

# Current Measurement

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WiSOL

Dec. 20, 2016

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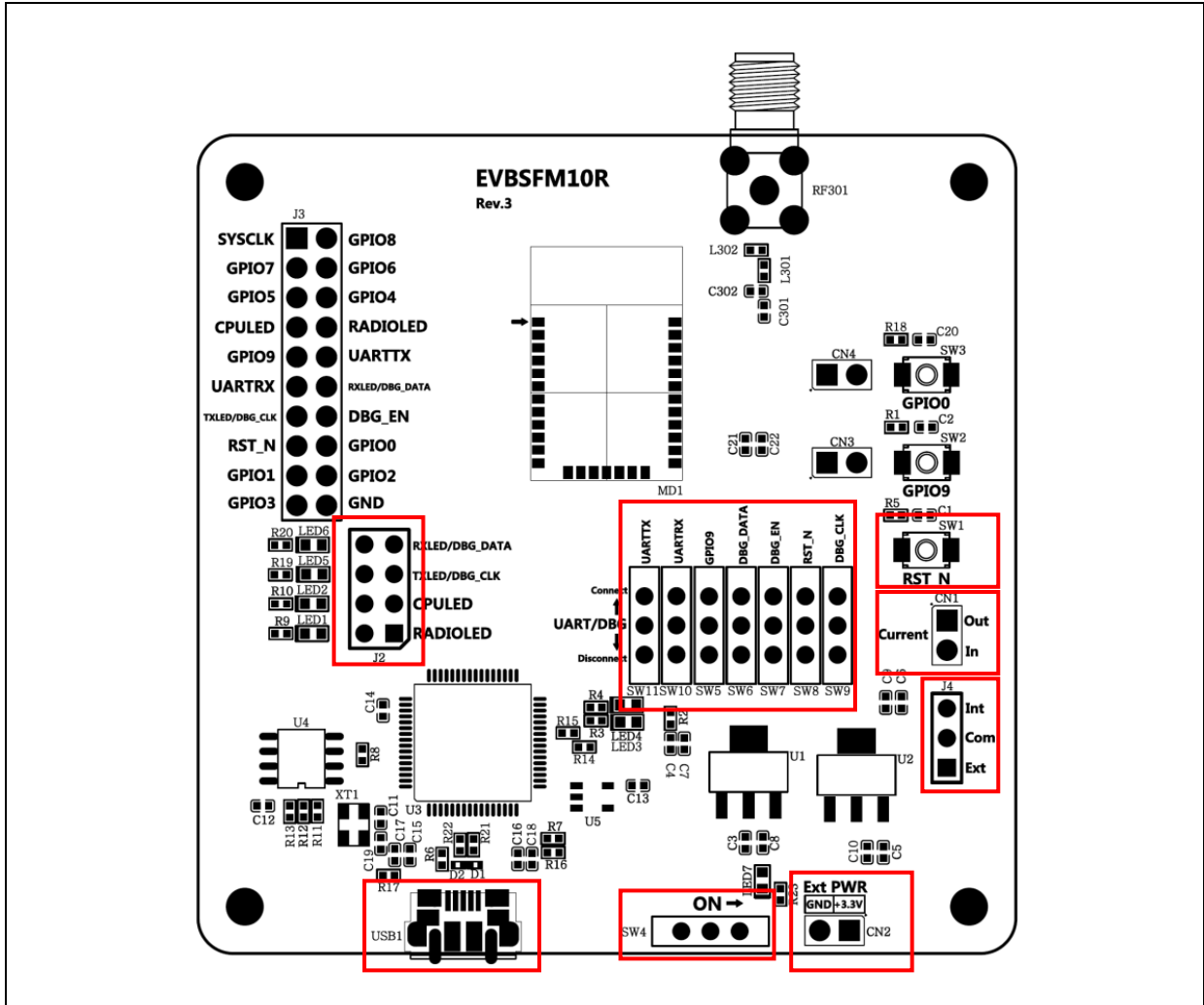
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<b>Model</b>	<b>F/W</b>
EVBSFM10R1AT	-
EVBSFM10R2AT	-
EVBSFM10R3AT	
EVBSFM10R4AT	

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## Current Measurement

### EVBSFM10R(Rev.3) Check point

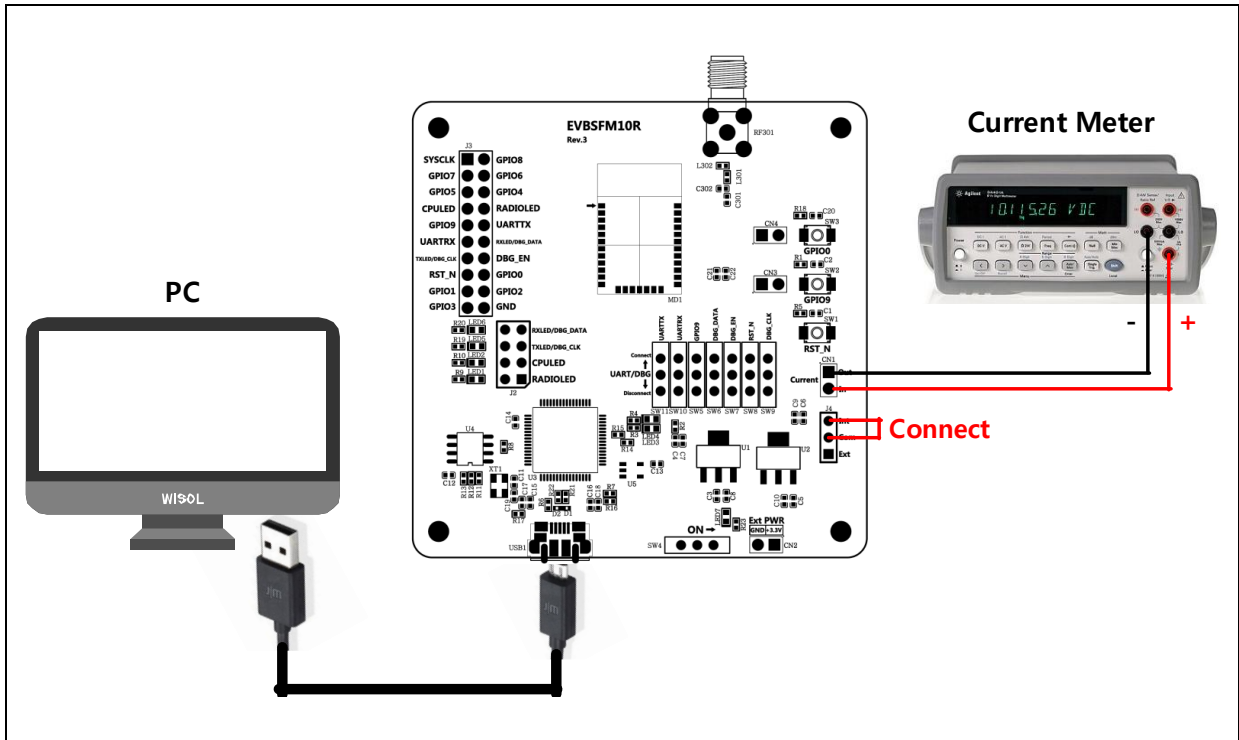


[ Fig1. EVBSFM10R(Rev.3) Component Layout ]

Ref No.	Description	Remark
<b>USB1</b>	Micro USB Connector(Connect to PC)	
<b>SW4</b>	Power supply Switch(→On, ←Off)	
<b>CN2</b>	External Power supply(+3.3Vdc) connector	
<b>J4</b>	Internal/External power select jumper-pin	
<b>CN1</b>	Module power supply jumper-pin (Connect Current Meter_ In-(+), Out(-))	
<b>SW5</b>	GPIO9 connect switch( ↑ Connect, ↓ Disconnect)	Debug
<b>SW6</b>	Debug data connect switch( ↑ Connect, ↓ Disconnect)	Debug
<b>SW7</b>	Debug enable connect switch( ↑ Connect, ↓ Disconnect)	Debug
<b>SW8</b>	Reset_N connect switch( ↑ Connect, ↓ Disconnect)	Debug
<b>SW9</b>	Debug clock connect switch( ↑ Connect, ↓ Disconnect)	Debug
<b>SW10</b>	UART RX connect switch( ↑ Connect, ↓ Disconnect)	UART
<b>SW11</b>	UART TX connect switch( ↑ Connect, ↓ Disconnect)	UART
<b>SW1</b>	Reset switch	
<b>J2</b>	Status LED connect switch	

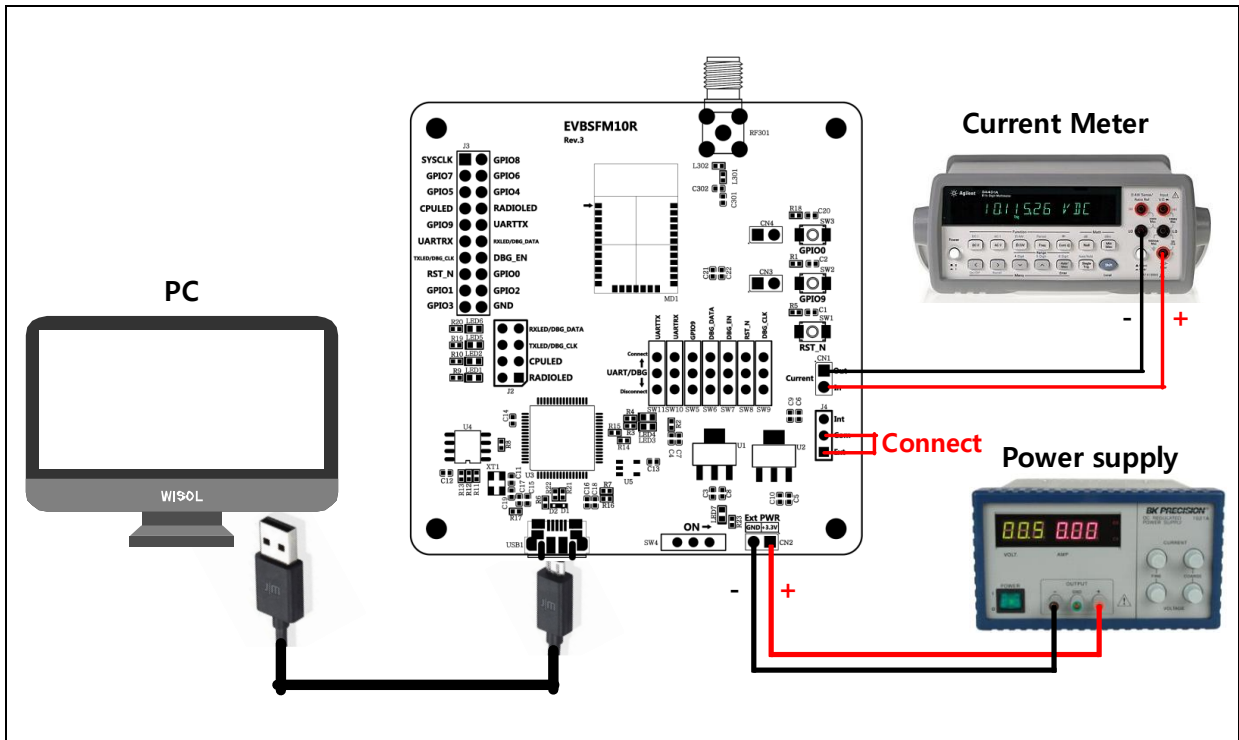
[ EVBSFM10R(Rev.3) Component Description ]

Current measurement configuration(USB power input)



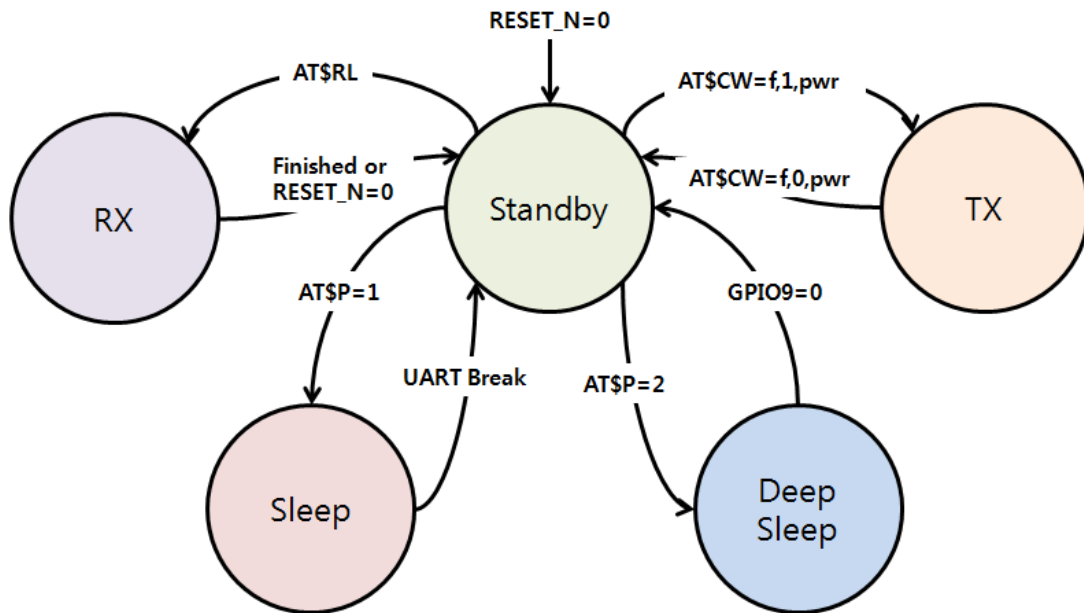
[ Fig2. Current measurement configuration(USB power input) ]

Current measurement configuration(External power-supply input)



[ Fig3. Current measurement configuration(External power-supply input) ]

### WSSF10R1AT(RCZ1) Power Modes



### WSSF10R1AT(RCZ1) TX current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. TX current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Click the Quick command (  : default power table '15') or Input AT command 'AT\$IF=868130000 click 'Send' icon, then 'ATS302=15'; click 'Send' icon, 'AT\$CB=-1,1' and then click 'Send' icon.  
For changing RF power, use 'ATS302=XX' and then click 'Send' icon instead of using 'ATD302=15'
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check TX current

### WSSF10R1AT(RCZ1) RX current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB

3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J4-CPULED jumper)
3. RX current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$RL' and then click 'Send' icon.
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check TX current.

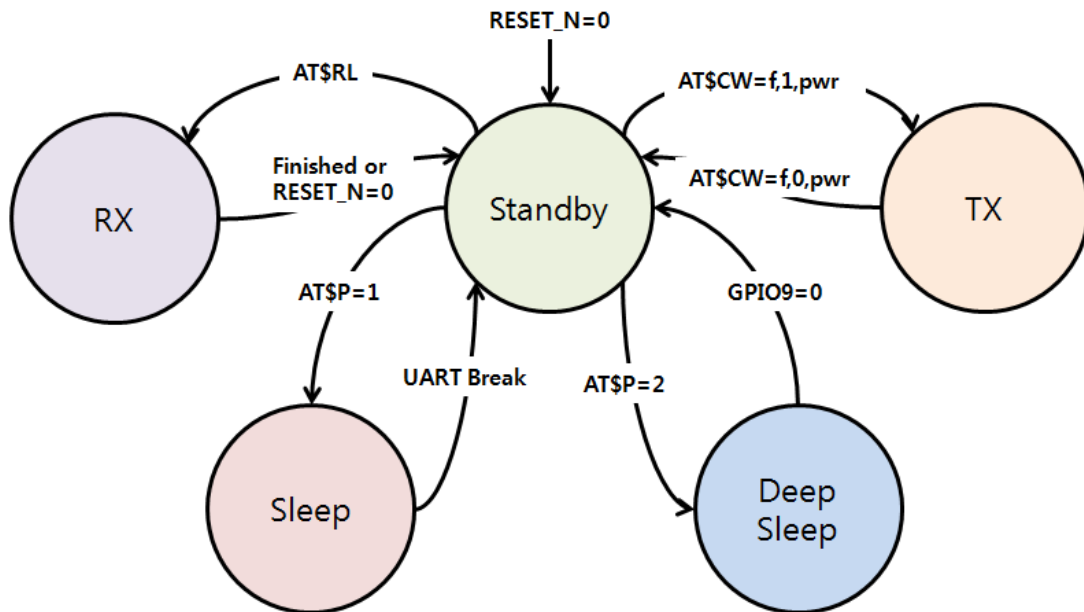
### **WSSFM10R1AT(RCZ1) Sleep current test**

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=idle mode (@500uA/ Remove J2-CPULED jumper)
6. Sleep current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$P=1' (sleep mode command)
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check Sleep current

### **WSSFM10R1AT(RCZ1) Deep sleep current test**

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=idle mode (@500uA/ Remove J2-CPULED jumper)
6. Sleep current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$P=1' (sleep mode command)
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check Sleep current
  - 5) If the module wakes up, Push the tact switch(SW2: wakeup PIN) on EVB

## WSSFM10R2AT(RCZ2) Power Modes



### WSSFM10R2AT(RCZ2) TX current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. TX current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Click the Quick command (  : default power table '24') or Input AT command 'AT\$IF=902200000' click 'Send' icon and then input AT command 'AT\$CB=-1,1' click 'Send' icon.
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check TX current

### WSSFM10R2AT(RCZ2) RX current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. RX current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$RL' and then click 'Send' icon.
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check RX current.

### WSSFM10R2AT(RCZ2) Sleep current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB

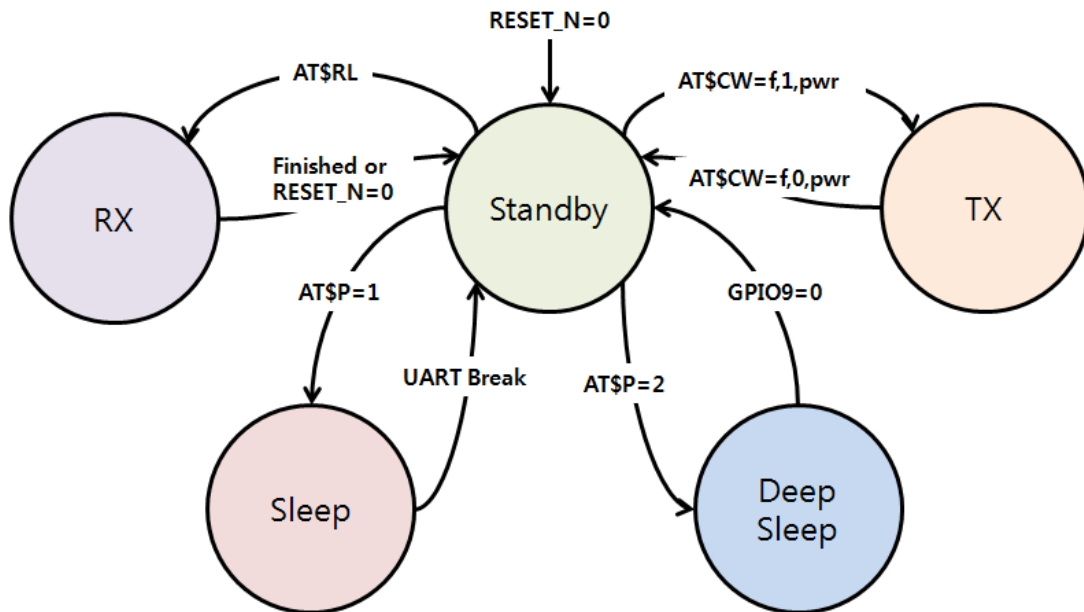


3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. Sleep current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$P=1' (sleep mode command)
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check Sleep current

### **WSSFM10R2AT(RCZ2) Deep sleep current test**

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. Deep sleep current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$P=2' (Deep sleep mode command)
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check Deep sleep current
  - 5) If the module wakes up, Push the tact switch(SW2: wakeup PIN)

## WSSFM10R4AT(RCZ4) Power Modes



### WSSFM10R4AT(RCZ4) TX current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. TX current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Click the Quick command (  : default power table '24') or Input AT command 'AT\$IF=920800000' click 'Send' icon and then input AT command 'AT\$CB=-1,1' click 'Send' icon.
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check TX current

### WSSFM10R4AT(RCZ4) RX current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. RX current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$RL' and then click 'Send' icon.
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check RX current.

### WSSFM10R4AT(RCZ4) Sleep current test

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB

3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. Sleep current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$P=1' (sleep mode command)
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check Sleep current

#### **WSSFM10R4AT(RCZ4) Deep sleep current test**

1. Disconnect Debug Switch(SW5~SW9) on EVB
2. Connect UART Switch(SW10~SW11) on EVB
3. Power switch ON(SW4) on EVB
4. Push the RESET Switch(SW1) on EVB
5. Initial mode=Standby mode (@500uA/ Remove J2-CPULED jumper)
6. Deep sleep current test method
  - 1) Input AT command 'AT' (UART condition checking)
  - 2) Input AT command 'AT\$P=2' (Deep sleep mode command)
  - 3) Disconnect UART Switch(SW10~SW11) on EVB
  - 4) And then, Check Deep sleep current
  - 5) If the module wakes up, Push the tact switch(SW2: wakeup PIN)