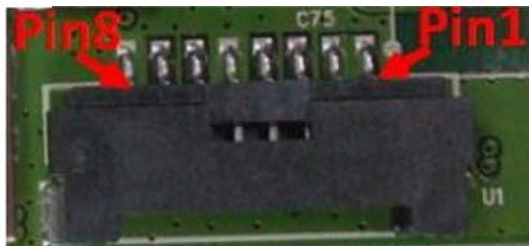
| Symbol | Rating              | Min  | Typ | Max  | Units |
|--------|---------------------|------|-----|------|-------|
| VDD33  | 3.3V Supply Voltage | 3.0  | 3.3 | 3.6  | V     |
| VDD12  | 1.2V Supply Voltage | 1.10 | 1.2 | 1.23 | V     |

## DC CHARACTERISTICS

| Symbol          | Parameter           | Min  | Typ | Max  | Units |
|-----------------|---------------------|------|-----|------|-------|
| V <sub>IL</sub> | Input Low Voltage   | -    | 0   | 0.9  | V     |
| V <sub>IH</sub> | Input High Voltage  | 2.0  | 3.3 | 3.6  | V     |
| V <sub>OL</sub> | Output Low Voltage  | 0    | -   | 0.33 |       |
| V <sub>OH</sub> | Output High Voltage | 2.97 | -   | 3.3  | V     |

## PIN ASSIGNMENT

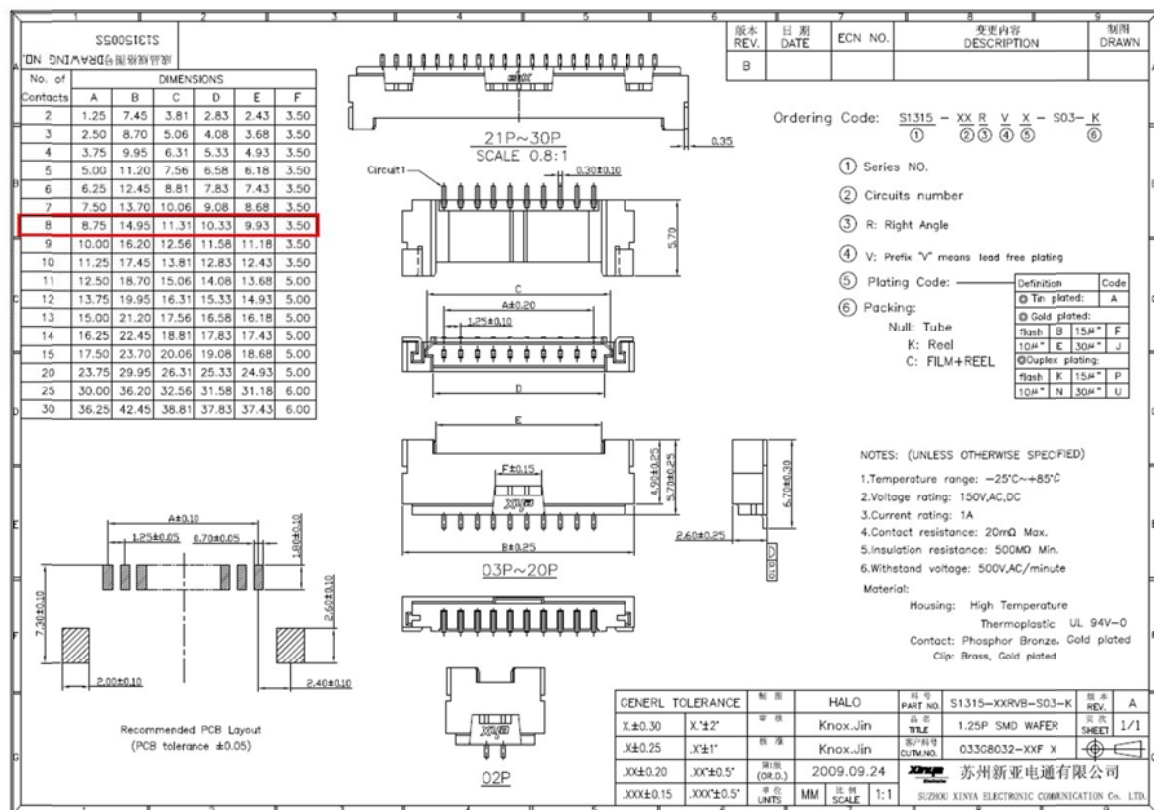
| Pin. | Pin Define | Description                         | Status |
|------|------------|-------------------------------------|--------|
| 1    | +5VCC      | 5V source                           | YES    |
| 2    | +5VCC      | 5V source                           | YES    |
| 3    | USB_D-     | USB Data-                           | YES    |
| 4    | USB_D+     | USB Data+                           | YES    |
| 5    | GND        | Ground                              | YES    |
| 6    | RESET#     | System reset RTL8812AU, low active  | YES    |
| 7    | WoWLAN#    | Wake up system via wifi, low active | YES    |
| 8    | GND        | Ground                              | YES    |



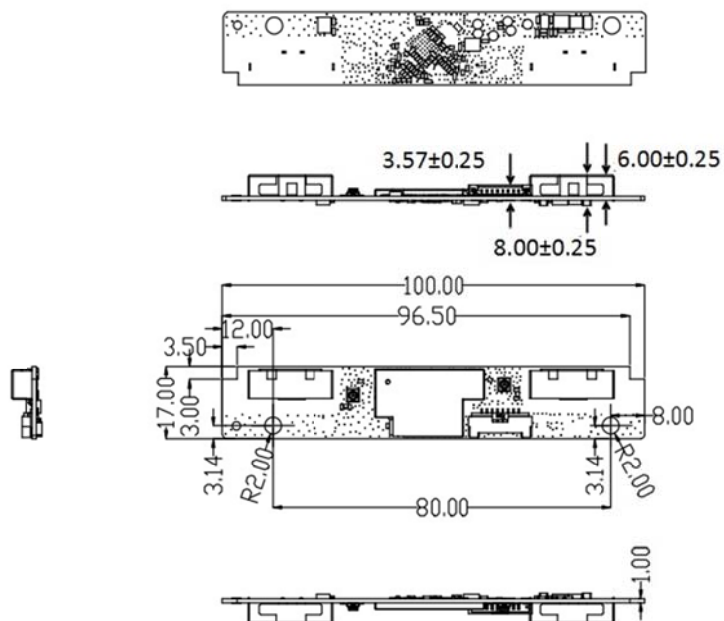
## CONNECTOR SPEC

Manufacture P/N: S1315-08RVB-SB3-KH

Thickness of gold flash plated:  $\geq 1\mu$



**MECHANICAL**



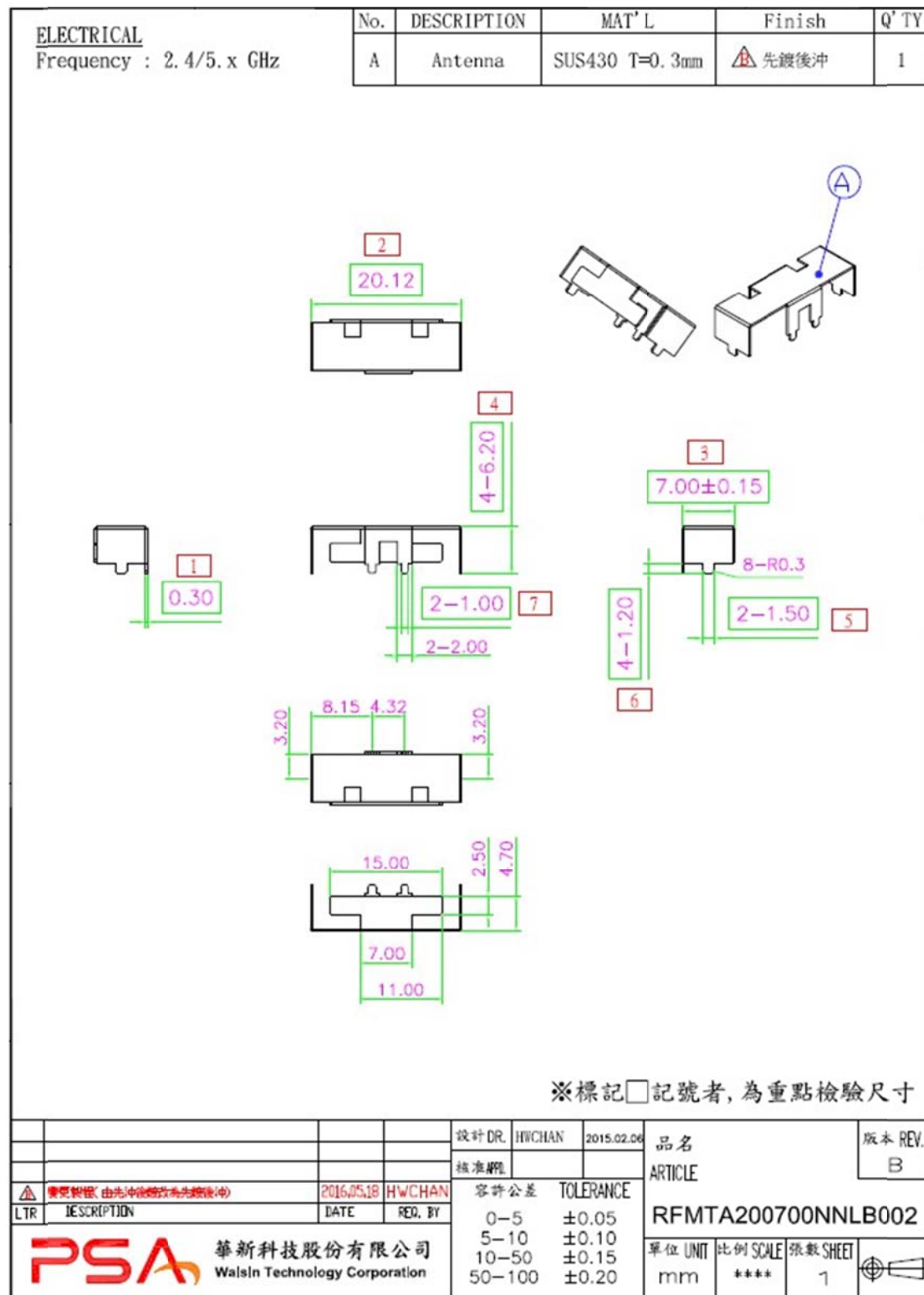
**Tolerance: C**

| DIM    | DEG   | A     | B     | C | D | ANGLE         |
|--------|-------|-------|-------|---|---|---------------|
| 0-5    | ±0.05 | ±0.05 | ±0.10 |   |   | 0°-30° ±0.1°  |
| 5-10   | ±0.05 | ±0.10 | ±0.15 |   |   | 31°-60° ±0.3° |
| 10-50  | ±0.10 | ±0.15 | ±0.20 |   |   | 61°-90° ±0.5° |
| 50-100 | ±0.15 | ±0.20 | ±0.25 |   |   |               |
| 100-   | ±0.15 | ±0.20 | ±0.25 |   |   |               |

**Unit: mm**

# METAL ANTENNA SPEC

## On Board Antenna for WiFi (Q'ty:2pcs)



## EEPROM INFORMATION

|                   |        |
|-------------------|--------|
| <b>Reg Domain</b> | US     |
|                   | 0x25   |
| <b>Vendor ID</b>  | 0x0BDA |
| <b>Product ID</b> | 0x881A |

## ENVIRONMENTAL

### Operating

Operating Temperature: 0 to 70 °C

Relevant Humidity: 5-90% (non-condensing)

### Storage

Temperature: -40 to 85 °C (-40 to 185 °F)

Relevant Humidity: 5-95% (non-condensing)

# PACKING DRAWING

