



## 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: A3LWCP731M**

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-WCP731M

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

*Contient module émetteur IC : 649E-WCM730Q*



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### **Information for OEM Integrator**

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

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

End product labelling

The label for end product must include

“Contains FCC ID: A3LWCP731M, Contains IC: 649E-WCP731M”.

“ CAUTION: Exposure to Radio Frequency Radiation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20cm between the radiator and your body. This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users.”

### **Installation**

- This device installs as Surface Mount Soldering type on a PCB.

## User Information

WCP731M is a Wi-Fi / Bluetooth Combo module compliant with IEEE802.11 b.g.n MAC/baseband/radio and Bluetooth 5.0 optimized for low-power applications.

The core chipset is from MediaTek part number MT7668AUN.

### - Features

- >Dual-stream spatial multiplexing up to 300Mbps data rate
- >Support 20,40MHz channel with optional SGI(64QAM modulation)
- >On-chip power amplifiers and low noise amplifiers for both bands
- >Complies with Bluetooth Core Specification Version 5.0
- >Supports BT/Wi-Fi coexistence.
- >Adaptive frequency hopping (AFH) for reducing radio frequency interference

### - Time base of the RF frequency

For IF and RF frequency, 40MHz crystal is a clock reference.

### - Synthesizer

Synthesizer inside Transceiver. Internal voltage controlled oscillator (VCO) provides the desired LO signal based 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

### - Wi-Fi Transmission

Baseband data is modulated and upconverted to the 2.4GHz ISM band, respectively.

Linear on-chip power amplifiers are included, which are capable of delivering high output powers while meeting IEEE802.11b/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) modulation functions. It provides transmission data rates of 1, 2, 5.5, 11Mbps on DSSS and 6, 12, 18, 24, 36, 48, 54 Mbps on OFDM. Digital data signals will be converted to analog (TX IQ) signals through DAC in BBP IC, TX IQ pass through to low pass filter. TX I/Q signals use direct conversion (zero-IF) architecture converter to generate carrier frequency signals. Transceiver IC and internal PA magnify output power.

### - Wi-Fi Receiver

The MT7668AUN 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. 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 WCP731M support the Bluetooth 4.2 LE and 5.0 BLE 2Mbps

### **- 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 WCP731M provides supports for wideband speech(WBS) using on-chip SmartAudio technology.

The WCP731M can perform modified Sub Band Codec(mSBC) encoding and decoding of linear 16bitsat 16kHz(256kbps rate) transferred over USB interface.

### **- Adaptive Frequency Hopping**

The WCP731M 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.