

## Difference Description

Cypress Modules CYBLE-413136-01 and CYBLE-473142-01 have the same PCB, peripheral parts and the same encapsulation of the main chip.

Modules **CYBLE-413149-01/ CYBLE-473148-01** have the same PCB, RF IC and peripheral parts as CYBLE-413136-01/CYBLE-473142-01, with the lone exception of removal of the Apple Authentication Chip. The Apple Authentication Chip is an isolated circuit on the board and only interacts with the I2C connection of the main IC on the module solution.

Module	RF IC	Apple Authentication IC	RAM Size (KB)	Flash Size (KB)	Package	Supported Bluetooth Standard	Supported Bluetooth version
CYBLE-413136-01	CYW20719B0	YES	512k	1M	QFN40	BLE Only	LE 4.2 Qualified
CYBLE-473142-01	CYW20719B1	YES	512k	1M	QFN40	BLE Only	LE 4.2 Qualified
<b>CYBLE-413149-01</b>	CYW20719B0	NO	512k	1M	QFN40	BLE Only	LE 4.2 Qualified
<b>CYBLE-473148-01</b>	CYW20719B1	NO	512k	1M	QFN40	BLE Only	LE 4.2 Qualified

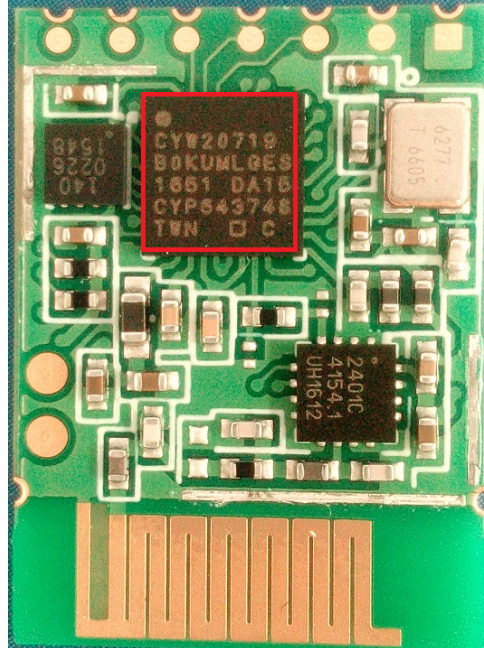
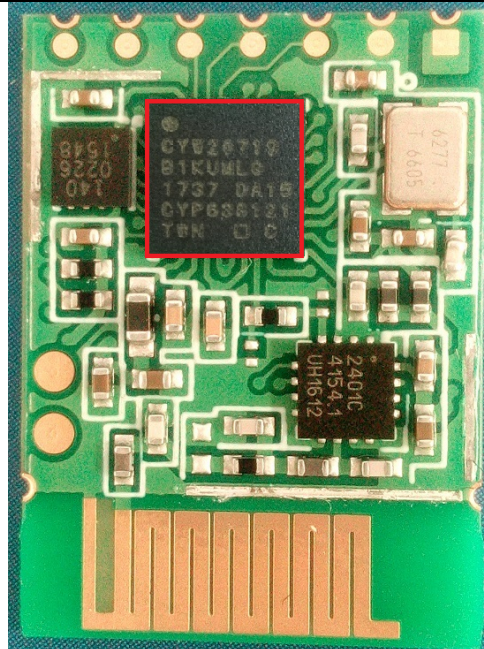
The ROM firmware in the CYW20719B0 and CYW20719B1 has differences related to Bluetooth Classic (EDR/BR) operation. NOTE that the module solutions stated above are qualified and certified for Bluetooth Low Energy (BLE) operation only. Bluetooth Classic (BR/EDR) support is not supported for these modules. RF characteristics for the Bluetooth Low Energy operation of the CYW20719B0 and CYW20719B0 silicon devices are identical.

The Apple Authentication Chip is used for Apple HomeKit authentication during operation. This chip will be replaced with a FW Authentication scheme recently announced by Apple.

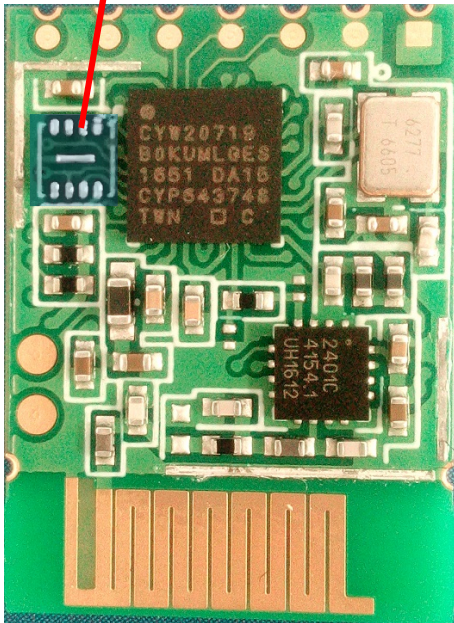
The RF characteristics of these four modules are the same.

Operation Frequency	2402 MHz – 2480 MHz
No. of Channel	40
Channel Spacing	2 MHz
Modulation	GFSK
Transmit power (ERP)	7.5 dBm (5.6mW)
Data Rate	1 Mbps
Antenna Type	PCB Trace Antenna
No. of Antenna(s)	One
Antenna Gain	-0.5 dBi
Supply Voltage	3.0V to 3.6V (test under 3.3V)
Dimension	17.7mm*20mm
Working Environment	-30 °C to +105 °C

Picture of modules are as below:

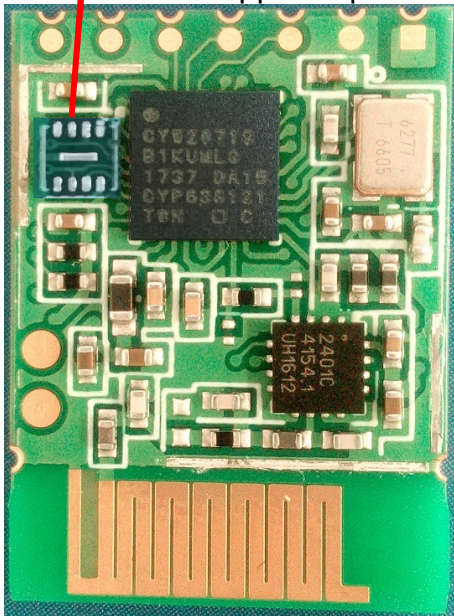
 <p>A photograph of a green printed circuit board (PCB) populated with various electronic components. A red rectangular box highlights a central black integrated circuit (IC) chip. The chip is labeled with the following text: CYW20719, B0KUMLGES, 1651 DA16, CYP543748, and T0N □ C. Other visible components include a smaller black chip labeled 2401C, 4154.1, UH1612, and a white ceramic capacitor labeled 4277, 1.6605. A gold-plated connector strip is visible at the bottom of the board.</p>	<p>CYBLE-413136-01</p>
 <p>A photograph of a green printed circuit board (PCB) populated with various electronic components. A red rectangular box highlights a central black integrated circuit (IC) chip. The chip is labeled with the following text: CYW20719, B1KUMLG, 1737 DA16, CYP638131, and T0N □ C. Other visible components include a smaller black chip labeled 2401C, 4154.1, UH1612, and a white ceramic capacitor labeled 4277, 1.6605. A gold-plated connector strip is visible at the bottom of the board.</p>	<p>CYBLE-473142-01</p>

Remove apple chip



CYBLE-413149-01

Remove apple chip



CYBLE-473148-01

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