

HIVOX[®]  翰沃生電科技股份有限公司 HIVOX BIOTEK INC.						文件編號 Doc. No.	20211224-N
制訂日期 Edition Date	2021/12/24	文件名稱 Title	HIVOX RF Module Specification	版 本 Version	V1.1	頁 次 Page	1 of 12

文件變更履歷 Revision History			
項次 Item	版本 Version	變更日期 Revision Date	變 更 內 容 Revision Content
1	V1.0	2020/03/17	First version
2	V1.1	2021/12/24	Add user manual & FCC Statements & FCC ID (2A32IRFM-001)
3	V1.2	2022/04/01	Modify C7 spec(2.4 pF) & Transmit power
核 准 Approved By		審 查 Reviewed By	制 訂 Edited By Personnel
			EE

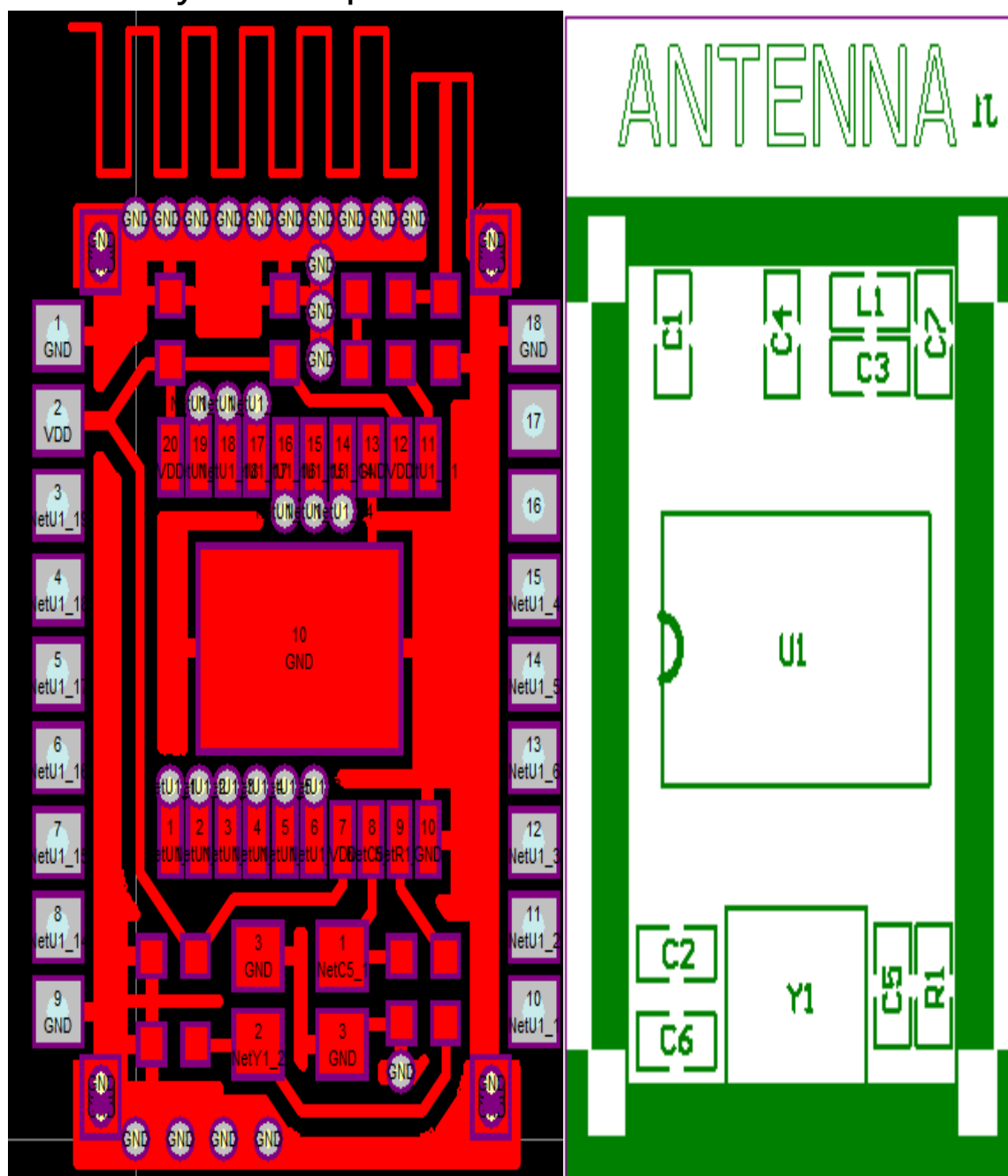
分發單位 Document Countersigned By			
☐ 總 經 室 理 General Manager Office	☐ 管 理 部 Management Dept.	☐ 業 務 部 Sales Dept.	☐ 研 發 部 Res.& Dev. Dept.,
☐ 品 保 部 Quality Assurance Dept.	☐ 台北製造一部 Taipei Factory First Dept.	☐ 東莞製造二部 Dong-Guan Factory Second Dept.	☐ 品質系統中心 Quality System Center

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制訂日期 Edition Date	2021/12/24	文件名稱 Title	HIVOX RF Module Specification	版 本 Version	V1.1	頁 次 Page	2 of 12

Table of Content

1. MODULE LAYOUT AND SPEC.....	3
2. SCHEMATIC	5
3. BLOCK DIAGRAM.....	6
4. BOM.....	7
5. ANTENNA TYPE	8
6. ANTENNA TECHNICAL INDICATOR	9
7. User Manual.....	10
8. FCC Statements.....	11

1. Module layout and Spec.



1.1 Operating voltage : 2.7V~3.3V

1.2 Interface : I2C

1.3 Pin : Total pins number of Module is 18, including VDD/GND/IO*12

HIVOX[®]  翰沃生電科技股份有限公司 HIVOX BIOTEK INC.						文件編號 Doc. No.	20211224-N
制訂日期 Edition Date	2021/12/24	文件名稱 Title	HIVOX RF Module Specification	版 本 Version	V1.1	頁 次 Page	4 of 12

1.4 Pin table as below

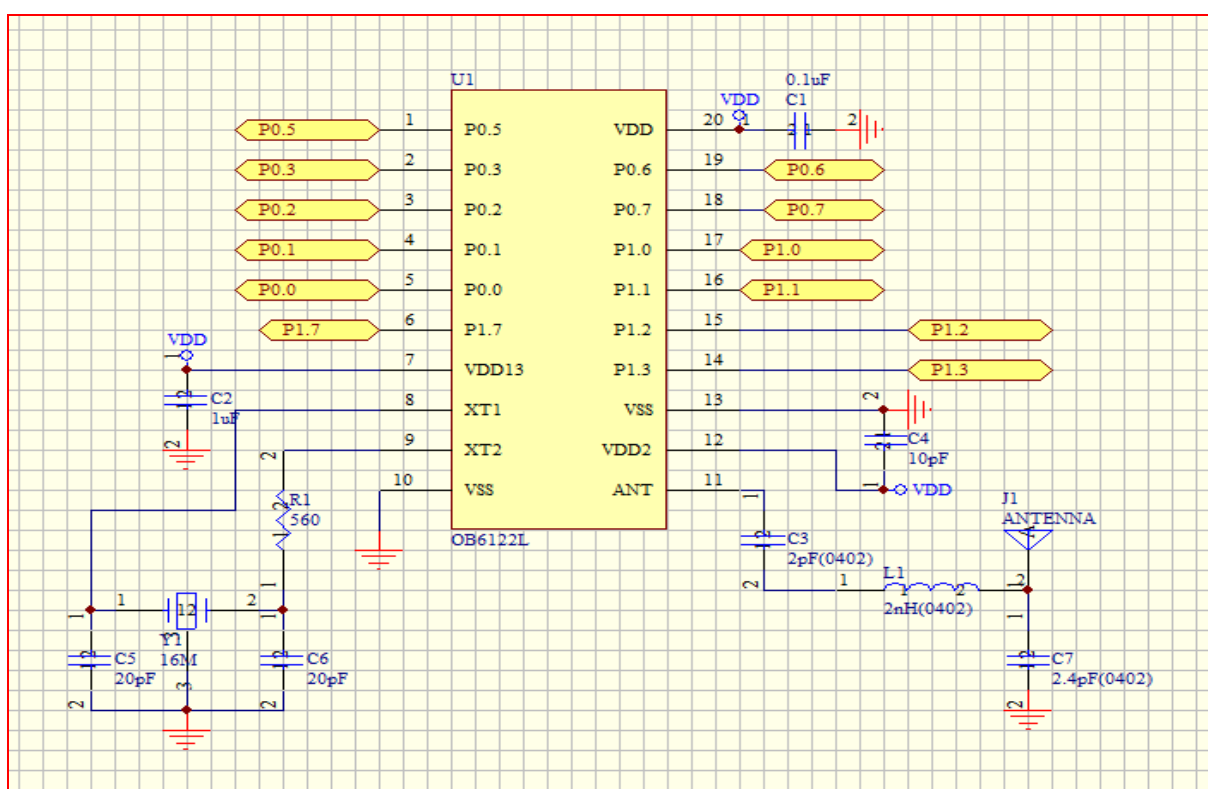
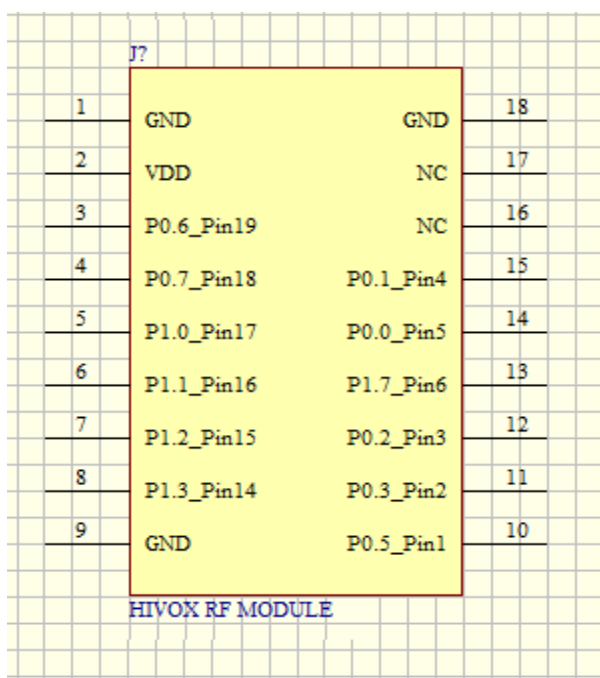
PIN Number	Symbol	I/O	Description
PIN1	GND	O	GND
PIN2	VDD	I	Power Supply
PIN3	P0.6	I/O	Port 0 bit 6/ADC ch-6
PIN4	P0.7	I/O	Port 0 bit 7/ADC ch-7/PWM ch-3
PIN5	P1.0	I/O	Port 1 bit 0
PIN6	P1.1	I/O	Port 1 bit 1
PIN7	P1.2	I/O	Port 1 bit 2/I2C_SCL
PIN8	P1.3	I/O	Port 1 bit 3/I2C_SDA
PIN9	GND	O	GND
PIN10	P0.5	I/O	Port 0 bit 5/ADC ch-5/PWM ch-2
PIN11	P0.3	I/O	Port 0 bit 3/ADC ch-3
PIN12	P0.2	I/O	Port 0 bit 2/ADC ch-2
PIN13	P1.7	I/O	Port 1 bit 7/PWM ch-1
PIN14	P0.0	I/O	Port 0 bit 0/ADC ch-0
PIN15	P0.1	I/O	Port 0 bit 1/ADC ch-1
PIN16	NC		
PIN17	NC		
PIN18	GND	O	GND

1.5 Module product Information

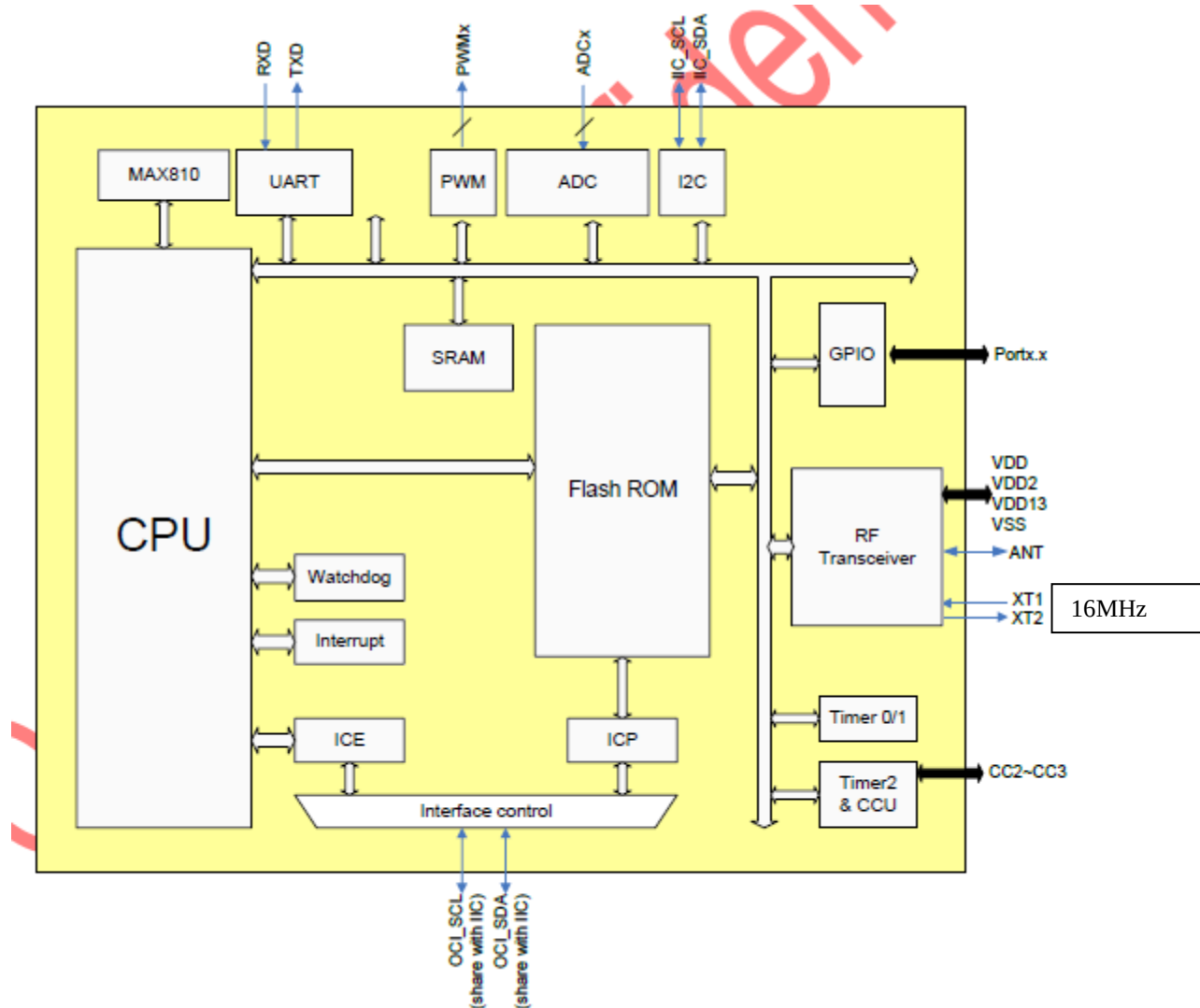
- Product Name : RF module
- Brand Name : HIVOX BIOTEK INC.
- Model Name : RFM-001
- Label stucked on shielding can as below



2. Schematic



3.Block Diagram



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制訂日期 Edition Date	2021/12/24	文件名稱 Title	HIVOX RF Module Specification	版 本 Version	V1.1	頁 次 Page	7 of 12

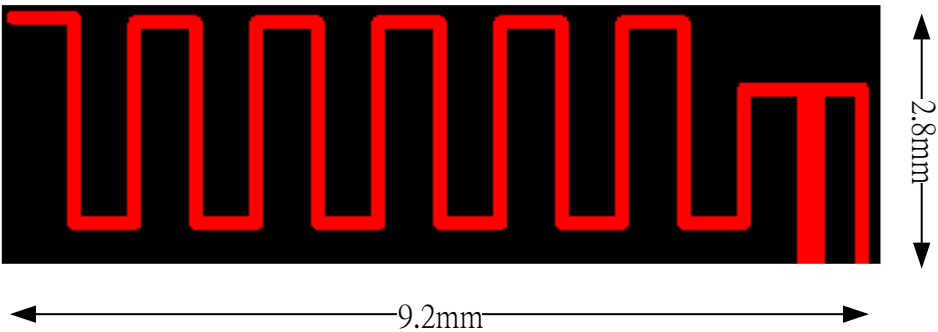
4. BOM

No.	Material No.	Item Name	Spec	Special requirements	amount	Location
SMT						
HIVOX RF Module						
1		PCB	FR-4 two layers, 17.78*10.78*0.6mm, RF-module-EP-201 V0.1		1	
2		Chip resistor	SMD 0402 680Ω +-1%		1	R1
3		Chip capacitor	SMD 0402 2.4P +-10% 10V X5R		1	C7
4		Chip capacitor	SMD 0402 2P +-10% 10V X5R		1	C3
5		Chip capacitor	SMD 0402 10P +-10% 10V X5R		1	C4
6		Chip capacitor	SMD 0402 20P +-10% 10V X5R		2	C5.C6
7		Chip capacitor	SMD 0402 0.1UF +-10% 10V X5R		1	C1
8		Chip capacitor	SMD 0402 1UF +-10% 10V X5R		1	C2
9		Chip Inductor	SMD 0402 2nH		1	L1
10		Murata Crystal	SMD 3225 16MHz		1	Y1
11		RF-IC	SyncMOS OB6122LVP TSSOP-20		1	U1
12		Shielding Can	13.7*9*1.6*0.15MM (Copper-Nickel-Zinc Alloy)		1	

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制訂日期 Edition Date	2021/12/24	文件名稱 Title	HIVOX RF Module Specification	版 本 Version	V1.1	頁 次 Page	8 of 12

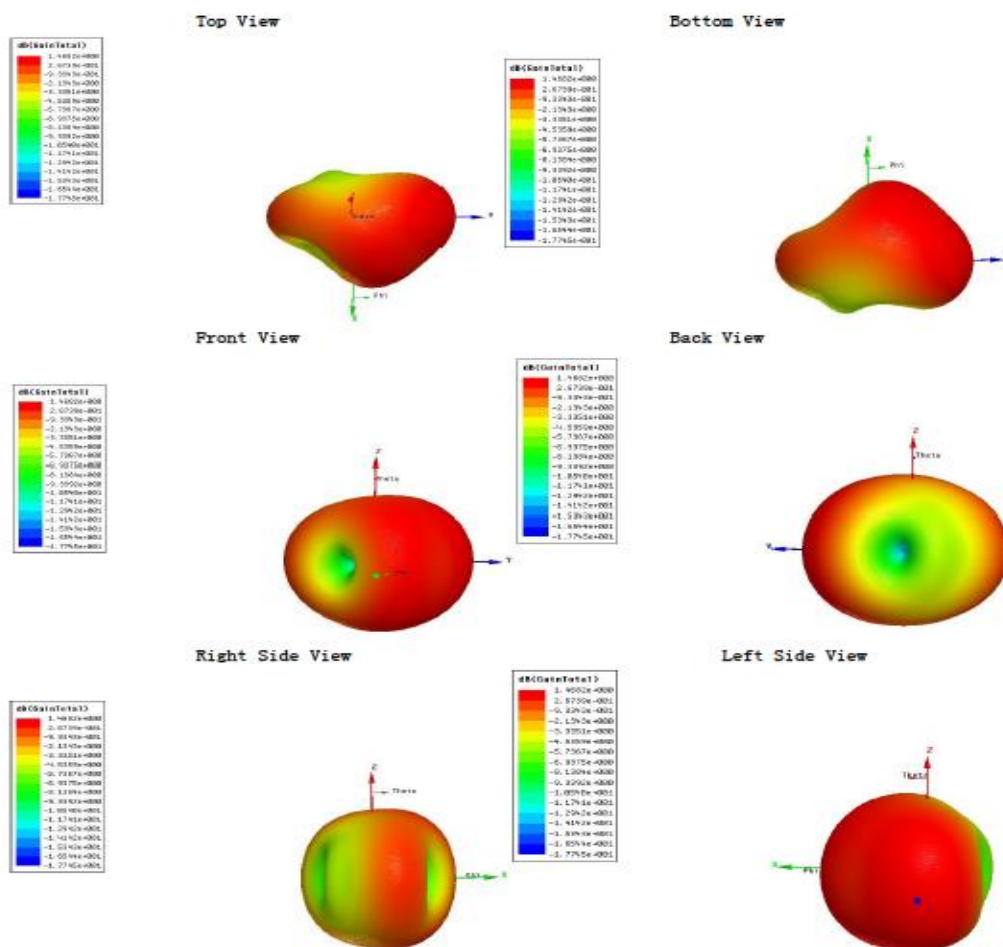
5. Antenna TYPE

Planar inverted-F antenna



6. Antenna Technical indicator

TYPE: Planar inverted-F antenna	
Manufacturer: HIVOX BIOTEK INC.	
A. Electrical performance	
Operating frequency range	2400~2483.5MHz
Antenna gain	1.5 dBi
Impedance	50 ohm
B. Surroundings	
Operating temperature	-10°C ~ + 85 °C
Storage temperature	-15°C ~ + 85 °C



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7.User Manual

TX/RX principle description

Antenna : Planar inverted-F antenna, gain 1.5dBi.

Frequency (fixed frequency): single frequency transmission and reception · the center frequency is 2.430 GHz.

Transmit power: maximum output **-1dBm**.

Modulation mode: GFSK.

Communication data rate: 1MBPS.

TX current: 35mA.

RX current: 20mA.

Limit conditions (temperature, voltage): temperature -10-85 degrees, voltage 2.7v-3.3v.

TX/RX Operation Description:

- 1) TX mode : power on, The module constantly sends out pulses with a center frequency of 2.430GHz, spectrum analyzer Max hold, you can capture the launch pulse.
- 2) RX mode : power on, The module enter into RX mode °
- 3) Fixed frequency mode : power on · The module output a point frequency signal of 2.430GHz °
- 4) TX_ADDR : 0xE7E7F2F1F0
- 5) GFSK

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7. FCC Statements

- Any changes or modifications not expressly approved by the party responsible for compliance could void your 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.
- 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.
- RF exposure statements
 1. This Transmitter must not be co-located or operating in conjunction with any other

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antenna or transmitter.

2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body or nearby persons..

●Notice to OEM integrator

Must use the device only in host devices that meet the FCC/ISED RF exposure category of mobile, which means the device is installed and used at distances of at least 20cm from persons. The end user manual shall include FCC Part 15 /ISED RSS GEN compliance statements related to the transmitter as show in this manual.

Host manufacturer is responsible for compliance of the host system with module installed with all other applicable requirements for the system such as Part 15 B, ICES 003. Host manufacturer is strongly recommended to confirm compliance with FCC/ISED requirements for the transmitter when the module is installed in the host.

Must have on the host device a label showing Contains FCC ID: XXXXXX · IC: XXXXXX