

HK NATER TECH LIMITED

RL-UD02M-8811AU Specification

Customer: _____

Description: RL-UD02M-8811AU-V1.1

Customer P/N: _____

Date: _____

Customer		
Approve	Auditing	Admit

Provider		
Approve	Auditing	Admit

Customer:

Add:

Tel:

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SPECIFICATION

IEEE 802.11b/g/n/ac 1T1R WLAN USB 2.0 CONTROLLER

RL-UD02M-8811AU (Realtek RTL8811AU)

DANGLE

Version 1.1

1.General

General

- IEEE 802.11b/g/n/ac Draft 3.0 1T1R

Host Interface

- Complies with USB2.0 for WLAN controller

WLAN Controller

- CMOS MAC, Baseband PHY, and RF in a single chip for IEEE 802.11b/g/n/ac Draft 3.0 compatible WLAN
- Complete 802.11n solution for 2.4GHz band
- 72.2Mbps receive PHY rate and 72.2Mbps transmit PHY rate using 20MHz bandwidth
- 150Mbps receive PHY rate and 150Mbps transmit PHY rate using 40MHz bandwidth
- 433.3Mbps receive PHY rate and 433.3Mbps transmit PHY rate using 80MHz bandwidth
- Backward compatible with 802.11b/g devices while operating in 802.11n mode
- IEEE 802.11b/g/n/ac Draft 3.0 compatible WLAN
- IEEE 802.11e QoS Enhancement (WMM)
- IEEE 802.11i (WPA, WPA2). Open, shared key, and pair-wise key authentication services

WLAN MAC Features

- Frame aggregation for increased MAC efficiency (A-MSDU, A-MPDU)
- Low latency immediate High-Throughput Block Acknowledgement (HT-BA)
- PHY-level spoofing to enhance legacy compatibility
- Multi MACID support with Fast Channel switch
- Channel management and co-existence
- Transmit Opportunity (TXOP) Short Inter-Frame Space (SIFS) bursting for higher multimedia bandwidth
- WiFi Direct supports wireless peer to peer applications

WLAN PHY Features

- IEEE 802.11n/ac OFDM
- One Transmit and one Receive path (1T1R)
- 20MHz, 40MHz and 80MHz bandwidth transmission
- Support 2.4GHz and 5GHz band channels
- Short Guard Interval (400ns)
- DSSS with DBPSK and DQPSK, CCK modulation with long and short preamble
- OFDM with BPSK, QPSK, 16QAM, 64QAM and 256QAM modulation. Convolutional Coding Rate: 1/2, 2/3, 3/4, and 5/6
- Maximum data rate 54Mbps in IEEE 802.11g; and 150Mbps in IEEE 802.11n; and 433.3Mbps in IEEE 802.11ac
- Switch diversity for DSSS/CCK
- Packet based hardware antenna diversity
- Selectable receiver FIR filters
- Programmable scaling in transmitter and receiver to trade quantization noise against increased probability of clipping
- Fast receiver Automatic Gain Control (AGC)
- On-chip ADC and DAC
- Integrated 2.4G/ 5G CMOS PA

Other Features

- Supports Wake-On-WLAN via Magic Packet and Wake-up frame
- CCA on secondary through RTS/CTS handshake
- Support TCP/UDP/IP checksum offload

Peripheral Interfaces

- General Purpose Input/Output (8 pins)
- Three configurable LED pins
- Flexible XTAL frequency selection(52, 48, 40, 38.4, 27, 26, 25, 24, 20, 19.2, 17.664, 16, 14.318, 13 and 12MHz)
- Support XTAL or external clock input

2.PRODUCT SPECIFICATIONS

Main chipset :WiFi Single Chip: Realtek RTL8811AU

Functional Specifications

Main chipset	RTL8811AU
Standards	WiFi: IEEE 802.11b, IEEE 802.11g, IEEE 802.11n, IEEE 802.11ac, IEEE 802.11e,, IEEE 802.11i
Bus Interface	WiFi: USB2.0
Data Rate	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: MCS 0 to 7 for HT20MHz ;MCS 0 to 7 for HT40MHz 802.11ac: 433.3Mbps
Modulation Techniques	802.11b(DSSS) : CCK, DQPSK, DBPSK 802.11 g (OFDM) : 64 QAM, 256 QAM, QPSK, BPSK
Operating Channel	WiFi 2.4GHz: 11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan
Frequency Range	2.400GHz ~ 2.4835 GHz
Security	WPA, WPA-PSK, WPA2, WPA2-PSK, WEP 64bit & 128bit,WMM, IEEE 802.11e, IEEE 802.11i
OS supported	Linux/Android/Windows

3.Temperature Limit Ratings

Parameter	Minimum	Maximum	Units
Storage Temperature	-20	+70	°C
Ambient Operating Temperature	0	60	°C
Junction Temperature	0	125	°C

4.Diagram

Dual-Band 11ac (1x1) Solution with Single Antenna

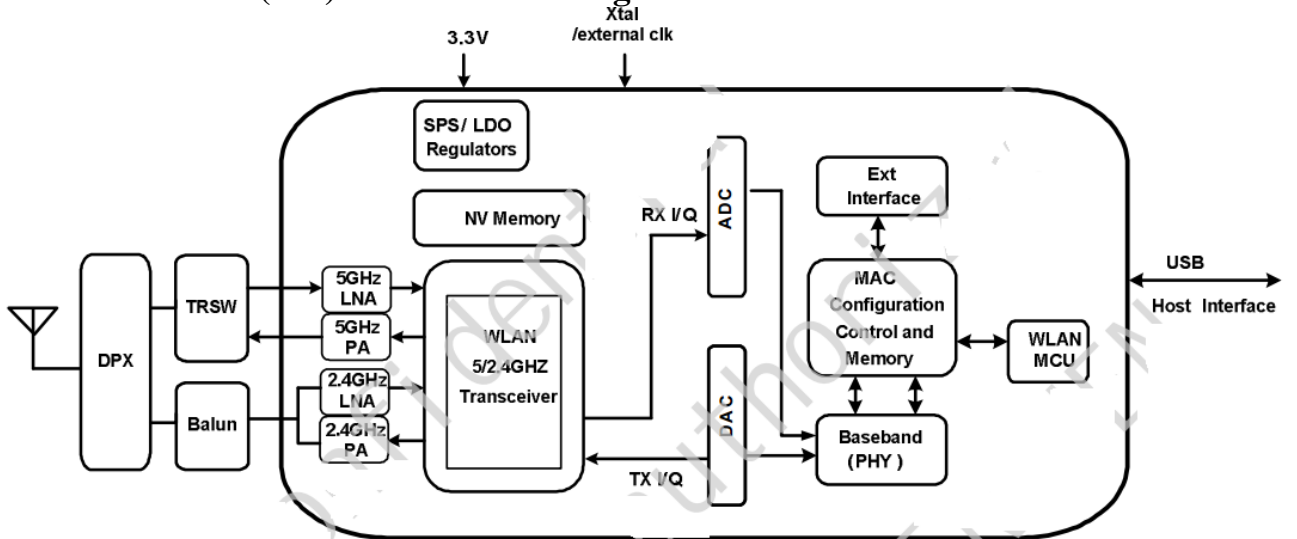


Figure 1. Dual-Band 11ac (1x1) Solution with single Antenna

5.Power Supply DC Characteristics

Symbol	Parameter	Minimum	Typical	Maximum	Units
WLA_VD33_PA,WLA_VD33_PAD, WLГ_VD33_PAD,WL_VD33_SYN, VD33IO,SW_HV3,V33USB,VD33A	3.3V I/O and RFAFE Supply Voltage	3.0	3.3	3.6	V
WLG_VD12_RTX, VD12D, WL_VD12_SYN, VD12A, VD12D_WL, VD12D_HCI	1.2V Core and RFAFE Supply Voltage	1.10	1.2	1.32	V
IDD33	3.3V Rating Current	-	-	600	mA

DC Characteristics

Module	Voltage	Current Consumption (linking)
RL-UD02M-8811AU-V1.1	5V	(上网或者看电影时的功耗)

6. Electrical Specifications

1) RF Characteristics for IEEE802.11b (11Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11b			
Mode	CCK 11 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per≤85 dBm@8%)	-85 dBm			
Freq err Limit	±13PPM			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (17±2 dBm)		17		dBm
EVM (≤-18)		-18		dB

2) RF Characteristics for IEEE802.11g (54Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11g			
Mode	OFDM 54 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per≤70 dBm@10%)	-70 dBm			
Freq err Limit	±13PPM			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (14±2dBm)		14		dBm
EVM (≤-27)		-27		dB

3) RF Characteristics for IEEE802.11n (BW20_MCS7)

Items	Contents			
Specification	IEEE802.11n (BW20_MCS7)			
Mode	65 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per≤65 dBm@10%)	-65 dBm			
Freq err Limit	±13PPM			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (13±2 dBm)		13		dBm
EVM (≤-28)		-28		dB

4) RF Characteristics for IEEE802.11n (BW40_MCS7)

Items	Contents			
Specification	IEEE802.11n (BW40_MCS7)			
Mode	135 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per≤65 dBm@10%)	-65 dBm			
Freq err Limit	±13PPM			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (13±2 dBm)		13		dBm
EVM (≤-28)		-28		dB

5) RF Characteristics for IEEE802.11AC (BW40_MCS7)

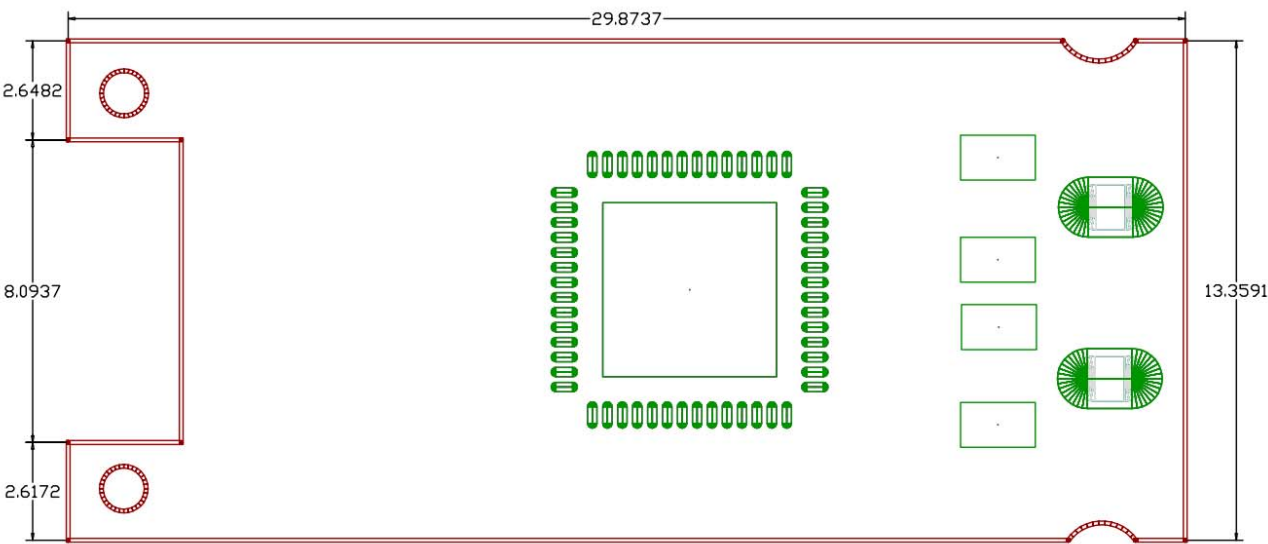
Items	Contents			
Specification	IEEE802.11AC (BW40_MCS7)			
Mode	135 Mbps			
Channel frequency	4915 ~ 5825 MHz			
RX (per≤65 dBm@10%)	-63 dBm			
Freq err Limit	±13PPM			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (10±2 dBm)		10		dBm
EVM (≤-30)		-30		dB

6) RF Characteristics for IEEE802.11AC (BW80_MCS7)

Items	Contents			
Specification	IEEE802.11AC (BW80_MCS7)			
Mode	135 Mbps			
Channel frequency	4915 ~ 5825 MHz			
RX (per≤65 dBm@10%)	-60 dBm			
Freq err Limit	±13PPM			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (10±2 dBm)		10		dBm
EVM (≤-30)		-30		dB

8.Mechanical

Dimensions (mm)	Length	Width	Height
	29.8737 (Tolerance: ±0.2mm)	13.3591 (Tolerance: ±0.2mm)	(Tolerance: ±0.2mm)



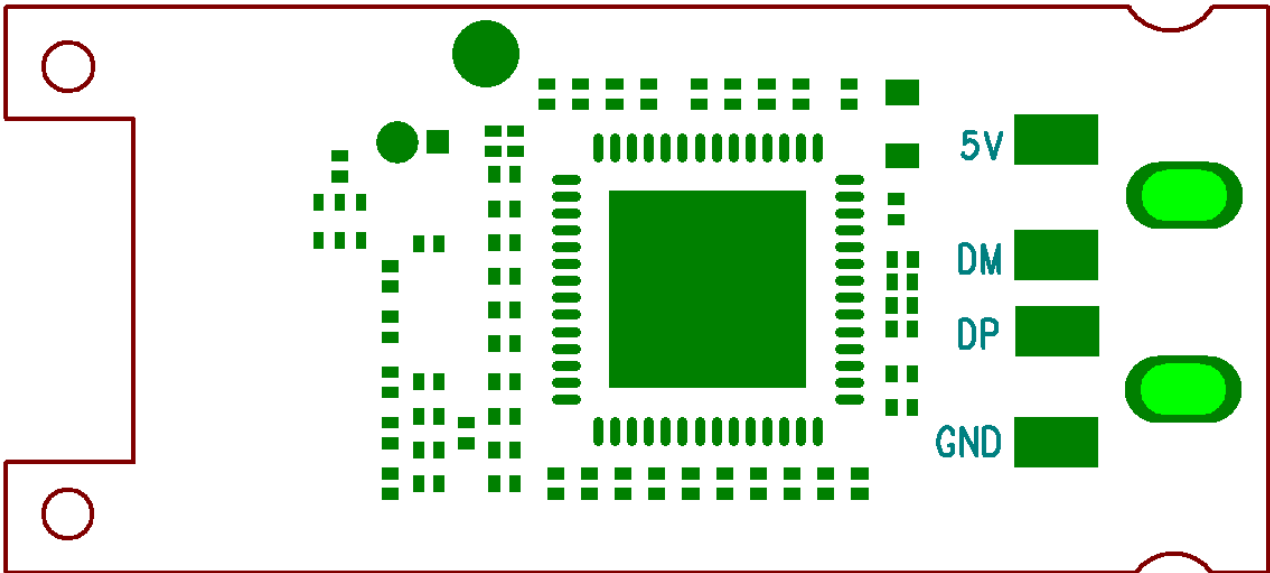
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9.MODULE PIN ASSIGNMENT



PIN	Function	Description
1	5V	5V
2	DM	USB D-
3	DP	USB D+
4	GND	Grond