

MESH-1010-D MESH MODULE

SPECIFICATION

V1.2

20160413

1. Overview

MESH-1010-D MESH module Shenzhen BOLUTЕК Electronics Technology Co., Ltd. is designed for data transmission and intelligent MESH build, using Qualcomm chip solution, compliant with the Bluetooth V4.0 specification.

This module uses 2.0mm pitch pin connections, low cost, small size, low power consumption, high receive sensitivity, easy to use and flexible, etc., can be composed of Mesh networks, network between each module.



2. Feature

Bluetooth protocol: Bluetooth V4.0

Power level: Class 2

Operating frequency: 2.402~2.480GHz ISM band

Acuity: -80dBm<0.1%BER

Support Agreement: DATA_SPEC、CTS_SPEC、GLS_SPEC、TPS_SPEC、BPS_SPES、HRS_SPEC、HIDS_SPEC、LLS_SPEC、PASS_SPEC

Power supply: 2.7~3.6V

Standby Current consumption: <50uA

Operating current consumption: ≤50mA

Contour Dimension: 30.0mm x 14.0mm x 2.2 mm

Low power consumption, microamp operating current

Ultra-low voltage power supply, you can use 3V button battery

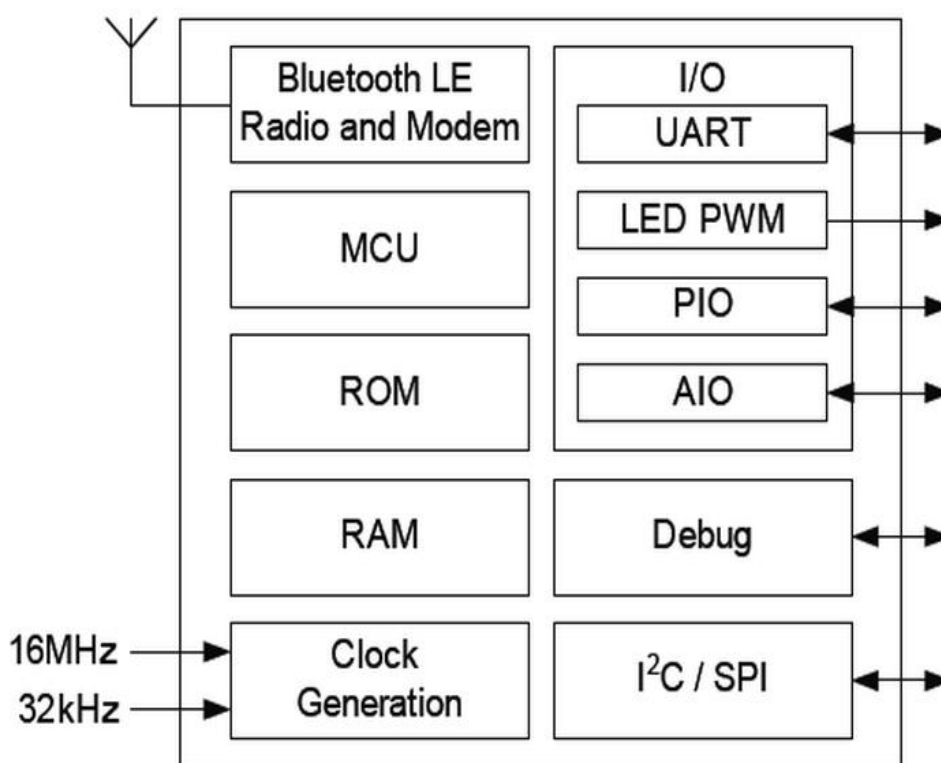
Support V4.0 Bluetooth protocol stack: ATT,GATT,SMPL,L2CAP,GAP

Support CSR Mesh networking, the network can have up to 65,535 devices, you can control two yellow and white lights.

3. Application Fields

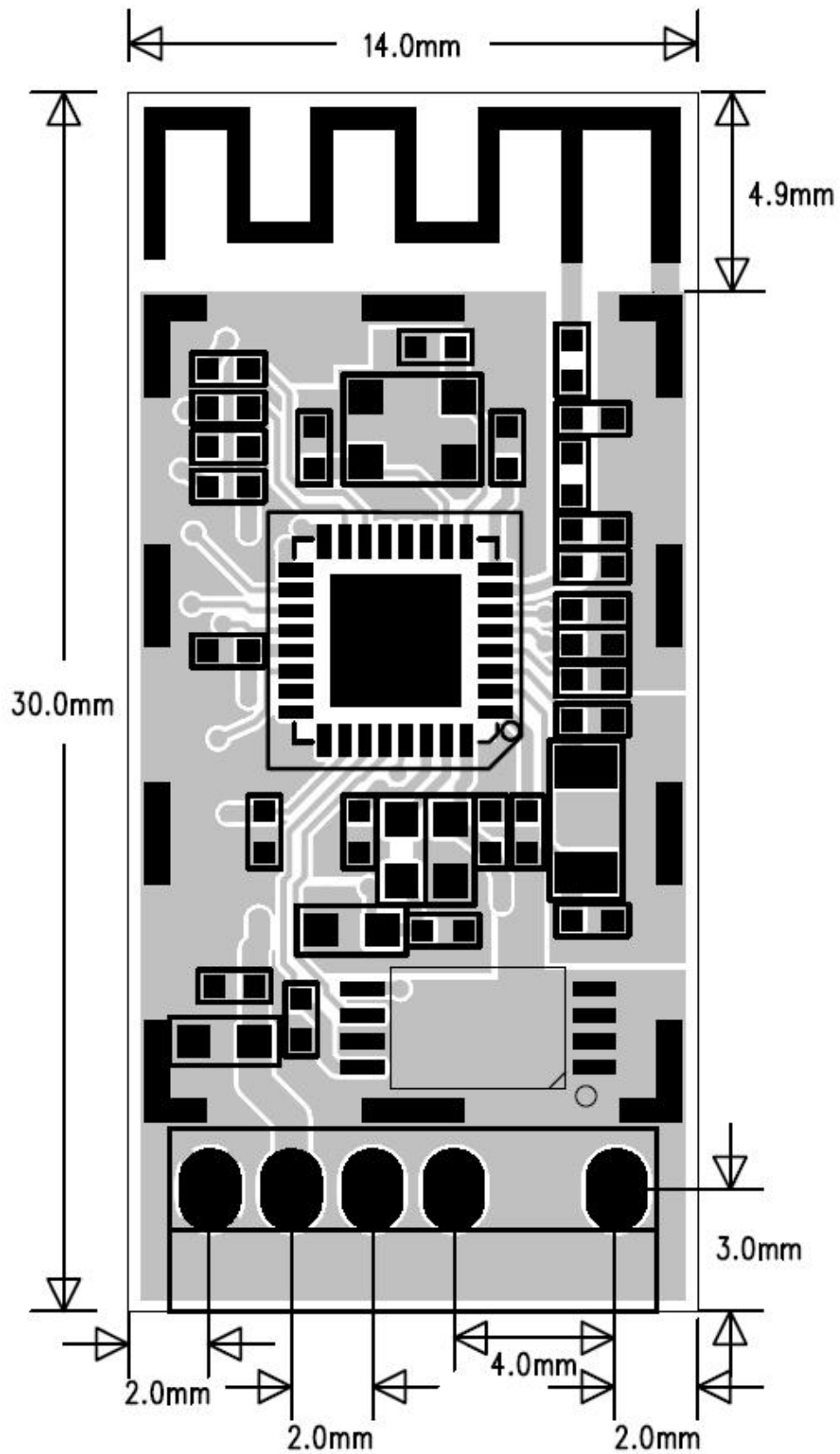
MESH network node apparatus,
MESH networking background lights, wall lights,, ceiling lights,
MESH smart home, lighting control, lighting color temperature control,
Household and leisure equipment, such as remote controls, toys,
Office supplies equipment such as printers, scanners, etc.,
MESH low-power ecosystem,
Phone peripheral accessories,
Other Human Interface Device
.....

4. Block Diagram

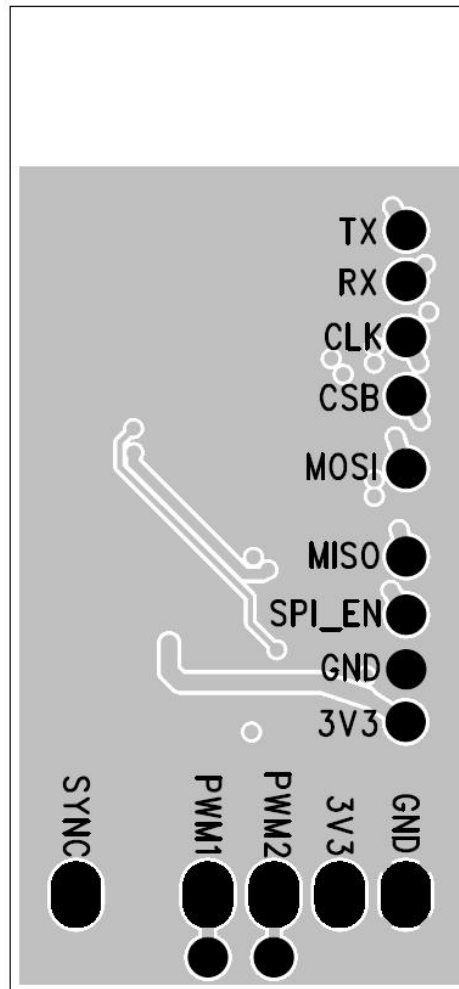


5. Contour Dimension

Type	Size
MESH-1010-D	30.0mm x 14.0mm x 2.2mm

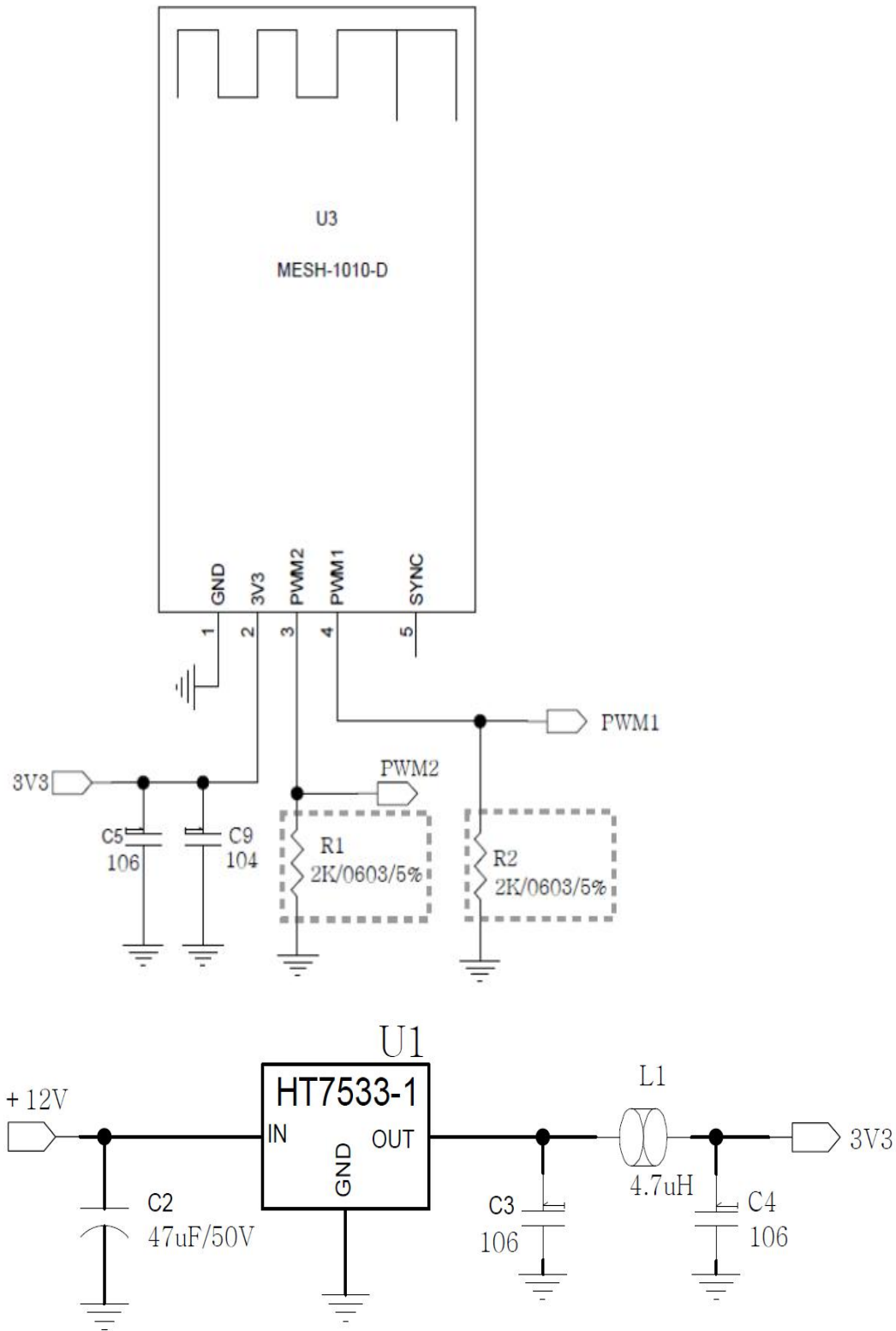


6.Pin Configurations

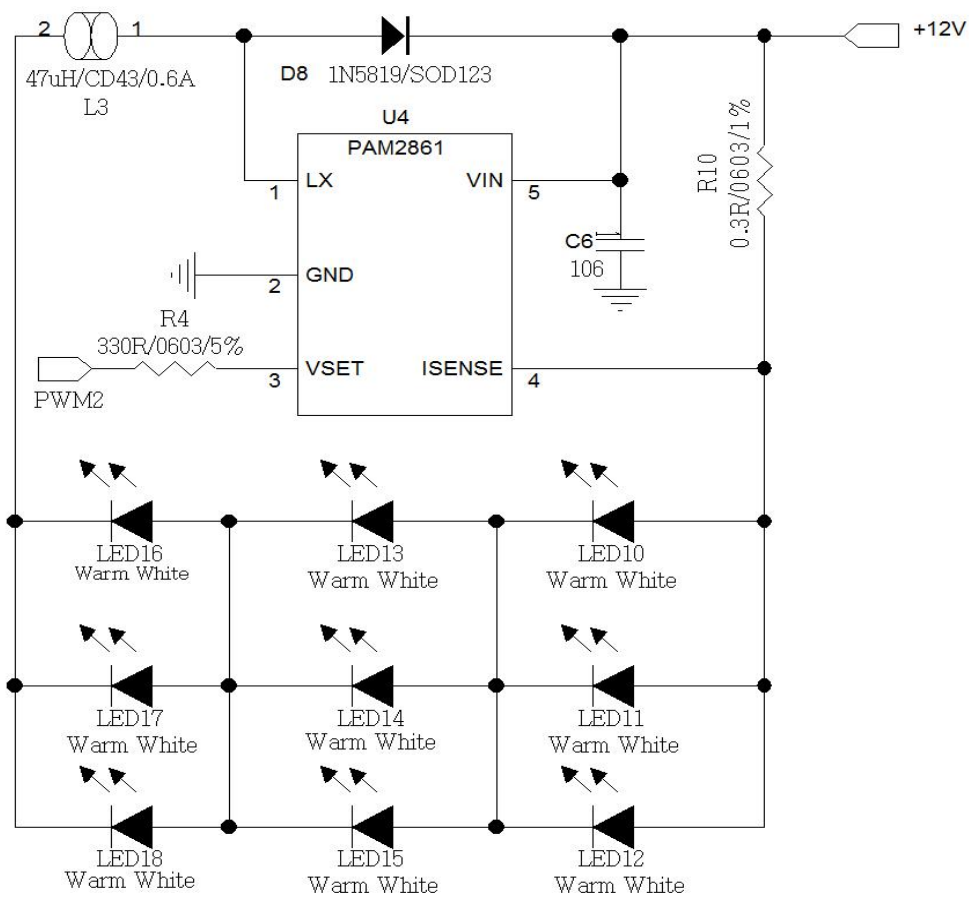
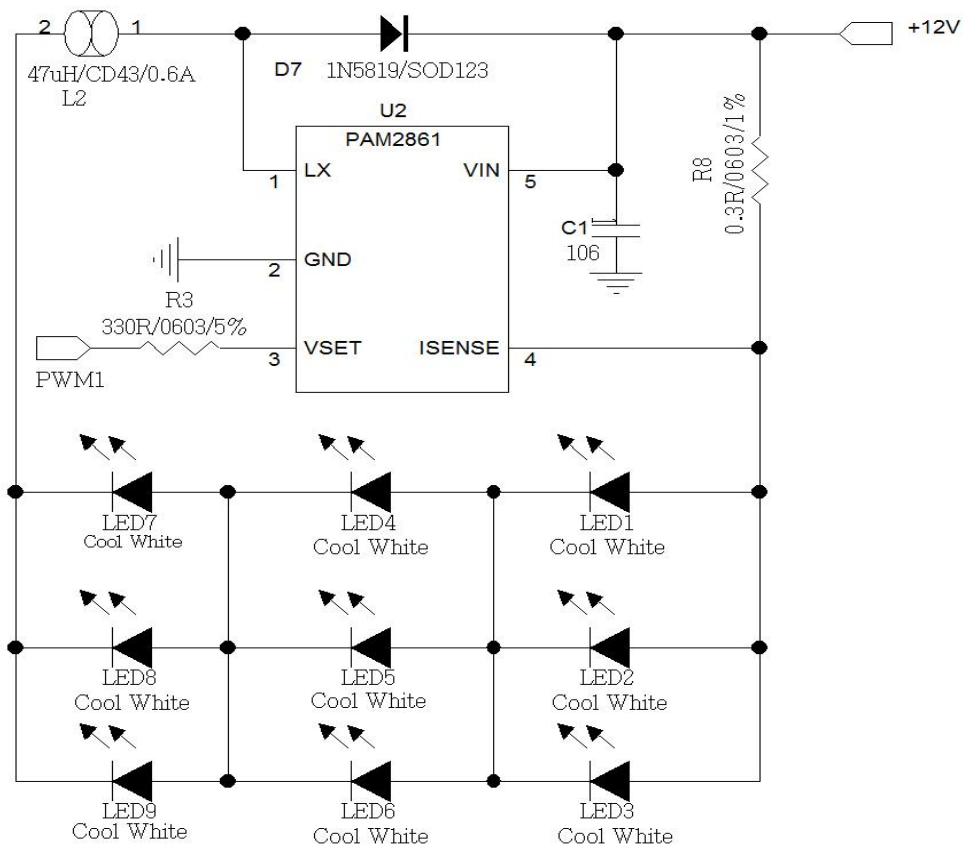


Pin NO.	Name	I/O	FUNCTION
1	GND	GND	Ground
2	3V3	IN	+3.3V Supply
3	PWM2	IN/OUT	Programmable Input/Output Line(PIO4)/Warm PWM Output
4	PWM1	IN/OUT	Programmable Input/Output Line(PIO3)/Cool PWM Output
5	SYNC	-	not connected
6	TX	OUT	UART Data Output
7	RX	IN	UART Data input
8	CLK	IN/OUT	Programmable Input/Output Line(PIO5)/SPI Clock
9	CSB	IN/OUT	Programmable Input/Output Line(PIO6)/SPI CSB
10	MOSI	IN/OUT	Programmable Input/Output Line(PIO7)/SPI_MOSI
11	MISO	IN/OUT	Programmable Input/Output Line(PIO8)/SPI_MISO
12	SPI_EN	IN	SPI Enable (active high)
13	GND	GND	Ground
14	3V3	IN	+3.3V Supply

7.Application Circuit Diagram



Note: This application circuit for the Bluetooth serial port circuitry, such as the need for other application, please contact Bolutek.



8. Electrical Characteristics

	min	Typ	max
Power Supply	1.8V	3.3V	3.6V
I/O interface Voltage	-0.4V	-	3.6V
Storage temperature	-40° C	-	85° C
Operating temperature	-30° C	-	85° C

9. Electric current

State	Description	Average Current	Remarks
Fast Advertisements	1. Switch on the Device 2. Wait for 5 s	380uA	Advertising Interval: 60 ms ▪ Measurement Time Duration: 20 s
Slow Advertisements	1. Switch on the device 2. Wait for 40 s	25uA	▪ Advertising Interval: 1.28 s ▪ Measurement Time Duration: 20 s
Connected Idle (Close UART)	1. Connect to the Host application 2. Wait for 60 s	14 μA	▪ Connection parameters: 500ms ▪ Measurement Time Duration: 60 s
Connected Active (Close UART)	1. Connect to the Host application 2. Wait for 60 s 3. APP transfer data to BT	26 μA	▪ Connection parameters: 500ms ▪ Measurement Time Duration: 60 s
disconnected	1. Disconnected the device 2. Wait for 90s	600nA	
Connected Idle (Open UART)	1. Connect to the Host application 2. Wait for 60 s	24uA	▪ Connection parameters: 500ms ▪ Measurement Time Duration: 60 s
Connected active APP→BT→MCU	1. Connect to the Host application 2. Wait for 60 s 3. APP transfer data to MCU	30uA	▪ Connection parameters: 500ms ▪ Measurement Time Duration: 60 s
Connected active MCU→BT→APP	1. Connect to the Host application 2. Wait for 60 s 3. MCU transfer data to APP	700~900uA	▪ Connection parameters: 500ms ▪ Measurement Time Duration: 60 s
Connected active Two-way transfer	1. Connect to the Host application 2. Wait for 60 s 3. APP and MCU transfer data at the same time	1mA	▪ Connection parameters: 500ms ▪ Measurement Time Duration: 60 s

10. Layout Announcements

- 1.MESH-1010-D MESH module serial level should be 3.3 V, if the connection and 5Vlevel system need to increase the level conversion chip.
- 2.MESH signal is highly affected by the surrounding,such as trees, metal, wall can have certain absorption on the bluetooth signal or block, so the installation is not recommended in the metal case.
- 3.Due to metal will weaken the function of antenna, it is suggested that Lay in the module board, don't lay GNDand a line under the antenna module, it is best to hollow out.

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11. FCC Statement

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.

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

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following:

"Contains Transmitter Module FCC ID: 2AB4G-MESH1010D13 Or Contains
FCC ID:2AB4G-MESH1010D13"

When the module is installed inside another device, the user manual of this device must contain below warning statements; 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. (2) This device must accept any interference received, including interference that may cause undesired operation. 2. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product.



12. Contact us

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