

**SAMSUNG
WCF730M
Wi-Fi
Bluetooth
Combo
Module**



SAMSUNG WCF730M Wi-Fi Bluetooth Combo Module User Manual

[Home](#) » [Samsung](#) » SAMSUNG WCF730M Wi-Fi Bluetooth Combo Module User Manual 

Contents

- [1 SAMSUNG WCF730M Wi-Fi Bluetooth Combo Module](#)
- [2 Specifications](#)
- [3 FAQs](#)
- [4 Product Usage Instructions](#)
- [5 FCC](#)
- [6 Documents / Resources](#)
 - [6.1 References](#)

SAMSUNG

SAMSUNG WCF730M Wi-Fi Bluetooth Combo Module



Specifications

- **Model:** WCF730M
- **Chipset:** MediaTek MT7668AUN
- **Wireless Standards:** IEEE802.11 a/b/g/n/ac, Bluetooth 5.0
- **Operating Conditions:** Recommended operating conditions are outlined in the user manual.

FAQs

- **Q: What should I do if I experience interference?**
 - **A:** If you experience interference, try reorienting or relocating the receiving antenna, increasing separation between equipment and receiver, or consult a professional for assistance.
- **Q: Can I install the module in any type of application?**
 - **A:** The module is limited to installation in mobile or fixed applications as outlined in the user manual.
- **Q: What are the responsibilities of OEM/Host manufacturers?**
 - **A:** OEM/Host manufacturers are responsible for ensuring compliance with regulations for both the Host and Module.

Product Usage Instructions

- **Installation**
 - Follow the pin definitions provided in the manual to correctly connect the module to your device.
- **Connectivity**
 - Ensure that the module is properly connected to your wireless device to establish a connection with SMART TVs and AV products.
- **FCC Compliance**
 - Follow the FCC guidelines provided in the manual for proper operation and compliance with regulations.
- **Introduction**
 - WCF730M is a Wi-Fi / Bluetooth Combo module compliant with IEEE802.11 a.b.g.n.ac MAC/baseband/radio and Bluetooth 5.0 optimized for low-power applications.

- The core chipset is from MediaTek part number MT7668AUN. This module is the 802.11a/b/g/n /ac +Bluetooth 5.0 Combo Module that acts as a communication controller for users of a wireless device to connect to SMART TV and AV products.

- **Main chipset information**

Item	Vendor	Part Number
IEEE802.11 a.b.g.n.ac mac/baseband/radio Bluetooth 5.0	MediaTek	MT7668AUN

- **Recommended Operating Condition**

- **Pin Definition**

N o.	Define	Description
1	IR_RX	IR Receiver
2	BT_UART_TXD	BT_U ART Txd
3	GND	Ground
4	WIFI_USB_ON	WiFi_USB_suspend
5	WIFI_WOW	WiFi wake host
6	BT WIFI_N RESET	WiFi reset
7	BT_WAKE	BY wake host
8	GND	Ground
9	USB_D –	USB_D –
10	USB_D +	USB_D +
11	A 5V _PW _W IFI	Supply voltage 5V
12	A 5V _PW _W IFI	Supply voltage 5V
13	LED	Light-emitting diode
14	I2C _SC L	I2C digitalserialclock input
15	I2C _SD A	I2C digitalserialdata output
16	KEY1	Key
17	GND	G round
18	MIC _on/of	MIC Sw itch status
19	DMIC _CLK	MIC digitalserialclock input
20	DMIC _DATA	MIC digitalserialdata output
21	MIC _GND	MIC Ground
22	IR_OUT1	IR transmit
23	IR_OUT2	IR transmit
24	A3.3V _PW _Sensor	Supply voltage 3.3V

FCC

Approval Statement FCC approval statement

This device complies with Part 15 of the FCC's 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 undesirable operation.

To satisfy FCC exterior labeling requirements, the following text must be placed on the exterior of the end product.

Contains Transmitter module FCC ID: A3LWCF730M. This equipment has been tested and found to comply with the limits for a Class B digital device, under 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 by 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 the receiver.
- Connect the equipment to 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.
- The OEM integrator is responsible for ensuring the end user has no manual instruction to remove or install the module.
- The module is limited to installation in mobile or fixed applications.

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

RF exposure considerations

The module has been certified for integration into products only by OEM integrators under the following conditions:

- The antenna(s) must be installed such that a minimum separation distance of at least 20cm is maintained between the radiator(antenna) and all persons at all times.
- The transmitter module must not be co-located or operating in conjunction with any other antenna or transmitter except per FCC multi-transmitter product procedures. This device can support Wi-Fi Direct and access point functions for 2.4GHz, UNII 1, and UNII 3 bands. The device operates strictly as a client in DFS channels (with passive scan). It does not support ad-hoc, Wi-Fi Direct Group Owner, Hotspot, or any other peer-to-peer modes that may initiate a network in DFS channels (UNII2-2A and UNII2-2C band)
- OEM/Host manufacturer responsibilities 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.
- **IMPORTANT:** The final host product must have an integral antenna that is not removable by the end user.
- This module is intended for OEM integrators only. Per FCC KDB 996369 D03 OEM Manual v01 guidance, the following conditions must be strictly followed when using this certified module:

KDB 996369 D03 OEM Manual v01 rule sections:

List of applicable FCC rules

- This module has been tested for compliance with CFR 47 FCC Part 15 C (15.247, DTS, and DSS) and CFR 47 FCC Part 15 E (NII). It is applicable to the modular transmitter.

Summarize the specific operational use conditions

- The module is tested for standalone mobile RF exposure use conditions. Any other usage conditions such as co-location with other transmitter(s) will need a separate reassessment through a class II permissive change application or new certification.
- This module is authorized for Low Power Indoor Client applications only; final host product must be for indoor operations only.
- Further operation restrictions on the host product include:
 - *Prohibited for control of or Communications with unmanned aircraft systems.
- This radio transmitter FCC ID: A3LWCF730M has been approved by Federal Communications Commission to operate with the integrated PCB antenna. Use of any other antenna is strictly prohibited without filing an application for a new system-specific FCC ID.

Limited module procedures

- Not applicable.
- The module complies with FCC Part 15.247 / Part 15.407 and applies for Single module approval.

Trace antenna designs Not applicable.

- The antenna is integrated into the module and cannot be modified. See section 2.3

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. A separate SAR/Power
- Density evaluation is required to confirm compliance with relevant FCC portable RF exposure rules.

Antennas

- A list of antennas included in the application for certification must be provided in the instructions.
- For modular transmitters approved as limited modules, all applicable professional installer instructions must be included as part of the information to the host product manufacturer. The antenna list shall also identify the antenna types
- For situations where the host product manufacturer is responsible for an external connector, for example with an RF pin and antenna trace design, the integration instructions shall inform the installer that a unique antenna connector must be used on the Part 15 authorized transmitters used in the host product.
- The module manufacturers shall provide a list of acceptable unique connectors.

Explanation: The EUT has a metal Antenna, and the antenna uses a permanently attached antenna which is unique

Antenna Type & Antenna Gain BT

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
BT	2400-2480	Chip Antenna	-2.97dBi

2.4 GHz WiFi

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dBi)
1	2400-2480	Chip Antenna	0.72dBi
2	2400-2480	Chip Antenna	1.19dBi

5 GHz WiFi

Antenna	Frequency (MHz)	Antenna Type	MAX Antenna Gain (dB)
1	5150-5850	Chip Antenna	1.69dBi
2	5150-5850	Chip Antenna	3.75dBi

Label and compliance information

- The end product must be labeled in a visible area with the following: "Contains FCC ID: A3LWCF730M". The grantee's FCC ID can be used only when all FCC compliance requirements are met.

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 transmitters need class II permissive change re-evaluation or new certification.

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 with this portion of rule requirements if applicable.

- If all conditions above are met, further transmitter tests 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.
- **IMPORTANT NOTE:** If 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.

Note EMI Considerations

- The host manufacturer is recommended to use the D04 Module Integration Guide as “best practice” RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties.

How to make changes

- This module is stand-alone modular. If the end product will involve Multiple simultaneous transmitting conditions or different operational conditions for a stand-alone modular transmitter in a host, the host manufacturer has to consult with the module manufacturer for the installation method in the end system.

Manual Information to the End User

- The OEM integrator must 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 that integrates this module.
- The end user manual shall include all required regulatory information/warnings as shown in this manual.

OEM/Host manufacturer responsibilities

- 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.
- Modules: extended to host manufacturers by integration instructions.

Canada IC approval statement

This device contains license-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.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. 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: 649EWCF730M" any similar wording that expresses the same meaning may be used. The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems. User should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices. The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

IMPORTANT: The final host product must have an integral antenna that is not removable by the end user.


CE Approval

- This device is restricted to indoor use only within the 5.15 ~ 5.35GHz Band. (Europe)
- This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Frequency Range and Maximum Output Power (EIRP)

- **2400 MHz to 2483.5 MHz:** Below 20 dBm for Bluetooth
- **2400 MHz to 2483.5 MHz:** Below 20 dBm for 802.11b,g,n
- **5150MHz to 5250 MHz:** Below 23 dBm for 802.11a,n,ac
- **5350MHz to 5725 MHz:** Below 20 dBm for 802.11a,n,ac
- **5725MHz to 5875 MHz:** Below 14 dBm for 802.11a,n,ac

Documents / Resources

	<p>SAMSUNG WCF730M Wi-Fi Bluetooth Combo Module [pdf] User Manual A3LWCF730M, WCF730M Wi-Fi Bluetooth Combo Module, WCF730M, Wi-Fi Bluetooth Combo Module, Bluetooth Combo Module, Combo Module, Module</p>
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References

- [n.ac - This is a premium name](#)
- [User Manual](#)

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