User Manual (Based on Intel guidance)

FCC ID : A3LAX210D (Change in ID , Original / FCC ID : PD9AX210D2)

Module specification

1. Supported Band list

- 802.11a/b/g/n+acR2+axR2 MIMO 2x2 Supports Wi-Fi 6E and includes the new 6 GHz band
- Bluetooth[®] 5.2

2. Environment Specification

Item	Spec.		
Storage Temperature	-40 °C ~ +70 °C (external direct temperature)		
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	Wi-Fi + Bluetooth	White(Blank)	D2W (1216)
ANT2 (ANT3) : Main	Wi-Fi Only	Black(Fill)	

3-2. Pin Description

Pin No.	Pin name	In / Out	Pin Voltage	Description
1	UIM_POWER_SRC/GPIO1			
2	UIM_POWER_ SNK			
3	UIM_SWP			
4	3.3 V		3.3 V	
5	3.3 V		3.3 V	
6	GND			
7	NFC_RESET#			
8	ALERT#			
9	I2C_CLK			
10	I2C_DATA			
11	COEX1		1.8 V	Coexistence with intel LTE
12	COEX2		1.8 V	Coexistence with intel LTE
13	COEX3		1.8 V	
14	SYSCLK/GNSS0			
15	TX_BLANKING/GNSS1		1.8 V	
16	RESERVED/VDDIO18			
17	GND			
18	RESERVED/ISH2_UART_RXD			
19	RESERVED/ISH2_UART_TXD			
20	GND			
21	ISH1_UART_CTS		1.8 V	ISH-UART
22	ISH1_UART_RTS		1.8 V	ISH-UART
23	GND			
24	ISH1_UART_RXD		1.8 V	ISH-UART
25	ISH1_UART_TXD		1.8 V	ISH-UART
26	GND			
27	SUSCLK(32kHz)		3.3 V	
28	W_DISABLE1#			Wi-Fi On/Off
29	PEWAKE#			
30	CLKREQ#			PCI Clock Request
31	PERST#			PCI Reset
32	GND			
33	REFCLKNO			PCI Reference Clock
34	REFCLKPO			PCI Reference Clock
35	GND			
36	PETnO			PCI Tx
37	РЕТрО			PCI Tx
38	GND			

39	PERnO	PCI Rx
40	PERpO	PCI Rx
41	GND	
42	CLink_CLK	
43	CLink_DATA	
44	CLink_RESET	
45	SDIO_RESET#	
46	SDIO_WAKE#	
47	SDIO_DATA3/WIGIG_UART_RXD	
48	SDIO_DATA2/WIGIG_UART_TXD	
49	SDIO_DATA1/WIGIG_UART_RTS	
50	SDIO_DATA0/WIGIG_UART_CTS	
51	SDIO_CMD	
52	SDIO_CLK	
53	UART_WAKE#	
54	LPSS_UART_CTS	
55	LPSS_UART_TXD	
56	LPSS_UART_RXD	
57	LPSS_UART_RTS	
58	PCM_SYNC/I2S_WS	
59	PCM_IN/I2S_SD_IN	
60	PCM_OUT/I2S_SD_OUT	
61	PCM_CLK/I2S_SCK	
62	GND	
63	W_DISABLE2#	Bluetooth On/Off
64	LED2#	Bluetooth Activity
65	LED1#	Wi-Fi Activity
66	RESERVED/ISH2_UART_RTS	
67	RESERVED/ISH2_UART_CTS	
68	GND	
69	USB_D-	Bluetooth USB
70	USB_D+	Bluetooth USB
71	GND	
72	3.3 V	
73	3.3 V	
74	GND	
75	GND	
76	GND	
77	RESERVED	
78	RESERVED	
79	RESERVED	

80	RESERVED		
81	RESERVED		
82	RESERVED		
83	RESERVED		
84	RESERVED		
85	RESERVED		
86	RESERVED		
87	RESERVED		
88	RESERVED		
89	RESERVED		
90	RESERVED		
91	RESERVED		
92	RESERVED		
93	RESERVED		
94	RESERVED		
95	RESERVED		
96	RESERVED		
A07~A50	NC		Not used
G1~G4	GND		
GG1~72	GND + Thermal Pad		

3-3. Power supply :

Requirement of Input Voltage is refer to the below table

No	Item		Pin NO	Min	Тур	Max	Unit	Comments
1	Supply Voltage	VCC	4, 5 ,72, 73	3.135	3.3	3.465	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	Wi-Fi + Bluetooth
Chain B	ANT 2 (ANT 3)	SISO2	Main	Wi-Fi 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 operatesat 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 transmit 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.

FCC ID : A3LAX210D

Host system must be labeled with "Contains FCC ID : A3LAX210D", FCC ID displayed on label.

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 and 6GHz require additional authorization for operation. For testing purposes the following dual band antenna that approximates closely the above limits was used:

9. Conditions To Be Observed By Use of 6 GHz Bands (5.925 GHz – 7.125 GHz)

An indoor client device (6XD), where a client device is defined in FCC Part. 15.202, is limited to indoor locations and is under control of a low-power indoor access point (6ID) or subordinate(6PP). It is only possible to operate the client device can only operate under the control of a low-power indoor access point and subordinate.

A client may initiate brief messages to associate with a low-power indoor access point or subordinate and establish a connection only after receiving a confirmation signal confirming that an AP is present and operating on a particular channel. After being associated, the indoor client can only initiate transmission with that access point. Indoor client devices (6XD) are prohibited from making a direct air interface connection to other clients.

An indoor client device cannot have a direct connection to the internet.

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 thefollowing conditions: (For module device use)

The antenna must be installed such that 20 cm is maintained between the antenna and users, and
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. RF 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.

This module will be installed into any host and SAR re-assessment might be needed for host product. The OEM or integrator is responsible to perform the required additional host regulatory testing and/or obtaining the required host approvals for compliance.