

1. General Description

Model Name:	AMT6856C3M
Product Description	Support Wi-Fi/Bluetooth functionalities
Dimension	L x W x H: 38 x 21 x 2.4 mm
Operating temperature	0°C to 40°C
Storage temperature	-40°C to 85°C
Rating	DC3.9V

2. Features

General

- Support 802.11a/b/g/n/ac/ax 2x2, Wave-2 compliant with RX MU-MIMO
- Support Bluetooth 5.3
- 20 MHz/40 MHz channel bandwidth for 2.4 GHz and 20 MHz/40 MHz/80 MHz/160 MHz channel bandwidth for 5GHz/6 GHz
- IEEE 802.11ax MIMO OFDM/OFDMA, IEEE 802.11ac MIMO OFDM, IEEE 802.11n MIMO OFDM

PHY Features

- Baseband PHY and RF in a single chip for IEEE 802.11a/b/g/n/ac/ax compatible WLAN
- Maximum PHY data rate up to 286.8 Mbps using 20MHz bandwidth, 573.5Mbps using 40MHz bandwidth, 1201Mbps using 80MHz bandwidth, and 2401.9Mbps using 160MHz bandwidth.

Bluetooth Features

- Compatible with Bluetooth v5.3+EDR
- Dual Mode support: Simultaneous LE and BR/EDR

Safety regulations :

1. It is not allowed to change the transmission frequency and increase the transmission power (including additional RF power amplifier). It is not allowed to connect the antenna or use other transmitting antennas without authorization.
2. This can't be used when there is harmful interference to all kinds of legitimate radio communication business. Once disturbances are found, the use should be stopped immediately, and measures should be taken to eliminate disturbances before continuing use.
3. The use of micro power wireless devices must endure various radio business interference or industrial / scientific / medical application equipment

radiation interference.

4. It should not be used in aircraft or airport accessories.

Caution :

1. Please keep this product and accessory accessories to a child's reach.

2. Do not spill water or other liquids onto this product, otherwise it may cause damage.

3. Please do not place this product near the source of heat or place it in direct sunlight. Otherwise, it may cause deformation or malfunction.

4. Please let this product be flammable or fire such as lighted candles.

5. Please do not repair this product by yourself, only professionals can repair it.

*Note: If the design and specifications are changed, no notice shall be given; the specifications vary from area to area; the transmission speed varies depending on the distance between the products, the number of obstacles, the product configuration, the radio wave condition and the product you use; the transmission may also be interrupted because of the bad radio waves condition; The standard value of transmission speed is the maximum value of wireless standard theory, rather than the actual speed of data transmission.

EU Declaration of Conformity / UK Declaration of Conformity

This device complies with the essential requirements of the Radio Equipment Directive (2014/53/EU) or Radio Equipment Regulations 2017(for UK). The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the Radio Equipment Directive

Radiation Exposure Statement:

This equipment complies with CE radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & body.

The frequency, mode and the maximum transmitted power are listed below:

WiFi 2.4G/5G/6E:

- 2400-2483.5MHz: < 20 dBm (EIRP)
- 5150-5250MHz: < 23 dBm (EIRP)
- 5250-5350MHz: < 23 dBm (EIRP)
- 5470-5725MHz: < 30 dBm (EIRP)
- 5725-5875MHz: < 14 dBm (EIRP)
- 5945-6425MHz: < 23 dBm (EIRP)

BT/BLE 2.4G:

- 2402-2480MHz: < 20dBm (EIRP)

The device is restricted to indoor use only when operating in the 5150 to 5350MHz frequency range. (for 5G product only)

	AT	BE	BG	HR	CY	CZ	DK
	EE	FI	FR	DE	EL	HU	IE
	IT	LV	LT	LU	MT	NL	PL
	PT	RO	SK	SI	ES	SE	UK(NI)

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

應避免影響附近雷達系統之操作。

系統廠商應於平台上標示「本產品內含射頻模組：📶XXXyyyLPDzzzz-x」字樣。

Federal Communication Commission Interference 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.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable

protection against harmful interference when the equipment is operate din a commercial environment. This equipment generates, uses, and can radiate radiofrequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Note: The country code selection is for non-US model only and is not available to all US model. Per FCC regulation, all WiFi product marketed in US must fixed to US operation channels only.

KDB 996369 D03 OEM Manual v01 rule sections:

2.2 List of applicable FCC rules

This module has been tested for compliance to FCC Part 15.247, 15.407

2.3 Summarize the specific operational use conditions

The module is tested for standalone mobile RF exposure use condition. Any other usage conditions such as co-location with other transmitter(s) or being used in a portable condition will need a separate reassessment through a class II permissive change application or new certification.

This module is authorized for **client** device applications under the control of an indoor access point or subordinate.

The final host product must comply with the following operational restrictions:

- a) Cannot have a direct connection to the internet to source the internet to other clients, access points, subordinates or clients from a wired or direct connection.

This module is authorized for **Indoor Client (6XD)** device applications under the control

of a low-power indoor access point or subordinate.

The final host product must comply with the following operational restrictions:

- a) Must be limited to indoor locations only;
- b) Cannot connect directly to any other client device;
- c) Cannot source internet/network (obtained via wired connection or other means such as cellular) to other clients, access points and subordinate devices, or provide any direct peer to peer connections to other clients or subordinates;
- d) Is prohibited for control of or communications with unmanned aircraft systems.

2.4 Limited module procedures

Not applicable.

2.5 Trace antenna designs

Not applicable.

2.6 RF exposure considerations

This equipment complies with FCC mobile radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20cm between the radiator & your body. If the module is installed in a portable host, a separate SAR evaluation is required to confirm compliance with relevant FCC portable RF exposure rules.

2.7 Antennas

The following antennas have been certified for use with this module; antennas of the same type with equal or lower gain may also be used with this module, except as described below. The antenna must be installed such that 20 cm can be maintained between the antenna and users.

Demonstration of compliance to Contention-Based Protocol requirements across U-NII-5/6/7/8 bands has been determined using a lowest antenna gain of 5.14dBi. The use of antennas with gain lower than this will require a separate Class II permissive change re-evaluation or new certification.

Antenna Manufacturer	Amtran Technology Co., Ltd.	Amtran Technology Co., Ltd.
Antenna Model	RFPCA502210IMMB901	RFPCA505010IMMB901
Antenna Type	Dipole	Dipole
Antenna Gain (dBi)	5.15~5.85GHz: 5.89 5.925GHz~7.125GHz: 5.98	2.4~2.4835GHz: 5.67
Antenna connector	ipex(MHF)	ipex(MHF)

2.8 Label and compliance information

The final end product must be labeled in a visible area with the following: “Contains FCC ID: MDZ-6856P6EC3M”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

The OEM integrator 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 product user manual shall include all required regulatory information/warning as shown in this manual.

2.9 Information on test modes and additional testing requirements

This transmitter is tested in a standalone mobile RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) or portable use will require a separate class II permissive change re-evaluation or new certification.

2.10 Additional testing, Part 15 Subpart B disclaimer

This transmitter module is tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B (unintentional radiator) rule requirement applicable to the final host. The final host will still need to be reassessed for compliance to this portion of rule requirements if applicable.

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment.

As long as all conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

2.11 Note EMI Considerations

Please follow the guidance provided for host manufacturers in KDB publications 996369 D02 and D04.

2.12 How to make changes

Only Grantees are permitted to make permissive changes. Please contact us should the host integrator expect the module to be used differently than as granted:

Consumer Support: info.tw@amtran.com.tw

IMPORTANT NOTE: In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Transmitters in the 5.925-7.125 GHz band are prohibited from operating to control or communicate with unmanned aircraft systems.

Industry Canada 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.

Caution :

- (i) any devices capable of operating in the band 5150–5250 MHz shall only be used indoors to reduce the potential for harmful interference to co-channel mobile satellite systems (this requirement does not apply to OEM devices installed in vehicles by vehicle manufacturers)
- (ii) for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;
- (iii) for devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits as appropriate;
- (iv) where applicable, antenna type(s), antenna models(s), and worst-case tilt angle(s) necessary

to remain compliant with the e.i.r.p. elevation mask requirement set forth in section 7.3.2.4 or 7.3.5.3 shall be clearly indicated.

Avertissement:

- i. tout dispositif capable de fonctionner dans la bande de 5150 à 5250 MHz ne doit être utilisé qu'à l'intérieur des bâtiments afin de réduire les risques d'interférences nuisibles avec les systèmes mobiles par satellite à canaux multiples (cette exigence ne s'applique pas aux dispositifs FEO installés dans les véhicules par les constructeurs automobiles)
- ii. pour les dispositifs munis d'antennes amovibles, le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5 250 à 5 350 MHz et de 5 470 à 5 725 MHz doit être conforme à la limite de la p.i.r.e;
- iii. pour les dispositifs munis d'antennes amovibles, le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5 725 à 5 850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée, selon le cas;
- iv. lorsqu'il y a lieu, les types d'antennes (s'il y en a plusieurs), les numéros de modèle de l'antenne et les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la p.i.r.e. applicable au masque d'élévation, énoncée à la section 7.3.2.4 ou 7.3.5.3, doivent être clairement indiqués.

Radiation Exposure Statement:

This equipment complies with ISSED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with greater than 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISSED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 20cm entre le radiateur et votre corps.

This device is intended only for OEM integrators under the following conditions: (For module device use)

- 1) The antenna must be installed and operated with greater than 20cm between the antenna and users, and
 - 2) The transmitter module may not be co-located with any other transmitter or antenna.
- As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)

- 1) L'antenne doit être installée et exploitée avec plus de 20 cm entre l'antenne et les utilisateurs, et
- 2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.

Tant que les 2 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

IMPORTANT NOTE:

In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the Canada authorization is no longer considered valid and the IC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate Canada authorization.

NOTE IMPORTANTE:

Dans le cas où ces conditions ne peuvent être satisfaites (par exemple pour certaines configurations d'ordinateur portable ou de certaines co-localisation avec un autre émetteur), l'autorisation du Canada n'est plus considérée comme valide et l'ID IC ne peut pas être utilisé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera chargé de réévaluer le produit final (y compris l'émetteur) et l'obtention d'une autorisation distincte au Canada.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed and operated with greater than 20cm between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains IC: 7825A-6856P6EC3M".

Plaque signalétique du produit final

Ce module émetteur est autorisé uniquement pour une utilisation dans un appareil où l'antenne peut être installée et utilisée à plus de 20 cm entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 7825A-6856P6EC3M".

Manual Information To the End User

The OEM integrator 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.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

- Devices shall not be used for control of or communications with unmanned aircraft systems.
 - Devices shall not be used on oil platforms.
 - Devices shall not be used on aircraft, except for the low-power indoor access points, indoor subordinate devices, low-power client devices, and very low-power devices operating in the 5925-6425 MHz band, that may be used on large aircraft as defined in the [Canadian Aviation Regulations](#), while flying above 3,048 metres (10,000 feet).
 - Devices shall not be used on automobiles.
 - Devices shall not be used on trains.
 - Devices shall not be used on maritime vessels.
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- Les dispositifs ne doivent pas être utilisés pour commander des systèmes d'aéronef sans pilote ni pour communiquer avec de tels systèmes;
 - Les dispositifs ne doivent pas être utilisés sur les plateformes de forage pétrolier;
 - Les dispositifs ne doivent pas être utilisés dans les aéronefs, à l'exception des points d'accès intérieurs de faible puissance, des dispositifs subordonnés intérieurs, des dispositifs clients de faible puissance et des dispositifs de très faible puissance fonctionnant dans la bande de 5 925 à 6 425 MHz, qui peuvent être utilisés dans les gros aéronefs tel qu'il est défini dans le [Règlement de l'aviation canadien](#), et ce, lorsqu'ils volent à une altitude supérieure à 3 048 mètres (10 000 pieds).
 - Les dispositifs ne doivent pas être utilisés dans les automobiles;
 - Les dispositifs ne doivent pas être utilisés dans les trains;
 - Les dispositifs ne doivent pas être utilisés sur les navires maritimes.

This radio transmitter [IC: 7825A-6856P6EB2M] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain

greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Le présent émetteur radio [IC: 7825A-6856P6EC3M] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué pour tout type figurant sur la liste, sont strictement interdits pour l'exploitation de l'émetteur.

Manufacturer	Model	Frequency (MHz)	Antenna Type	Max Gain (dBi)
Amtran Technology Co., Ltd.	RFPCA502210IMMB901	5925~7125	Dipole	5.98
Amtran Technology Co., Ltd.	RFPCA502210IMMB901	5150~5850	Dipole	5.89
Amtran Technology Co., Ltd.	RFPCA505010IMMB901	2400~2483.5	Dipole	5.67

5GHz 帯 (W52, W53) 及び 6GHz 帯 (LPI) : 屋内利用限定(5.2GHz 帯高出力データ通信システムの基地局や中継局との通信を除く)

5GHz band (W52,W53) and 6GHz band (LPI) : Indoor use only (except communicate to W52 high power radio)