

Brand name: Thermo Fisher Scientific

Model name: 100097489

802.11ac/a/b/g/n USB Dongle

## Support Multiple Operation Systems (Android/Linux/Windows)

Life Technologies Holdings Pte Ltd 100097489 is a highly integrated single-chip Wireless LAN (WLAN), Bluetooth which supports 2 streams 802.11ac solutions with multi-user MIMO (Multiple-Input, Multiple-Output) wireless LAN (WLAN) and integrated Bluetooth 4.2. It is integrated 2T2R WLAN MAC, baseband, and dual band RF in a single chip. 100097489 provides a cost effective solution for M2M (machine to machine) connectivity product/device by one USB port, it can be easily integrated into the most familiar operation system (Android/Linux/Windows).

100097489 802.11ac/a/b/g/n USB Dongle with various USB input format & internal printing or external RF antenna connector for high performance wireless LAN and Bluetooth device. It is designed to provide completely M2M connection & excellent cost performance with low power consumption and enhance the advantages of robust system & applications.

### Embedded Application

Applications include portable handheld devices, thin client computer, medical devices, network security & monitoring, 3D printer, TV, STB, POS, digital signs, gaming machine, robotic machinery, industrial tablets, etc.

### Key Feature

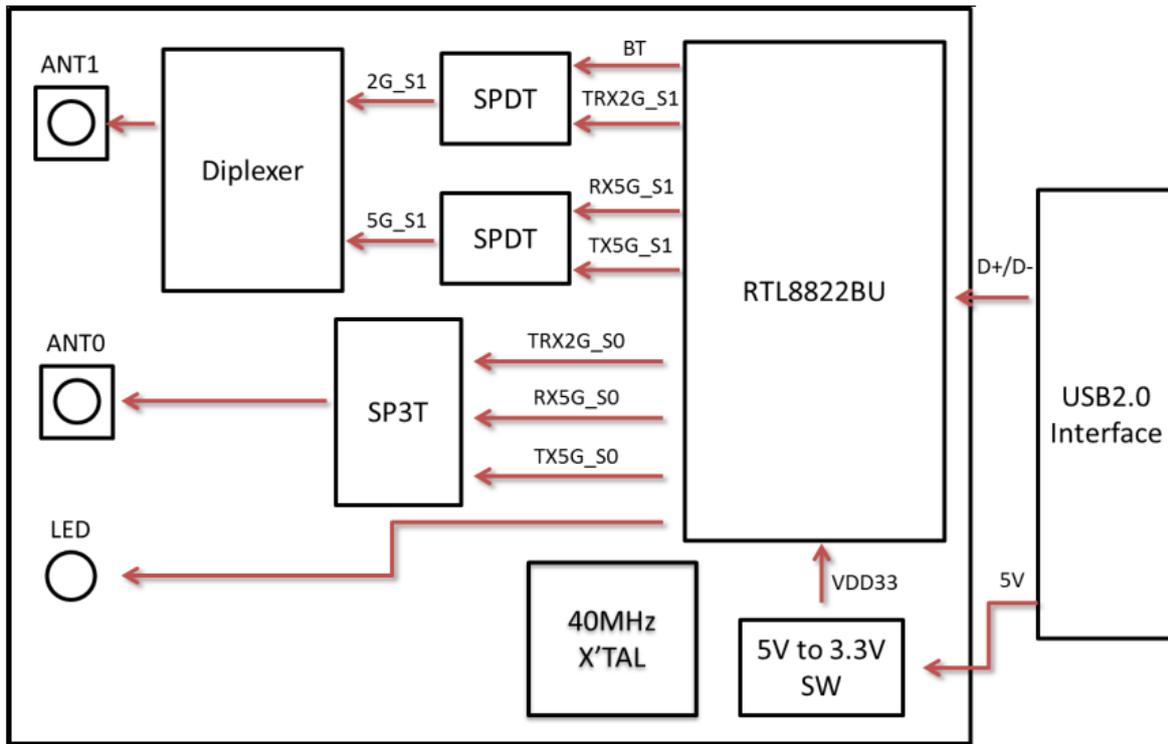
- 802.11ac/a/b/g/n Wi-Fi+Bluetooth 4.2
- Support 802.11ac 2x2, compliant with MU-MIMO  
Operates in 2.4GHz and 5GHz frequency bands
- Maximum data rates: 54Mbps in 802.11g,  
300Mbps in 802.11n, 866.7Mbps in 802.11ac.
- Support Multiple Operation Systems  
(Android/Linux/Windows)

## Specification

<b>Standards</b>	IEEE 802.11ac/a/b/g/n (2T2R) Bluetooth V4.2, V4.1, V4.0 LE, V3.0+HS, V2.1+EDR
<b>Chipset</b>	Realtek RTL8822BU-CG
<b>Data Rate</b>	802.11b: 11Mbps 802.11a/g: 54Mbps 802.11n: MCS0~7 802.11ac: MCS0~9 Bluetooth: 1Mbps, 2Mbps and up to 3Mbps EDR
<b>Operating Frequency</b>	IEEE 802.11ac/a/b/g/n ISM Band: 2.412GHz~2.484GHz, 5.150GHz~5.850GHz *Subject to local regulations
<b>Interface</b>	WLAN: USB ; Bluetooth: USB
<b>Form Factor</b>	USB Type A
<b>Antenna</b>	Printed Ant. (ANT0 for WLAN only, ANT1 for WLAN+BT)
<b>Modulation</b>	Wi-Fi : 802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11n: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11a: OFDM (BPSK, QPSK, 16-QAM, 64-QAM) 802.11ac: OFDM (BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM) Bluetooth: Header: GFSK Payload 2M: $\pi/4$ -DQPSK Payload 3M: 8-DPSK
<b>Power Consumption</b>	TX mode: 450Ma(Max.) RX mode: 250mA(Max.)
<b>Operating Voltage</b>	DC 5V
<b>Operating Temperature Range</b>	-20°C~70°C
<b>Storage Temperature Range</b>	-40°C~80°C
<b>Humidity</b>	5%~95% (Operating)

<b>(Non-Condensing)</b>	5%~90% (Storing)
<b>Driver Support</b>	Win7/8.1/10, Linux, Android
<b>Security</b>	64/128-bits WEP, WPA, WPA2, 802.1x

**Block Diagram**



Pin	Description
Pin_1	USB 5V
Pin_2	USB D-
Pin_3	USB D+
Pin_4	USB GND
LED	WiFi LED
Ant_0	RF Antenna for WiFi 2.4GHz/5GHz
Ant_1	RF Antenna for WiFi 2.4GHz/5GHz & Bluetooth

## Installation

- Connect the Dongle to the USB port of the computer.
- Install Wi-Fi driver and Bluetooth driver.
- After the Wi-Fi Driver is installed , click the Network icon on the Windows, then search the network , and connect the Wireless Network you want.

**Federal Communication Commission Interference Statement:**

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.

Any changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

**RF exposure statements**

The product complies with the FCC portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the product can be kept as far as possible from the user body or set the device to lower output power if such function is available.

These requirements set a SAR limit of 1.6 W/kg averaged over one gram of tissue. The highest SAR value reported under this standard during product certification for use when used close to the body is 0.535 W/kg.

**Industry Canada statement:**

This device complies with Industry Canada license-exempt RSSs. Operation is subject to the following two conditions:

- 1) This device may not cause interference, and
- 2) This device must accept any interference, including interference that may cause undesired operation of the device.

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;

2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution:

1) The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

2) For devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

3) For devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate; and

Avertissement:

1) Le dispositif fonctionnant dans la bande 5150-5250 MHz est réservé uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

2) Le gain maximal d'antenne permis pour les dispositifs avec antenne(s) amovible(s) utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limitation P.I.R.E.;

3) Le gain maximal d'antenne permis pour les dispositifs avec antenne(s) amovible(s) utilisant la bande 5725-5850 MHz doit se conformer à la limitation P.I.R.E. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

Radiation Exposure Statement:

This EUT is compliance with SAR for general population/uncontrolled exposure limits in IC RSS-102 and had been tested in accordance with the measurement methods and procedures specified in IEEE 1528 and IEC 62209.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet appareil est conforme aux limites d'exposition DAS incontrôlée pour la population générale de la norme CNR-102 d'Industrie Canada et a été testé en conformité avec les méthodes de mesure et procédures spécifiées dans IEEE 1528 et IEC 62209.

Cet appareil et sa ou ses antennes ne doivent pas être co-localisés ou fonctionner en conjonction avec tout autre antenne ou transmetteur.

Body SAR: 0.813 W/kg

This radio transmitter (IC: 12442A-WUBT236ACN has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain 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.

Le présent émetteur radio (IC: 12442A-WUBT236ACN a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés cidessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Antenna Type	Printed					
Antenna Connector	NA					
Gain (dBi)	Frequency (MHz)					
	2400	2450	2500	5150	5550	5825
Ant. 1	2.5	3.2	2.8	3.3	3.7	4.2
Ant. 2	3.2	2.9	2.7	3.1	3.5	4.0

**NCC 警語：**

型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾

應避免影響附近雷達系統之操作。

高增益指向性天線只得應用於固定式點對點系統。