W702 Wifi Router Module Product Specification

Version	Issue date	Changes	Remark
0.1	2022/3/29	Initial Version	

IMPORTANT

This document contains important Information and therefore
should not be disclosed to third parties without prior written consent of amazipoint technology Ltd.

Address：2F, No. 113, Zhongyang Rd., Xindian Dist., New Taipei City, Taiwan(R.O.C)
www.amazipoint.com

Signature:

Author:	Reviewed by:	Approved by:	Remarks:
Martin Ho			

1. Introduction

W702 is M.2 formfactor Wifi router module. W702 is designed for easy-design-in low cost Wifi application. W702 support WAN, LAN, UART, I2C, SPI, I2S, SDXC and GPIO interfaces. W702 support 2T2R 300N operation under a 3.3V single power supply.

2. Technical specification

a. Channel Plan

country code	region	channel
0	North America	CH1 ~ 11
1	Others	CH1 ~ 13
5	Japan	CH1 ~ 14
6		CH3 ~ 9
7		CH5 ~ 13

Note : The country code is configured before shipping and can not be changed by user.

b. Specification Table

Items		Specification
Supported Standard and Protocol		IEEE 802.11n, IEEE 802.11g, IEEE 802.11b, IEEE 802.3, IEEE 802.3u, CSMA/CA, CSMA/CD,TCP/IP,DHCP, ICMP, NAT, PPPoE
Dimension		22*30.5 mm
Power consumption		< 250mA, 180mA typical
Operating Temperature Range		-20 ~ 60 deg. C
Storage Temperature Range		-40 ~ 90 deg. C
Humidity		< 90%
	WAN Port	one 10/100M adaptive RJ45 port
	LAN Port	one 10/100M adaptive RJ45 port
RF Parameters	Frequency Range	2.412~2.4835GHz, depends on country code, maybe 2.412~2462 or 2.412~2.472GHz

<table>
<tr>
<td></td>
<td>Baud Rate</td>
<td>
1T1R operation :
<table>
<tr><td rowspan="3">MCS index</td><td colspan="4">Data rate (Mbit/s)</td></tr>
<tr><td colspan="2">20 MHz channel</td><td colspan="2">40 MHz channel</td></tr>
<tr><td>800ns</td><td>400ns</td><td>800ns</td><td>400ns</td></tr>
<tr><td>0</td><td>6.5</td><td>7.2</td><td>13.5</td><td>15</td></tr>
<tr><td>1</td><td>13</td><td>14.4</td><td>27</td><td>30</td></tr>
<tr><td>2</td><td>19.5</td><td>21.7</td><td>40.5</td><td>45</td></tr>
<tr><td>3</td><td>26</td><td>28.9</td><td>54</td><td>60</td></tr>
<tr><td>4</td><td>39</td><td>43.3</td><td>81</td><td>90</td></tr>
<tr><td>5</td><td>52</td><td>57.8</td><td>108</td><td>120</td></tr>
<tr><td>6</td><td>58.5</td><td>65</td><td>121.5</td><td>135</td></tr>
<tr><td>7</td><td>65</td><td>72.2</td><td>135</td><td>150</td></tr>
</table>
2T2R operation :
<table>
<tr><td rowspan="3">MCS index</td><td colspan="4">Data rate (Mbit/s)</td></tr>
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<tr><td>12</td><td>78</td><td>86.6</td><td>162</td><td>180</td></tr>
<tr><td>13</td><td>104</td><td>115.6</td><td>216</td><td>240</td></tr>
<tr><td>14</td><td>117</td><td>130</td><td>243</td><td>270</td></tr>
<tr><td>15</td><td>130</td><td>144.4</td><td>270</td><td>300</td></tr>
</table>
</td>
</tr>
<tr><td></td><td></td><td>IEEE 802.11g：54/48/36/24/18/12/9/6(adaptive)</td></tr>
<tr><td></td><td></td><td>IEEE 802.11b：11/5.5/2/1M(adaptive)</td></tr>
<tr><td></td><td>Number of Channel</td><td>Support channel 1 ~14, actual channel numbers depends on setting of country code</td></tr>
<tr><td></td><td>Modulation Scheme</td><td>DBPSK、DQPSK、CCK and OFDM(BPSK/QPSK/16-QAM/64-QAM)</td></tr>
</table>

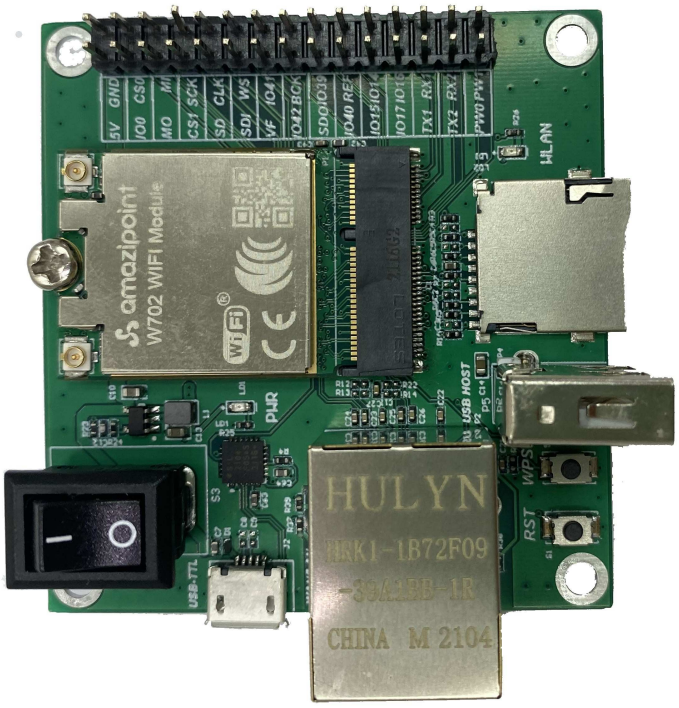
	Sensitivity @ PER	150M：-68dBm@10% PER；130M：-68dBm@10% PER； 108M： -68dBm@10% PER；54M：-72dBm@10% PER 11M：-85dBm@8% PER；6M：-88dBm@10% PER 1M：-90dBm@8% PER；
	Output Power	802.11b: 16 dBm ± 1.5dBm@11Mbps (1T1R total power) 802.11g: 14.5 dBm ± 1.5dBm@54Mbps 802.11n HT20: 14.5 dBm ± 1.5dBm @MCS7 802.11n HT40: 14.5 dBm ± 1.5dBm @MCS7
	Antenna	Two IPEX I connectors for twp external antenna(2T2R)
WIFI Operation Mode		Client/AP
System Service		Virtual Server：Internal web server for browser to access
Device Management		Area setting Restore to default factory setting Software upgrade Reboot Change password
WLAN Security Mode		OPENWEP SHAREDWEP WEPAUTO WPA WPA-PSK WPA2 WPA2-PSK WPAPSKWPA2PSK WPA1WPA2(WPA and WPA2 hybrid mode) 802.1x

3. Software features

- OS :
  - MTK Linux based SDK
  - OpenWRT
- Support WPS
- Support AP（Access point）、Client（Wifi Station) mode
  - **AP mode**
    - Default operation mode. In this mode, the module work as an Access Point, don't need any configuration.
    - User can use PC via RJ45 or smart phone via Wifi to login AP mode and change the default configuration (through browser).
  - **Client mode**
    - In this mode, module is a Wifi station.

4. Development tool :

We provide development tool for easy connection of power, UART, LAN/WAN, and USB port.



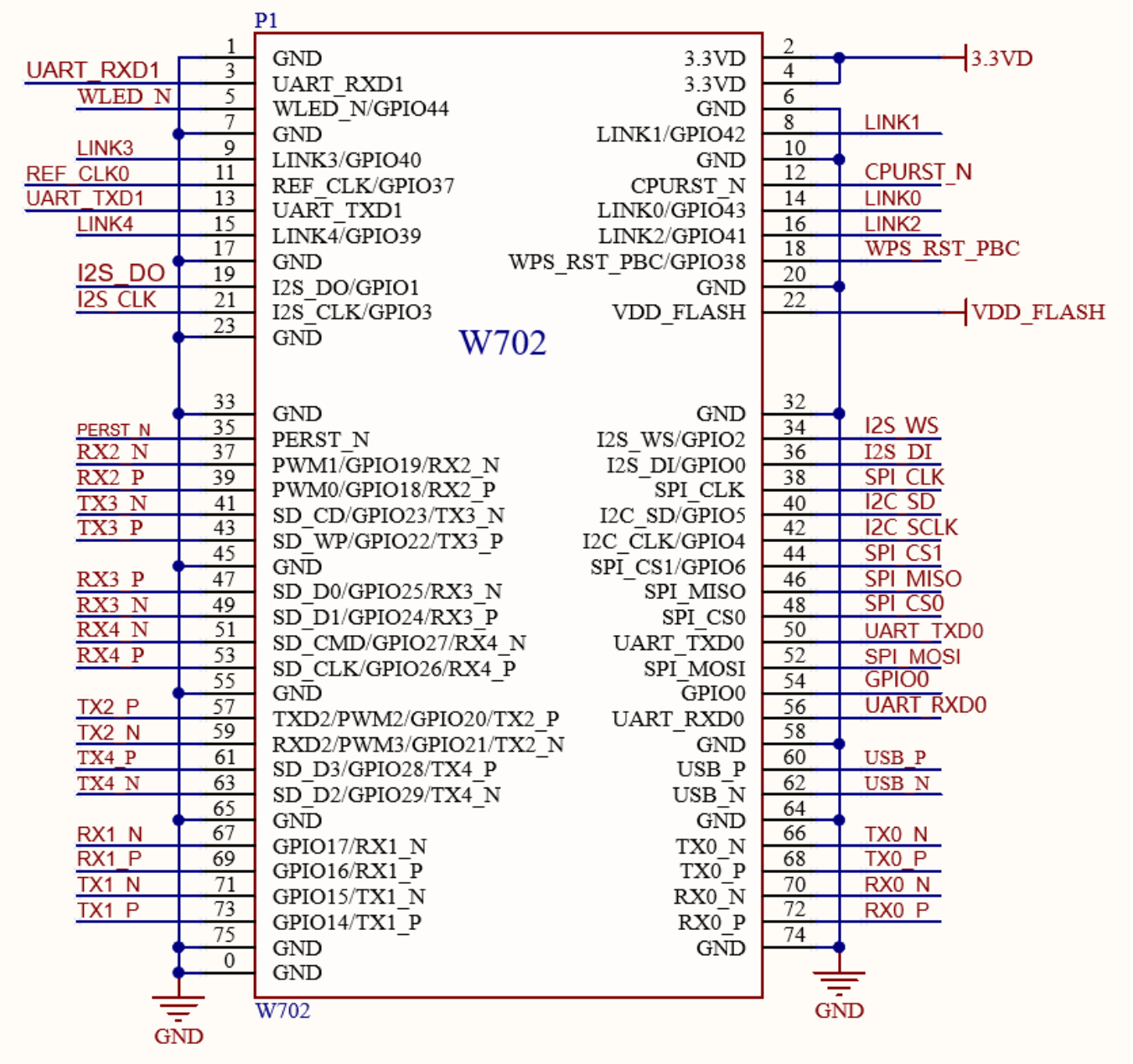
5. Module Dimension : 22*30.5 mm

Top View

Bottom View : There are two 1.27mm pitch header on the bottom side of module P1 and P2.

6. Pin Definition

Sehcmatics view of W702 pin definition :



Pin #	Function	Direction	Description
1	GND		Power ground
2	3.3VD	Power In	3.3V input
3	UART_RXD1		UART1 RXD signal
4	3.3VD	Power In	3.3V input
5	WLED_N	Out	WLAN LED output, active low

6	GND		Power ground
7	GND		Power ground
8	LINK1	Out	Link LED for port 1
9	LINK3	In/Out	Link LED for port 3
10	GND		Power ground
11	REF_CLKO	Out	Reference clock output
12	CPURST_N	In	Power on reset input, low active
13	UART_TXD1	Out	UART1 TXD
14	LINK0	Out	Link LED for port 0
15	LINK4	Out	Link LED for port 4
16	LINK2	Out	Link LED for port 2
17	GND		Power ground
18	WDT_RST_N	Out	Watchdog timer reset output
19	I2S_DO	out	I2S data out
20	GND		Power ground
21	I2S_CLK	out	I2S clock signal
22	VDD_FLASH	Power In	Power supply for SPI Flash chip. For allowing on board programming
23	GND		Power ground
32	GND		Power ground
33	GND		Power ground
34	I2S_WS		I2S word select
35	PERST_N		PCIe device reset
36	I2S_DI	In	I2S data in
37	RX2N	In	Rx negative for port 2
38	SPI_CLK	Out	SPI clock output
39	RX2P	In	Rx positive for port 2
40	I2C_SD	In/Out	I2C Data signal
41	TX3N	Out	Tx negative for port3
42	I2C_SCLK	In/Out	I2C Clock signal
43	TX3P	Out	Tx positive for port3
44	SPI_CS1	Out	SPI chip select signal 1
45	GND		Power ground
46	SPI_MISO	In	SPI MISO signal
47	RX3P	In	Rx positive for port 3
48	SPI_CS0	Out	SPI chip select signal 0

49	RX3N	In	Rx negative for port 3
50	UART_TXD0	A	Console UART TXD0 signal
51	RX4N	In	Rx negative for port 4
52	SPI_MOSI	Out	SPI MOSI signal
53	RX4P	In	Rx positive for port 4
54	GPIO0	Out	GPIO0
55	GND		Power ground
56	UART_RXD0	A	Console UART RXD0 signal
57	TX2P	Out	Tx positive for port2
58	GND		Power ground
59	TX2N	Out	Tx negative for port2
60	USB_P	In/Out	USB signal poistive
61	TX4P	Out	Tx positive for port4
62	USB_N	In/Out	USB signal negative
63	TX4N	Out	Tx negative for port4
64	GND		Power ground
65	GND		Power ground
66	TX0_N	A	Tx negative for port 0
67	RX1_N	A	Rx negative for port 1
68	TX0_P	A	Tx positive for port 0
69	RX1_P	A	Rx positive for port 1
70	RX0_N	A	Rx negative for port 0
71	TX1_N	A	Tx negative for port 1
72	RX0_P	A	Rx positive for port 0
73	TX1_P	A	Tx positive for port 1
74	GND		Power ground
75	GND		Power ground

7. Memory configuration

Depending on customer's request, the module can be shipped with following configuration :

Flash size : 8MB, 16MB, 32MB
DDR2 size : 64MB

8. Mechanical Application Notes

1. The diameter of mounting screw hole on top is 3mm.

9. Shipping & package information

W702 is packaged with stacked PS tray :

- Tray size : for each element, the size is 410*210*16 mm, there are 8*4 elements for each tray. There are 25 trays in each carton. So, total 1600 pieces maximum for each carton.

- Carton size : 500 x 400 x 300 mm
- Carton Label (packing list) :

Amazipoint Tech. Ltd.

Packing List

DATE: 2015/11/30
Q.O. # SO-2015-11001

2F,No. 113, Zhongyang Rd., Xindian Dist.,
New Taipei City, Taiwan(R.O.C)
Phone: +886-2-82191011
Fax: +886-2-82191011

Customer
XXXXXXXXXXXXXX
YYYYYYY
ZZZZZ

PO # : xxxxxxxx

REQUISITIONER	SHIP VIA	F.O.B.	SHIPPING TERMS

ITEM #	DESCRIPTION	QTY	UNIT PRICE(USD)	TOTAL
W708-8-64	MT7688 module with 8MB flash, 64MB DDR2			

10. Ordering Information

The part number for placing order is W702-MM

- MM is Mbytes of SPI flash
- For example with the standard memory configuration 32MB Flash, the part number is W702-32.

11. FCC Warning Statement

FEDERAL COMMUNICATIONS COMMISSION REGULATIONS

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.

CAUTION:

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

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.

FCC RF Radiation Exposure Statement

This equipment complies with FCC/IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator & your body.

Important Note

In the event that these conditions can not be example certain laptop configurations or collocation with another transmitter, then the FCC authorization is no longer considered valid the

FCC ID can not be used on the final product. In these circumstances, OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

When the module is installed in the host device, the FCC ID label must be visible through a window on the final device or it must be visible when an access panel, door or cover is easily re-moved. If not, a second label must be placed on the outside of the final device that contains the following text: "Contains FCC ID: 2ALWN-W702"
The FCC ID can be used only when all FCC compliance requirements are met.
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Manual Information for End Users

The end user must not have manual instructions to remove or install device. The user manual for end users must include the following information in a prominent location:

"IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located operating in conjunction with any other antenna or transmitter." as a result of e-mail transmission."