SH-BLEM18 is a Bluetooth low energy module designed by Sino Wealth.

The following figure is an evaluation board for M18 module. It leads out all of the IO ports, reset signal and power supply ports of the module.

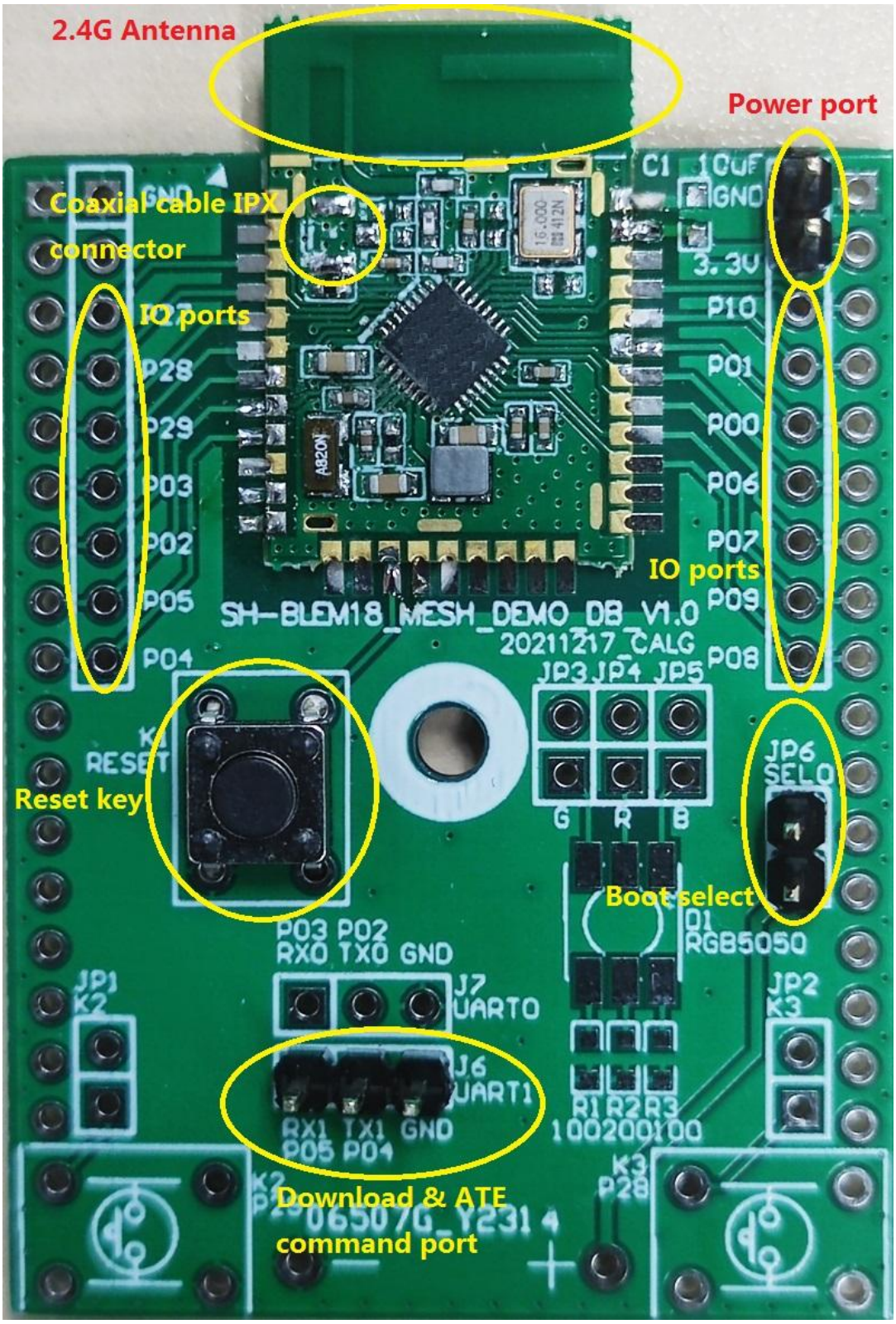

Figure 1. Evaluation board for M18 module

Pin	Name	Type	Description	Note
1,33	GND	POWER	Ground	
2	NC	I/O	Dummy Pin	
3	P27	I/O	P27/PWM1*[1]	
4	P28	I/O	P28/PWM2	
5	P29	I/O	P29/PWM3	
6	P03	I/O	P03/RXD0/SDA0	UART0
7	P02	I/O	P02/TXD0/SCL0	
8	P05	I/O	P05/ RXD1/ SDA1	UART1
9	P04	I/O	P04/ TXD1/ SCL1	
10	NC	I/O	Dummy Pin	
11	NC	I/O	Dummy Pin	
12	NC	I/O	Dummy Pin	
13	NC	I/O	Dummy Pin	
14	NC	I/O	Dummy Pin	
15	RESET		RESET	RESET
16	NC	I/O	Dummy Pin	
17	NC	I/O	Dummy Pin	
18,	NC	I/O	Dummy Pin	
19	NC	I/O	Dummy Pin	
20	NC	I/O	Dummy Pin	
21	NC	I/O	Dummy Pin	
22	NC	I/O	Dummy Pin	
23	NC	I/O	Dummy Pin	
24	P08	I/O	P08/PWM6/USB_DP	
25	P09	I/O	P09/PWM7/USB_DM	
26	P07	I/O	P07/PWM5	
27	P06	I/O	P06/PWM4	
28	P00	I/O	P00	Boot Select
29	P01	I/O	P01	
30	P10	I/O	P10/PWM8	
31	NC	I/O	Dummy Pin	
32	3V3 (VDD)	POWER	Power supply	

Table 1. Pin description for M18 Module

Ports:	Download mode	Normal mode
Power	3.3V power supply	3.3V power supply
SEL0(JP6)	short	open
Reset key	JP6 short, then press the reset key, enter download mode	JP6 open, then press the reset key, enter normal mode
UART1	Flash download	ATE command

Table 2. Configuration of several ports

FCC & IC Statement:

FCC Statement:

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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 or more 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.

FCC Radiation Exposure Statement

This modular complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The module is limited to OEM installation only

The OEM integrator is responsible for ensuring that the end-user has no manual instructions to remove or install module

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: Contains Transmitter Module FCC ID:2AOT2SH-BLEM18 Or Contains FCC ID: 2AOT2SH-BLEM18

When the module is installed inside another device, the user manual of the host must contain below warning statements;

1.1 List of applicable FCC rules

FCC Part 15 Subpart C 15.247 & 15.209

1.2 Specific operational use conditions

The module is a BLE module.

Operation Frequency: 2402-2480MHz

Number of Channel: 40

Modulation: GFSK

Type: PCB Antenna

Gain: 1.2 dBi Max.

The module can be used for mobile or portable applications with a maximum 1.2dBi antenna. The host manufacturer installing this module into their product must ensure that the final composit product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operaition. The host manufacturer 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.

1.3 Limited module procedures
Not applicable. The module is a Single module and complies with the requirement of FCC Part 15.212.

1.4 Trace antenna designs

Not applicable. The module has its own antenna, and doesn't need a host's printed board microstrip trace antenna etc.

1.5 RF exposure considerations

The module must be installed in the host equipment such that at least 20cm is maintained between the antenna and users' body; and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application. The FCC ID of the module cannot be used on the final product. In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

1.6 Antennas

Antenna Specification are as follows:

Type: PCB Antenna

Gain: 1.2 dBi

This device is intended only for host manufacturers under the following conditions: The transmitter module may not be co-located with any other transmitter or antenna; The module shall be only used with the internal antenna(s) that has been originally tested and certified with this module. The antenna must be either permanently attached or employa 'unique' antenna coupler.

As long as the conditions above are met, further transmitter test will not be required. However, the host manufacturer is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

1.7 Label and compliance information

Host product manufacturers need to provide a physical or e-label stating "Contains FCC ID: 2AOT2SH-BLEM18" with their finished product.

1.8 Information on test modes and additional testing requirements

Operation Frequency: 2402-2480MHz

Number of Channel: 40

Modulation: GFSK

Host manufacturer must perfom test of radiated & conducted emission and spurious emission, etc according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product. Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.
2.10 Additional testing, Part 15 Subpart B disclaimer The modular transmitter is only FCC authorized for FCC Part 15 Subpart C 15.247 & 15.209 and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuity), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

ISED Statement:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.
(2)This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) L'appareil ne doit pas produire de brouillage;
(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ouémetteur.

Please notice that if the ISED certification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following:"Contains IC:24809-SHBLEM18" any similar wording that expresses the same meaning may be used.

Veuillez noter que si le numéro de certification ISDE n'est pas visible lorsque le module est installé à l' intérieur d'un autre dispositif, alors l'extérieur du dispositif dans lequel le module est installé doit également afficher une étiquette se référant au module fermé. Cette étiquette extérieure peut utiliser des libellés tels que: «contient IC: 24809-SHBLEM18» toute formulation similaire qui exprime la même signification peut être utilisée.