

FCC ID of this product is as follows.

FCC ID: VPYLBEE5QG2CX

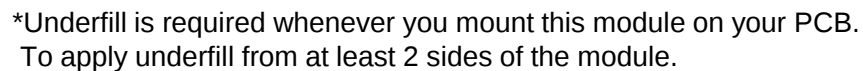
IC No. of this product is as follows.

IC: 772C-LBEE5QG2CX

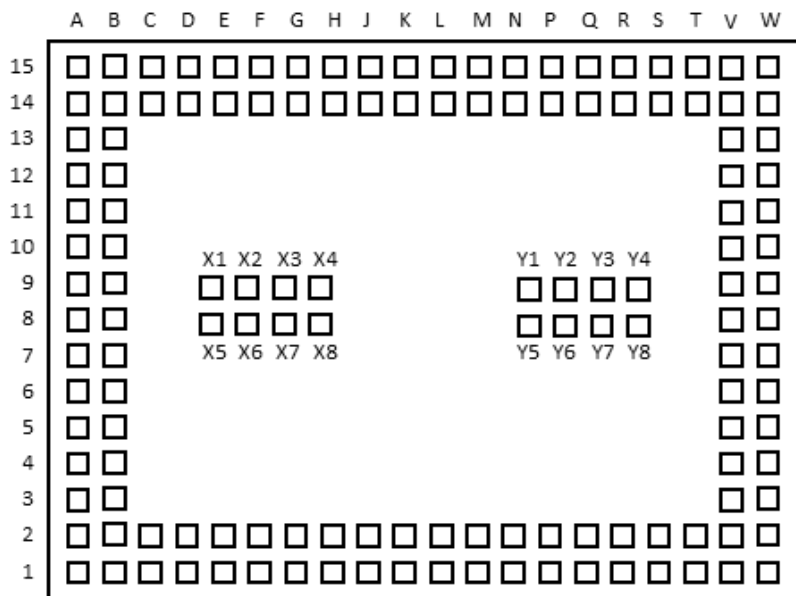
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2.PIN Layout



PinNo ^①	Description ^②	PinNo ^③	Description ^④
X1 ^⑤	GND ^⑥	Y1 ^⑤	GND ^⑥
X2 ^⑤	GND ^⑥	Y2 ^⑤	GND ^⑥
X3 ^⑤	JTAG_TDO ^⑦	Y3 ^⑤	GND ^⑥
X4 ^⑤	JTAG_TRST# ^⑦	Y4 ^⑤	GND ^⑥
X5 ^⑤	GND ^⑥	Y5 ^⑤	GND ^⑥
X6 ^⑤	JTAG_TCK ^⑦	Y6 ^⑤	GND ^⑥
X7 ^⑤	JTAG_TMS ^⑦	Y7 ^⑤	GND ^⑥
X8 ^⑤	JTAG_TDI ^⑦	Y8 ^⑤	GND ^⑥

PinNo ^①	Description ^②	PinNo ^③	Description ^④	PinNo ^⑤	Description ^⑥
A1 ^⑤	GND ^⑥	F1 ^⑤	GND ^⑥	R14 ^⑤	GPIO_47 ^⑦
A2 ^⑤	GND ^⑥	F2 ^⑤	GND ^⑥	R15 ^⑤	GPIO_48 ^⑦
A3 ^⑤	GND ^⑥	F14 ^⑤	WL_UART_RXD ^⑦	S1 ^⑤	HST_SLM_CH1_CTL0/PBL_BOOTSPED_1 ^⑦
A4 ^⑤	GND ^⑥	F15 ^⑤	WLAN_EN ^⑦	S2 ^⑤	HST_SLM_CH1_CTL1/X0_TCXO_SEL ^⑦
A5 ^⑤	GND ^⑥	G1 ^⑤	GND ^⑥	S14 ^⑤	GND ^⑥
A6 ^⑤	GND ^⑥	G2 ^⑤	LF_CLK_IN ^⑦	S15 ^⑤	GND ^⑥
A7 ^⑤	GND ^⑥	G14 ^⑤	WL_UART_TXD/WDOG_DISABLE ^⑦	T1 ^⑤	GND ^⑥
A8 ^⑤	GND ^⑥	G15 ^⑤	BT_EN ^⑦	T2 ^⑤	GND ^⑥
A9 ^⑤	WL_GPIO53 ^⑦	H1 ^⑤	X1a1 GND ^⑥	T14 ^⑤	GND ^⑥
A10 ^⑤	PCIE18_LDO_IN ^⑦	H2 ^⑤	X1a1 GND ^⑥	T15 ^⑤	2G_CH1 ^⑦
A11 ^⑤	GPIO56 ^⑦	H14 ^⑤	GND ^⑥	V1 ^⑤	5G_CH0_LTE-U_RX_AS ^⑦
A12 ^⑤	WLMX_LDO_IN ^⑦	H15 ^⑤	LAA_AS_EN ^⑦	V2 ^⑤	GND ^⑥
A13 ^⑤	WLCX_BT_LDO_IN ^⑦	J1 ^⑤	X1a1 GND ^⑥	V3 ^⑤	VPH_PA_5G_CH0 ^⑦
A14 ^⑤	VDD18_DiG_IO ^⑦	J2 ^⑤	XTALO ^⑦	V4 ^⑤	GND ^⑥
A15 ^⑤	GND ^⑥	J14 ^⑤	WL_PA_MUTE ^⑦	V5 ^⑤	GND ^⑥
B1 ^⑤	GND ^⑥	J15 ^⑤	WL_TXEN ^⑦	V6 ^⑤	GND ^⑥
B2 ^⑤	PCIE_TXN ^⑦	K1 ^⑤	X1a1 GND ^⑥	V7 ^⑤	GND ^⑥
B3 ^⑤	PCIE_REFCLKP ^⑦	K2 ^⑤	X1a1 GND ^⑥	V8 ^⑤	GND ^⑥
B4 ^⑤	PCIE_REFCLKN ^⑦	K14 ^⑤	LAA_TXEN ^⑦	V9 ^⑤	GND ^⑥
B5 ^⑤	PCIE_RXP ^⑦	K15 ^⑤	LAA_RX ^⑦	V10 ^⑤	GND ^⑥
B6 ^⑤	PCIE_RXN ^⑦	L1 ^⑤	BT_SENS_TXD/CPU_INIT_RESET ^⑦ or BT_HOLD (*) ^⑦	V11 ^⑤	GND ^⑥
B7 ^⑤	GND ^⑥	L2 ^⑤	BT_SENS_RXD ^⑦	V12 ^⑤	VPH_PA_5G_CH1 ^⑦
B8 ^⑤	GND ^⑥	L14 ^⑤	GND ^⑥	V13 ^⑤	GND ^⑥
B9 ^⑤	GND ^⑥	L15 ^⑤	PCIE_CLKREQ# ^⑦	V14 ^⑤	GND ^⑥
B10 ^⑤	PCIE0P92_LDO_IN ^⑦	M1 ^⑤	BT_UART_TXD ^⑦	V15 ^⑤	GND ^⑥
B11 ^⑤	RFA0P8_LDO_IN ^⑦	M2 ^⑤	BT_UART_RTS ^⑦	W1 ^⑤	GND ^⑥
B12 ^⑤	WL_LED_GPIO_54 ^⑦	M14 ^⑤	PCIE_WAKE# ^⑦	W2 ^⑤	GND ^⑥
B13 ^⑤	WLCX_BT_LDO_IN ^⑦	M15 ^⑤	PCIE_RST# ^⑦	W3 ^⑤	VPH_PA_2G_CH0 ^⑦
B14 ^⑤	GND ^⑥	N1 ^⑤	BT_UART_CTS ^⑦	W4 ^⑤	GND ^⑥
B15 ^⑤	RFA12_LDO_IN ^⑦	N2 ^⑤	BT_UART_RXD ^⑦	W5 ^⑤	2G_CH0 ^⑦
C1 ^⑤	GND ^⑥	N14 ^⑤	WLAN_SW_CTRL ^⑦	W6 ^⑤	GND ^⑥
C2 ^⑤	PCIE_TXP ^⑦	N15 ^⑤	CLK_REF_OUT/BOOTSTRAP_CLK ^⑦	W7 ^⑤	GND ^⑥
C14 ^⑤	AON_RFACMN_LDO_IN ^⑦	P1 ^⑤	COEX_RXD or Power_on_trigger (*) ^⑦	W8 ^⑤	5G_CH0 ^⑦
C15 ^⑤	GND ^⑥	P2 ^⑤	COEX_TXD/BOOT_FROM_ROM ^⑦	W9 ^⑤	GND ^⑥
D1 ^⑤	GND ^⑥	P14 ^⑤	BT_I2S0_WS ^⑦	W10 ^⑤	5G_CH1_LTE-U_RX_AS ^⑦
D2 ^⑤	GND ^⑥	P15 ^⑤	BT_I2S0_SDO/EDL_MODE ^⑦	W11 ^⑤	GND ^⑥
D14 ^⑤	GND ^⑥	Q1 ^⑤	WL_TXEN_TO_N79 ^⑦	W12 ^⑤	VPH_PA_2G_CH1 ^⑦
D15 ^⑤	RFA17_LDO_IN ^⑦	Q2 ^⑤	N79_TXEN ^⑦	W13 ^⑤	GND ^⑥
E1 ^⑤	GND ^⑥	Q14 ^⑤	BT_I2S0_SCK/BT_SLIMBUS_CLK ^⑦	W14 ^⑤	5G_CH1 ^⑦
E2 ^⑤	GND ^⑥	Q15 ^⑤	BT_I2S0_SDI/BT_SLIMBUS_DATA ^⑦	W15 ^⑤	GND ^⑥
E14 ^⑤	CLK_REQ_IN ^⑦	R1 ^⑤	HST_SLM_CH0_CTL0/CLK_REQ_0 ^⑦	⑤	⑤
E15 ^⑤	GND ^⑥	R2 ^⑤	HST_SLM_CH0_CTL1/CLK_REQ_1 ^⑦	⑤	⑤

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.

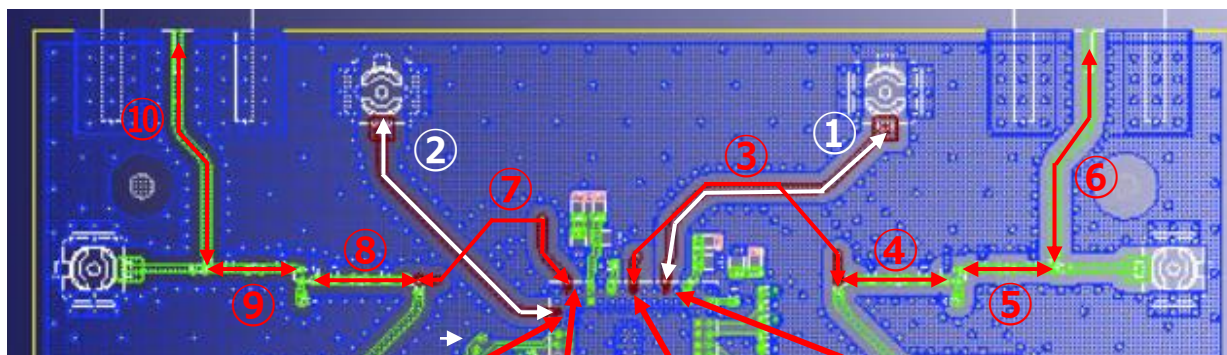
- 1) It is the same type as the antenna type of antenna specifications.
- 2) An antenna gain is lower than a gain given in antenna specifications.*
- 3) The emission level is not getting worse.

* 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]

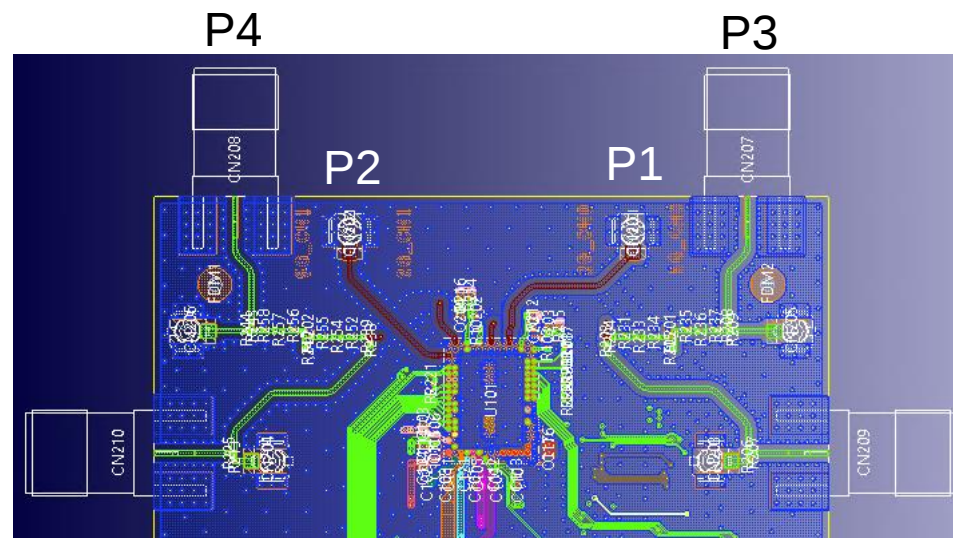
2G CH1 Feeding Point
5G CH1 Feeding Point
5G CH0 Feeding Point
2G CH0 Feeding Point

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.