

User Manual

FCC ID : A3LAX211D950QED

Module specification

1. Supported Band list

- 802.11abgn+acR2+axR2 MIMO 2x2 – Supports Wi-Fi 6E and includes the new 6GHz band
- Bluetooth® 5.2

2. Environment Specification

Item	Spec.
Storage Temperature	-40 °C ~ +70 °C (external direct temperture)
Operating Temperature	0 °C ~ 50 °C

3. Pin assignment : M. module / PCIE interface

3-1. Figure of the pin arrangement

Pin#	Functionality	Arrow Marking	Drawing Figure
ANT1 : Aux	Wifi+Bluetooth	White(Blank)	<p>D2W (1216)</p> <p>ANTENNA PLACEMENT</p>
ANT2 (ANT3) : Main	Wifi Only	Black(Fill)	

3-2. Pin Description

Pin No.	Pin name
1	UIM_POWER_SRC/GPIO1
2	UIM_POWER_SNK
3	UIM_SWP
4	3.3V
5	3.3V
6	GND
7	RESERVED
8	ALERT#
9	I2C_CLK
10	I2C_DATA
11	COEX_TXD
12	COEX_RXD
13	COEX3
14	SYSCLK/GNSS0
15	TX_BLANKING/GNSS1
16	RESERVED
17	GND
18	RESERVED
19	RESERVED
20	GND
21	RESERVED
22	RESERVED
23	GND
24	RESERVED
25	RESERVED
26	GND
27	SUSCLK (32kHz)
28	W_DISABLE1#
29	PEWAKE#
30	CLKREQ#
31	PERST#
32	GND
33	REFCLKN0
34	REFCLKP0
35	GND
36	PERn0
37	PERp0
38	GND

39	PETn0
40	PETp0
41	GND
42	CLink_CLK
43	CLink_DATA
44	CLink_RESET
45	SDIO_RESET#
46	SDIO_WAKE#
47	SDIO_DATA3
48	SDIO_DATA2
49	SDIO_DATA1
50	SDIO_DATA0
51	SDIO_CMD
52	SDIO_CLK
53	UART_WAKE#
54	LPSS_UART_RTS/BRI_DT
55	LPSS_UART_RXD/BRI_RSP
56	LPSS_UART_TXD/RGI_DT
57	LPSS_UART_CTS/RGI_RSP
58	PCM_SYNC/I2S_WS
59	PCM_OUT/I2S_SD_OUT
60	PCM_IN/I2S_SD_IN
61	PCM_CLK/I2S_SCK
62	GND
63	W_DISABLE2#
64	LED2#
65	LED1#
66	RESERVED
67	RESERVED
68	GND
69	USB_D-
70	USB_D+
71	GND
72	3.3V
73	3.3V
74	GND
75	GND
76	GND
77	GND
78	GND
79	GND

80	GND
81	GND
82	GND
83	GND
84	GND
85	GND
86	GND
87	GND
88	GND
89	GND
90	GND
91	GND
92	GND
93	GND
94	GND
95	GND
96	GND
A07	GND
A08	A4WP_IRQ#
A09	A4WP_CLK
A10	A4WP_DATA
A11	RESERVED
A12	RESERVED
A13	RESERVED
A14	RESERVED
A15	LAN_EN
A16	RESERVED
A17	RESERVED
A18	RESERVED
A19	WT_CLKP
A20	WT_CLKN
A21	WT_D0P
A22	WT_D0N
A23	WT_D1P
A24	WT_D1N
A25	C_P32K
A26	GND
A27	RESERVED
A28	RESERVED
A29	RESERVED
A30	RESERVED

A31	GND
A32	WGR_CLKP
A33	WGR_CLKN
A34	WGR_D0P
A35	WGR_D0N
A36	WGR_D1P
A37	WGR_D1N
A38	BRI_DT
A39	BTI_RSP
A40	RGI_DT
A41	RGI_RSP
A42	RF_RESET_B
A43	CLKREQ0
A44	REFCLK0
A45	NO CONNECT
A46	RESERVED
A47	RESERVED
A48	3.3V
A49	3.3V
A50	GND

3-3. Power supply :

Requirement of Input Voltage is refer to the below table

No	Item	Pin NO	Min	Typ	Max	Unit	Comments
1	Supply Voltage	VCC	4, 5 ,72, 73, A48, A49	3.14	3.3	3.46	V

3-4. Antenna port

This is a description of the signal line of the antenna interface of this product.

Pin number			Name	Functionality
Chain A	ANT 1	SISO1	Aux	Wifi+Bluetooth
Chain B	ANT 2 (ANT 3)	SISO2	Main	Wifi Only

4. Safety precautions :

This module should be used at authorized places or environments due to frequency jamming possibility while operating. If occur any issues when the module operates at not authorized places or environments, Samsung Electronics does not have any responsibility.

5. FCC Part 15 Information and Notices

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.

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 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.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

6. Important Notice to integrators

1. This module is limited to OEM installation ONLY.
2. This module is limited to installation in mobile or fixed applications, according to Part 2.1091(b).
3. The separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations
4. For FCC Part 15.31 (h) and (k): The host manufacturer is responsible for additional testing to verify compliance as a composite system. When testing the host device for compliance with Part15 Subpart B, the host manufacturer is required to show compliance with Part 15 Subpart B while the transmitter module(s) are installed and operating. The modules should be transmitt and the evaluation should confirm that the module's intentional emissions are compliant (i.e. fundamental and out of band emissions).
The host manufacturer must verify that there are no additional unintentional emissions other than what is permitted in Part 15 Subpart B or emissions are complaint with the transmitter(s) rule(s).
The Grantee will provide guidance to the host manufacturer for Part 15 B requirements if needed.

7. End Product Labeling :

Due to the very small size of the AX210D2W, the marking has been placed in this user manual because the product label on the devices is considered too small to be readable.

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8. Antenna Installation :

Only antennas of the same type and with equal or less gains as 3dBi for the 2.4GHz band and 5dBi for the 5GHz require additional authorization for operation. For testing purposes the following dual band antenna that approximates closely the above limits was used:

9. Antenna Placement Within the Host Platform

To ensure RF exposure compliance the antenna(s) used with the Intel® wireless adapters must be installed in notebook or tablet PC host platforms to provide a minimum separation distance from all persons, in all operating modes and orientations of the host platform, with strict adherence to the table below. The antenna separation distance applies to both horizontal and vertical orientation of the antenna when installed in the host system.

Antenna Type	Antenna Peak gain 2.4GHz (dBi)	Antenna Peak gain 5.2GHz (dBi)	Antenna Peak gain 5.5GHz (dBi)	Antenna Peak gain 5.8GHz (dBi)	Antenna Peak gain 6GHz (dBi)
Design target	3	5	5	5	5
PIFA	3.24	3.73	4.77	4.97	5.59
Dipole	2.89	3.19	4.41	4.22	5.34

10. Manual Information to the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

11. List of applicable FCC rules

This wireless adapter is restricted to indoor use due to its operation in the 5.15 to 5.25 and 5.470 to 5.75GHz frequency ranges. No configuration controls are provided for Intel® wireless adapters allowing any change in the frequency of operations outside the FCC grant of authorization for U.S. operation according to Part 15.407 of the FCC rules.

- 1) wireless adapters are intended for OEM integrators only.
- 2) wireless adapters cannot be co-located with any other transmitter unless approved by the FCC

12. This device is intended only for OEM integrators under the following conditions: (For module device use)

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

13. Radiation Exposure Statement

The FCC with its action in ET Docket 96-8 has adopted a safety standard for human exposure to radio frequency (RF) electromagnetic energy emitted by FCC certified equipment. The wireless adapter meets the Human Exposure requirements found in FCC Part 2, 15C, 15E along with guidance from KDB 447498, KDB 248227 and KDB 616217. Proper operation of this radio according to the instructions found in this manual will result in exposure substantially below the FCC's recommended limits.

The following safety precautions should be observed:

- Do not touch or move antenna while the unit is transmitting or receiving.
- Do not hold any component containing the radio such that the antenna is very close or touching any exposed parts of the body, especially the face or eyes, while transmitting.
- Do not operate the radio or attempt to transmit data unless the antenna is connected; this behavior may cause damage to the radio.
- Use in specific environments:
 - The use of wireless adapters in hazardous locations is limited by the constraints posed by the safety directors of such environments.
 - The use of wireless adapters on airplanes is governed by the Federal Aviation Administration (FAA).
 - The use of wireless adapters in hospitals is restricted to the limits set forth by each hospital.