



Approval statement

FCC Statement

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

Contains Transmitter module FCC ID: A3LWCM730Q

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'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.

IC Information

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

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

Cet appareil est conforme avec Industrie Canada exempts de licence standard RSS (s). L'opération est soumise aux deux conditions suivantes:

- (1) cet appareil ne peut causer d'interférences, et*
- (2) cet appareil doit accepter toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement de l'appareil.*

The end product must be labeled to display the Industry Canada certification number of the module.

Contains transmitter module IC: 649E-WCM730Q

Le dispositif d'accueil doivent être étiquetés pour afficher le numéro de certification d'Industrie Canada du module.

Contient module émetteur IC : 649E-WCM730Q

User Information

This device complies with FCC & IC radiation exposure limits set forth for an uncontrolled environment. This device should be installed and must not be co-located or operating in conjunction with any other antenna or transmitter.



This device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20cm is maintained between the antenna and users.
- 2) This module may not be co-located with any other transmitters or antennas.

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 with this module installed. In the event that these conditions cannot be met, then the FCC & IC authorizations are 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 this module and obtaining separate FCC & IC authorizations.

Cet appareil est conforme aux limites d'exposition rayonnement de la FCC et IC définies pour un environnement non contrôlé . Cet appareil doit être installé et ne doit pas être co- localisées ou opérant en conjonction avec une autre antenne ou émetteur .

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes :

- 1) L' antenne doit être installée de telle sorte que 20 cm est maintenue entre l'antenne et les utilisateurs .
- 2) Ce module ne peut pas être co-localisé avec d'autres émetteurs ou des antennes .

Tant que deux conditions ci-dessus sont remplies , nouvel essai de l'émetteur ne sera pas tenu . Cependant , l'intégrateur OEM est toujours responsable de tester leur produit final pour les exigences de conformité supplémentaires avec ce module installé .Dans le cas où ces conditions ne peuvent être remplies, les autorisations de la FCC et IC ne sont plus considérés comme valides et l'ID FCC ne peuvent pas être utilisés sur le produit final . Dans ces circonstances , l'intégrateur OEM sera chargé de réévaluer le produit final incluant ce module et l'obtention des autorisations de la FCC et IC distincts .

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

Toute changé ou modifications non expressément approuvés par la partie responsable de la conformité pourraient annuler l'utilisateur `autorité de faire fonctionner cet équipement.

This device is restricted to indoor use only within the 5.15 ~ 5.25GHz Band.

Channels 120-128 are used only if permitted by a master device.

The device's processor constantly monitors each data session and automatically discontinues transmission in the absence of information to transmit within 4 ms or when operational failure is detected by the CPU watchdog timers.

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

FCC 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.

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 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.



1. Introduction

WCM730Q is a Wi-Fi / Bluetooth Combo module compliant with IEEE802.11 a.b.g.n.ac MAC/baseband/radio and Bluetooth 4.2+HS optimized for low-power applications.

The core chipset is from Qualcomm, part number QCA9379-7.

2. Hardware Architecture:

2.1 Main Chipset Information

Item	Vendor	Part Number
IEEE802.11 a.b.g.n.ac mac/baseband/radio Bluetooth 4.2 + HS	Qualcomm	QCA9379-7

3. Operational Description

WCM730Q is the 802.11a/b/g/n /ac +Bluetooth 4.2 COMBO Module that acts as a communication controller for users of a wireless device to connect to SMART TV

- Features

- >IEEE 802.11ac Draft compliant.
- >Dual-band 2.4GHz /5 GHz
- >Dual-stream spatial multiplexing up to 867Mbps data rate
- >Support 20, 40, 80MHz channel with optional SGI(256QAM modulation)
- >On-chip power amplifiers and low –noise amplifiers for both bands
- >Complies with Bluetooth Core Specification Version 4.2 + HS
- >Bluetooth Class 1 or 2 transmitter operation.
- >Supports BT-WLAN coexistence.
- >Adaptive frequency hopping (AFH) for reducing radio frequency interference

- Time base of the RF frequency

For IF and RF frequency, a crystal(48MHz) is a clock reference.

- Synthesizer

Synthesizer inside Transceiver. Internal voltage controlled oscillator (VCO) provides the desired LO signal base on the phase-locked loop (PLL) with a relatively wide tuning range for this application. Internal fractional nPLL allows support for a wide range of reference clock frequencies

- WIFI Transmission

Baseband data is modulated and upconverted to the 2.4GHz ISM and 5-GHz U-NII bands, respectively. Linear on chip power amplifier are included, which are capable of delivering high output powers while Meeting IEEE802.11ac and IEEE802.a/b/g/n specifications without the need for external Pas.



When using the internal Pas, closed-loop output power control is completely integrated.

Base-band Processing (BBP) IC has DSSS (BPSK/QPSK/CCK) and OFDM (BPSK/QPSK/16QAM/64QAM/25QAM) modulation function, it provides transmission data rate are 1, 2, 5.5, 11Mbps on DSSS and 6, 12, 18, 24, 36, 48, 54 Mbps on OFDM. Digital data signal will be converted to analog (TX IQ) signals through DAC in BBP IC, TX IQ pass through to low pass filter. TX I/Q signal use direct conversion (zero-IF) architecture converter to generate carrier frequency signal. Transceiver IC and internal PA magnify output power.

- WIFI Receiver

The QCA9378-7 has a wide dynamic range, direct conversion receiver that employs high-order on-chip channel filtering to ensure reliable operation in the noisy 2.4GHz ISM band or the entire 5GHz U-NII band .Control signals are available that can support the use of optional LNAs for each band,which can increase the receive sensitivity by several decibels.

Reverse direction isolation of LNA inside Transceiver IC suppresses unwanted radiation. Then RF signal will be directly down to IF signal (RX IQ) and high frequency spurious emissions are suppressed by LPF. At last RX IQ signal will be demodulated digital data.

- Bluetooth Low Energy

The WCM730Q support the Bluetooth Low Energy operating mode.

- Link Control Layer

The link control layer is part of the Bluetooth link control functions that are implemented in dedicated logic in the link control unit(LCU).

Each task performs a different state in the Bluetooth Link Controller.

- Wideband speech

The WCM730Q provides supports for wideband speech(WBS) using on-chip SmartAudio technology. The WCM730Q can perform modified Sub Band Codec(mSBC) encoding and decoding of linear 16bitsat 16kHz(256kbps rate) transferred over USB interface.

- Adaptive Frequency Hopping

The WCM730Q gathers link quality statistics on a channel by basis to facilitate channel assessment and Channel map selection. The link quality is determined using both RF and baseband signal processing to Provide a more accurate frequency-hop map.

- Product Details

> Data Modulation

DSSS:CCK,BPSK,QPSK for 802.11b

OFDM:BPSK,QPSK,16QAM,64QAM,256QAM for 802.11a,g,n,ac



FHSS:GFSK, OQPSK, 8DPSK, $\pi/4$ DPSK for Bluetooth

> Frequency Range

*Bluetooth (Tx/Rx) 2.4GHz : 2402 ~ 2480MHz

*WLAN (Tx/Rx) 2.4GHz : 2412~2472MHz

5GHz U-NII-1 : 5180-5240 MHz, U-NII-2A : 5260-5320 MHz,

U-NII-2C : 5500-5720MHz U-NII-3 : 5745-5825MHz