

USER MANUAL

PRODUCT NAME : 802.11 a/b/g/n/ac WiFi Module

MODEL NAME : TWFM-R003D

Customer PN : UWLMDL0GS001

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K.H. CHOI	D.S. OH	S.D. CHOI		
2017.07.07	2017.07.07	2017.07.07	DOCUMENT No.	
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1. Features

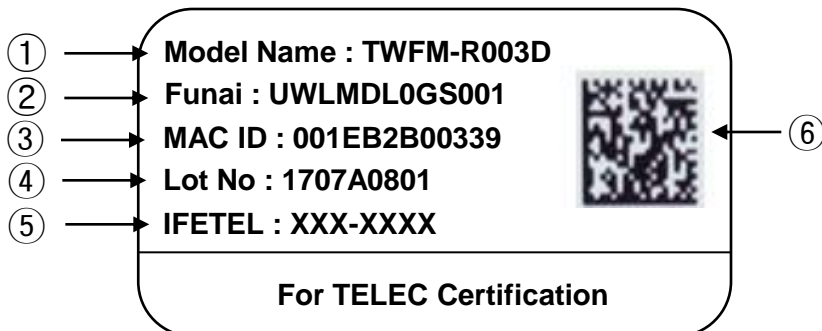
TWFM-R003D is the module for IEEE 802.11a/b/g/n/ac wireless LAN .
 TWFM-R003D is based on RealTek RTL8812BU solution.

- IEEE 802.11 a/b/g/n/ac Dual Band WLAN infrastructure
- Size : 70.0mm x 20.0mm x 10.3mm
- Dual band 2T2R mode with data rate up to 866Mbps
- Single and dual band antenna Support
 - Two PCB printed antenna for WLAN
- Host Interface : USB2.0
- Security : WAPI, WEP, WPA, WPA2, WMM, AES, WEP, TKIP, CKP
- Application: DTV, DVR, HD DVD Player, Blue-ray Disk Player, STB
- Support WiFi Direct
- Support WOWL

2. Ordering Information

Model	Description
TWFM-R003D	802.11 a/b/g/n/ac WiFi Module Dual Band 2T2R MIMO

3. Label marking - TBD – will be updated



- ① Model Name : TWFM-R003D ④ Product Lot No. : 1707A0801
 ② Customer & P/N -17 : Year - 08 : Date
 ③ MAC Address - 07: Month - 01 : Manufactured Process
 ⑤ IFETEL ID - A :Revision No.
 - FCC & IC ID on PCB Silk ⑥ 2D Matrix(include MAC ID)

4. Absolute Maximum Ratings

Caution : The specifications in Table 1 define levels at which permanent damage to the device can occur. Function operation is not guaranteed under these conditions.

Operating at absolute maximum conditions for extend periods can adversely affect the long-term reliability of the device.

Parameter	Min	Max	Unit
Storage Temperature	-10	+80	°C
Storage Humidity (40°C)	-	90	%

< Table 1 >

. Other conditions

1) Do not use or store modules in the corrosive atmosphere, especially where chloride gas, sulfide gas, acid, alkali, salt or the like are contained.

Also, avoid exposure to moisture.

2) Store the modules where the temperature and relative humidity do not exceed 5 to 40°C and 20 to 60%.

3) Assemble the modules within 6 months.

Check the soldering ability in case of 6 months over.

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5. Operating Conditions

Parameter	Min	Typ	Max	Unit
Ambient Temperature	0	-	60	°C
Ambient Humidity (40°C)	-	-	85	%
Supply Voltage	3.15	3.3	3.45	Vdc

6. Standard Test Conditions

The Test for electrical specification shall be performed under the following condition
 Otherwise this following conditions, not guaranteed this performance.

6-1. Ambient condition

Temperature	25 ± 5°C
Humidity	65 ± 5%

6-2. Power supply voltages

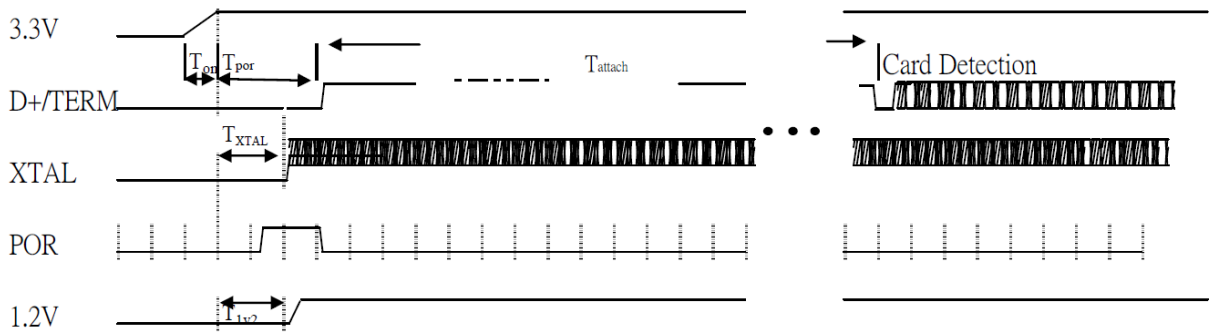
Input power	Supply Voltage
VCC 3.3V	+3.3V ± 0.15V

6-3. Current consumption

Current Consumption	Min.	Typ.	Max.	Unit
3.3V I/O Supply Voltage	-	800		mA
1.05V Core Supply Voltage	-	300		
Stand by		2.13		
Inrush		700		

7. Power Sequence(include Reset)

7-1. TWFM-R003D USB Bus Power on Sequence



- T_{on} : The main power ramp up duration
- T_{por} : The power on reset release and management unit executes power on tasks
- T_{attach} : USB attach state. The duration from resistor attached to USB host starting card detection procedure
- T_{xtal} : XTAL starts

7-2. Typical Timing Range

Parameter	Min	Typ	Max	Unit
T_{on}	-	1.5	5	ms
T_{por}	-	2	20	ms
T_{xtal}	-	1.5	8	ms
T_{attach}	100	250	-	ms
T_{1v2}	-	3	11	ms

7-3. DC Power voltages

Parameter	Min	Typ	Max	Unit
3.3V I/O Supply Voltage	3.15	3.30	3.45	V
1.05V Core Supply Voltage	0.95	1.05	1.15	V

8. Pin Description

Pin No.	Pin Name	I/O	Pin Description
1	WOWLAN	I/O	WLAN wake-up signal
2	GND	-	Ground
3	RESET	-	Reset from Host
4	OPEN	I/O	(PDN : Host Wake)
5	VCC	I	+3.3V
6	WLAN USB D-	I/O	USB Communication signal USB_DN
7	WLAN USB D+	I/O	USB Communication signal USB_DP
8	GND	-	Ground

< TOP View >



< Bottom View >



Note.

- 1) Recommend a Module install sequence for prevent USB device failure
 - Supply 3.3V power
 - Connect to data signal (USB_DP, USB_DN)

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9. Mechanical Characteristics

9-1. Outline view

Item	Test Conditions
Assembly	No defects of wiring, soldering and assembling
Appearance	No dirt, rust, corrosion or foreign material

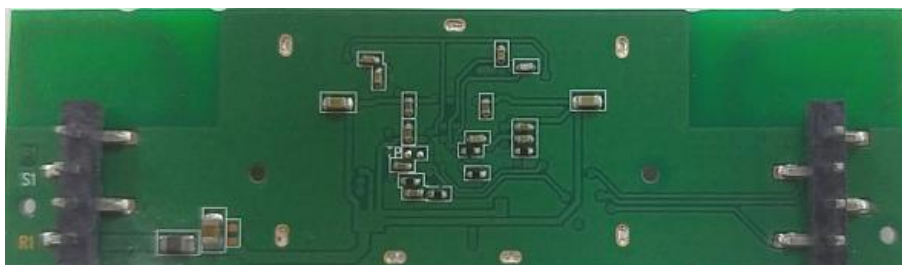
9-2. Appearance structure

Item	Test Conditions
Dimension	As assembly drawing
Mounting	As assembly drawing
Weight	5.85 ± 0.6g

9-3. Module Picture



< Top >



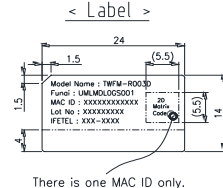
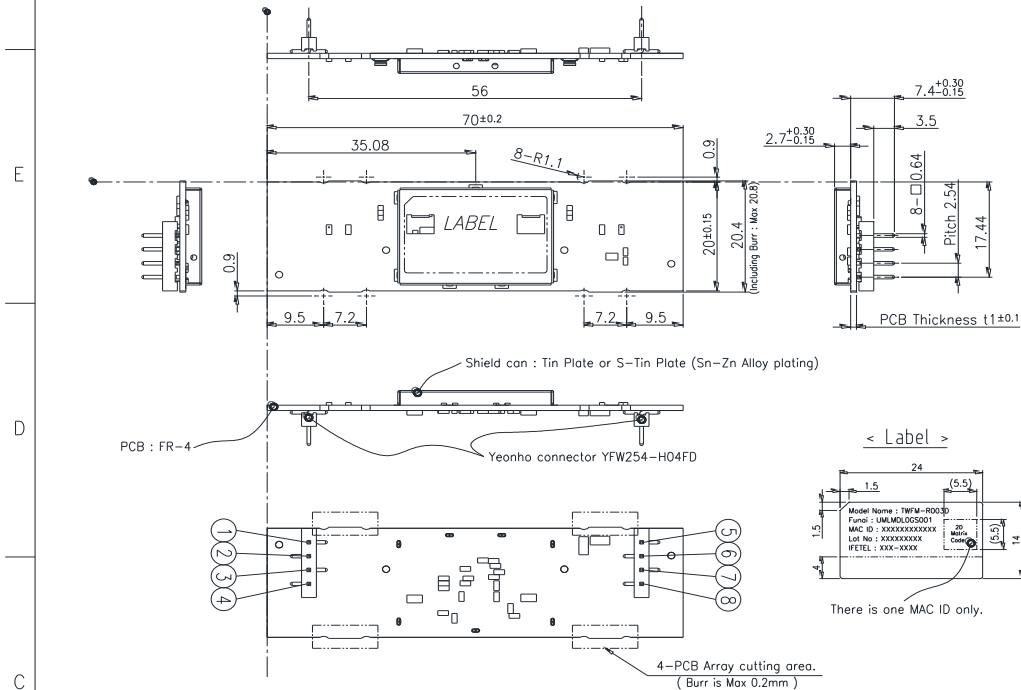
< Bottom >

10. Outline Drawing

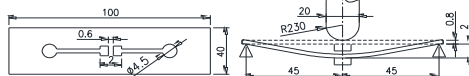
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DIMENSIONAL TOLERANCE ~ up to 6 ±0.3 over 6 up to 30 ±0.5 over 30 up to 120 ±0.5 UNLESS OTHERWISE SPECIFIED	C H A N G E S	REV NO.	DATE (YY MM DD)	SIGNATURE	CHANGE CONTENTS

RELEASING THIS DRAWING WITHOUT PERMISSION OF LG Innotek SHOULD BE ACCUSED ACCORDING TO THE LAWS AND COMPANY RULES



- Notes
- Tolerances are
 - Lot No. shall be conformed to LGIT standard specification.
 - As long as the outer appearance doesn't affect the performance of the product, it can be changed without prior notice.
 - PCB Warpages are max. 0.3mm.
 - Caution for handling.
 - Don't touch the circuit components.
 - Don't drop the wifi module 50cm high. (Allowed 1 time for 50cm high Max)
 - Don't twist the wifi module.
 - Reliability for PCB bending.
 - Requirement : No apparent damage
 - Test method : Solder the sample PCB, band down to 2mm
 - Fig



RELATED P/N THIRD ANGLE PROJECT	SCALE 1:1	UNIT mm	DESIGN '17. 06. 19 <i>Jangeun Yang.</i>	TITLE Outline Drawing
			CHECKED '17. 06. 19 <i>Kyungho Choi</i>	PART NO
			APPROVED '17. 06. 19 <i>Changsung Kim</i>	MODEL TWFM-R003D
			DWG NO	

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Regulation Information

[FCC Information]

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.

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.

Warning&Caution:

Any changes or modifications to the equipment not expressly approved by the party responsible for compliance could void user's authority to operate the equipment. Antenna shall be mounted in such a manner to minimize the potential for human contact during normal operation. The antenna should not be contacted during operation to avoid the possibility of exceeding the FCC radio frequency exposure limit.

A minimum separation distance of 20 cm must be maintained between the antenna and the person for this appliance to satisfy the RF exposure requirement.

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Regulation Information

[IC Information]

This device complies with Industry Canada license-exempt RSS standard(s). Operation in 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 RSS standard exempts de licence(s), Son utilisation est soumise à Les deux conditions suivantes: (1) cet appareil ne peut pas provoquer d'interférences et (2) cet appareil doit accepter Toute interférence, y compris les interférences qui peuvent causer un mauvais fonctionnement du dispositif.

※ This device is going to be operated in 5 150 MHz ~ 5 250 MHz frequency range, it is restricted in indoor environment only.

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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: YZP-TWFMR003D, Contains IC: 7414C-TWFMR003D".

[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."