

User Manual

PRODUCT NAME : 802.11a/b/g/n/ac + Bluetooth Combo Module

MODEL NAME : TWCM-B202D

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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	Power-up Sequence	5
6	Pin Description	7
7	Outline Drawing	8
8	Packing Information	9

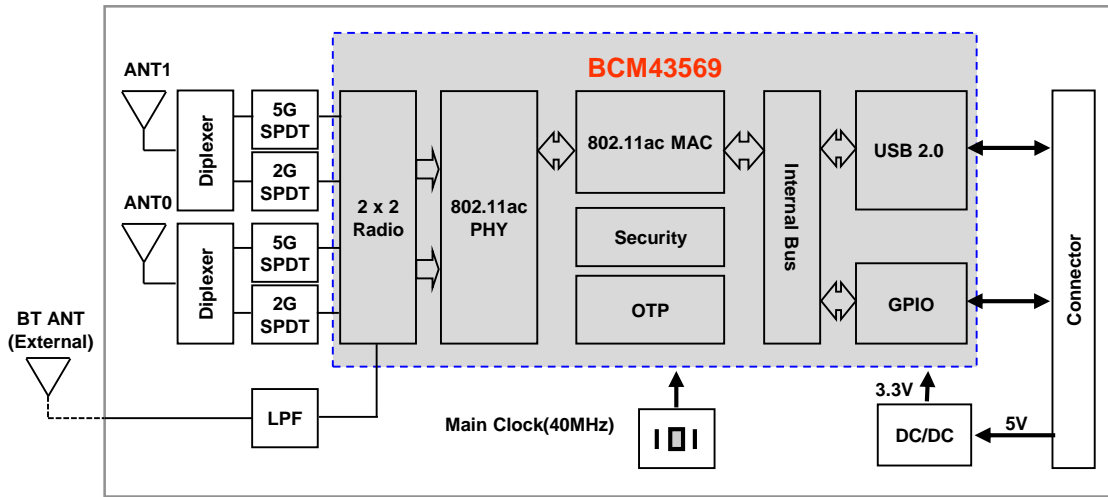
1. Features

TWCM-B202D is the small size and low power module for IEEE 802.11ac wireless LAN & BT4.1 + HS. TWCM-B202D is based on Broadcom BCM43569 solution.

- IEEE 802.11 a/b/g/n/ac Dual Band WLAN infrastructure
- Bluetooth 4.1 + HS
- Size : 100.0mm x 17.0mm x 8.4mm
- Two stream spatial multiplexing up to 300Mbps(802.11n)/ 867Mbps(802.11ac)
- Single-and dual-antenna Support
 - Two metal pressed antenna for WLAN and one external antenna for BT
- Use on-chip OTP (One-Time Programmable)
- Host Interface : USB2.0 (WLAN & BT)
 - This model is using the common USB2.0 to control WLAN and BT
- Security : WAPI, WEP, WPA, WPA2, WMM, AES, WEP, TKIP, CKP
- Application: DTV, DVR, HD DVD Player, Blue-ray Disk Player, STB

2. Module Photo

3. Block Diagram



4. Storage Conditions

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	+70	°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.

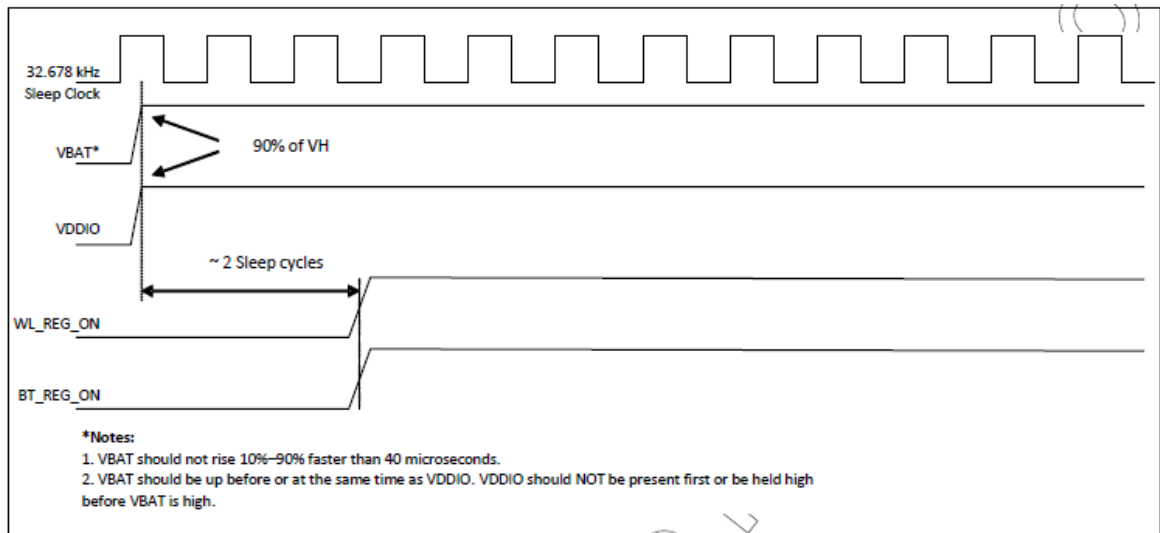
5. Operating Conditions

Parameter	Min	Typ	Max	Unit
Ambient Temperature	0	-	55	°C
Ambient Humidity (40°C)	-	-	85	%
Supply Voltage	4.75	5	5.25	Vdc

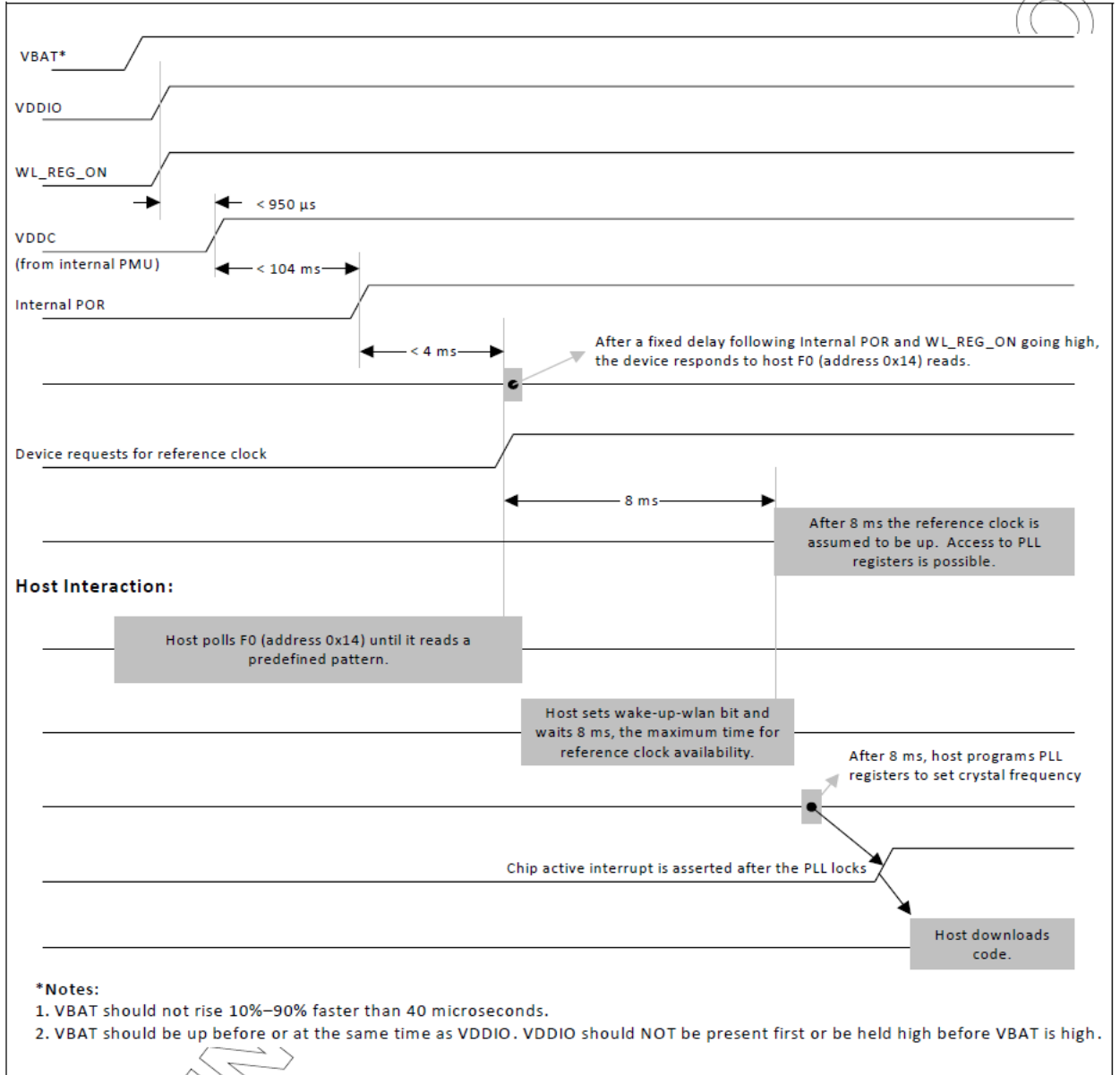
6. Power-up Sequence

- For both the WL_REG_ON and BT_REG_ON pins, there should be at least a 10ms time delay between consecutive toggles (where both signals have been driven low). This is to allow time for the CBUCK regulator to discharge. If this delay is not followed, then there may be a VDDIO in-rush current on the order of 36mA during the next PMU cold start.
- The BCM43569 has an internal power-on reset(POR) circuit. The device will be held in reset for a maximum of 110ms after VDDC and VDDIO have both passed the POR threshold.
- VBAT should not rise 10%-90% faster than 40 microseconds. VBAT should be up before or at the same time as VDDIO. VDDIO should NOT be present first or be held high before VBAT is high

< WLAN = ON, Bluetooth = ON >

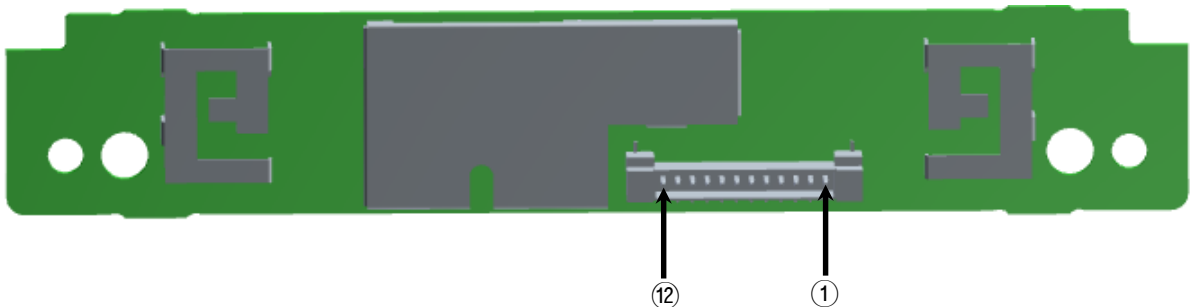


< WLAN Boot-up Sequence >



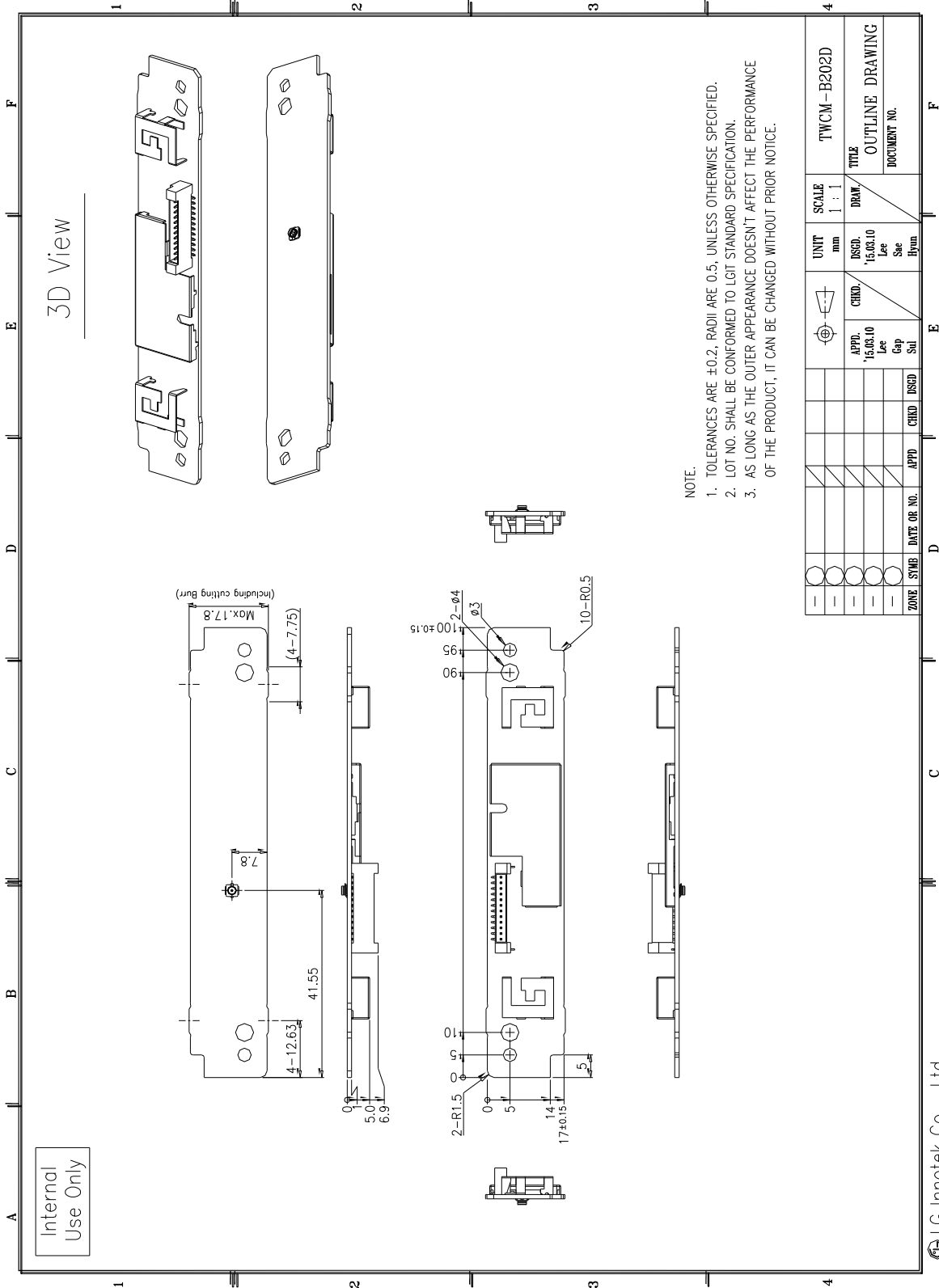
7. Pin Description

Pin No.	Pin Name	I/O	Pin Description
1	VCC	I	+5V
2	WLAN_USB_D-	I/O	USB Communication signal USB_DN
3	WLAN_USB_D+	I/O	USB Communication signal USB_DP
4	GND	-	Ground
5	BT_REG_ON	I	BT Reset
6	BT_HOST_WAKE	O	BT_HOST wake up
7	BT_DEV_WAKE	I	BT_DEV wake up
8	N.C	-	N.C
9	WLAN_REG_ON	I	WLAN Reset
10	WLAN_HOST_WAKE	O	WLAN_HOST wake up
11	WLAN_DEV_WAKE	I	WLAN_DEV wake up
12	GND	-	Ground



< Top view >

8. Outline Drawing



9. Packing Information

9-1. Tray packing

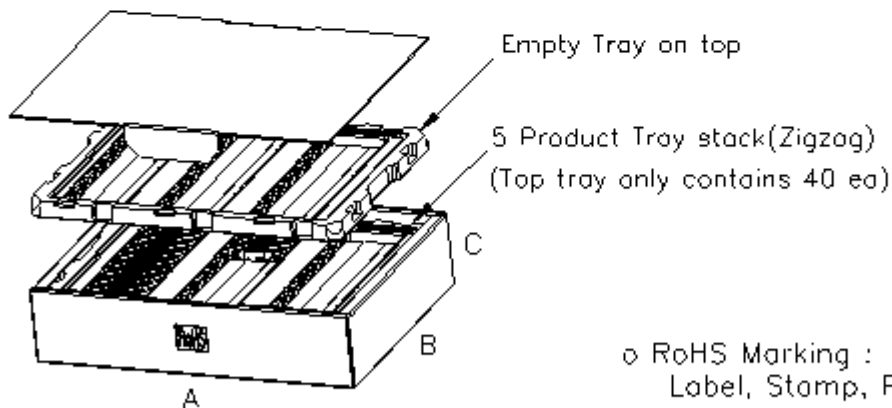
Wifi module

- o 1 Tray Packing Q'ty : 90 EA
- o Tray Material : antistatic PET
- o 1 Tray Packing Weight : $747g \pm 70g$
(1 Module Weight : $6.3g \pm 0.7g$)

* Module's Top tray quantity must be 40 ea, then total packing will be 400 ea.



- o Total tray stack Q'ty : 6



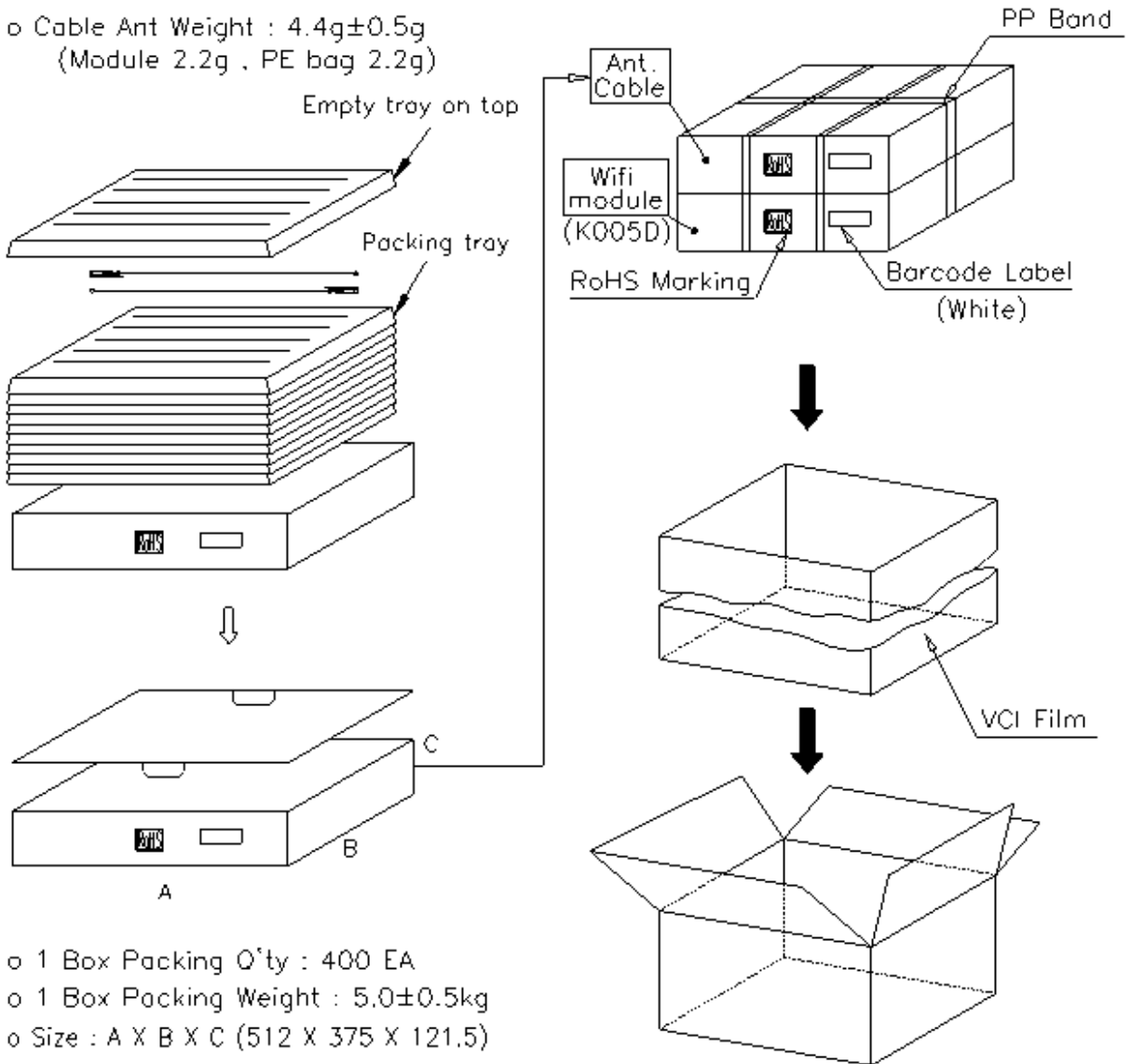
- o 1 Box Packing Q'ty : 400 EA
- o 1 Box Packing Weight : $4.0 \pm 0.4kg$
- o Size : A X B X C (512 X 375 X 121.5)

- o RoHS Marking :
Label, Stamp, Printing
- o Marking Color :
Gray or Red for Stamp, Label,
Printing on the Board and etc.
Black only for Printing on Label.
- o Box Material : Corrugated Fibreboards

9-2. Box packing

Cable Ant.

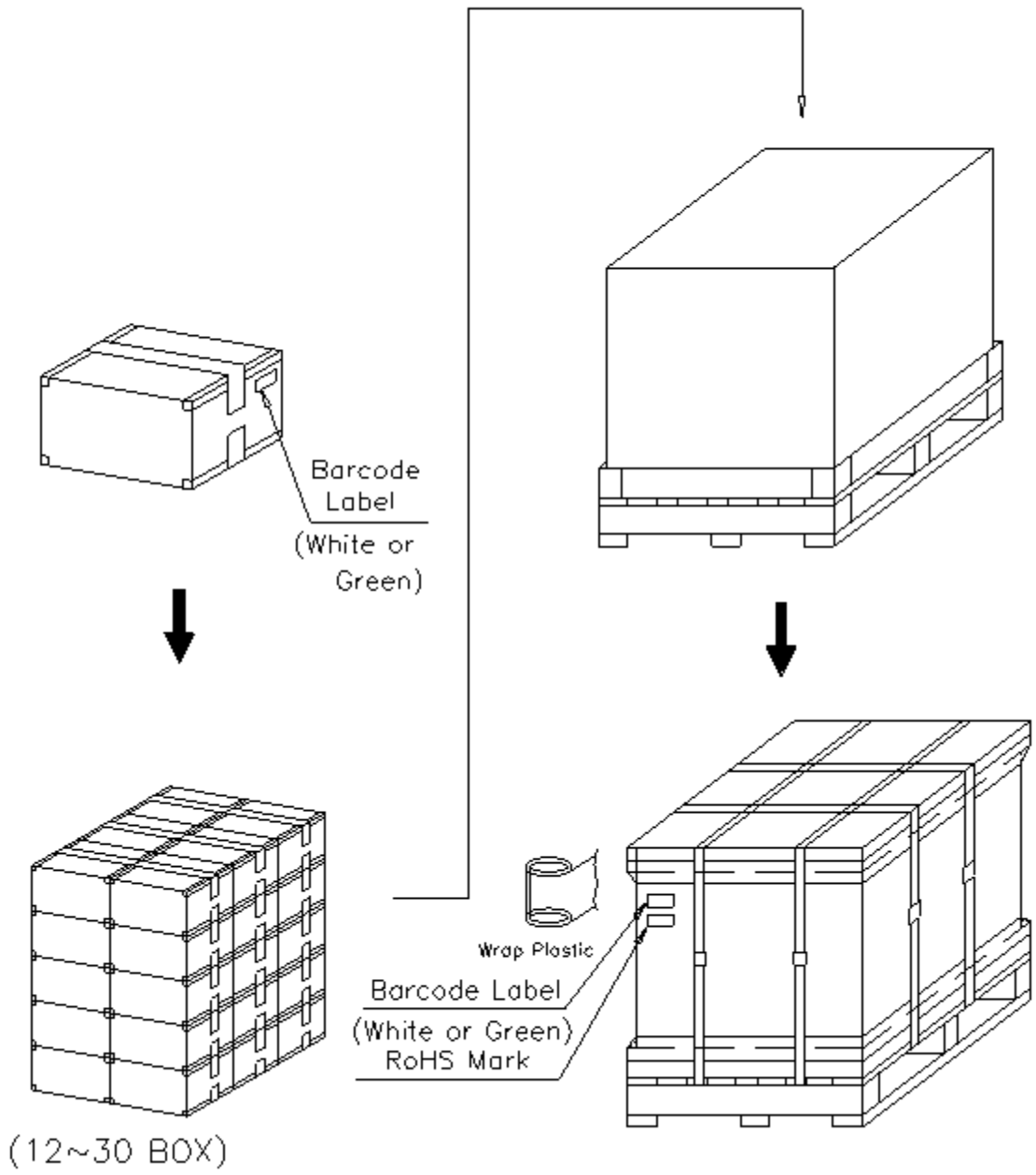
- o Cable Ant Weight : $4.4g \pm 0.5g$
(Module 2.2g , PE bag 2.2g)



- o 1 Box Packing Q'ty : 400 EA
- o 1 Box Packing Weight : $5.0 \pm 0.5kg$
- o Size : A X B X C (512 X 375 X 121.5)

9-2. Box packing

PALLET PACKING SPECIFICATION



FCC Information

This device complies with part 15 of the FCC Results. Operation is subject to the following two conditions :

- (1) This device may not cause harmful interface, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for CLASS B digital device, pursuant to Part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment 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 correct the interference by one or more of the following measures:

- 1.1. Reorient or relocate the receiving antenna.
- 1.2. Increase the separation between the equipment and receiver.
- 1.3. Connect the equipment into an outlet on a circuit different from that to which receiver is connected.
- 1.4. Consult the dealer or experienced radio/TV technician for help.

WARNING

Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

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.

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.
- 3) Antenna characteristic.

WLAN

- Antenna Type : Metal press type
- Frequency Range : 2.40 GHz ~ 2.50 GHz, 5 GHz ~ 6 GHz
- Max peak gain : 2 GHz : 2.5 dBi, 5 GHz : 2.9 dBi
- Impedence : 50 ohm

Bluetooth, Bluetooth LE

- Antenna Type : Metal (Sus, Ni) type
- Frequency Range : 2.4 GHz ~ 2.5 GHz
- Max peak gain : 0.42 dBi
- Impedence : 50 ohm

End product labelling

The label for end product must include "Contains FCC ID: YZP-TWCMB202D, IC ID: 7414C-TWCMB202D".

"CAUTION : Exposure to Radio Frequency Radiation.

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