

# Manual for SWM-500 Wi-Fi module

## 1. Introduction

SWM-500 is a Wi-Fi module compliant with 802.11 n MAC/baseband/radio optimized for low-power applications. The core chipset is from Taiyo-Yuden, part number WYSBMVGX4 and Antenna is EDWLFPC\_2P5P001 WI-FI DUAL BAND ANTENNA made by EDWORKS.

## 2. Hardware Architecture:

### 2.1 Main Module / Chipset Information

- **Main Module : WYSBMVGX4, Taiyo-Yuden, IEEE802.11 n Wireless LAN Module**
- **Core Chipset : 88W8787, Marvell , WLAN/FM Single-Chip SoC**
- **Antenna : EDWLFPC\_2P5P001, EDWORKS , WI-FI DUAL BAND ANTENNA FXP831.07.0100C, taoglas, Freedom 2.4/4.9-6GHz Ground Coupled Antenna**

### 2.2 Circuit Block Diagram

The major internal and external block diagram of SWM-500 is illustrated in Figure 1.

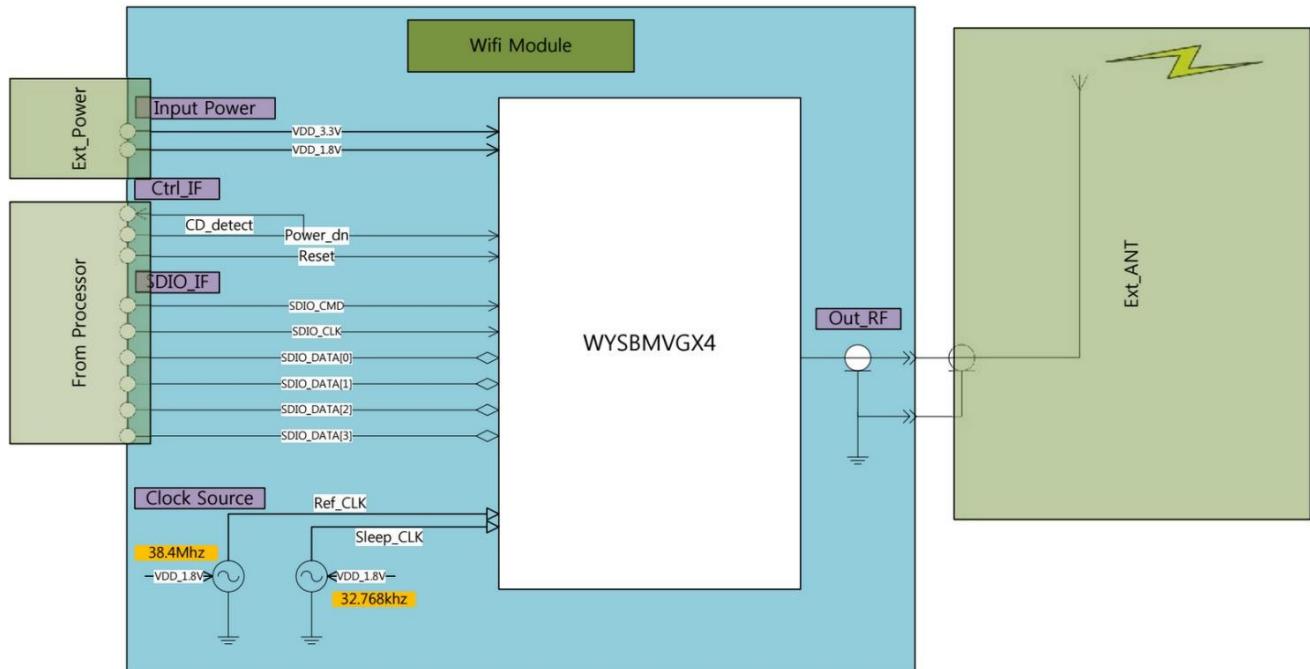


Figure 1. SWM-500 block diagram and System Interface



### 3. Notice

#### **FCC Statement**

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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

#### **IMPORTANT NOTE:**

#### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

#### **USERS MANUAL OF THE END PRODUCT:**

The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied. The devices must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment. If the device is small or for such use that it is not practicable to place the statement on the product, then additional FCC part 15.19 statement is required to be available in the users manual: This device complies with Part 15 of 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.

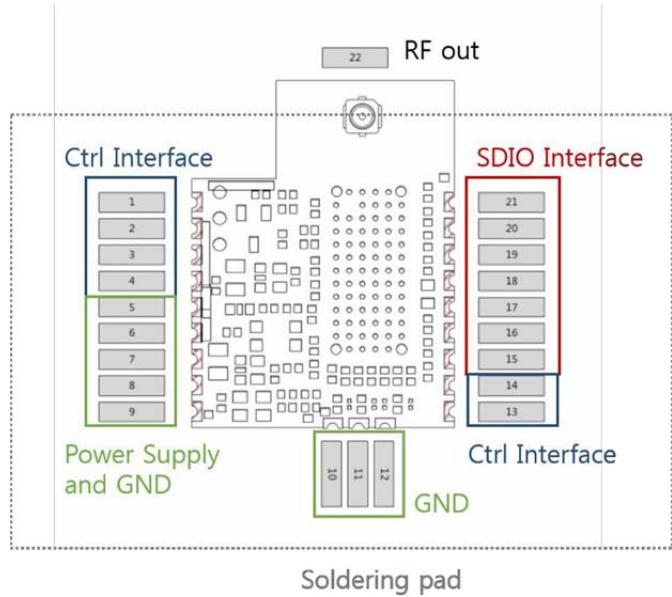
#### **LABEL OF THE END PRODUCT:**

The final end product must be labeled in a visible area with the following " Contains FCC ID: 2ADXVSWM500 ".

If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.

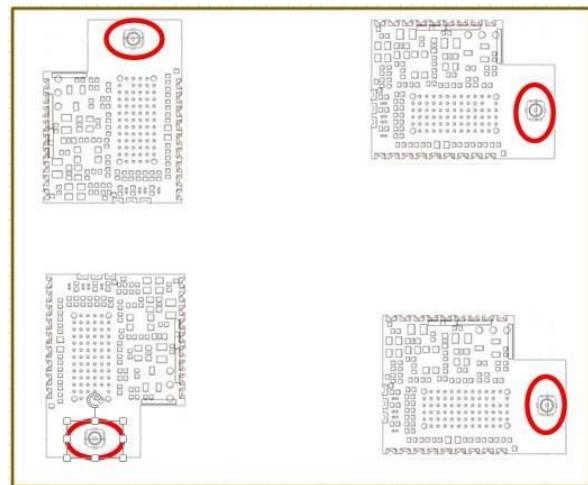
## 4. Installation

This SWM-500 module must be installed in a device and not allow the user to replace nor modify it. The final end product must be labeled in a visible area with the following " Contains FCC ID: 2ADXVSWM500".



It is suggested that module is placed in the following areas of the user's board as far as possible, to reduce the influence of the antenna and wireless signal.

and at the same time, please consult someone technical support staff to assist the placement of modules and related areas of layout design



Note : Please note that the SWM-500 is supplied without any shield casing, all the components are exposed. Therefore, must be taken for ESD (electrostatic discharge), electromagnetic environment

#### 4.1 PIN Description

PIN No.	Symbol	Description
1	Reset	Reset for WYSBMVGXB
2	Power_dn	Power Down for WYSBMVGXB
3	CD_detect	Card Detected Signals for Host
4	GND	GND
5	VDD_1.8V	Supply 1.8V
6	VDD_3.3V	Supply 3.3V
7	GND	GND
8	GND	GND
9	GND	GND
10	GND	GND
11	GND	GND
12	GND	GND
13	EXT_Sleep_CLK (option)	Sleep Clock From Host (Not Connected)
14	GND	GND
15	SD0_DATA3	SIDO DATA Bus for Host
16	SD0_DATA2	SIDO DATA Bus for Host
17	SD0_DATA1	SIDO DATA Bus for Host
18	SD0_DATA0	SIDO DATA Bus for Host
19	GND	
20	SDIO_CLK	SIDO Clock for Host
21	SDIO_CMD	SIDO Command for Host
22	RF_OUT	RF OUT

## 5. Antenna Description

- Part Number : EDWLFPC\_2P5P001  
FXP831.07.0100C (exclude explanation)
- Overview The EDWLFPC\_2P5P001 Antenna works on WI-FI DUAL BAND ANTENNA. This antenna has been designed with a specific solution to cover the current market applications that require rectangular form-factor, with easy installation through a cable connection.
- Feature
  - WiFi Dual Band Antenna
  - IPEX MHFI Connector (U.FL compatible)
  - 68 mm Cable
  - 47\*7\*0.1 mm
- Characteristics  
Frequency Band

Service		Frequency	
Wi-Fi	(MHz)	2400~2485MHz	5100~5875MHz

Nominal Impedance

- R = 50Ω

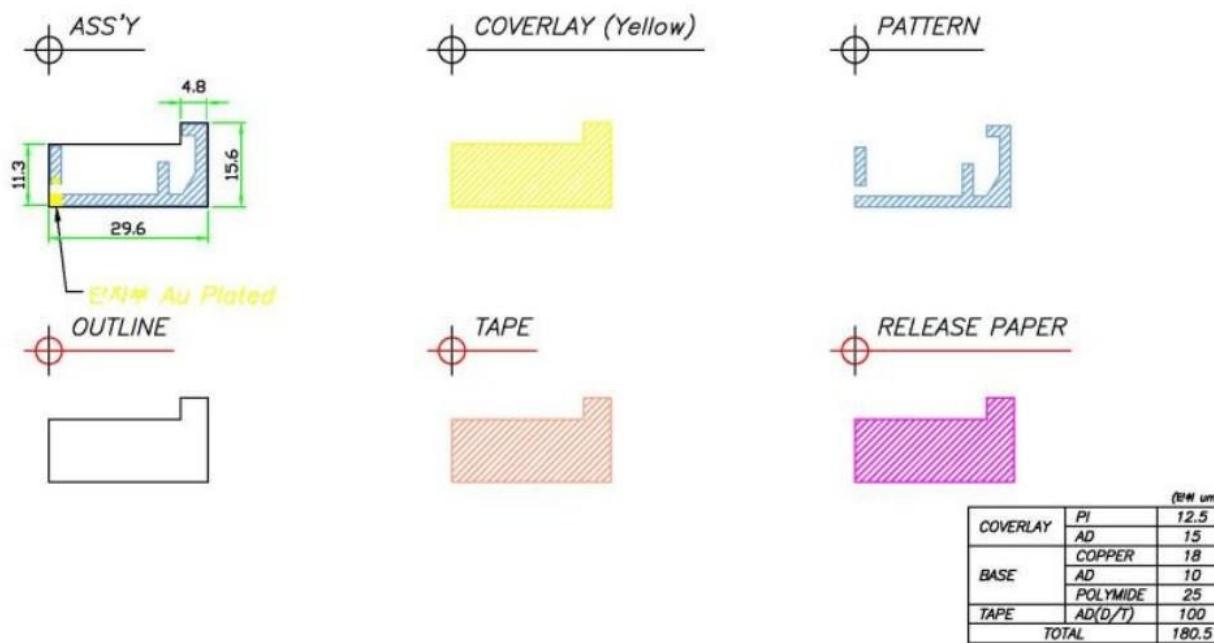
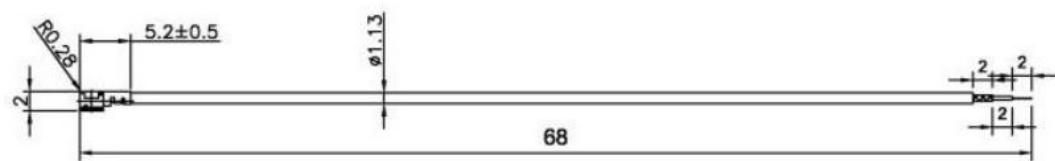
Directive ness

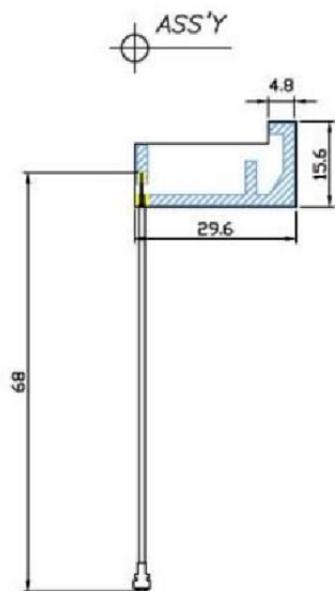
Omni-directional

Free Space Gain

Service Mode(dBi)	ANT MAIN														
	Freq.(MHz)	2400	2420	2440	2460	2485	5100	5150	5250	5500	5400	5500	5600	5725	5785
PEAK	-1.22	-1.39	-1.60	-1.35	-1.52	-0.27	-1.04	-2.18	-0.49	-0.46	-2.78	0.12	2.22	0.75	1.95
AVG	-5.50	-5.60	-5.94	-5.86	-6.13	-4.79	-5.56	-6.97	-5.65	-5.89	-7.96	-5.77	-4.24	-5.35	-3.76
SPEC	-6.00	-6.10	-6.44	-6.36	-6.63	-5.29	-6.06	-7.47	-6.15	-6.39	-8.46	-6.27	-4.74	-5.85	-4.26

- Mechanical





(in mm)		
COVERLAY	PI	12.5
	AD	15
	COPPER	18
BASE	AD	10
	POLYIMIDE	25
TAPE	AD(D/T)	100
TOTAL		180.5