PJX-HLCAM

PJX-BL6212
WIFI Module

Specification

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Version	Editor	Participator	Valid from	Remark
V1.1	**Henry Ho**		2022-09-08	

0 Amendment

1 General Description

BL-M3438BS1 product is designed base on CYW43438 chipset. It operates at 2.4GHz band and supports IEEE802.11b/g/n 1T1R with wireless data rate up to 72.2Mbps. It supports IEEE802.11i safety protocol, along with IEEE 802.11e standard service quality. The integrated module provides SDIO interface for WiFi, UART / PCM interface for Bluetooth and UART / PCM interface for FM.

Figure 1 Top View

Figure 2 Bottom View

Note: The above pictures are for reference only

2 Feature

- Operating frequencies : 2.4~2.4835GHz,
- WIFI host interface is SDIO2.0;
- WIFI supports IEEE Standards : IEEE 802.11b/g/n
- WIFI 2.4G band wireless data rate can reach up to 72.2Mbps

3 Application

- Imaging platforms (printers, digital still cameras, digital picture frames)
- Consumer electronic devices (DTV,DVD players, Blu-ray players.etc.)
- Gaming platforms
- Car information
- MiFi/Mobile Routes
- Smart PAD
- TV/Set-Top Boxes

4 Specification

Item	Description
Product Name	PJX-BL6212
Main Chip	CYW43438KUBG
Host Interface	SDIO for WiFi
IEEE Standards	IEEE 802.11b/g/n

Operating Frequencies	2.4~2.4835GHz
Modulation	WiFi : 802.11b DSSS: CCK, DQPSK, DBPSK 802.11g OFDM: 64-QAM,16-QAM, QPSK, BPSK 802.11n OFDM: 64-QAM,16-QAM, QPSK, BPSK
Working Mode	Infrastructure, Ad-Hoc
Wireless Data Rate	WiFi: 802.11b: 1, 2 ,5.5,11Mbps, 802.11g: 6,9,12,18,24,36,48,54Mbps, 802.11n-2.4 HT20: MCS0~7, reach up to 72.2Mbps
Rx Sensitivity	-95dBm (Min)
TX Power	18dBm (Max)
Antenna Type	Connect to the external antenna through the half hole
Dimension(L*W*H)	12x 12x1.75mm (LxWxH) Tolerance:+/-0.15mm
Clock Source	26MHz
Working Temperature	-30° C to +70° C
Storage Temperature	-40° C to +125° C

DC Characteristics

Absolute Maximum Ratings

Symbol	Description	Min.	Max.	Unit
VBAT	Input supply voltage	-0.5	5.5	V
VDDIO	DC supply voltage for I/O	-0.5	3.6	V

Recommended Operating Ratings

At room temperature 25℃				
Symbol	**Min.**	**Typ.**	**Max.**	**Unit**
VBAT	3.0	3.6	4.8	V
VDDIO	1.7	3.3	3.6	V

Note: The voltage of VDDIO is depended on system I/O voltage.

DC Power Consumption

VCC=3.3V ， Ta= 25 °C ， unit: mA		
Supply current	Typ.	Max
Standby (RF disabled)	18.5	23

802.11b	1Mbps		11Mbps	
Supply current	Typ.	Max.	Typ.	Max.
TX mode	272	290	246	299
Rx mode	42.7	52	44	50

802.11g	6Mbps		54Mbps	
Supply current	Typ.	Max.	Typ.	Max.
TX mode	253	264	170	246
Rx mode	43	50	45	53
802.11n HT20	MCS0		MCS7	
Supply current	Typ.	Max.	Typ.	Max.
TX mode	248	260	161	244
Rx mode	42	51	43	51

WiFi RF Specification

TX Power & EVM	16± 1.5dBm&<-15dB@11b 11Mbps 15± 1.5dBm&<-25dB@11g 54Mbps 14± 1.5dBm&<-28dB@11n-HT20-2.4G-MCS7
Receiver Minimum Input Sensitivity@PER	11b 1Mbps: -95dBm@PER<8%; 11b 11Mbps:-85dBm@PER<8%; 11g 54Mbps:-72dBm@PER<10%; 11n MCS7:-68dBm@PER<10%;

RF Test Report										
Mode	Rate(Mbps)	Power(dBm)			EVM(dB)			Sensitivity(dBm)		
		CH1	CH7	CH13	CH1	CH7	CH13	CH1	CH7	CH13
11b	1	17.26	17.37	17.32	-31.91	-31.23	-31.65	-95	-95	-95
	11	17.72	17.38	17.76	-31.93	-30.03	-30.12	-87	-87	-87
11g	6	16.8	16.66	16.89	-26.97	-26.61	-26.54	-88	-88	-88
	54	15	15.02	15.19	-31.13	-30.03	-30.2	-74	-74	-74
11n	MCS0	16.81	16.77	16.82	-24.63	-24.31	-24.56	-87	-87	-87
HT20	MCS7	14.62	14.58	14.35	-32.36	-31.62	-31.35	-70	-70	-70

ESD CAUTION: Although this module is designed to be as robust as possible, Electrostatic Discharge (ESD) can damage this module. It must be protected from ESD at all times and handled under the protection of ESD.

5 Drawing

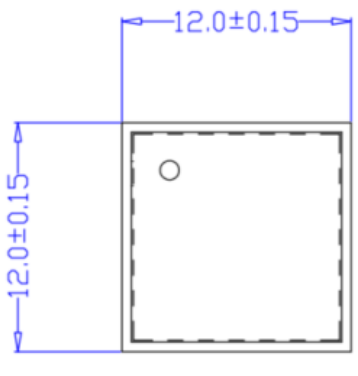

Figure 12 Top view

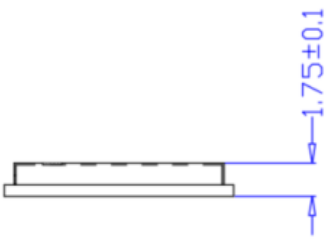

Figure 13 Side view

Mechanical structure(mm)

6 Remark

Storage Temperature and Humidity

1. Storage Condition: Moisture barrier bag must be stored under 30℃, humidity under 85% RH.
Humidity indicator cards must be blue, <30%.

2. Products require baking before mounting if humidity indicator cards reads > 30% temp < 30℃, humidity < 70% RH, over 96 hours.
Baking condition: 125℃, 12 hours.
Baking times: 1 time.

FCC Information

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.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or change to this equipment. Such modifications or change could void the user's authority to operate the equipment.

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 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.

RF Exposure Information:
This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm during normal operation.

List of applicable FCC rules:
The module complies with FCC Part 15.247.

Summarize the specific operational use conditions:
The module has been certified for Fix, Mobile applications.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Limited module procedures:
The module has its own RF shielding, which belong to signal module Standard requires:
Clear and specific instructions describing the conditions, limitations and procedures for third-parties to use and/or integrate the module into a host device (see Comprehensive integration instructions below).
Supply example as follows:
Installation Notes:
1) PJX-BL6212 Module Power supply range is DC 3.1V~3.9V, when you use PJX-BL6212 Module design product, the power supply cannot exceed this range.
2) When connect PJX-BL6212 Module to the host device, the host device must be power off.
3) Make sure the module pins correctly installed.
4) Make sure that the module does not allow users to replace or demolition

Trace antenna designs:
Not applicable.

Antennas
The module does not have an antenna

Information on test modes and additional testing requirements: When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements. In setting up the configurations, if the pairing and call box options for testing does not work, then the host product manufacturer should coordinate with the module manufacturer for access to test mode software.

Additional testing, Part 15 Subpart B disclaimer: The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247) list on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuity.

To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product
“Contains Transmitter module FCC ID: WUI-PJXHLCAM”
The modular must be installed in the host that assign by
Company name: Winplus Co., Ltd.
Product/PMN: PJX-BL6212
Model no./HVIN: HL538822CAM
if other host types used would need further evaluation and possible C2PC if they are not significantly similar to the one tested.

IC Information

-English:
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s).
Operation is subject to the following two conditions:
- This device may not cause interference.
- This device must accept any interference, including interference that may cause undesired operation of the device.

This equipment complies with IC 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.

-French:
Cet appareil contient un ou des émetteurs/récepteurs exempts de licence conformes aux RSS exempts de licence d'Innovation, Sciences et Développement économique Canada.
Le fonctionnement est soumis aux deux conditions suivantes :
- Cet appareil ne doit pas provoquer d'interférences.
- Cet appareil doit accepter toutes les interférences, y compris les interférences susceptibles de provoquer un fonctionnement indésirable de l'appareil.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

WIFI Module
PJX-HLCAM
Responsible Party:
PROJECT X
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