



深圳市奥金瑞科技有限公司
Shenzhen Ogemray Technology Co., Ltd

150Mbps IEEE 802.11 b/g/n WiFi Module

Product Specifications

Model: GWF-7M02

Version: 1.2
2015-12-15



1. Introduction

The GWF-7M02 is a WLAN PCB module with 7-pin connector supporting USB2.0 interface, it supports IEEE 802.11b/g/n standards. This module operates in 2.4GHz ISM frequency band with low power consumption; it applies a highly integrated MAC/BBP and RF single chip MT7601U with 150Mbps PHY rate supporting.

The small form factor and low cost design provide excellent performance for the wireless connectivity, it is ideal for confine space application.

2. Features

- 20MHz/40MHz bandwidth support. 1T1R mode
- 802.11b: 1, 2, 5.5, 11Mbps; 802.11g: 6, 9, 12, 24, 36, 48, 54Mbps ;
- 802.11n: Support PHY rate up to 150Mbps.
- Security support for WEP 64/128, WPA,WPA2, TKIP,AES

3. Application

- Portable Smart Device: Mobile, Tablet, Mini-PC, etc.
- Others: TV, Meida player, Setup box, IP cam, Camcorder etc.

4. Product Description

4.1. Block Diagram

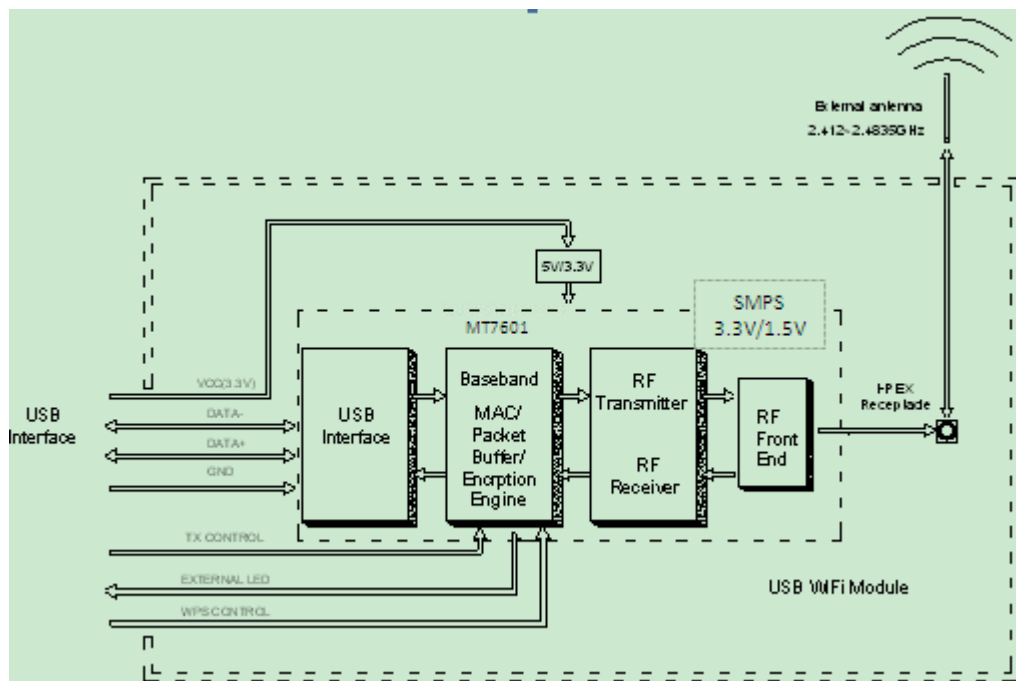


Figure 1 With external antenna used

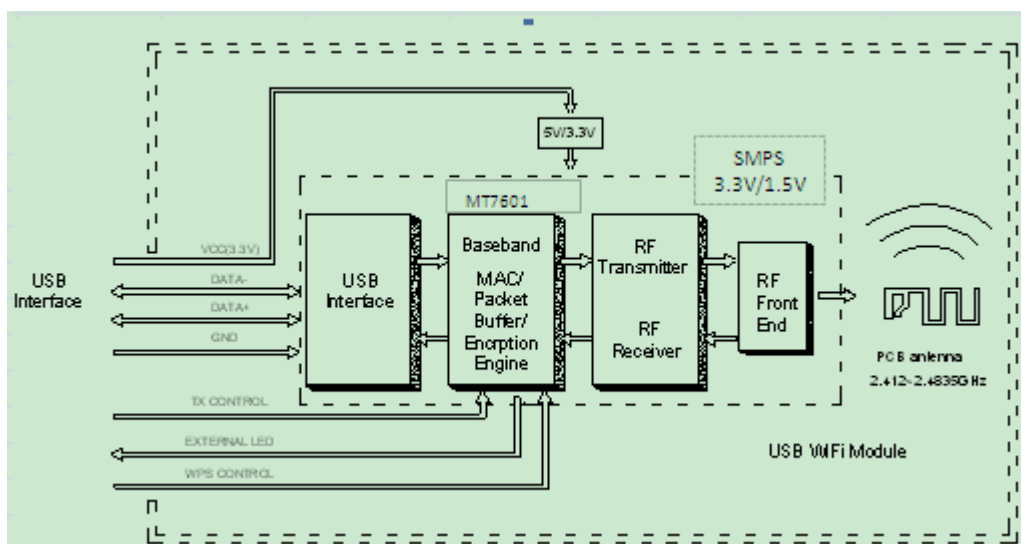


Figure 2 With onboard PCB antenna used

4.2. Specification:

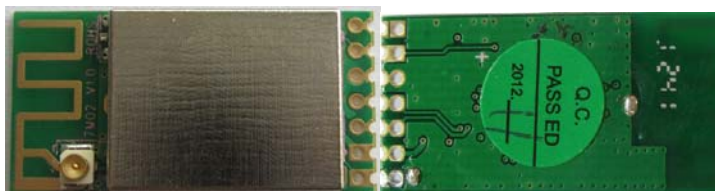
General	
Main Chipset	MediaTek MT7601U
Device Interface	USB 2.0, 7 PCB Semi-holes
RF output	External antenna Via I-PEX MHF receptacle or Built-in On Board



Dimensions	28x14mm	
Weight	1.75g	
WLAN		
Operation Frequency	2412~2483.5MHz, ISM band (Depends on country region)	
Operation Channel	Ch1~14 (Depends on country region)	
Protocol	802.11b: CCK, QPSK, BPSK, 802.11g/n: OFDM	
Security	64/128 WEP, WPA/WPA2, WFA, WPS2.0, WAPI	
Others	QoS: WFA,WMM,WMM PS;	
	WiFi Direct	
RF Characteristics (Typical)		
Antenna	External antenna Via I-PEX MHF receptacle	
Transmit Power	802.11b (CCK) 11Mbps: 18+/-1dBm	
	802.11g (OFDM) 54Mbps: 16+/-1dBm	
	802.11n (HT20@MCS7), 14+/-1dBm	
	802.11n (HT40@MCS7),14+/-1dBm	
Receive Sensitivity	802.11b: -88+/-1dBm;802.11g: -72+/-1dBm	
	802.11n (HT20), -70+/-1dBm; 802.11n (HT40), -68+/-1dBm	
DC Characteristic (Typical)		
Operating Voltage	3.3VDC +/-5%	
Current consumption	Normal operation (Average)	<80mA
	Sleep mode	1.5 mA
	TX HT40,MCS7@16dBm	210 mA
	TX CCK	250 mA
	RX Listen	6 mA

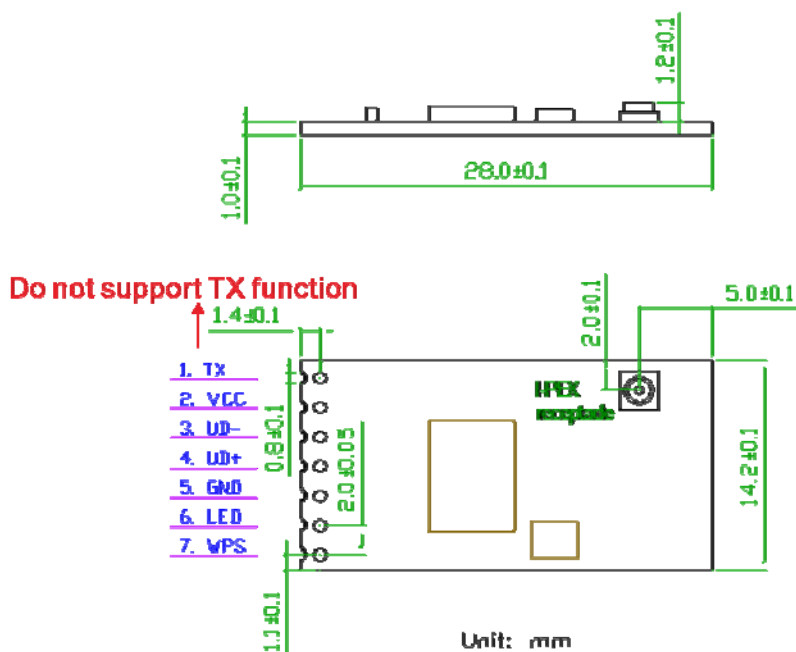
4.3. Mechanical Information

4.3.1. OUTLINE (Pictures are for reference only)

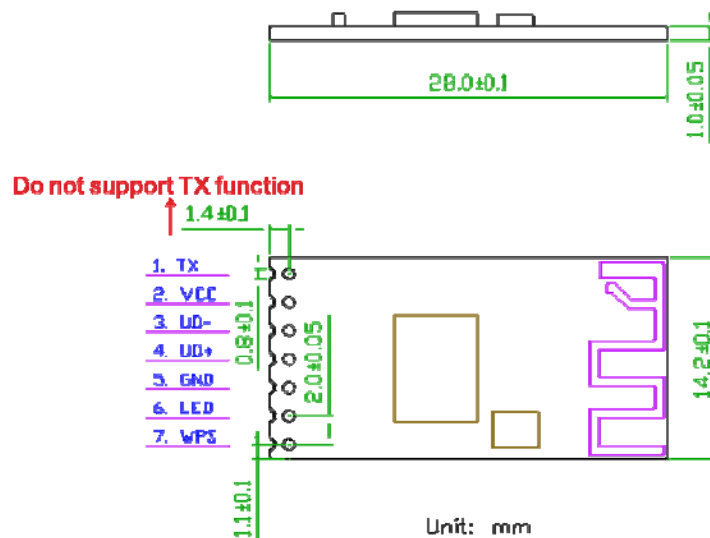


4.3.2. Dimensions and Pinout:

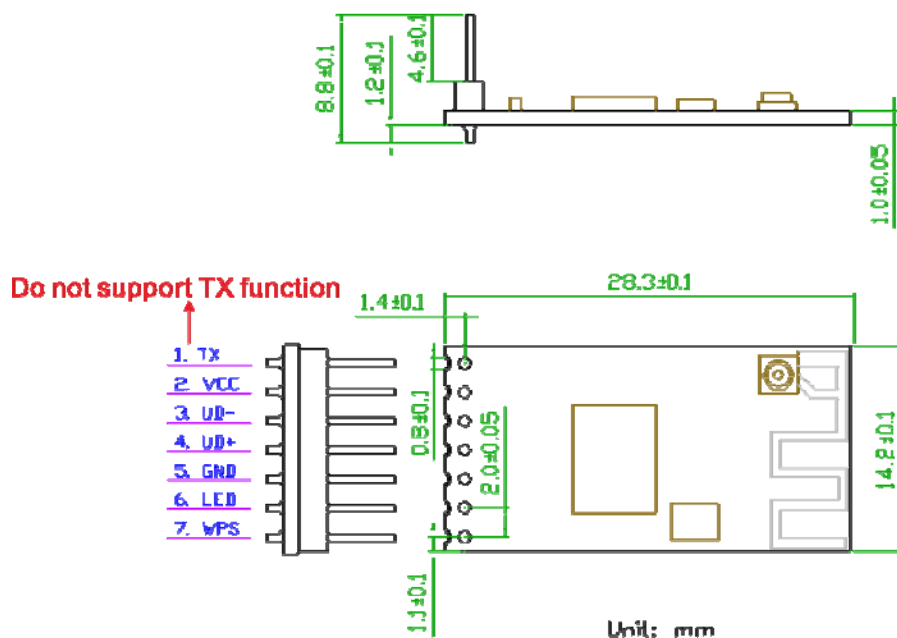
Semi-holes with 2.0mm pitch (external RF antenna via I-PEX MHF receptacle)



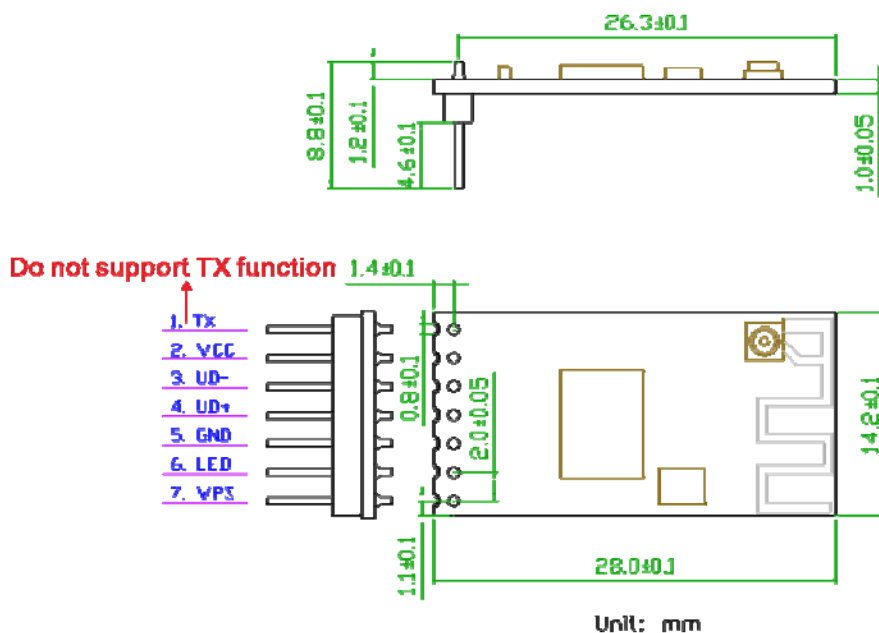
A. Semi-holes with 2.0mm pitch (onboard PCB antenna).



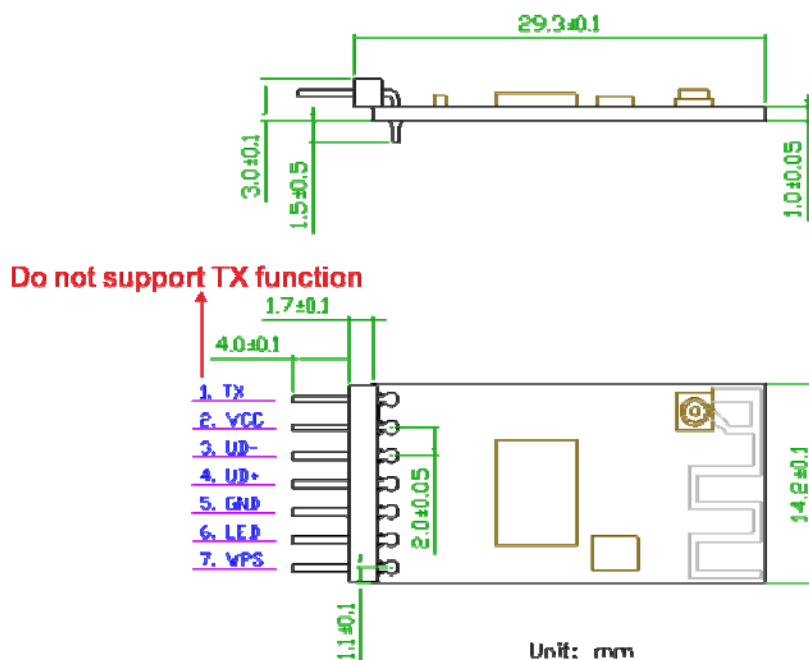
B. Top side 7-pin pin header with 2.0mm pitch



C. Bottom side 7-pin pin header with 2.0mm pitch



D. 90 degree 7-pin pin header with 2.0mm pitch



4.3.3. Pin Definition:

Pin	Name	Description
1	TX	RF ON/OFF control; low level activated to OFF(does not support)
2	VCC	5.0VDC or 3.3VDC, +/-5%
3	UD-	USB data-
4	UD+	USB data+
5	GND	Ground
6	LED	Indicate module working status
7	WPS	External to activate WPS function. Low level activated

Notes:

- Does not support the TX function**
- LED terminal output 3.3V LED blink signal. To limit LED current, a series 330 ohm or other value resistor should be connected.
- WPS terminal is internally pulled up with an onboard 4.7K ohm resistor to 3.3VDC.



4.4. Software and system Information

Operation System	Driver
Linux 2.4/2.6	Available
Android 4.1	Available
Windows XP/Vista/7/8	Available
Mac OS X 10.3~10.8	Available

5. Agency Approval



CAUTION:

This module must be installed and operated in accordance with provided instructions and the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance

Agency	Operative standards	Certificate ID
FCC Part15 C	OET65	YWTWF7601U7MX
CE	EN60950 EN301489 EN300328 EN62479	Pre-scan undergoing
RoHS	2011/65/EC	✓

6. Environment

Item	category	Range
Temperature	Operating Temperature	-10°C to +70°C.
	Storage Temperature	-20°C to +85°C
Humidity	Operating Humidity Conditions	The range of 20% to 80% (non-condensing) .
	Non-Operating Humidity Conditions (including warehouse)	The range of 20% to 80%

7. Design Concerns:



7.1. Power supply:

- 1) The input power can be 5.0VDC or 3.3VDC, please mentioned it when place an order.
- 2) The operation current of 5.0VDC power input will be different with that of 3.3V power input. The external power shall be well designed with enough capacity.
- 3) Should 3.3VDC power be selected, please be sure it's clean with low ripple; otherwise, the EMI or RF performance might be deteriorated.

7.2. Using pin headers:

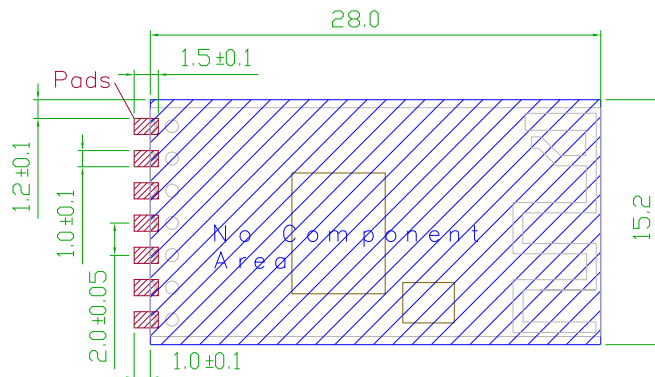
- 1) The pins can be less than 7 pins, but the VCC, UD-, UD+, GND must be applied for USB interface communication.
- 2) Should the pin header connection be applied, please still keep enough metallic clear space around the antenna end of the module, this gives better antenna performance

7.3. Using semi-holes:

- 1) When the module is designed to be soldered on a main PCB board directly, the area under the antenna end of the module should be keep clear of metallic components, connectors, vias, traces and other materials that can interfere with the radio signal.
- 2) The module is not recommended using reflow oven process, hand soldering is suggested.

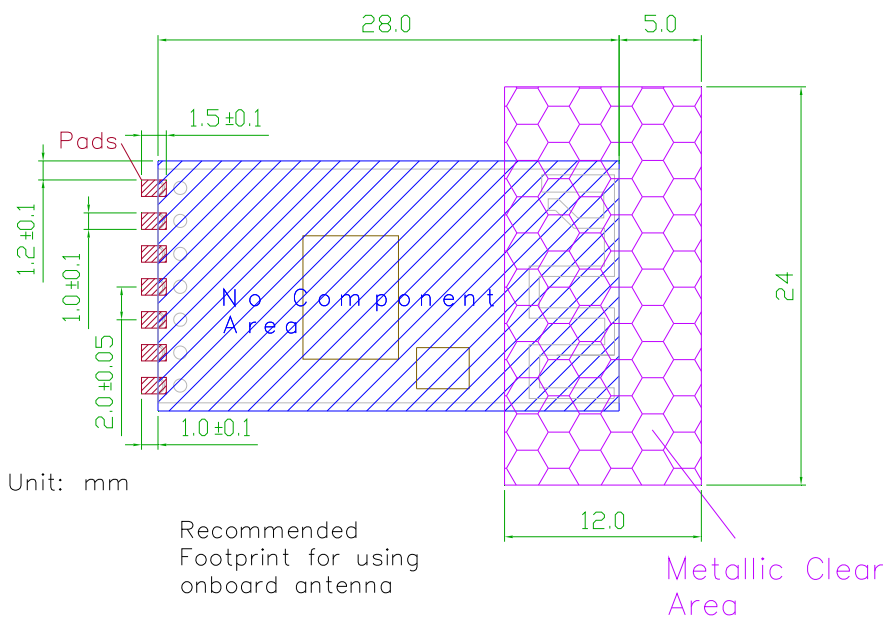
7.4. Footprint design reference:

The following drawing shows a recommended footprint which can be a reference design for a main PCB layout.



Unit: mm

Recommended
Footprint for external
antenna output



Unit: mm

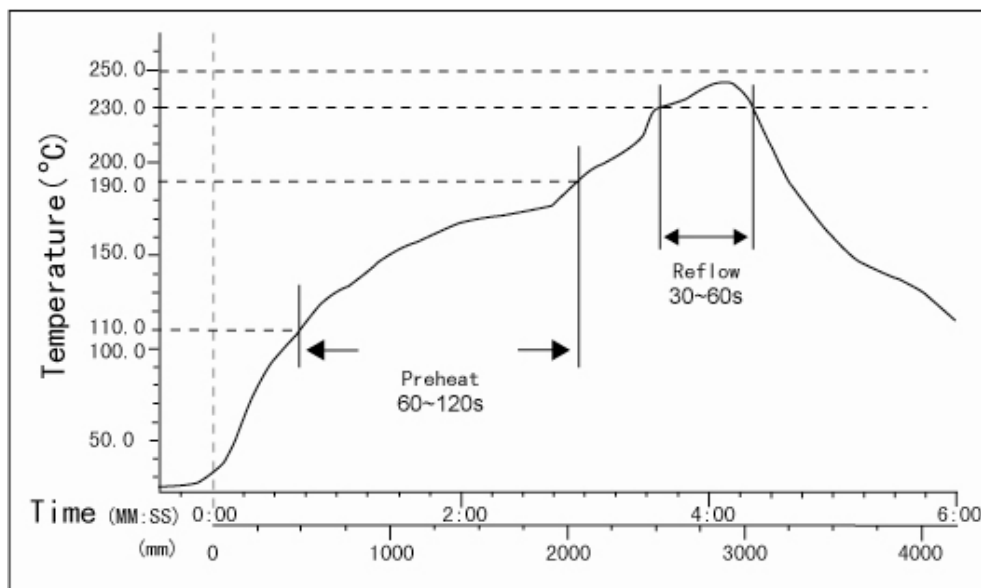
Recommended
Footprint for using
onboard antenna

Metallic Clear
Area

7.5. Soldering requirement:

The module is not recommended using reflow oven process, hand soldering is suggested.

If reflow oven process is selected, please keep good control on the soldering process. Otherwise the flow air might blow components removing. A reference flow chaw likes as following:



Notes: user should adjust setting of reflow oven to get best soldering quality

8. Disclaimer

THESE MATERIALS AND INFORMATION ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

We use reasonable efforts to include accurate and up-to-date information on this document; it does not, however, make any representations as to its accuracy or completeness of the information, text, graphics, links or other items contained within these materials. Your use of this Document is at your own risk. Ogemray, its suppliers, and other parties involved in creating and delivering this Document's contents shall not be liable for any special, indirect, incidental, or consequential damages, including without limitation, lost revenues or lost profits.

FCC Statement

Federal Communication Commission Interference Statement

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 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.

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 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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter module must not be co-located or operating in conjunction with any other antenna or transmitter.

This End equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

End Product Labeling

The final end product must be labeled in a visible area with the following:

“Contains FCC ID: YWTWF7601U7MX”.

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.