

# **ITTIM Technology Inc.**

## **Manual**

**Version: v1.1**

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**Part Number: ITM-UB12-S06PXX0000NV2**

**Product Description: WiFi 1x1 802.11bgn USB  
Module**

# ITM-UB12-S06PXX0000NV2

## General Description

The module ITM-UB12-S06PXX0000NV2 is a highly integrated solution for 2.4 GHz 802.11n-ready wireless local area networks (WLANs) that enables a high-performance 1x1 configuration for wireless station applications demanding robust link quality and maximum throughput and range.

The ITM-UB12-S06PXX0000NV2 integrates a multi-protocol MAC, baseband processor, analog-to-digital and digital-to-analog (ADC/DAC) converters, 1x1 radio transceiver, RF switch, and USB interface in an all-CMOS device for low power and small form factor applications.

The ITM-UB12-S06PXX0000NV2 implements half-duplex OFDM, CCK, and DSSS baseband processing, supporting 72.2 Mbps for 20 MHz and 150 Mbps for 40 MHz channel and IEEE 802.11b/g data rates. Other features include signal detection, automatic gain control, frequency offset estimation, symbol timing, and channel estimation. The ITM-UB12 MAC supports the 802.11 wireless MAC protocol, 802.11i security, receive and transmit filtering, error recovery, and quality of service (QoS). The ITM-UB12 supports one transmit traffic stream and one receive traffic stream using one integrated Tx chain for high throughput and range performance. The Tx chain combines baseband in-phase (I) and quadrature (Q) signals, converts them to the desired frequency, and drives the RF signal to the antenna. The frequency synthesizer supports frequencies defined by IEEE 802.11b/g/n specifications.

The ITM-UB12-S06PXX0000NV2 supports frame data transfer to and from the host using a USB interface that provides interrupt generation/reporting, power save, and status reporting. Other external interfaces include serial EEPROM and GPIOs. The ITM-UB12-S06PXX0000NV2 is interoperable with standard legacy 802.11b/g devices.

## Features

- All-CMOS solution interoperable with IEEE 802.11b/g/n WLANs
- Intergrate PA, LNA, Rx/Tx switch
- Supports 72.2 Mbps for 20 MHz and 150 Mbps or 40 MHz channel operations
- Supports WMM
- Supports WAPI
- Supports WiFi Direct
- Support SoftAP
- USB 2.0 interface
- 6-pin, 18.2 mm x 14.8 mm

## RF Performance

### - Tx Power

Max Output Power: 15dBm for 802.11b, 13dBm for 802.11g, 12dBm for 802.11n20, 11dBm for 802.11n40

Antenna Type: Chip Antenna

Antenna gain: 0dBi(declare by Applicant)

## **FCC Caution.**

1. 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.

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

3. 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.

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 & your body

The antenna(s) used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Only those antenna(s) tested with the device or similar antenna(s) with equal or lesser gain may be used with this transmitter

The WIFI module is designed to comply with the FCC statement. FCC ID is 2AEU8UB12. The host system using Windos7, should have label indicated it contain modular's FCC ID 2AEU8UB12

This radio module must not installed to co-locate and operating simultaneously with other radios in host system , additional testing and equipment authorization may be required to operating simultaneously with other radio.

### Instruction for OEM:

- a: Please provide below statement on the end product user manual or on the product.
- b: This LMA does not have RF shielding and is tested and approved as standalone configuration, additional evaluation may be required for any system integrated this radio module.
- c: The following regulatory and safety notices must be published in documentation supplied to the end user of the product or system incorporating the WIFI module, in compliance with local regulations. Host system must be labeled with "Contains FCC ID: 2AEU8UB12", FCC ID displayed on label.
- d: 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 & your body
- e: This radio module must not be installed to co-locate and operating simultaneously with other radios in host system, additional testing and equipment authorization may be required to operating simultaneously with other radio.
- f: This module has data buffer.
- g: This module has internal power regulation inside the chipset.
- h: The modular has an integral chip antenna, it's fulfil the requirements of 15.203.
- i: The modular is tested in a stand-alone configuration powered by USB Port.
- k: The modular complies with any applicable RF exposure requirements.

### - Rx Sensitivity

Data Rate (Mbps)	Sensitivity (dBm)				
Legacy Mode	2412 MHz	2437 MHz	2462 MHz	2472 MHz	
1L	-95	-96	-96	-95	
6	-90	-91	-91	-90	
11S	-90	-87	-87	-87	
54	-76	-76	-76	-75	
HT20 Mode					
MCS 7	-73	-73	-72	-72	
MCS 0	-90	-91	-91	-90	
HT 40 Mode	2422 MHz	2437 MHz	2452 MHz	2457 MHz	2462 MHz
MCS 7	-69	-69	-69	-69	-69
MCS 0	-87	-87	-88	-87	-87

### Pin Description

Pin No.	Name	Description
1	GND	GROUND
2	USB_D+	USB D+ Signal
3	USB_D-	USB D- Signal
4	Vdd33	3.3V Power Supply
5	GND	GROUND
6	RFIN	RF interface

Electrical Characteristics

- Absolute Maximum Ratings

Symbol	Parameter	Max Rating	Unit
Vdd33	Maximum Supply Voltage	-0.3 to 4.0	V
RFin	Maximum RF Input (reference 50Ω)	+10	dBm
Tstore	Storage Temperature	-65 to 150	C

- Recommended Operation Conditions

Symbol	Parameter	Min	Typ	Max	Unit
Vdd33	Supply Voltage	2.97	3.3	3.63	V

Mechanical Drawing & Mechanical Size

