

User Manual

PRODUCT NAME : Dual Band 2T2R MIMO Wi-Fi Module

MODEL NAME : TWFM-B006D

The information contained herein is the exclusive property of LG Innotek and shall not be distributed, reproduced or disclosed in whole or no in part without prior written permission of LG Innotek.

Table of Contents

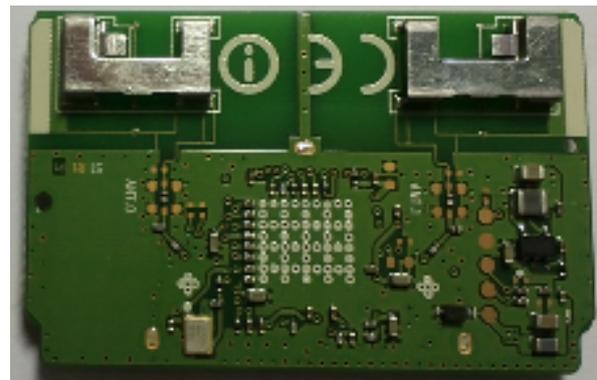
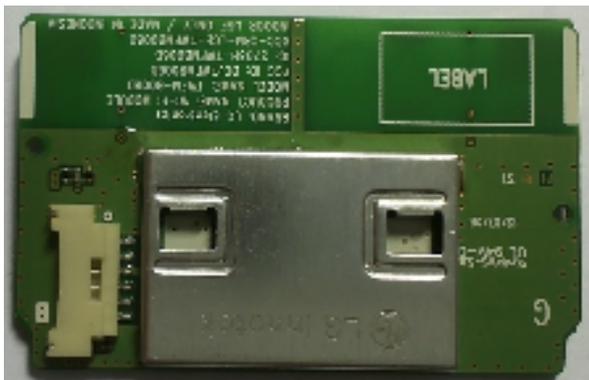
No.	Description	Page
1	Features	2
2	Module Photo	2
3	Block Diagram	3
4	Storage Conditions	4
4	Operating Conditions	4
5	Software Programming	5
6	Pin Description	6
7	Outline Drawing	7
8	Packing Information	8

1. Features

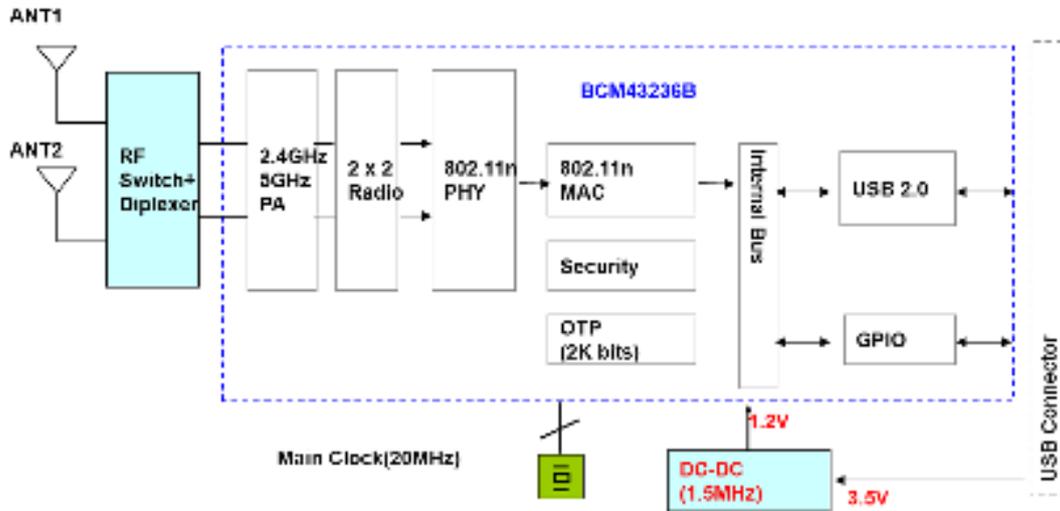
TWFM-B006D is the small size and low power module for IEEE 802.11a/b/g/n wireless LAN. TWFM-B006D is based on Broadcom BCM43236B solution.

- IEEE 802.11 a/b/g/n Dual Band WLAN infrastructure
- Size : 48mm x 30mm x 6.7mm
- 2.4GHz and 5GHz internal PA
- Two stream spatial multiplexing up to 300Mbps
- External ANT : EPA(Embedded and Press Antenna)
- Use on-chip OTP (One-Time Programmable)
- USB 2.0
- Supports drivers for Windows Vista, 2000, XP, Linux
- Security : WPA,WPA2,AES(TKIP) ,IEEE 802.1X
- Application: DTV, DVR, HD DVD Player, Blue-ray Disk Player, STB

2. Module Photo



3. Block Diagram



4. Storage Conditions

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

Caution : The specifications above the Table 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.

- 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.

5. Operating Conditions

Parameter	Min	Typ	Max	Unit
Operating Temperature	0	-	+60	°C
Operating Humidity (40°C)	-	-	85	%
Supply Voltage	3.32	3.5	3.67	Vdc

6. Software Programming

The module is controlled by wl command. It is intended for those evaluating and/or testing Broadcom's IC, describes a subset of the commands available in wl, the Broadcom ® WLAN client utility.

6-1. Command syntax

The syntax is as follows:

```
wl <adapter> [-h] [-d|u|x] <command> [arguments]
```

where

- h this message and command descriptions
- d output format signed integer
- u output format unsigned integer
- x output format hex decimal

The [h,u] option is only to print help.

Other syntax specifics are as follows:

- Entries within square brackets, such as [arguments], are optional.
In the above example, switches within brackets, such as -h, are typed as shown. The |symbol should not be typed, it represents the word or.
- Entries within angle brackets, such as <adapter>, are required and indicate that a value must be inserted in place of the item contained within the angle brackets.
- Entries shown outside of either square or angle brackets are to be typed as shown.

6-2. Command List and Version

- CMDS

Syntax: wl cmds

Purpose: Generates a list of available commands.

Parameters:None

Returns: All commands available to the attached 43XX chip.

- VER

Syntax: wl ver

Purpose: Generates a list of available commands.

Parameters:None

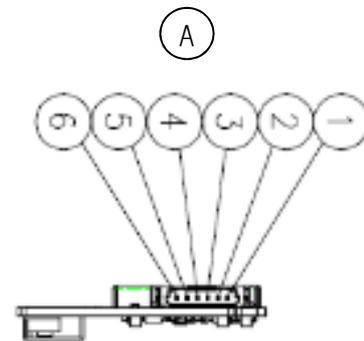
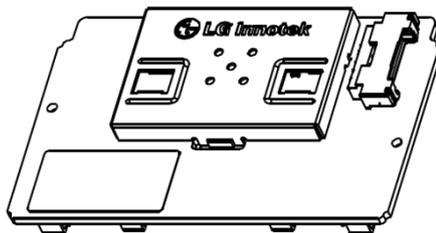
Returns: All commands available to the attached 43XX chip.

- **Please refer to '[80211-TI201-R](#)' technical document of Broadcom to other commands.**

7. Pin Description

Pin No.	Pin Name	I/O	Pin Description
1	VCC	I	VDD 3.5V
2	D-	I/O	USB Communication signal USB_DN
3	D+	I/O	USB Communication signal USB_DP
4	GND	-	GND
5	WOW	I	Wake On WLAN
6	NC	I	NC

< TOP View >



Note.

- 1) Recommend a Module install sequence for prevent USB device failure
 - Supply 3.5V power
 - Connect to data signal (USB_DP, USB_DN)
- 2) If remove the module, proceed in reverses sequence
- 3) Connector A : (CONN 12507WR-06L, YEONHO ELECTRONICS CO., LTD.)

8. Outline Drawing

Duplication of this document and the use or communication of the contents thereof are forbidden without express authority. Offenders are punishable and liable to the payment of damages. All rights are reserved in the event of the grant of a patent or the registration of a utility model.

본 자료는 무단으로 복제, 배포, 전자기기 등에 사용될 수 없습니다. 무단으로 복제, 배포, 전자기기 등에 사용될 경우 법적 책임을 지게 됩니다. 본 자료의 내용은 LG Innotek의 사생활을 보호하기 위한 것입니다. 본 자료의 무단 사용은 LG Innotek의 법적 책임을 지게 됩니다.

Releasing this DRAWING without PERMISSION of LG Innotek should be ACCUSED according to the laws and company rules.

NOTE:

- TOLERANCES ARE AS SPECIFIED UNLESS OTHERWISE SPECIFIED.
- LOT NO. SHALL BE COMPLIANT TO LOT NUMBER SPECIFICATION.
- HERE ARE NO COMPONENTS OR C. ETC. IN THE CUSTOMER AREA.
- AS LONG AS THE OUTER APPEARANCE DOESN'T AFFECT THE PERFORMANCE OF THE PRODUCT, IT CAN BE CHANGED WITHOUT PRIOR NOTICE.

Section AA-AA'

Customer Area

Customer Area

*** Connector Pin Map**

NO	①	②	③	④	⑤	⑥
CONTENTS	VCC	D-	D+	GND	WOW	NC

RELATED P/N	QUANTITY	C	L	B	A	QTY

SCALE UNIT	BRAWN	DATE	MODEL	DWG NO
1:1	20120613	20120613	TWFM-B006D / W-FI Module	TE32632

DESCRIPTION	VENDOR	VENDOR CODE
Art Paper (011)		
Connector (125mm pitch, SMD)	YEDANG ELECTRONICS	12507WR-06L
SMD Antenna (tin plate 041)		
Shield Confin Plate (037)		

APPROVED	CHECKED	ISSUE DATE	ISSUE NO	CHANGE COMMENTS
Lee K. S.		2012.07.25	001	Initial Release

9. Packing Information

- 1Tray Package Q'ty : 120EA
- Tray Material : antistatic PET
- 1Tray Weight : 0.2kg
(1 Module Weight : $6.8 \pm 0.7g$)

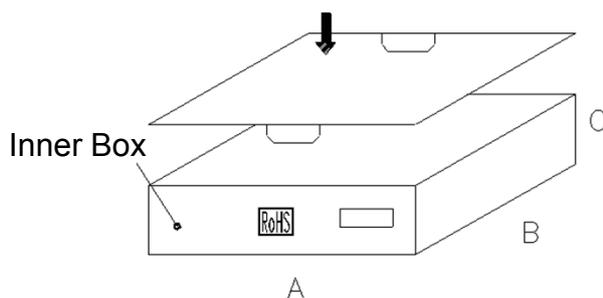


- Tray Stacking Q'ty :6EA

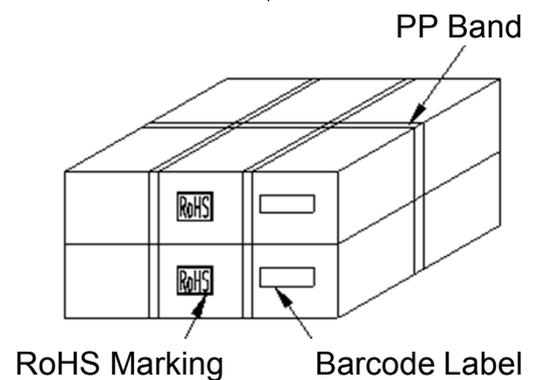
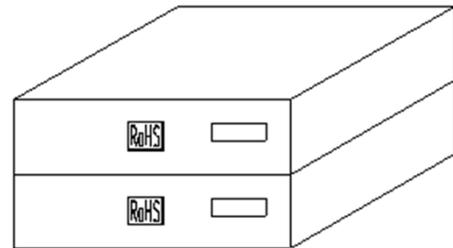
Corrugated Fibreboard



- 1Box Package Q'ty : 720EA
- Box Size : A x B x C (512 x 377 x 121.5)
- Box Material : Corrugated Fibreboards
- 1Box Packing Weight : $6.6 \pm 0.7kg$



- Total Packing Q'ty : 1,440EA
- Total Packing Weight : $13.2 \pm 1.5kg$



- RoHS Marking :
Label, Stamp, Printing
- Marking Color :
Gray or Red for Stamp, Label, Printing on the board and etc.
Black only for Printing on Label.

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.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

FCC Warning

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 complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum 20 cm between the radiator and your body.

Remark

- This radio can not be installed in host where co-located or operating in conjunction with any other antenna or transmitter.
- This radio must be restricted to install in host that is intended for indoor use only for 5150-5250 MHz band.
- Wi-Fi label is written at the end of the TV.



For label requirement when transmitter module is installed in a host, the host shall have an additional permanent label referring to the enclosed module.

“Contains Transmitter Module FCC ID: BEJTWFM006D