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# **BL-R7601RM1-411-U-R0**

## **Product Specification**

**WLAN 11b/g/n USB MODULE**

Version: 1.1

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## 1. General Description

BL-R7601RM1-411-U-R0 product Accord with FCC CE is a highly integrated Wi-Fi single chip which supports 150 Mbps PHY rate. It fully complies with IEEE802.11n and IEEE802.11b/g stands, offering feature-rich wireless connectivity at high standards, and delivering reliable, cost-effective throughput from an extended distance.

Optimized RF architecture and baseband algorithms provide superb performance and lower power consumption. Intelligent MAC design deploys a high efficient DMA engine and hardware data processing accelerators which offloads the host processor.

BL-R7601RM1-411-U-R0 is designed to support standard based features in the areas of security quality of service and international regulations, giving end users the greatest performance anytime and in any circumstance.

## 2. The range of applying

Desk-Top Pc ;Note-book ;TV; Blue-ray Disk; Tablet Pc; Set-top box

## 3. Features

Feature	Implementation
Power supply	DC:5V +-0.2V
Clock source	40MHz
Temperature range	Work temperature: 0°C---40°C Storage temperature -55°C ~ +125°C
Package	DIP 4 pins
<ul style="list-style-type: none"> <li>■ IEEE 802.11b/g/n client</li> <li>■ Embedded high-performance 32-bit RISC microprocessor</li> <li>■ Highly integrated RF with 55nm COMS technology</li> <li>■ 1T1R mode with support of 150Mbps PHY rate</li> <li>■ Integrate high efficiency switching regulator</li> <li>■ Best-in-class power consumption performance</li> <li>■ 1/2/3/4-wire PTA Wi-Fi/Bluetooth coexistence support</li> <li>■ IEEE 802.11d/h/k compliant</li> <li>■ Security support for WFA WPA/WPA2 personal, WPS2.0 ,WAPI</li> <li>■ Support 802.11w protected managed frames</li> <li>■ QOS support of WFA,WMM,WMM PS</li> <li>■ Support Wi-Fi Direct</li> <li>■ Fully compliance with USB v2.0 High-Speed mode</li> <li>■ Per packet transmit power control</li> <li>■ Antenna diversity</li> </ul>	

## ■ Auto-calibration

### 4. Electrical Characteristics

Symbol	Rating	MIN	TYP	MAX	Unit
VDD33	3.3V Supply Voltage	2.97	3.3	3.63	V
VDD12	1.2V Supply Voltage	1.14	1.2	1.26	V
VDD15	1.5V Supply Voltage	1.425	1.5	1.575	V
T <sub>AMBIENT</sub>	Ambient Temperature	-10	-	70	°C

Recommended operating range

Symbol	Parameter	Conditions	MIN	MAX	Unit
V <sub>IL</sub>	Input Low Voltage	LVTTL	-0.28	0.6	V
V <sub>IH</sub>	Input High Voltage		2.0	3.63	V
V <sub>T-</sub>	Schmitt Trigger Negative Going Threshold Voltage	LVTTL	0.68	1.36	V
V <sub>T+</sub>	Schmitt Trigger Positive Going Threshold Voltage		1.36	1.7	V
V <sub>OL</sub>	Output Low Voltage	I <sub>OL</sub>   = 1.6~14 mA	-0.28	0.4	V
V <sub>OH</sub>	Output High Voltage	I <sub>OH</sub>   = 1.6~14 mA	2.4	VDD33+0.33	V
R <sub>PU</sub>	Input Pull-Up Resistance	PU=high, PD=low	40	190	KΩ
R <sub>PD</sub>	Input Pull-Down Resistance	PU=low, PD=high	40	190	KΩ

DC Characteristics

### 5. The main performance of product

Item	Description
The supported protocol and standard	IEEE 802.11n, IEEE 802.11g, IEEE 802.11b
Interface type	USB2.0
The range of frequency	2.4-2.484GHZ
The amount of working Channel	1-11 (America, Canada) ;1-13 (China, Europe) ;1-14 (Japan)
Data Modulation	OFDM/DBPSK/DQPSK/CCK
Working Mode	Infrastructure, Ad-Hoc
The transmitting rate	135/54/48/36/24/18/12/9/6 /1M (self-adapting)
Spread spectrum	DSSS
Sensitivity @PER	54/135M:-74dBm@10%PER, 11M:-85dBm@8%PER 6M: -88dBm@10%PER , 1M: -90dBm@8%PER
RF Power	135M:14dBm, 54M:14dBm,

	11M:16dBm
Throughput	90Mbps(external 2dbi antenna ,damping 40dbm in Shielding box )
The connect type of Antenna	Connect to the external antenna through the IPEX
The transmit distance	Indoor 100M, Outdoor 300M, according the local environment
Working Power consumption	455MW
MENS(L *W*H)	17MM*39.5MM*1.0MM
The chipset model	MT7601U

## 6. DC/RF characteristics

Terms	Contents			
Specification : IEEE802.11b				
Mode	DSSS / CCK			
Frequency	2412 – 2484MHz			
Data rate	1, 2, 5.5, 11Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	239	245	249	mA
Rx mode	91	92	93	mA
standby mode	47	48	48	mA
Specification : IEEE802.11g				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6, 9, 12, 18, 24, 36, 48, 54Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	149	150	153	mA
Rx mode	92	93	100	mA
standby mode	46	48	49	mA
Specification : IEEE802.11n				
Mode	OFDM			
Frequency	2412 - 2484MHz			
Data rate	6.5, 13, 19.5, 26, 39, 52, 58.5, 65Mbps			
DC Characteristics	min	Typ.	max.	unit
TX mode	151	152	153	mA
Rx mode	91	92	93	mA
standby mode	47	48	49	mA

## 7.The block diagram of product principle

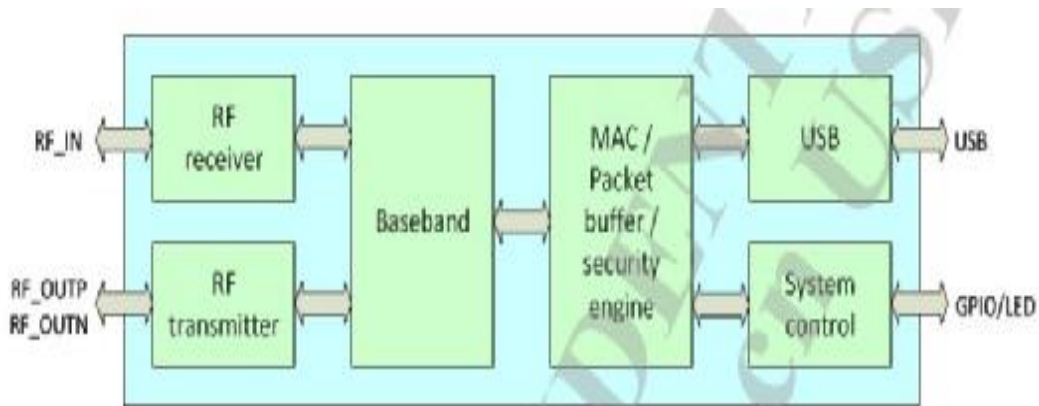


Figure 1 MT7601 block diagram

## 8. The supported platform

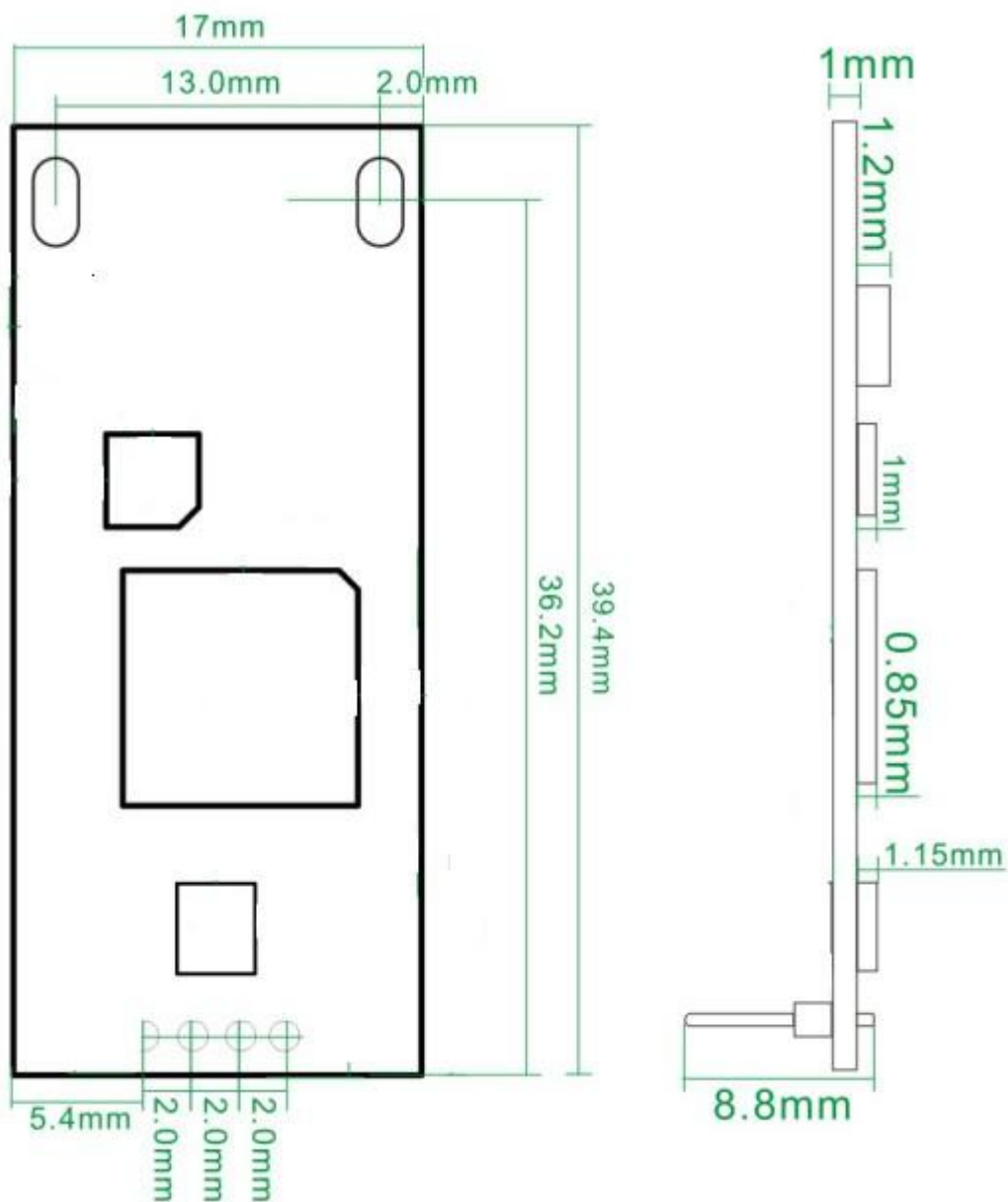
Operating System	CPU Framework	Driver
WIN2000/XP/VISTA/WIN7	X86 Platform	Enable
LINUX2.4/2.6	ARM, MIPSII	Enable
WINCE5.0/6.0	ARM ,MIPSII	Enable

## 9.The definition of product Pin



Pin No:	TYPE	Description
1	P	DC :5V
2	I/O	UDM-
3	I/O	UDP+
4	P	GND

## 10.The Structure and Size of product

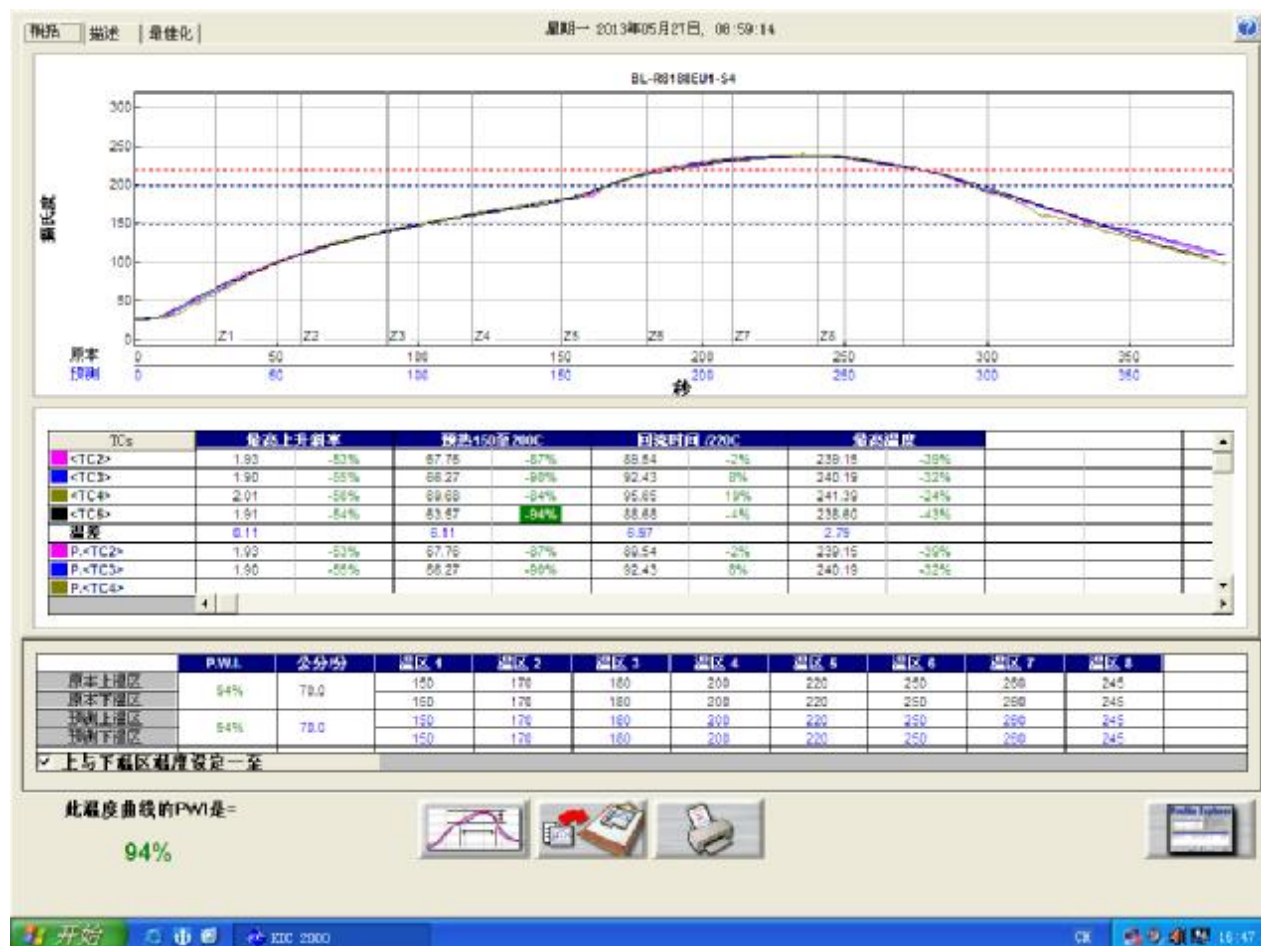




## 11: Packing



## 12. Typical Solder Reflow Profile





## Caution:

This device complies with Part 15 of the FCC Rules / Industry Canada licence-exempt RSS standard(s). 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

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

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 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.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

## MPE Reminding

To satisfy FCC RF exposure requirements, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance is not recommended.

Les antennes installées doivent être situées de façon à ce que la population ne puisse y être exposée à une distance de moins de 20 cm. Installer les antennes de façon à ce que le personnel ne puisse approcher à 20 cm ou moins de la position centrale de l' antenne. La FCC des États-Unis stipule que cet appareil doit être en tout temps éloigné d'au moins 20 cm des personnes pendant son fonctionnement.

### For detachable antennas:

This radio transmitter (identify the device by certification number, or model number if Category II) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Gain of antenna: 2.5dBi max.  
Type of antenna: Omni-directional  
Impedance of antenna: 50ohm

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Gain d'antenne: 2.5dBi maximal  
Type d'antenne: 50 ohm, Omni-directionnel

### Region Selection

Limited by local law regulations, version for North America does not have region selection option.

### Information for the OEM Integrators

This device is intended for OEM integrators only. Please see the full grant of equipment document for restrictions.

### Label Information to the End User by the OEM or Integrators

If the FCC ID of this module is not visible when it is installed inside another device, then the outside of the device into which the module is installed must be labeled with "Contains FCC ID:YLZ-BLR7601HL and IC:9088A-BLR7601HL".