

LM842 WiFi 802.11ac / Bluetooth® 5.0 2T2R USB Adapter

USB 2.0 Interface

Revised 26/JAN/2021
 Datasheet Version 2.0
 Ordering Options See last page



Features

- WiFi 802.11ac, abgn
- Wave-2 compatible with MU-MIMO
- Bluetooth® v5.0 Dual Mode (Backwards compatible from Bluetooth® v4.2)
- WPA, WPA-PSK, WPA2, WPA2 -PSK and WEP (64bit & 128bit) encryption schemes
- 2.4 GHz and 5GHz ISM Frequency bands
- 2T2R 802.11n 2.4GHz WiFi 300Mbps data rate [Untested]
- 2T2R 802.11ac 5GHz WiFi 867Mbps data rate [Untested]
- 2T2R BT5.0 2.4GHz 1.3Mbps data rate [Tested]
- WiFi/Bluetooth® coexistence enabled
- USB 2.0 with multi interface controller
- 32-37mm x 17.1mm x 9.4mm
- Bluetooth® SIG, FCC, CE, Canada, Australia, Brazil, India, Pakistan, Russia, Singapore
- RoHS, REACH and WEEE, plus CCATS/ECCN.



Overview

The LM842 USB Adapter (Dongle) complies with Bluetooth® 5.0 (Dual Mode) and IEEE 802.11ac WiFi Standards of operation. Using a fully integrated single-chip that supports 2-stream 802.11ac solutions with Multi-user MIMO (Multiple-Input, Multiple-Output)

Supplied in two option form factors

With 2 x Onboard Metal Frame Antennas, or 1 x Metal Frame and 1 x SMA

Compliant to; IEEE 802.11ac, abgn additional standards,
 Compliant to; Bluetooth® 5.02 and backward compatible with Bluetooth v2.1+EDR / v3.0 / v3.0+HS / v4.0, 4.1, & 4.2 with both BR/EDR. Classic and LE can operate simultaneously.
 The Realtek IC, RTL8822CU uses a USB main interface. LM842 offers high throughput for both WiFi and Bluetooth® connections, connected via a (HCI) USB 2.0 TYPE A interface.

Certification

The LM842 is certified for United States of America, under FCC and Europe under CE standards. Further countries by request depending on volumes. LM Technologies Ltd has a wealth of experience and has certified products all over the world, with access to a global network of local representatives, enabling fast certification processing when requested. Please enquire with us for further details.



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General Specification

Wireless

| | |
|-------------------|---|
| Wireless Standard | WiFi: 802.11ac, abgn-dehi Bluetooth®: v2.1+EDR/v3.0/v3.0+HS/v4.2 |
|-------------------|---|

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|--------------|---------------------------------|
| Adapter Type | Host Controller Interface (HCI) |
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|------------------|---------------------------------------|
| OS Compatibility | Android, Linux, Windows 7, Windows 10 |
|------------------|---------------------------------------|

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|----------|--|
| Security | WiFi: WPA, WPA-PSK, WPA2, WPA2 -PSK and WEP (64bit & 128bit) Bluetooth®: Simple Pairing |
|----------|--|

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|----------------------|--|
| Network Architecture | WiFi: Ad hoc mode (Peer-to-Peer) and Infrastructure mode Software AP; WiFi Direct Bluetooth®: Pico Net; Scatter Net |
|----------------------|--|

Hardware

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|---------|---------|
| Chipset | Realtek |
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|---------|----------------------|
| Antenna | Onboard Chip Antenna |
|---------|----------------------|

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|------------|---|
| Interfaces | USB 2.0 Maximum Throughput 480Mbps (58.7MBps) |
|------------|---|

RF Characteristics

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|-----------------|---|
| Tx Output Power | WiFi: 17dBm – 802.11b@CCK 11Mbps 15dBm – 802.11g@OFDM 54Mbps 13dBm – 802.11n@MCS7_HT20 13dBm – 802.11n@MCS7_HT40 13dBm – 802.11a@OFDM 54Mbps 9Bm – 802.11ac@NSS1 MCS9_VHT80 Bluetooth®: Maximum 7.8dBm |
|-----------------|---|

| | |
|----------------|---|
| Rx Sensitivity | WiFi: -80dBm – 802.11b@11Mbps -71dBm – 802.11g@54Mbps -67dBm – 802.11n@MCS7_BW20 -64dBm - 802.11n@MCS7_BW40 -57dBm – 802.11ac@NSS1_MCS9_BW20 Bluetooth®: -89dBm@1Mbps -90dBm@2Mbps -83dBm@3Mbps |
|----------------|---|



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General Specification (Continued)

RF Characteristics

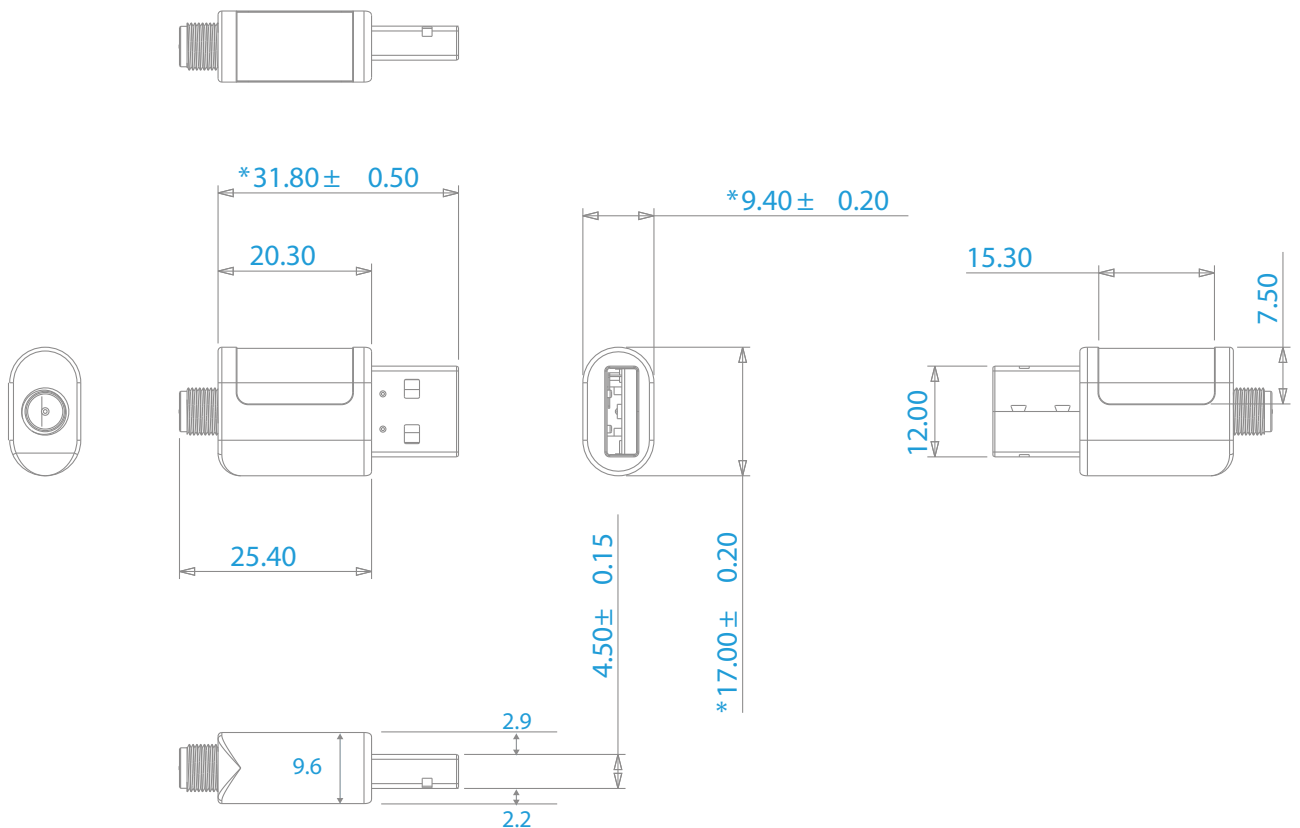
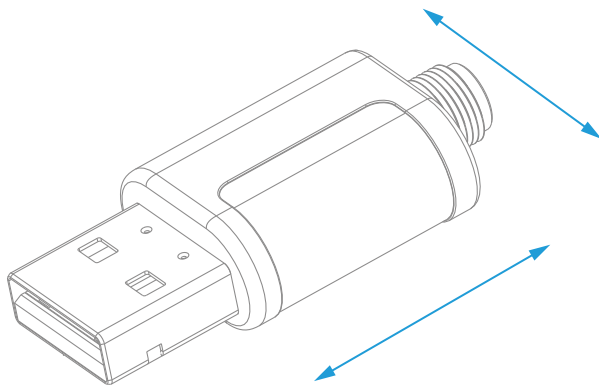
| | |
|-----------------------|--|
| Range (in open space) | WiFi: 220m Bluetooth®: Class 1 |
| Data Transfer Rate | WiFi: 802.11n mode up to 110Mbps 802.11ac mode up to 255Mbps Bluetooth®: Basic Rate 1.1 & 1.3Mbps |
| Frequency | 2.4GHz (2.4GHz - 2.4835GHz) and 5GHz (5.15GHz - 5.825GHz) |
| Modulation Scheme | WiFi: 802.11b: CCK, DQPSK, DBPSK 802.11g/n: 64QAM, 16QAM, QPSK, BPSK 802.11ac: 256QAM, 64QAM, 16QAM, QPSK, BPSK Bluetooth®: 8DPSK, $\pi/4$ DQPSK, GFSKFSK |
| Spread Spectrum | WiFi: IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11ac/a/g/n: OFDM (Orthogonal Frequency Division Multiplexing) Bluetooth®: FHSS (Frequency Hopping Spread Spectrum) |
| Operating Channel | WiFi (2.4GHz): 11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan Bluetooth® (2.4GHz): Ch. 0 to 78 |

Physical Characteristics

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|------------------------|---|
| Operating Temperature | -20°C to +85°C ambient temperature 5 to 90 % (non-condensing) |
| Storage Temperature | -40°C to +90°C ambient temperature 5 to 90 % (non-condensing) |
| USB Input Voltage | 5v |
| Dimensions (L x W x H) | 32-37mm x 17.1mm x 9.4mm |
| Weight | TBA |
| Certifications | See our website or enquire for this products certifications. |
| Compliance | RoHS, REACH and WEEE |
| Warranty | 2 Year Manufacturer RTB |

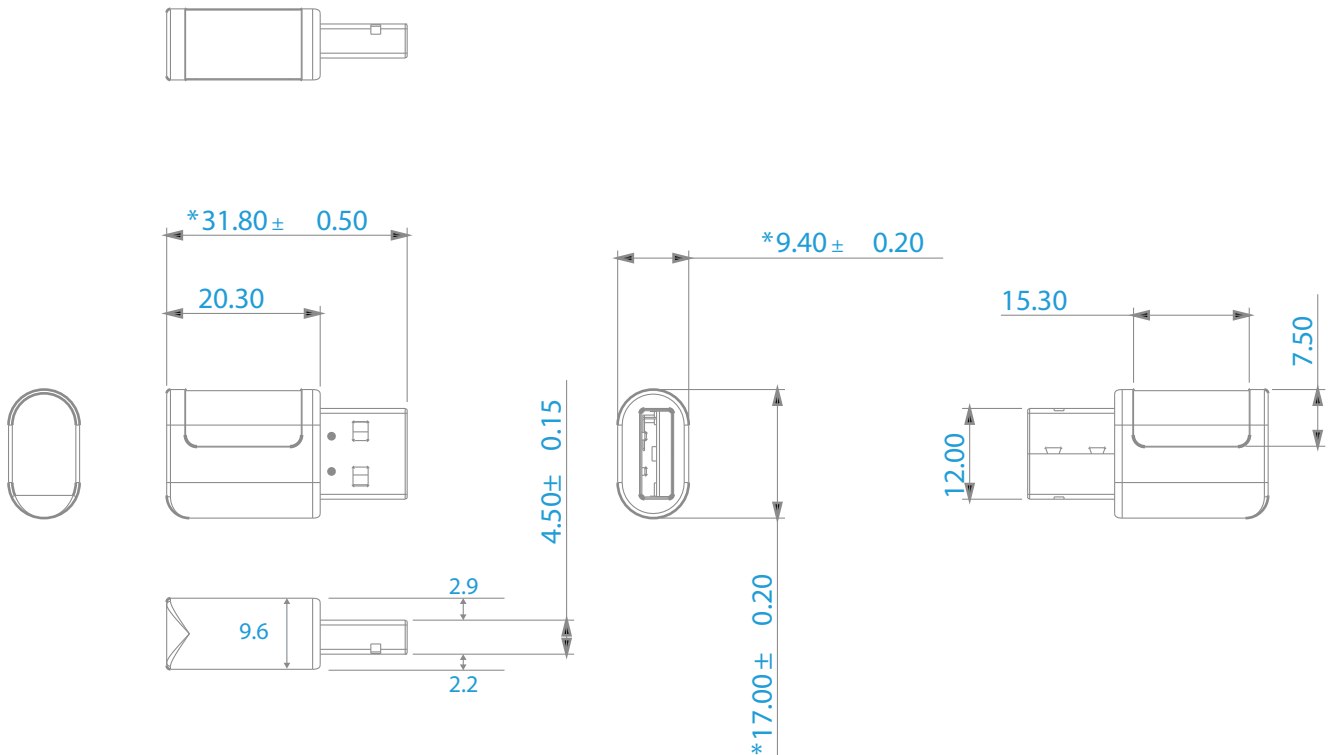
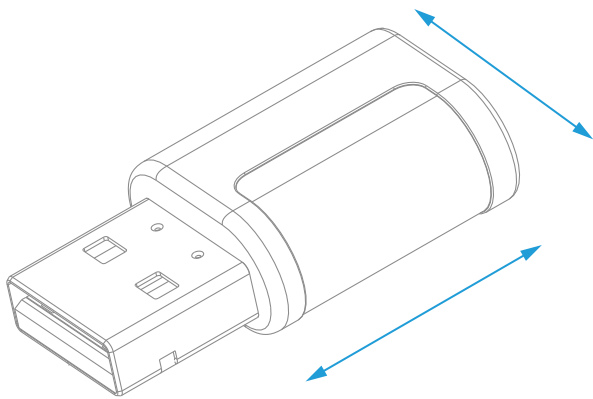
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Physical Dimensions (Version with 1 x SMA and 1 x Onboard Metal Frame Antenna)



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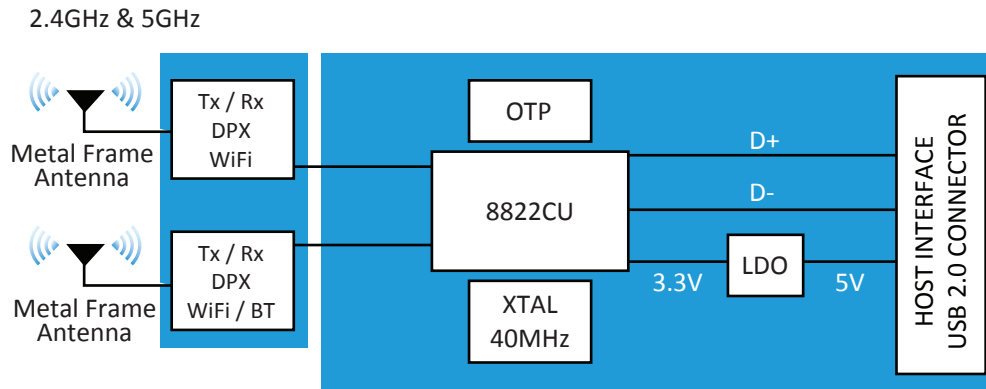
Physical Dimensions (Version with 2 x Onboard Metal Frame Antennas)



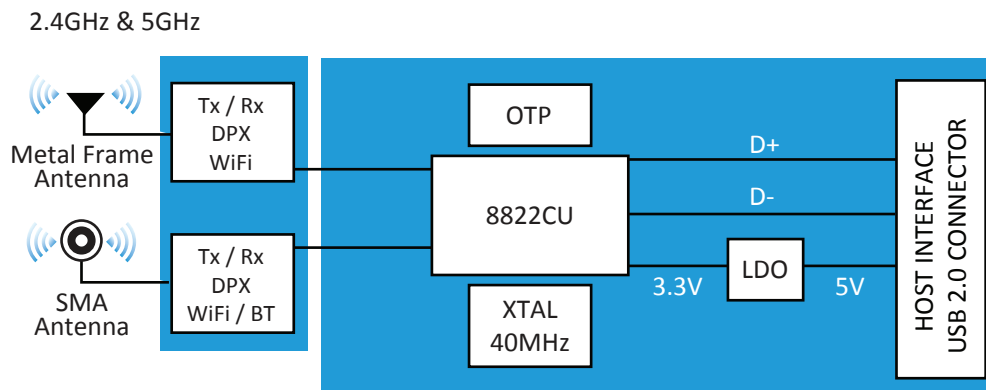
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XCVR Block Diagram (Version with 2 x Onboard Metal Frame Antennas)



XCVR Block Diagram (Version with 1 x SMA and 1 x Onboard Metal Frame Antenna)



Extended Temperature Range

Housing Insulation coupled with a PCB and BOM that use components rated at -40c, other than the Realtek IC that is a 0c rated component.

Our products undergo an intensive test regime which if the product successfully passes we then approve it for use at -20c and provide a warranty for the product for two years. Our temperature test report is available upon request.



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Datasheet Version Notes

| | | |
|------|-------------|--|
| v1.4 | 12/NOV/2019 | Added side view measurements to drawing dimensions. |
| v1.5 | 13/NOV/2019 | New photographs added. |
| v1.6 | 15/NOV/2019 | Removed Win 8/10 Compatibility until confirmed. |
| v1.7 | 30/JUL/2020 | Added Android, Linux, Windows 7, Windows 10 |
| v1.8 | 30/NOV/2020 | Dimensions amendment front page and General Spec page. |
| v1.9 | 22 JAN 2021 | Datasheet branding update. |
| v2.0 | 26 JAN 2021 | Bluetooth Tx Output Power updated to 7.8dBm. |



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Ordering Options



Version with 2 x Onboard Metal Frame Antennas

| | | | |
|----------|----|---|--------------|
| 842-8420 | | ADPT 802.11ac BT5 USB 433Mbps 5v MF ANT 2T2R AO | Adapter Only |
| 842-8421 | US | ADPT 802.11ac BT5 USB 433Mbps 5v MF ANT 2T2R AO | Adapter Only |
| 842-8422 | | ADPT 802.11ac BT5 USB 433Mbps 5v MF ANT 2T2R RP | Retail Pack |
| 842-8423 | US | ADPT 802.11ac BT5 USB 433Mbps 5v MF ANT 2T2R RP | Retail Pack |
| 842-8424 | | ADPT 802.11ac BT5 USB 433Mbps 5v MF ANT 2T2R SP | Sample Pack |



Version with 1 x SMA and 1 x Onboard Metal Frame Antenna

| | | | |
|----------|----|---|--------------|
| 842-8425 | | ADPT 802.11ac BT5 USB 433Mbps 5v MF SMA ANT 2T2R AO | Adapter Only |
| 842-8426 | US | ADPT 802.11ac BT5 USB 433Mbps 5v MF SMA ANT 2T2R AO | Adapter Only |
| 842-8427 | | ADPT 802.11ac BT5 USB 433Mbps 5v MF SMA ANT 2T2R RP | Retail Pack |
| 842-8428 | US | ADPT 802.11ac BT5 USB 433Mbps 5v MF SMA ANT 2T2R RP | Retail Pack |
| 842-8429 | | ADPT 802.11ac BT5 USB 433Mbps 5v MF SMA ANT 2T2R SP | Sample Pack |

• Product User Guides, Manuals and Configuration Software can be downloaded via our website - <http://www.lm-technologies.com/downloads>