

WHMxx0A_EVK User Manual

Rev 1.1

SJIT

June. 19, 2024

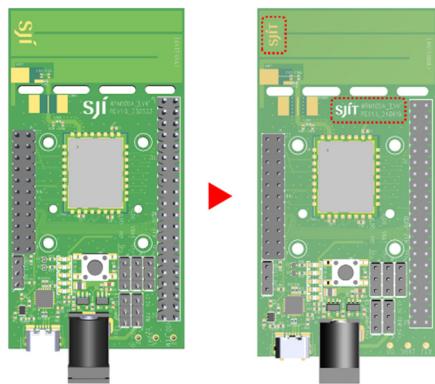
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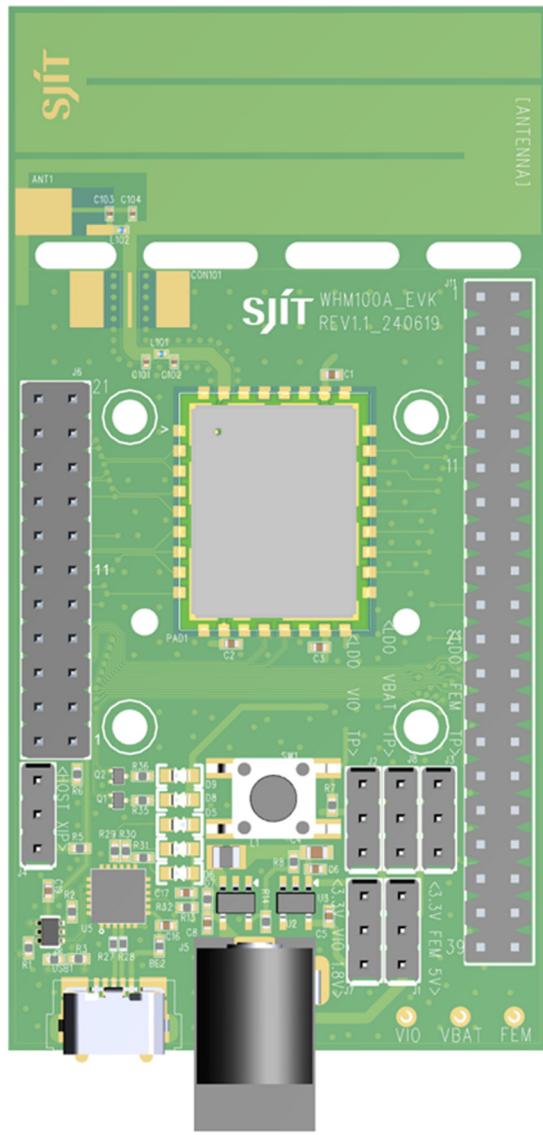
History

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2024-04-23	Create	V1.0	
2024-06-19	Company logo change	V1.1	Page 3



1. Hard Ware

1.1 Evaluation Kit Component

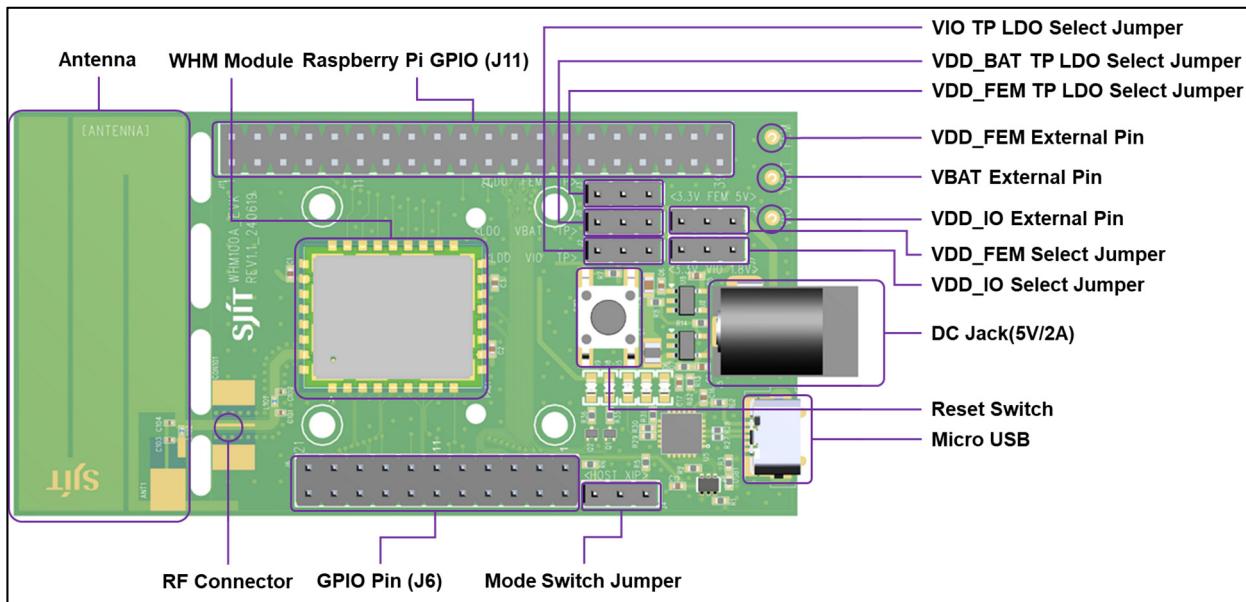


[Fig. Evaluation Kit Component]

WHMxx0A Evaluation Kit Component

- 1) EVB WHMxx0A: 1EA

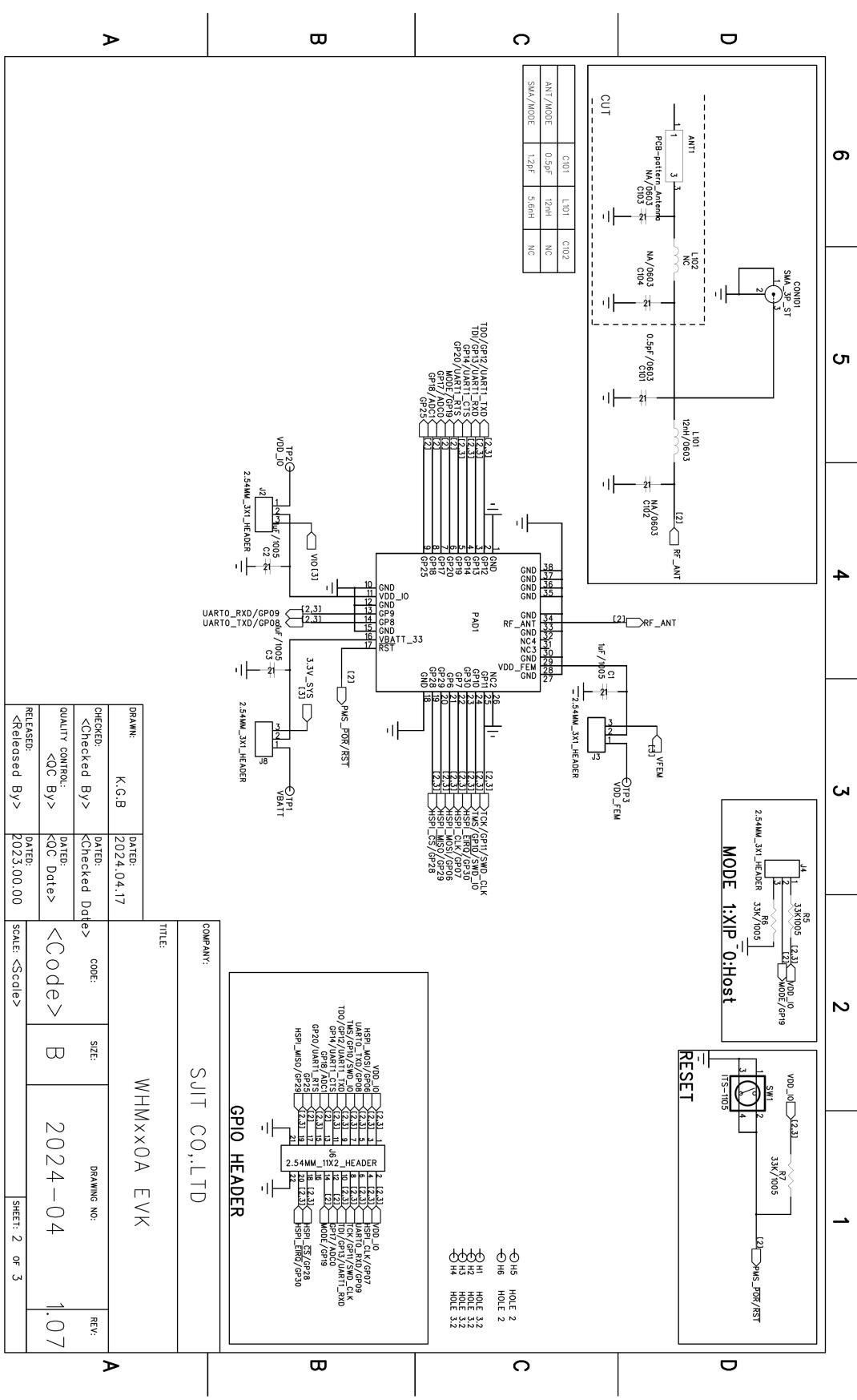
1.2 EVB WHMxx0A Board

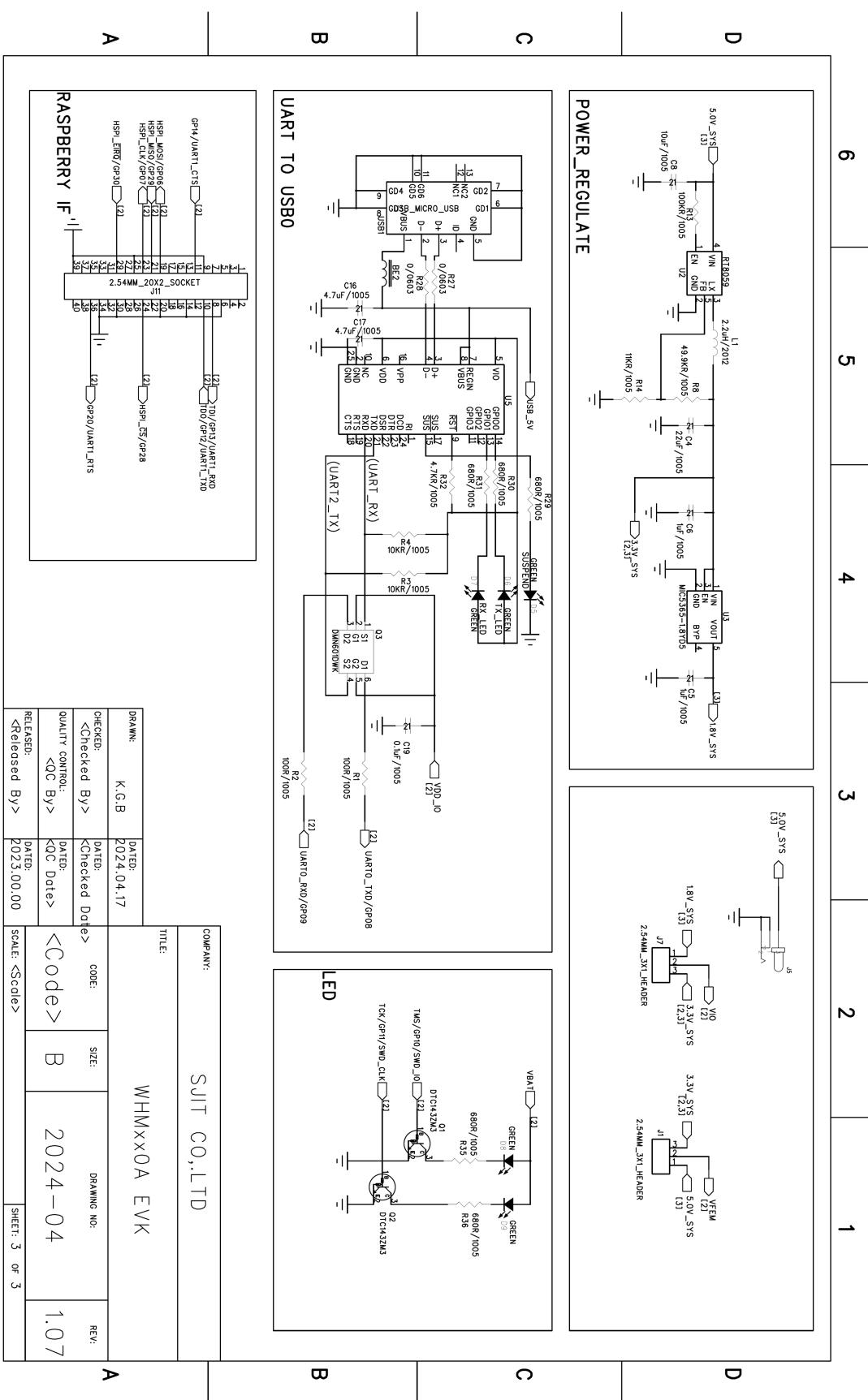


[Fig. EVB WHM]

- **RF Connector:** RF connector for Antenna
- **WHM:** Wi-Fi Halow module
- **Mode Switch Jumper:** mode Switch Low/High Jumper
 - 1-2 : XIP Mode
 - 2-3 : Host Mode(F/W D/L)
- **Module reset switch:** EVB H/W reset switch
- **Micro USB receptacle:** Micro USB connector
- **DC JACK:** Input DC 5V/2A
- **VDD_FEM Select Jumper**
 - 1-2 : Input VDD FEM 5V
 - 2-3 : Input VDD FEM 3.3V
- **VDD_IO Select Jumper**
 - 1-2 : Input VDD IO 1.8V
 - 2-3 : Input VDD IO 3.3V
- **TP LDO Select Jumper**
 - 1-2 : Use External Pin
 - 2-3 : Use LDO
- **External Pin :** External Power Supply
- **Raspberry Pi GPIO:** Raspberry Pi Connctor
- **GPIO Pin:** GPIO Jumper

1.3 Schematic



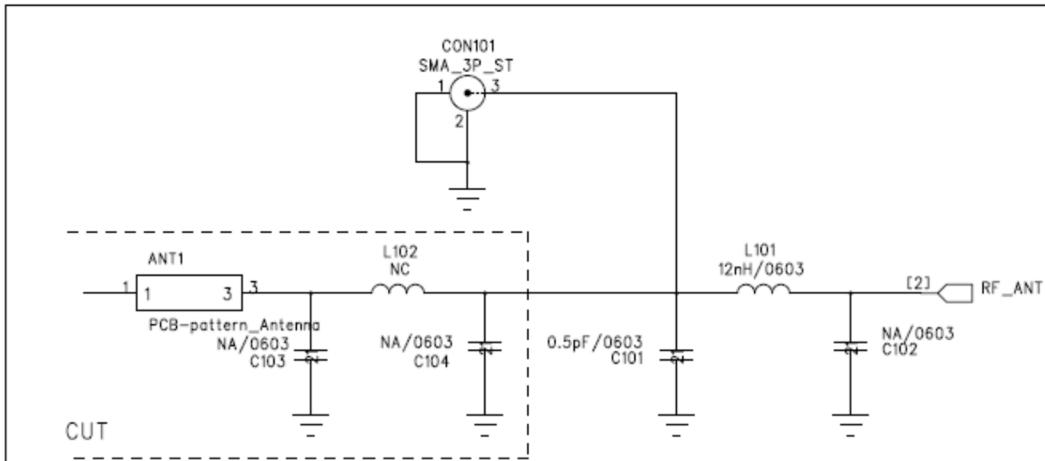


1.4 Connector PIN Description

Connector	Pin No.	Pin name	Function	Pin No.	Pin name	Function
J11	1	NC	-	2	NC	-
	3	NC	-	4	NC	-
	5	NC	-	6	GND	Ground
	7	NC	-	8	TDI/GP13/UART1_RXD	UART channel1 Rx data
	9	GND	Ground	10	TDO/GP12/UART1_TXD	UART channel1 Tx data
	11	GP14/UART1_CTS	UART channel1 clear to send	12	NC	-
	13	NC	-	14	GND	Ground
	15	NC	-	16	NC	-
	17	NC	-	18	NC	-
	19	HSPI_MOSI/GP06	Host SPI – master out slave in	20	GND	Ground
	21	HSPI_MISO/GP29	Host SPI – master in slave out	22	NC	-
	23	HSPI_CLK/GP07	Host SPI – clock	24	HSPI_CS/GP28	Host SPI – chip select (active low)
	25	GND	Ground	26	NC	-
	27	NC	-	28	NC	-
	29	HSPI_EIRQ/GP30	Host SPI – interrupt (active low)	30	GND	Ground
	31	NC	-	32	NC	-
	33	NC	-	34	GND	Ground
	35	NC	-	36	GP20/UART1_RTS	UART channel1 request to send
	37	NC	-	38	NC	-
	39	GND	Ground	40	NC	-

Connector	Pin No.	Pin name	Function	Pin No.	Pin name	Function
J6	1	VDD_IO	WHM I/O power input	2	VDD_IO	WHM I/O power input
	3	HSPI_MOSI/GP06	Host SPI – master out slave in	4	HSPI_CLK/GP07	Host SPI – clock
	5	UART0_RXD/GP08	UART channel0 Rx data	6	UART0_RXD/GP09	UART channel0 Rx data
	7	TMS/GP10/SWD_IO	SWD data	8	TCK/GP11/SWD_CLK	SWD clock
	9	TDO/GP12/UART1_TXD	UART channel1 Tx data	10	TDI/GP13/UART1_RXD	UART channel1 Rx data
	11	GP14/UART1_CTS	UART channel1 clear to send	12	GP17/ADC0	Auxiliary ADC channel 0
	13	GP18/ADC1	Auxiliary ADC channel 1	14	MODE/GP19	Boot mode (0: ROM boot, 1: XIP boot)
	15	GP20/UART1_RTS	UART channel1 request to send	16	NC	-
	17	GP25	GPIO	18	HSPI_CS/GP28	Host SPI – chip select (active low)
	19	HSPI_MISO/GP29	Host SPI – master in slave out	20	HSPI_EIRQ/GP30	Host SPI – interrupt (active low)
	21	GND	Ground	22	GND	Ground

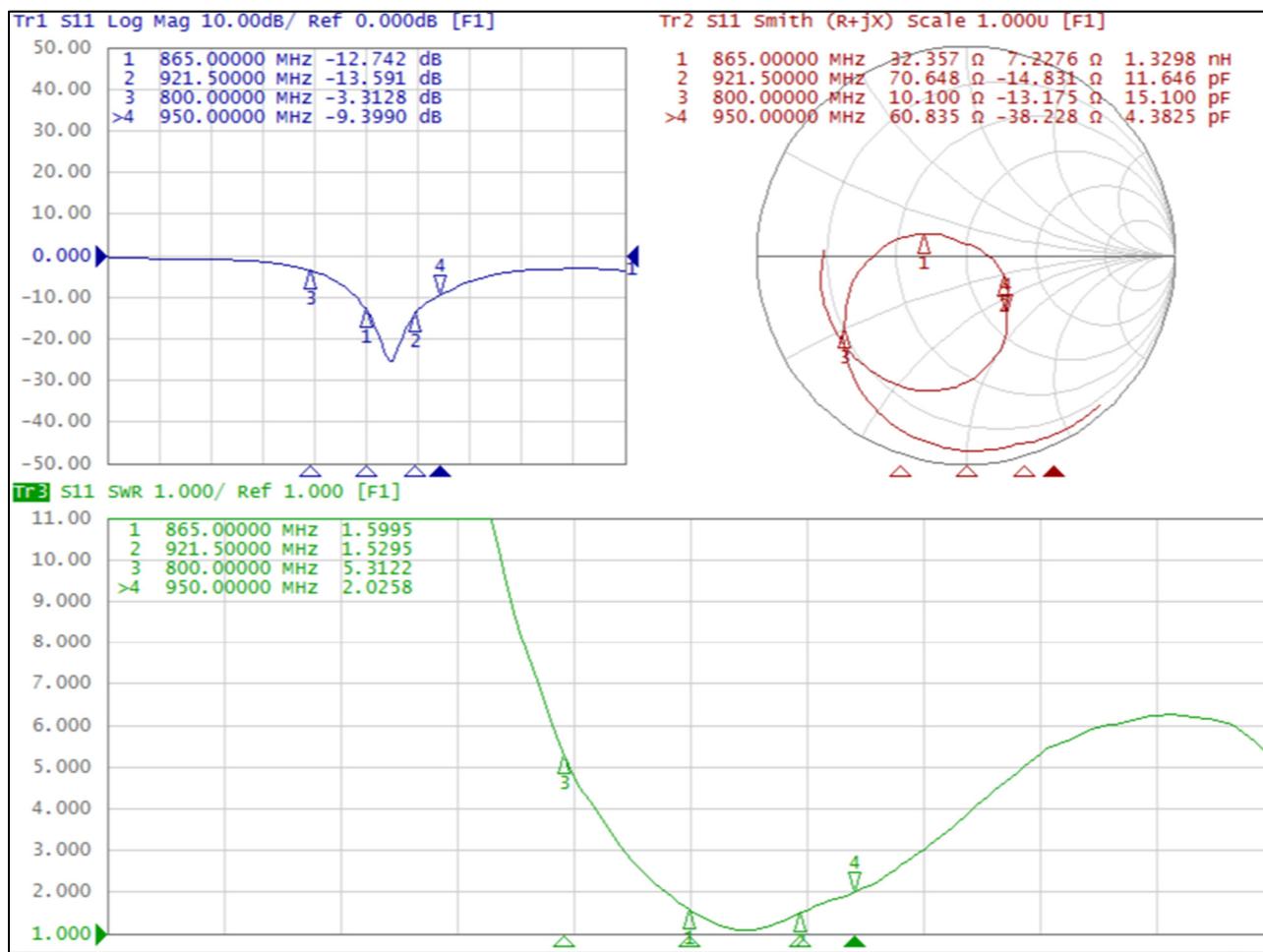
1.5 Antenna Matching



	C101	L101	C102
ANT/MODE	0.5pF	12nH	NC
SMA/MODE	1.2pF	5.6nH	NC

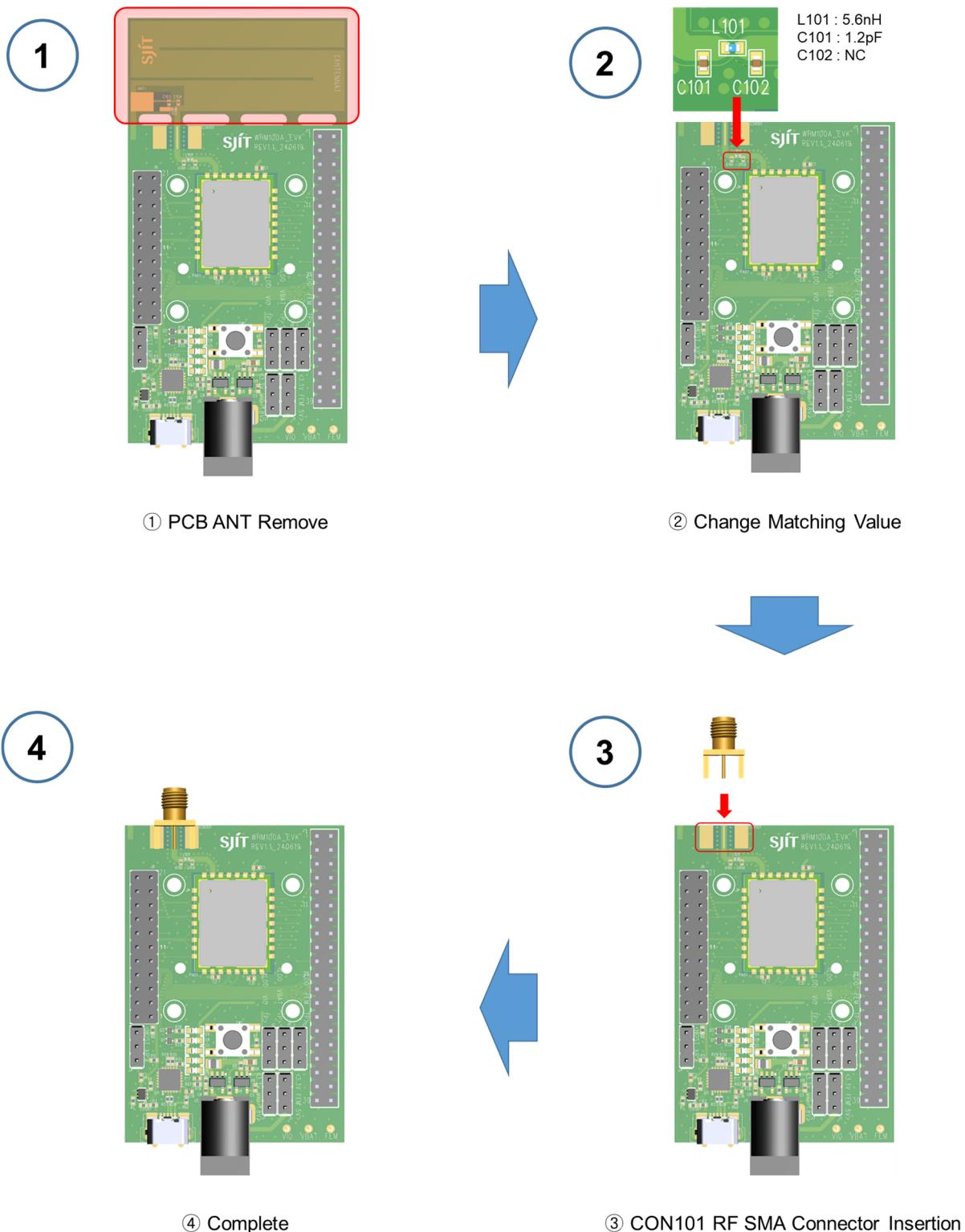
[Matching]

1.6 Return loss & VSWR



1.7 3D Efficiency

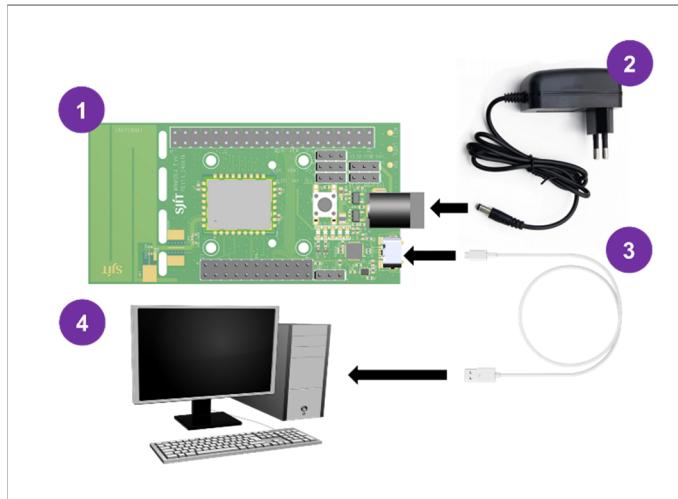
1.8 EVB Radiation → Conduction Change



2. Test Program

2.1 Evaluation board Connection

- EVB_WHMxx0A connect to Window PC by USB cable.

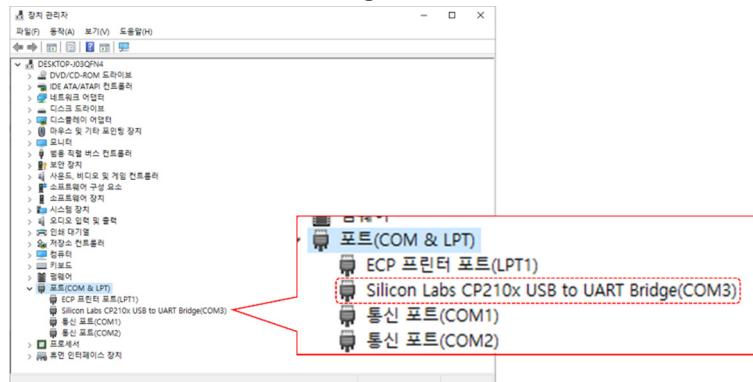


- ① EVB WHMxx0A
- ② DC Adapter (5V/2A)(OD : 5.5mm, ID : 2.1mm)
- ③ Micro USB Cable
- ④ Window PC

[Fig. EVB_WHMxx0A connection]

2.2 Program execution

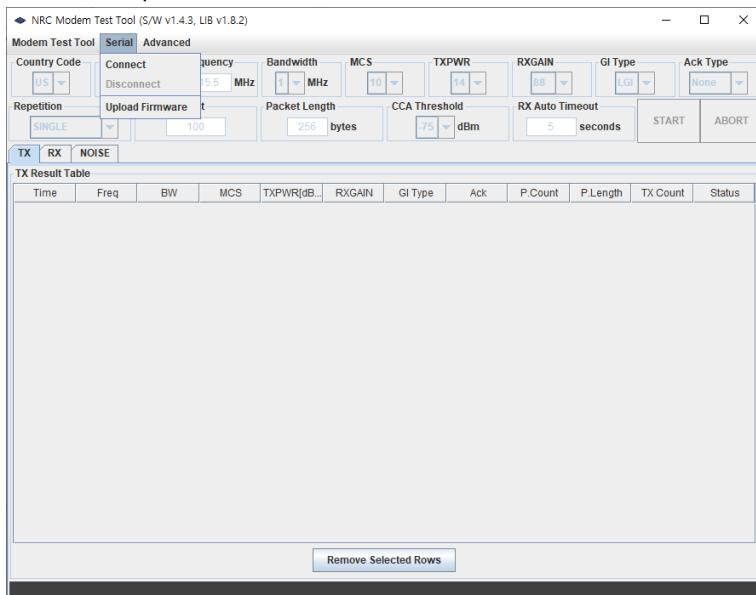
- EVB_WHM connected serial-port in Windows PC, and then check the COM-port number in device manager.
 ➔ Silicon Labs CP210x USB to UART Bridge(Com□□)



[Fig. EVB_WHM serial port]

- Run serial communication program "ModemTestTool.exe"

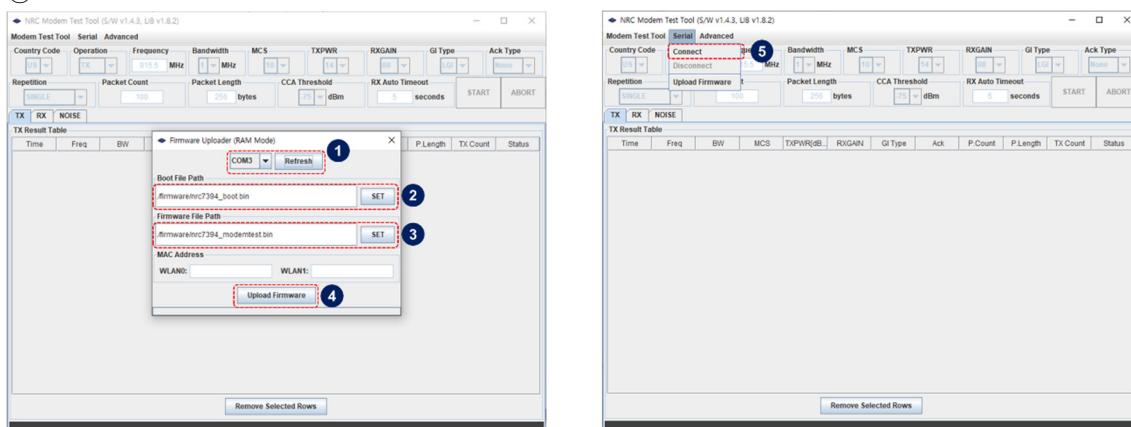
3) 'Serial' – 'Upload Firmware' click.



[Fig. ModemTool_1]

4) Upload Firmware

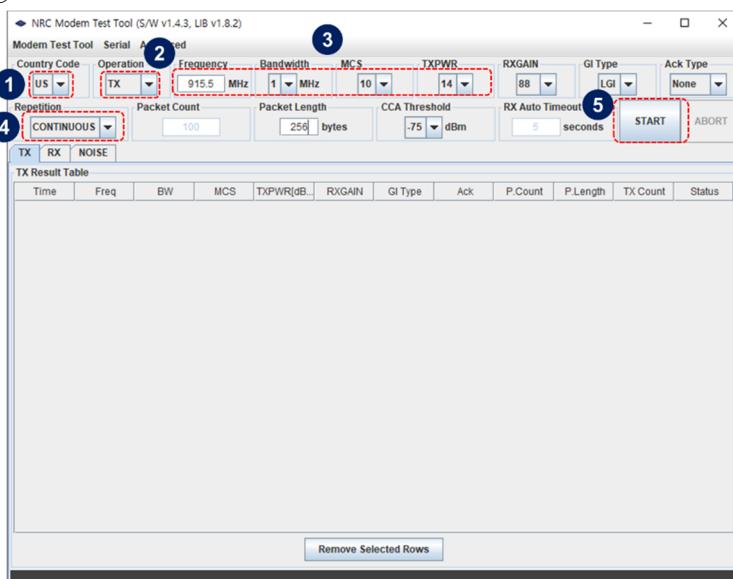
- ① Find Serial Port Number
- ② Boot file : nrc7394_boot.bin
- ③ Firmware file : nrc7394_modemtest.bin
- ④ Firmware upload
- ⑤ Connect



[Fig. ModemTool_2]

5) USE Modem Tool

- ① Set Country Code
 - I. KR1 : WHM110A, WHM300A
 - II. US : WHM200A, WHM210A
 - III. JP : WHM400A
 - IV. EU : WHM500A
- ② Set TX/RX
- ③ Set Frequency, Bandwidth, MCS, Power
- ④ Set LBT
- ⑤ Test Start



[Fig. ModemTool_3]