SHENZHEN B-LINK ELECTRONICS
CO.,LTD.

Sampe Approval Drawing

客户			
CUSTOME			
日期	2016．05．12		
Date			
产品型号	BL-R8188NU3		
Product Type			
料号			
ENGINEER	QC	SALES	
Alan	Angel	James	
客户承认栏			
ENGINEER	QC	MANUFACTORY	PURCHASING

联系人：邓先生 MO:13662644686

BL-R8188NU3

IEEE 802.11b/g/n 1T1R USB WiFi Module

特性Features：

- 接收制式**Reserving System**

IEEE Std. 802.11b
IEEE Std. 802.11g
IEEE Std. 802.11n

- 结构大小Size

17.7mm x 27mm x 1.6mm

型号	安装方式	支持标准	带宽	频段	天线接口	备注
BL-R8188NU3	插接	IEEE 802.11b/g/n	150Mbos	2.4GHz	焊接	17.7mm X 27mm X 1.6mm

Software Requirements

The driver supports the following operating systems: Linux, Microsoft Windows 2000, XP, Vista andWin7.

1. Introduction

BL-R8188NU3 is based on Realtek RTL8188ETV,complied with IEEE 802.11b/g/nstandard from 2.4-2.5GHz.This documentation describes the engineering requirements specification.

1.1 RF module Overview

The general HW architecture for the module is shown in Figure 1. This WLAN Module design is based on Realtek RTL8188ETV. It is a highly integrated single-chip MIMO(Multiple In Multiple Out) Wireless LAN (WLAN) USB2.0 network interface controllercomplying with the 802.11n specification. It combines a MAC, a 1T1R capable baseband,and RF in a single chip. The RTL8188ETV provides a complete solution for a highthroughput performance wireless client.

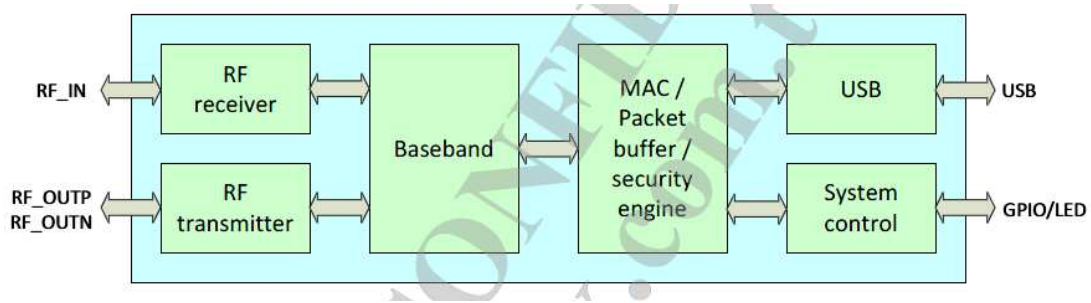


Figure 1 BL-R8188NU3 Block Diagram

1.2 Specification reference

This specification is based on additional references listed below.

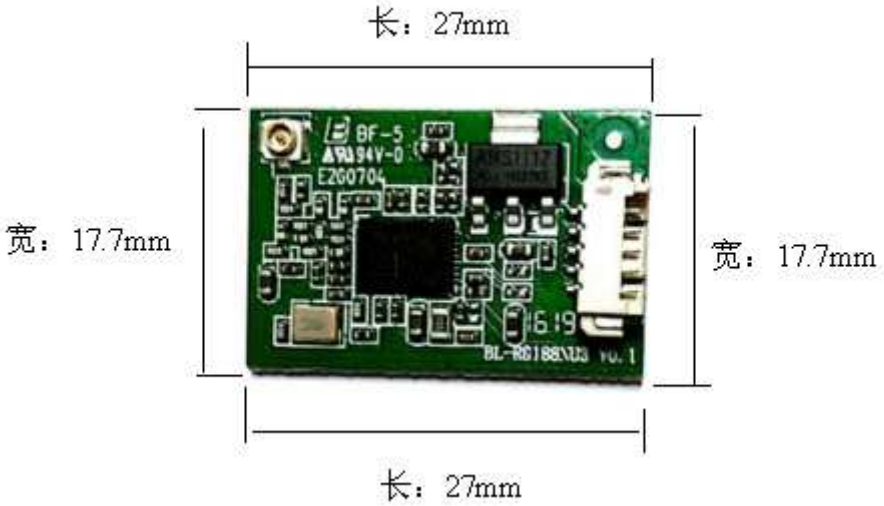
_ IEEE Std. 802.11b
_ IEEE Std. 802.11g
_ IEEE Std. 802.11n

1.3 System Functions

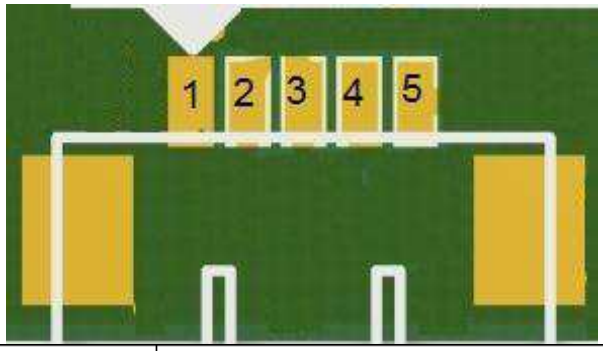
Table1: General Specification as below:

Main Chipset	RTL8188ETV
Operating Frequency	2.412~2.472GHz
WiFi Standard	802.11b/g/n(1x1)
Modulation	11b: DBPSK, DQPSK and CCK and DSSS 11g: BPSK, QPSK, 16QAM, 64QAM and OFDM 11n: MCS0~15 OFDM
Data rates	11b:1, 2, 5.5 and 11Mbps 11g:6, 9, 12, 18, 24, 36, 48 and 54 Mbps 11n: MCS0~15, up to 150Mbps
Form factor	6pin
Host Interface	USB 2.0
PCB Stack	4-layers design
Dimension	Typical, 33mm(W)*40(L)mm*1.6mm(H)
Operation Temperature	0℃ to +60℃
Storage Temperature	-40℃ to +85℃
Operation Voltage	5V +/-10%

2. Mechanical Specification



5Pin, 1.25mm pitch, SMD, side entry type



Pin #	Name	Description
1	GND	GND
2	D+	USB Data DP
3	D-	USB Data DN
4	VCC	+5V DC Power supply input
5	CTR	Reserve Default (no use)

3. Electrical Specification

This Specification is based-on conductive DVT testing result. The extreme condition include overall temperature (0℃,+25℃,+60℃) and overall voltage (4.5V,5V,5,5V).

3.1 802.11b Mode

Items	Contents				
Specification	IEEE802.11b				
Mode	DSSS / CCK				
Channel	CH1 to CH13				
Data rate	1, 2, 5.5, 11Mbps				
DC Characteristics	Min.	Typ.	Max.	Unit	Remark
1.DC current (Average) @5V input					
1) TX only @17dBm (continue Tx SISO)	-		250	mA	
2) TX throughput mode	-	150	250	mA	
3) RX throughput mode	-	100		mA	
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Levels(Calibrated)					
1) 17dBm Target (For Each antenna port)	--	--	17	dBm	
3. Spectrum Mask @ target power					
1) fc +/-11MHz to +/-22MHz	-	-	-30	dBr	
2) fc > +/-22MHz	-	-	-50	dBr	
4. Frequency Error	-25	-5	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
5 Minimum Input Level Sensitivity(each chain)					
1) 1Mbps (FER ≦8%)	-	-76	-	dBm	
2) 2Mbps (FER ≦8%)	-	-76	-	dBm	
3) 5.5Mbps (FER ≦8%)	-	-76	-	dBm	
4) 11Mbps (FER ≦8%)	-	-76	-	dBm	
6 Maximum Input Level (FER ≦8%)	-10	-	-	dBm	

3.2 802.11g Mode

Items	Contents				
Specification	IEEE802.11g				
Mode	OFDM				
Channel	CH1 to CH13				
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps				
DC Characteristics	Min.	Typ.	Max.	Unit	Remark
1. DC current (Average) @5V input					
1) TX only @15dBm (continue Tx SISO)	-	190	250	mA	
2) TX throughput mode	-	80	200	mA	
3) RX throughput mode	-	80	200	mA	
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Levels					
1) 15dBm Target (For Each antenna port)	13	15	17	dBm	
3. Spectrum Mask @ target power					
1) at fc +/-11MHz	-	-	-20	dBr	
2) at fc +/-20MHz	-	-	-28	dBr	
3) at fc > +/-30MHz	-	-	-40	dBr	
4 Constellation Error(EVM)@ target power					
1) 6Mbps	-	-	-5	dB	
2) 9Mbps	-	-	-8	dB	
3) 12Mbps	-	-	-10	dB	
4) 18Mbps	-	-	-13	dB	
5) 24Mbps	-	-	-16	dB	
6) 36Mbps	-	-	-19	dB	
7) 48Mbps	-	-	-22	dB	
8) 54Mbps	-	-30	-25	dB	
5 Frequency Error	-25	-5	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6 Minimum Input Level Sensitivity(each chain)					
1) 6Mbps (PER ≦10%)	-	-82	-	dBm	
2) 9Mbps (PER ≦10%)	-	-81	-	dBm	
3) 12Mbps (PER ≦10%)	-	-79	-	dBm	
4) 18Mbps (PER ≦10%)	-	-77	-	dBm	
5) 24Mbps (PER ≦10%)	-	-74	-	dBm	
6) 36Mbps (PER ≦10%)	-	-70	-	dBm	
7) 48Mbps (PER ≦10%)	-	-66	-	dBm	
8) 54Mbps (PER ≦10%)	-	-65	-	dBm	
7 Maximum Input Level (PER ≦10%)	-20	-	-	dBm	

3.3 802.11n HT20 Mode

Items	Contents				
Specification	IEEE802.11n HT20 @ 2.4GHz				
Mode	OFDM				
Channel	CH1 to CH13				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15				
DC Characteristics	Min.	Typ.	Max.	Unit	Remark
1¦ DC current (Average) @5V input					
1) TX only @ 14dBm Target(each port), (continue Tx MIMO MCS15)	-	290	350	mA	
2) TX throughput mode	-	108	260	mA	
3) RX throughput mode	-	75	201	mA	
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Levels					
1) 14dBm Target (For Each antenna port)	12	14	16	dBm	
2) 14dBm Target (Combined two antenna port)	15	17	19	dBm	
3. Spectrum Mask @14.5dBm					
1) at fc +/-11MHz	-	-	-20	dBr	
2) at fc +/-20MHz	-	-	-28	dBr	
3) at fc > +/-30MHz	-	-	-45	dBr	
4. Constellation Error(EVM)@ target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-31	-28	dB	
5. Frequency Error	-25	-	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity(each chain)					
1) MCS0 (PER ≦10%)	-	-82	-	dBm	
2) MCS1 (PER ≦10%)	-	-79	-	dBm	
3) MCS2 (PER ≦10%)	-	-77	-	dBm	
4) MCS3 (PER ≦10%)	-	-74	-	dBm	
5) MCS4 (PER ≦10%)	-	-70	-	dBm	
6) MCS5 (PER ≦10%)	-	-66	-	dBm	
7) MCS6 (PER ≦10%)	-	-65	-	dBm	
8) MCS7 (PER ≦10%)	-	-64	-	dBm	
7. Maximum Input Level (PER ≦10%)	-20	-	-	dBm	

3.4 802.11n HT40 Mode

Items	Contents				
Specification	IEEE802.11n HT40 @ 2.4GHz				
Mode	OFDM				
Channel	CH3 to CH11				
Data rate (MCS index)	MCS0/1/2/3/4/5/6/7/8/9/10/11/12/13/14/15				
DC Characteristics	Min.	Typ.	Max.	Unit	Remark
1. DC current (Average) @5V input					
1) TX only @ 14dBm Target(each port), (continue Tx MIMO MCS15)	-	290	350	mA	
2) TX throughput mode	-	100	282	mA	
3) RX throughput mode	-	78	205	mA	
TX Characteristics	Min.	Typ.	Max.	Unit	
2. Power Levels (Calibrated)					
1) 14dBm Target (For Each antenna port)	12	14	16	dBm	
2) 14dBm Target (Combined two antenna port)	15	17	19	dBm	
3. Spectrum Mask @13dBm					
1) at fc +/-22MHz	-	-	-20	dBr	
2) at fc +/-40MHz	-	-	-28	dBr	
3) at fc > +/-60MHz	-	-	-45	dBr	
4. Constellation Error(EVM)@target power					
1) MCS0	-	-	-5	dB	
2) MCS1	-	-	-10	dB	
3) MCS2	-	-	-13	dB	
4) MCS3	-	-	-16	dB	
5) MCS4	-	-	-19	dB	
6) MCS5	-	-	-22	dB	
7) MCS6	-	-	-25	dB	
8) MCS7	-	-31	-28	dB	
5. Frequency Error	-25	-	25	ppm	
RX Characteristics	Min.	Typ.	Max.	Unit	
6. Minimum Input Level Sensitivity(each chain)					
1) MCS0 (PER ≦10%)		-79	-	dBm	
2) MCS1 (PER ≦10%)		-76	-	dBm	
3) MCS2 (PER ≦10%)		-74	-	dBm	
4) MCS3 (PER ≦10%)		-71	-	dBm	
5) MCS4 (PER ≦10%)		-67	-	dBm	
6) MCS5 (PER ≦10%)		-63	-	dBm	
7) MCS6 (PER ≦10%)		-62	-	dBm	
8) MCS7 (PER ≦10%)	-	-61	-	dBm	
7. Maximum Input Level(PER ≦10%)	-20	-	-	dBm	

4. Packing:

BL-R8188NU3

FCC Statement

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this de vice may not cause harmful interference, and (2) this device must accept any interference received, including i nterference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's au thority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant t o part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interferenc e in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not in stalled and used in accordance with the instructions, may cause harmful interference to radio communications. H owever, there is no guarantee that interference will not occur in a particular installation. If this equipment does ca use 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 or more 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 important announcement

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 20cm between the radiator and your body.

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

Important Note:

In the event that these conditions cannot 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 cannot 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

The final end product must be labeled in a visible area with the following" Contains FCC ID: 2AL6K-R8188NU3".

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.