

FCC ID of this product is as follows.

FCC ID: VPYLBEE5QG2CX

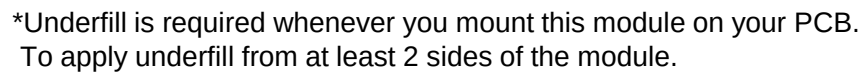
IC No. of this product is as follows.

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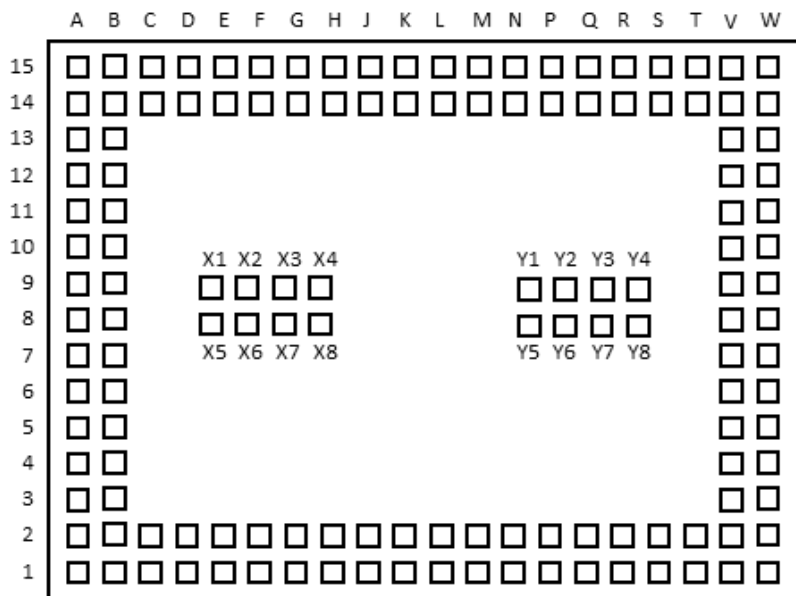
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2. PIN Layout



PinNo. ¹⁾	Description ²⁾	PinNo. ¹⁾	Description ²⁾
X1 ³⁾	GND ³⁾	Y1 ³⁾	GND ³⁾
X2 ³⁾	GND ³⁾	Y2 ³⁾	GND ³⁾
X3 ³⁾	JTAG_TDO ³⁾	Y3 ³⁾	GND ³⁾
X4 ³⁾	JTAG_TRST# ³⁾	Y4 ³⁾	GND ³⁾
X5 ³⁾	GND ³⁾	Y5 ³⁾	GND ³⁾
X6 ³⁾	JTAG_TCK ³⁾	Y6 ³⁾	GND ³⁾
X7 ³⁾	JTAG_TMS ³⁾	Y7 ³⁾	GND ³⁾
X8 ³⁾	JTAG_TDI ³⁾	Y8 ³⁾	GND ³⁾

PinNo. ¹⁾	Description ²⁾	PinNo. ¹⁾	Description ²⁾	PinNo. ¹⁾	Description ³⁾
A1 ³⁾	GND ³⁾	F1 ³⁾	GND ³⁾	R14 ³⁾	GPIO_47 ³⁾
A2 ³⁾	GND ³⁾	F2 ³⁾	GND ³⁾	R15 ³⁾	GPIO_48 ³⁾
A3 ³⁾	GND ³⁾	F14 ³⁾	WL_UART_RXD ³⁾	S1 ³⁾	HST_SLM_CH1_CTL0/PBL_BOOTSPED_1 ³⁾
A4 ³⁾	GND ³⁾	F15 ³⁾	WLAN_EN ³⁾	S2 ³⁾	HST_SLM_CH1_CTL1/XO_TCXO_SEL ³⁾
A5 ³⁾	GND ³⁾	G1 ³⁾	GND ³⁾	S14 ³⁾	GND ³⁾
A6 ³⁾	GND ³⁾	G2 ³⁾	LF_CLK_IN ³⁾	S15 ³⁾	GND ³⁾
A7 ³⁾	GND ³⁾	G14 ³⁾	WL_UART_TXD/WDOG_DISABLE ³⁾	T1 ³⁾	GND ³⁾
A8 ³⁾	GND ³⁾	G15 ³⁾	BT_EN ³⁾	T2 ³⁾	GND ³⁾
A9 ³⁾	WL_GPIO53 ³⁾	H1 ³⁾	X1a) GND ³⁾	T14 ³⁾	GND ³⁾
A10 ³⁾	PCIE18_LDO_IN ³⁾	H2 ³⁾	X1a) GND ³⁾	T15 ³⁾	2G_CH1 ³⁾
A11 ³⁾	GPIO56 ³⁾	H14 ³⁾	GND ³⁾	V1 ³⁾	5G_CH0_LTE-U_RX_AS ³⁾
A12 ³⁾	WLMX_LDO_IN ³⁾	H15 ³⁾	LAA_AS_EN ³⁾	V2 ³⁾	GND ³⁾
A13 ³⁾	WLCX_BT_LDO_IN ³⁾	J1 ³⁾	X1a) GND ³⁾	V3 ³⁾	VPH_PA_5G_CH0 ³⁾
A14 ³⁾	VDD18_DiG_IO ³⁾	J2 ³⁾	XTALO ³⁾	V4 ³⁾	GND ³⁾
A15 ³⁾	GND ³⁾	J14 ³⁾	WL_PA_MUTE ³⁾	V5 ³⁾	GND ³⁾
B1 ³⁾	GND ³⁾	J15 ³⁾	WL_TXEN ³⁾	V6 ³⁾	GND ³⁾
B2 ³⁾	PCIE_TXN ³⁾	K1 ³⁾	X1a) GND ³⁾	V7 ³⁾	GND ³⁾
B3 ³⁾	PCIE_REFCLKP ³⁾	K2 ³⁾	X1a) GND ³⁾	V8 ³⁾	GND ³⁾
B4 ³⁾	PCIE_REFCLKN ³⁾	K14 ³⁾	LAA_TXEN ³⁾	V9 ³⁾	GND ³⁾
B5 ³⁾	PCIE_RXP ³⁾	K15 ³⁾	LAA_RX ³⁾	V10 ³⁾	GND ³⁾
B6 ³⁾	PCIE_RXN ³⁾	L1 ³⁾	BT_SENS_TXD/CPU_INIT_RESET ³⁾ or BT_HOLD (*) ³⁾	V11 ³⁾	GND ³⁾
B7 ³⁾	GND ³⁾	L2 ³⁾	BT_SENS_RXD ³⁾	V12 ³⁾	VPH_PA_5G_CH1 ³⁾
B8 ³⁾	GND ³⁾	L14 ³⁾	GND ³⁾	V13 ³⁾	GND ³⁾
B9 ³⁾	GND ³⁾	L15 ³⁾	PCIE_CLKREQ# ³⁾	V14 ³⁾	GND ³⁾
B10 ³⁾	PCIE0P92_LDO_IN ³⁾	M1 ³⁾	BT_UART_TXD ³⁾	V15 ³⁾	GND ³⁾
B11 ³⁾	RFA0P8_LDO_IN ³⁾	M2 ³⁾	BT_UART_RTS ³⁾	W1 ³⁾	GND ³⁾
B12 ³⁾	WL_LED_GPIO_54 ³⁾	M14 ³⁾	PCIE_WAKE# ³⁾	W2 ³⁾	GND ³⁾
B13 ³⁾	WLCX_BT_LDO_IN ³⁾	M15 ³⁾	PCIE_RST# ³⁾	W3 ³⁾	VPH_PA_2G_CH0 ³⁾
B14 ³⁾	GND ³⁾	N1 ³⁾	BT_UART_CTS ³⁾	W4 ³⁾	GND ³⁾
B15 ³⁾	RFA12_LDO_IN ³⁾	N2 ³⁾	BT_UART_RXD ³⁾	W5 ³⁾	2G_CH0 ³⁾
C1 ³⁾	GND ³⁾	N14 ³⁾	WLAN_SW_CTRL ³⁾	W6 ³⁾	GND ³⁾
C2 ³⁾	PCIE_TXP ³⁾	N15 ³⁾	CLK_REF_OUT/BOOTSTRAP_CLK ³⁾	W7 ³⁾	GND ³⁾
C14 ³⁾	AON_RFACMN_LDO_IN ³⁾	P1 ³⁾	COEX_RXD or Power_on_trigger (*) ³⁾	W8 ³⁾	5G_CH0 ³⁾
C15 ³⁾	GND ³⁾	P2 ³⁾	COEX_TXD/BOOT_FROM_ROM ³⁾	W9 ³⁾	GND ³⁾
D1 ³⁾	GND ³⁾	P14 ³⁾	BT_I2S0_WS ³⁾	W10 ³⁾	5G_CH1_LTE-U_RX_AS ³⁾
D2 ³⁾	GND ³⁾	P15 ³⁾	BT_I2S0_SDO/EDL_MODE ³⁾	W11 ³⁾	GND ³⁾
D14 ³⁾	GND ³⁾	Q1 ³⁾	WL_TXEN_TO_N79 ³⁾	W12 ³⁾	VPH_PA_2G_CH1 ³⁾
D15 ³⁾	RFA17_LDO_IN ³⁾	Q2 ³⁾	N79_TXEN ³⁾	W13 ³⁾	GND ³⁾
E1 ³⁾	GND ³⁾	Q14 ³⁾	BT_I2S0_SCK/BT_SLIMBUS_CLK ³⁾	W14 ³⁾	5G_CH1 ³⁾
E2 ³⁾	GND ³⁾	Q15 ³⁾	BT_I2S0_SDI/BT_SLIMBUS_DATA ³⁾	W15 ³⁾	GND ³⁾
E14 ³⁾	CLK_REQ_IN ³⁾	R1 ³⁾	HST_SLM_CH0_CTL0/CLK_REQ_0 ³⁾		
E15 ³⁾	GND ³⁾	R2 ³⁾	HST_SLM_CH0_CTL1/CLK_REQ_1 ³⁾		

3. Supply Voltage

2CX_PIN_Name	Min.	Typ.	Max.	unit
VPH	3.0	3.85	4.6	V
VDD18_DIG_IO	1.71	1.8	2.1	V
AON_RFACMN_LDO_IN	0.9	0.95	2.1	V
WLCX_BT_LDO_IN/ WLMX_LDO_IN	0.9	0.95	2.1	V
RFA0P8_LDO_IN	0.9	0.95	2.1	V
RFA12_LDO_IN	1.3	1.35	2.1	V
RFA17_LDO_IN	1.85	1.9	2.1	V
PCIE0P92_LDO_IN	1.28	1.35	2.1	V
PCIE18_LDO_IN	1.85	1.9	2.1	V

*VDD18_DIG_IO and PCIE0P92_LDO_IN and PCIE18_LDO_IN don't influence the RF characteristic.

6. Antenna

- Please perform the antenna design that followed the specifications of the antenna.

- About the signal line between an antenna and a module

It is a 50-ohm line design.

Fine tuning of return loss etc. can be performed using a matching network.

However, it is required to check "Class1 change" and "Class2 change" which the authorities define then.

The concrete contents of a check are the following three points.

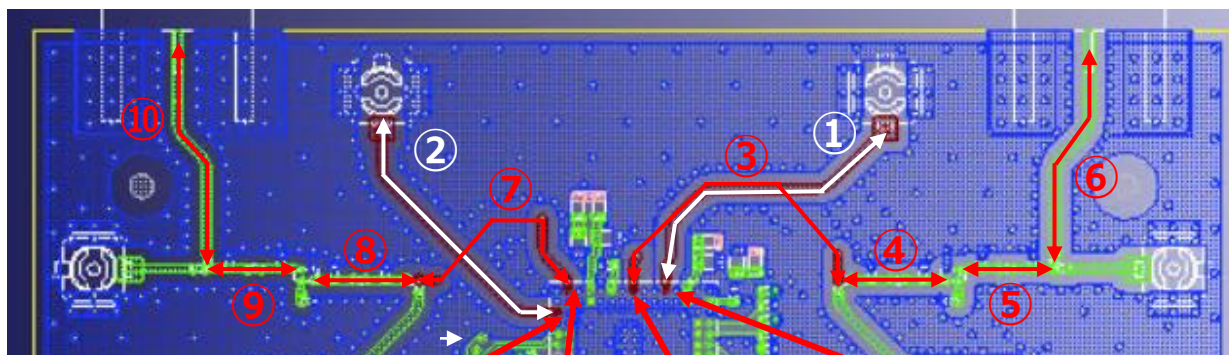
- 1) It is the same type as the antenna type of antenna specifications.
- 2) An antenna gain is lower than a gain given in antenna specifications.*
- 3) The emission level is not getting worse.

* For the 6GHz band, CBP test is required when using antennas with antenna gains lower than -6.32dBi.

6. Antenna

	Type	BAND	Vender	Part number	Peak Gain
Chain1	Slot	6GHz	SONY	chain1_slot_6GHz	-1.14 dBi
		5GHz	SONY	chain1_slot_5GHz	+1.13 dBi
		2.4GHz	SONY	chain1_slot_2.4GHz	+1.65 dBi
	Mono	6GHz	SONY	chain1_monopole_6GHz	-1.25 dBi
		5GHz	SONY	chain1_monopole_5GHz	+0.57 dBi
		2.4GHz	SONY	chain1_monopole_2.4GHz	+1.60 dBi
Cahin0	Mono	6GHz	SONY	chain0_monopole_6GHz	-1.36 dBi
		5GHz	SONY	chain0_monopole_5GHz	+0.51 dBi
		2.4GHz	SONY	chain0_monopole_2.4GHz	-0.23 dBi

■ 50-ohm line(microstrip line length)



No.	Length	No.	Length
①	13.294	⑥	8.352
②	11.570	⑦	9.536
③	13.116	⑧	3.000
④	3.080	⑨	2.840
⑤	3.230	⑩	8.269

[mm]

[mm]

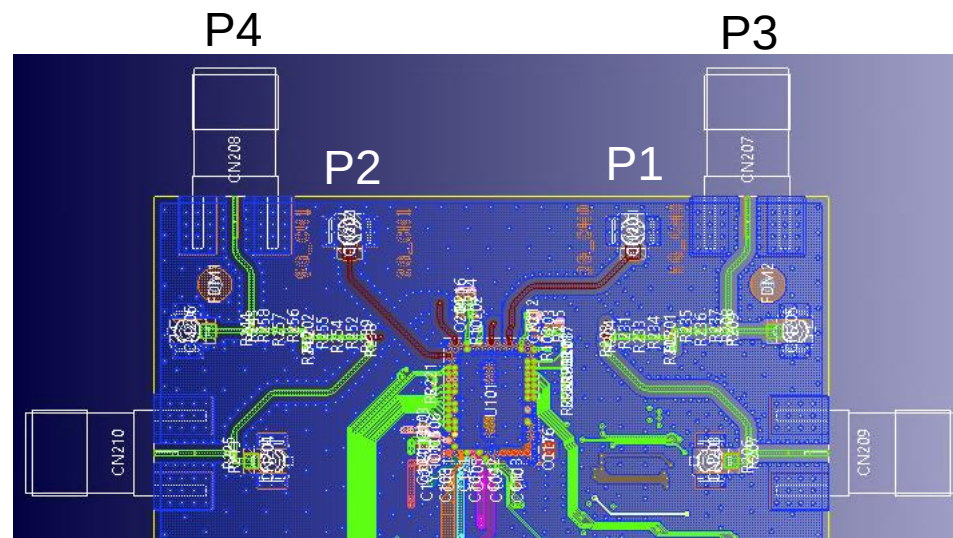
2G CH1 Feeding Point
5G CH1 Feeding Point
5G CH0 Feeding Point
2G CH0 Feeding Point

Representative design / Loss value for this module certification.
The feeding point is a module pin.
The connector from the feeding point is part of the antenna.

6.Antenna

From the RF OUT of the module Line loss information to each Port of board[dB]

	2.4GHz	5GHz	6GHz
Between 2G CH0 RF OUT and P1	0.43	----	----
Between 2G CH1 RF OUT and P2	0.37	----	----
Between 5G CH0 RF OUT and P3	----	1.79	2.01
Between 5G CH1 RF OUT and P4	----	1.73 *1 1.72 *2	1.72



*1 Measured at 5500MHz

*2 Measured at 5600MHz

Representative design / Loss value for this module certification.

Antennas must be installed in the end product.