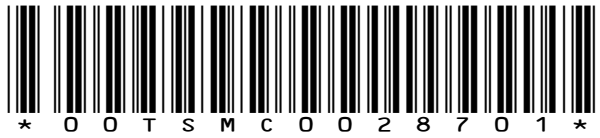
# B-EX706-RFID-U4-US-R Installation Manual




Thank you for purchasing TOSHIBA TEC UHF RFID kit, B-EX706-RFID-U4-US-R.
The B-EX706-RFID-U4-US-R is exclusively for the B-EX6T1-GS12/TS12-QM-R.
This RFID kit complies with radio laws of all applicable countries.
As this product is a wireless communication device, please be sure to read the following precautions carefully.

***WARNING!***

1. *Do not use a printer embedded with this product near medical equipment. Radio wave emitted from this product may affect the operation of medical equipment, such as an implanted cardiac pacemaker and implantable cardioverter-defibrillator.*
   *If a use of this product should be likely to have affected medical equipment, immediately turn off the product and contact your TOSHIBA TEC sales agent.*
   *Keep a printer embedded with this product at least 23cm away from a person with an implanted cardiac pacemaker or implantable cardioverter-defibrillator.*
2. *Do not export a printer embedded with this product to the countries or areas where a use of this product is not allowed, without permission. Doing so is against the law, and you may be punished.*
   *When exporting this product, check the laws and regulations of a destination country and take necessary procedures.*
3. *Follow all manual instructions. Failure to do so could create safety hazards such as fire or electrocution.*
   - *Manual instructions must be followed when installing option kits or adding cables to avoid system failures and to insure proper performance and operation.*
   - *Failure to follow manual instructions or any unauthorized modifications, substitution or change to this product will void the limited product warranty.*
4. *Turn the power OFF and disconnect the power cord before installing the RFID module.*
5. *Be careful not to pinch your fingers or hands with the covers.*
6. *The print head and stepping motor becomes very hot immediately after printing. Do not touch the print head, stepping motor and around it right after printing, or you may get burned.*
7. *When opening the top cover, it must be fully opened. Failure to do this may cause the top cover to close under its own weight, resulting in an injury.*

**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.

**IMPORTANT NOTE**:

In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling:

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

【Contains FCC ID: BJIOH0007】

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.

**Canada Statement**

This device complies with Industry Canada's licence-exempt RSSs. Operation is 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.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage;

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Caution Exposure:

This device meets the exemption from the routine evaluation limits in section 2.5 of RSS102 and users can obtain Canadian information on RF exposure and compliance.

Le dispositif répond à l'exemption des limites d'évaluation de routine dans la section 2.5 de RSS102 et les utilisateurs peuvent obtenir des renseignements canadiens sur l'exposition aux RF et le respect.

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

The Industry Canada certification label of a module shall be clearly visible at all times when installed in the host device, otherwise the host device must be labelled to display the Industry Canada certification number of the module, preceded by the words "Contains transmitter module", or the word "Contains", or similar wording expressing the same meaning, as follows:

"Contains transmitter module IC: 1004C-MS0001"

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

Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

The end user manual shall include all required regulatory information/warning as show in this manual.

# 1. APPLICABLE MODEL

(1) This optional device is intended for the following models:

B-EX6T1-GS12/TS12-QM-R

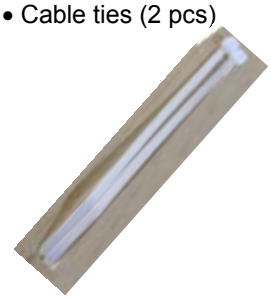
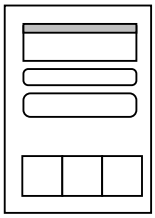
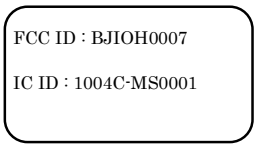
Be careful not to install this product in any other models than above.

(2) The countries where the use of this device is allowed are as follows:

| Model Name | Frequency Band | Applicable Countries |
|---|---|---|
| B-EX706-RFID-U4-US-R | UHF 902.75-927.25MHz | USA |
| | UHF 920.9-923.3MHz | Korea |
| | UHF 920.625-924.375MHz | China |

# 2. PACKING LIST

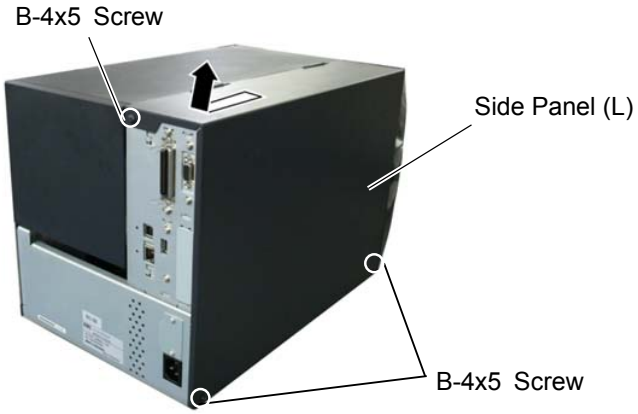
All the following parts are supplied with the kit. Make sure you have all items shown below.
If any part is missing, please contact your TOSHIBA TEC sales agent.

<table>
<tr>
<td colspan="2">• RFID Module<br>  </td>
<td colspan="2">• PT-3x6 screw （1pc）<br>  </td>
</tr>
<tr>
<td>• Bush (1 pc)<br>  </td>
<td>• Cable ties (2 pcs)<br>  </td>
<td>• Installation Manual (1 copy)<br>  </td>
<td>• FCC ID Sticker (1 pc)<br> 
</td>
</tr>
<tr>
<td colspan="2">• Shield label<br>There are three types depending on the antenna mounting position<br>F<br>  <br>C<br>  <br>R<br>  </td>
<td colspan="2">• RFID media guide<br>  <br>• RFID module harness<br>  </td>
</tr>
</table>

# 3. INSTALLATION PROCEDURE

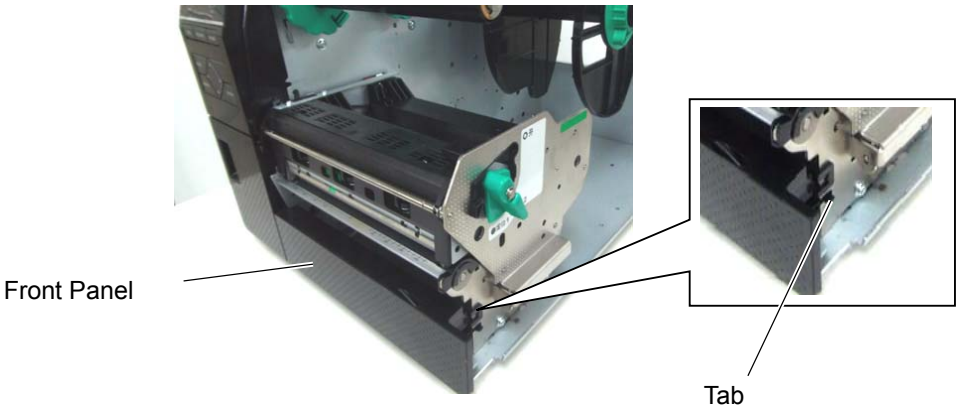
## 3.1 Removing the Covers

1. Turn the printer power off and disconnect the Power Cord.
2. Remove the three B-4x5 screws from the Side Panel (L).
3. Slide the Side Panel (L) backward, and raise it to remove from the printer.




4. Fully open the Top Cover.


5. Release the tab on the right end by pushing it, then remove the Front Panel.



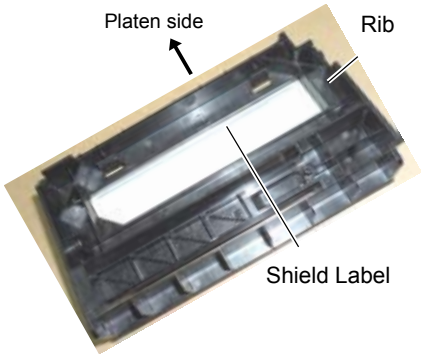
### 3.2 Mounting of the RFID module

By RF label to be used, shield label (F / C / R), antenna position (front / middle / rear ) , different combinations of the mounting of the shielding plate ( Y / N ) . Please follow the combination that are described in our sales was prepared " RFID label recommended setting sheet" .
( If the " RFID tag label recommended setting sheet " is not prepared , please follow the guideline of Section 3.5 . )

1. Attach the selected Shield Label to the bottom of the Platen Holder Block.

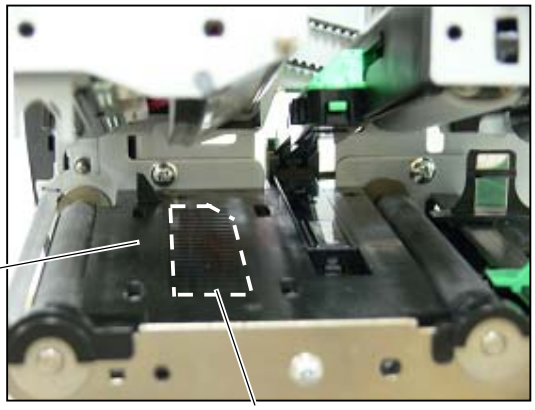
Guide of Attachment Position
Attach the Shield Label along the rib.

<When viewed from the bottom>





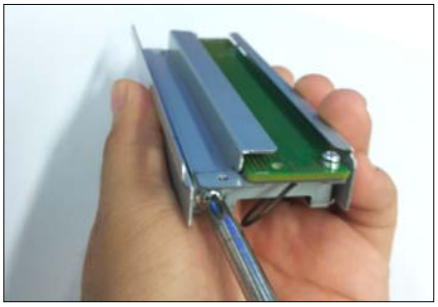
Actual view



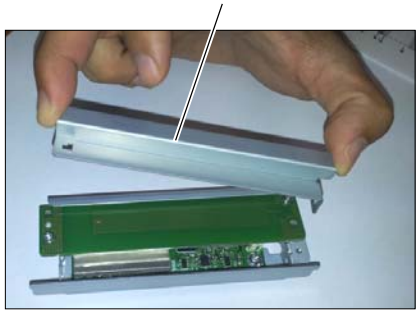
Platen Holder Block

***CAUTION!***
*DO NOT DISASSEMBLE the Platen Holder Block.*
*Doing so will change the adjustment.*

2. Disconnect the shielding plate from the RFID module.

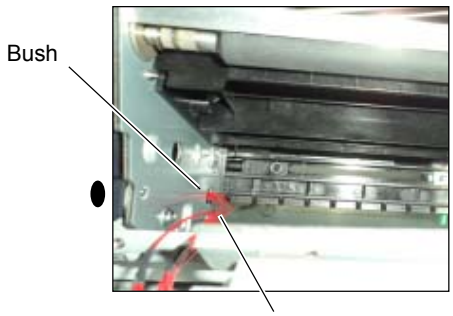


1. Remove the screws that secure the antenna shield.

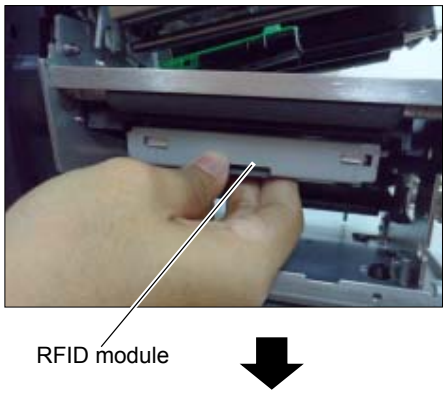



2. Remove the screw holding the antenna shield

3. Fit the Bush in the round hole of the main frame, and pass through it the black connector of the red interface cable that is connected to the RFID.




4. Fit the RFID module to the bottom of the Platen Holder Block as shown below.

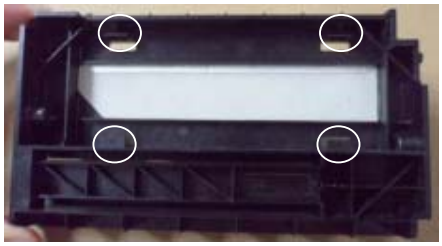




Guide of Attachment Position

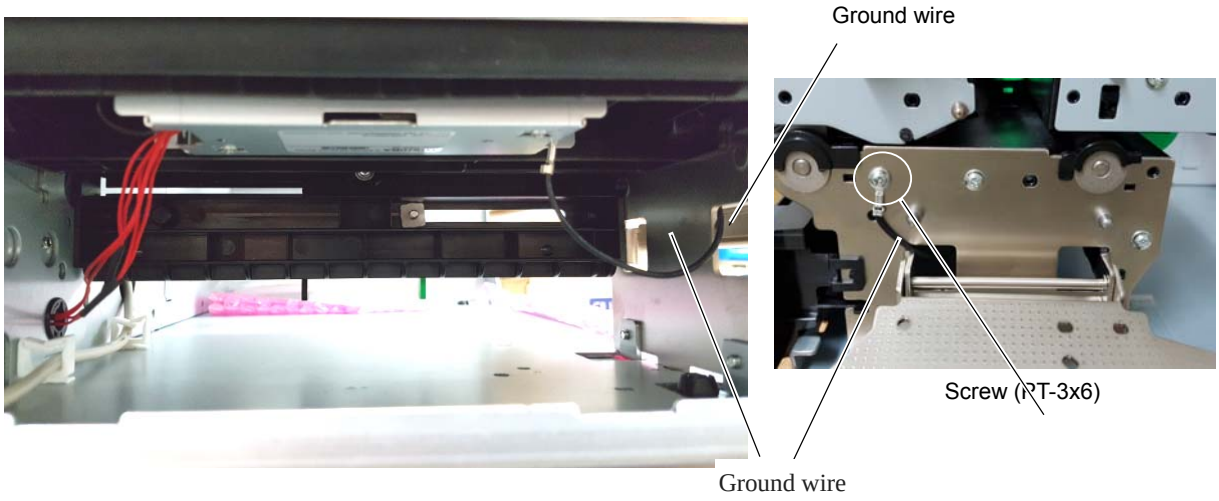
<When viewed from the bottom>

Attach the RFID module to the 4 alignment slots enclosed in circles.

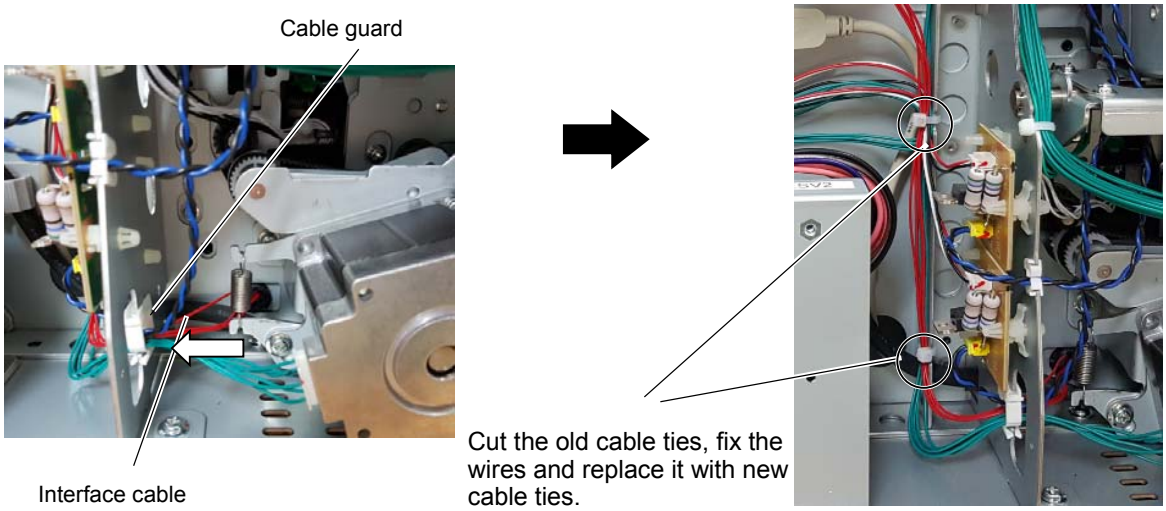


Platen Holder Block

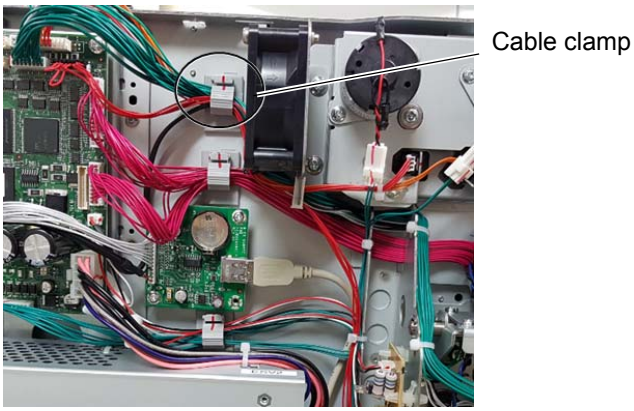
5. Pass the ground wire through the hole in the sheet metal as shown in the photo , and secure it with screws (PT-3x6).



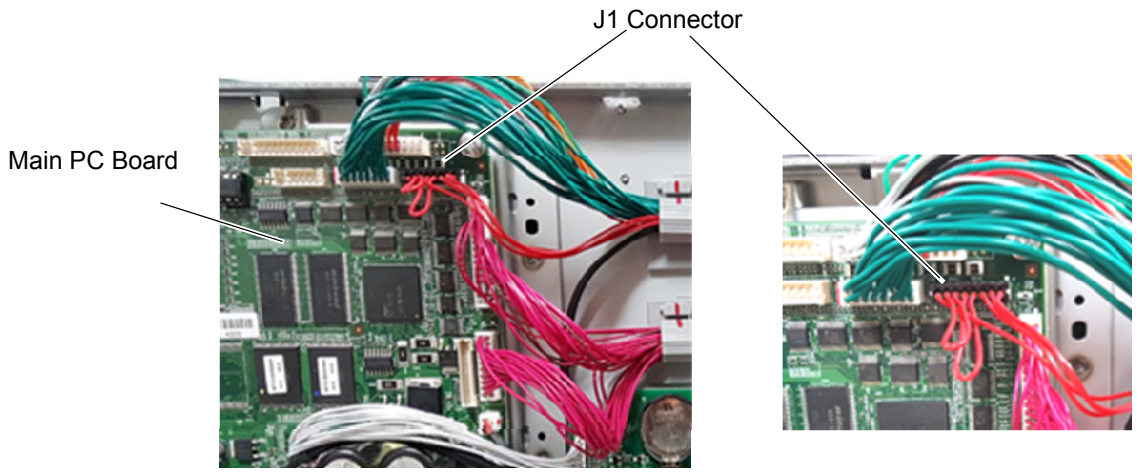

6. Pull out the cable interface from the opposite side, and pass it through the opening.




7. Arrange the cables properly and secure it on the cable clamp as shown below.



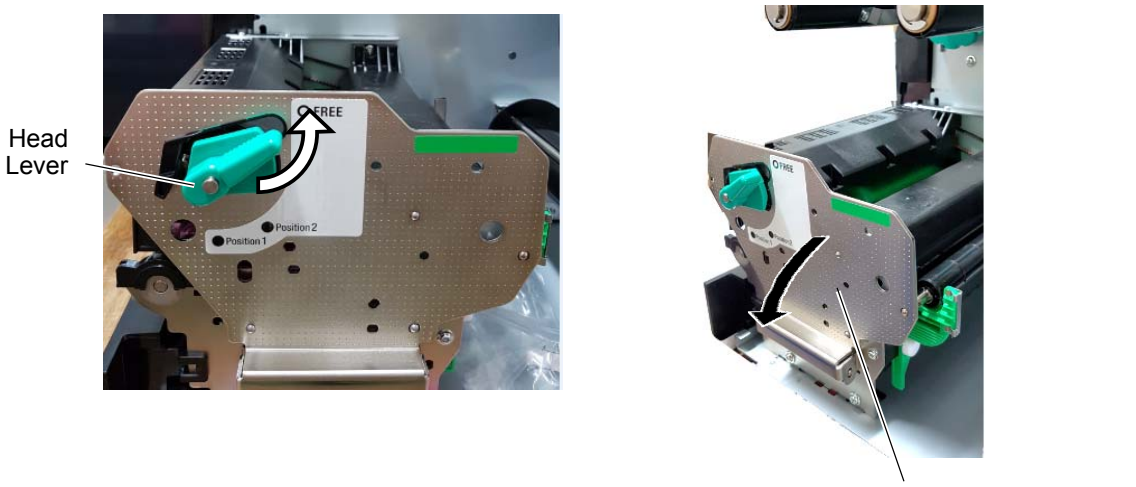
8. Connect the RFID Module to J1 on the Main PC Board with the Interface Cable.



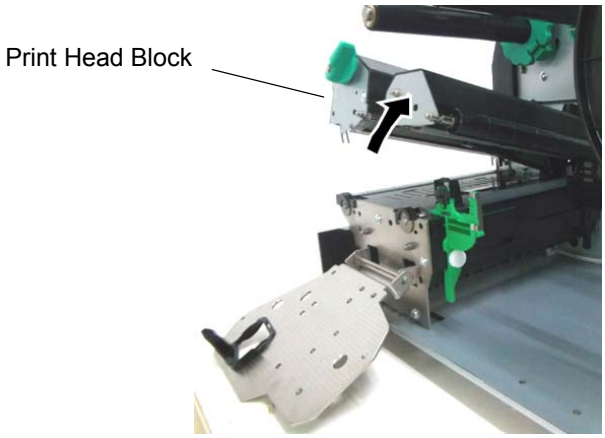

### 3.3 Attaching the Paper Guide

**RFID paper guide is not required when using with cutter / peel off option.**

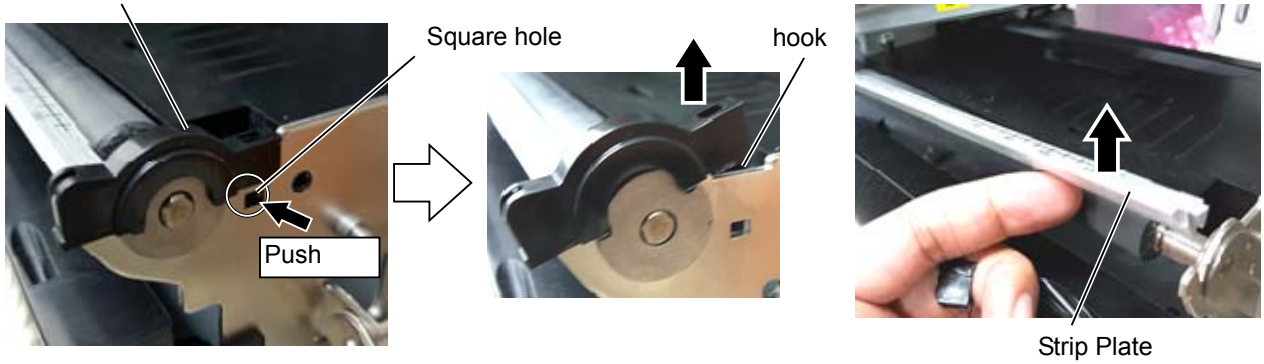
1. Turn the Head Lever to **Free** position and gently put down to the side the Print Head Block Holder Plate.




2. Open the Print Head Block.

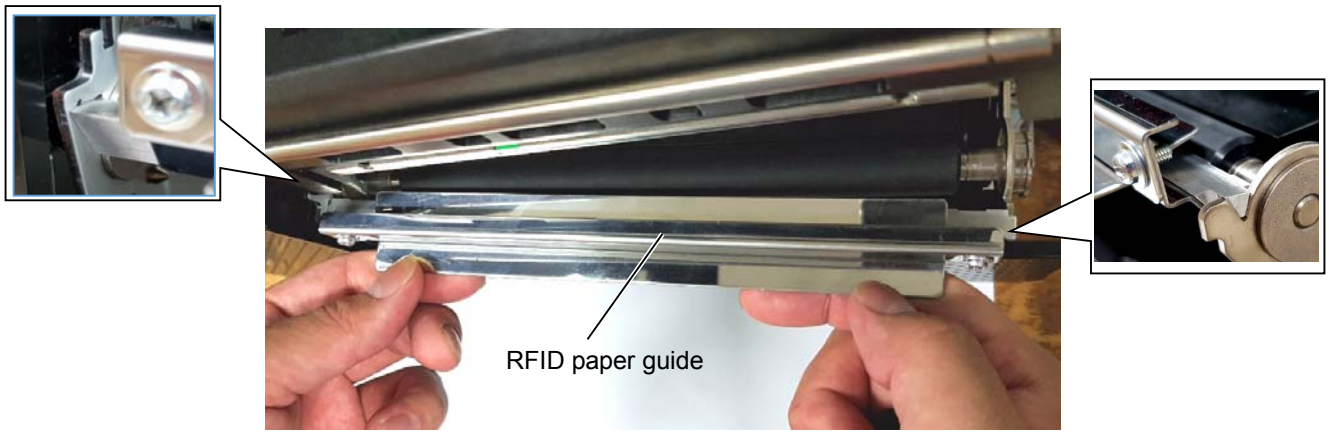


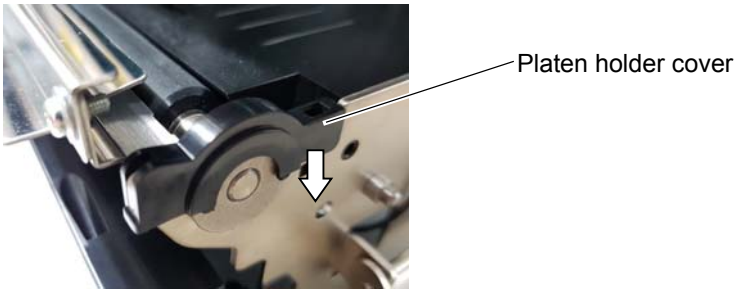
3. To release the hook, Insert the tip of a thin tool into the square hole, remove the platen holder cover and remove the Strip plate.




4. Install the RFID paper guide and return the platen holder cover to the original position.

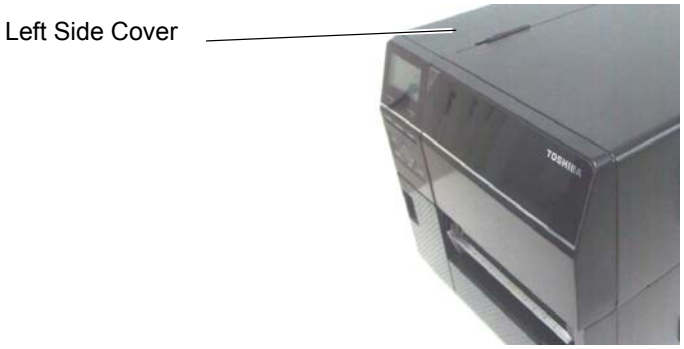
Note: Since the release plate will not be used, please keep it in a safe place .



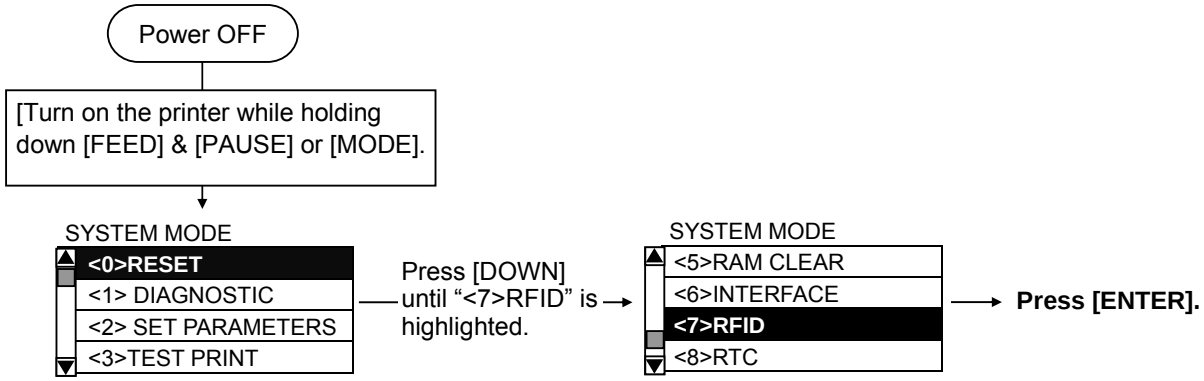



## 3.4 RFID Operation check

1. Mount the Left Side cover in a reverse order procedure. Be careful not to pinch the cables.

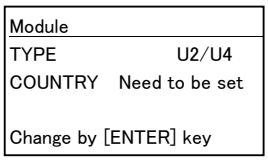



2. Plug the Power cord into the electrical outlet and turn ON the machine. Enter the RFID Set-up Menu in the System Mode.




3. In the module configuration, press the [ENTER] key to select the "UHF band (U2 / U4) "

4. To set country code to [EU].

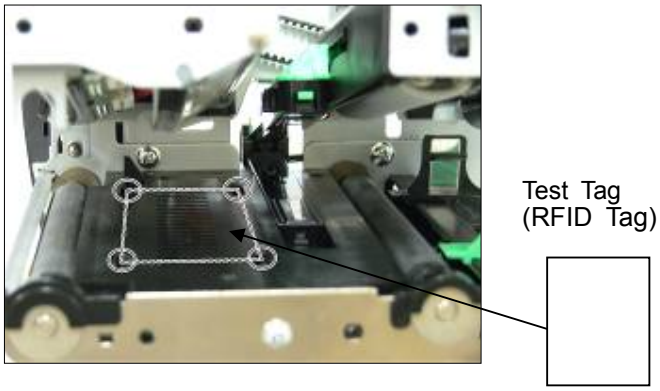



Pushing [ENTER]Key
Enter PASSWORD(RFID) and 1048 and save by [ENTER]key.
Confirming the COUNTRY CODE is set [EU] and pushing [ENTER]key.

5. Turning off power and turn on again on system mode.

6. Under the module setting, [EPC C1 Gen2] should be selected as the Tag Type and pushing **[ENTER]key.**

7. Test Tag(RFID tag) should be put on the square mentioned on the next photo and perform the test reading test




To select [TEST] and pushing **[ENTER]key. and pushing [ENTER]key by selecting**「ID READ」, and execute ID READ test.. After that, the read ID appear on the display

| ID READ |
| --- |
| Tag 1/1<br>Performance 9<br>00010203 04050607<br>08090A0B 0C0D0E0F |

(Display)

**That all for insertion of RFID module.**

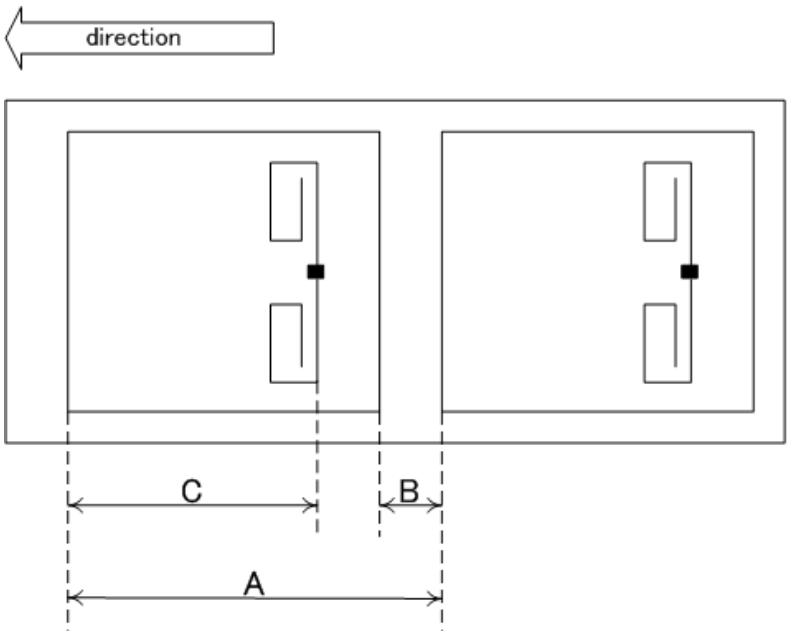
**Please proceed the RFID setting(Retry, UHF setting according to the RFID TAG LABEL RECOMMENDED SETTING SHEET. Please refer to the Chapter 4.**

## 3.5 Reference Information: antenna and shield label indication of the mounting position

3.3.1. Guidelines for the antenna position and shield label selection Media specification confirmation.

1 Confirm below your media specification

A. Media pitch
B. Gap length
C. RFID chip position distance from front edge of the paper




2. Guidelines of the antenna position selection

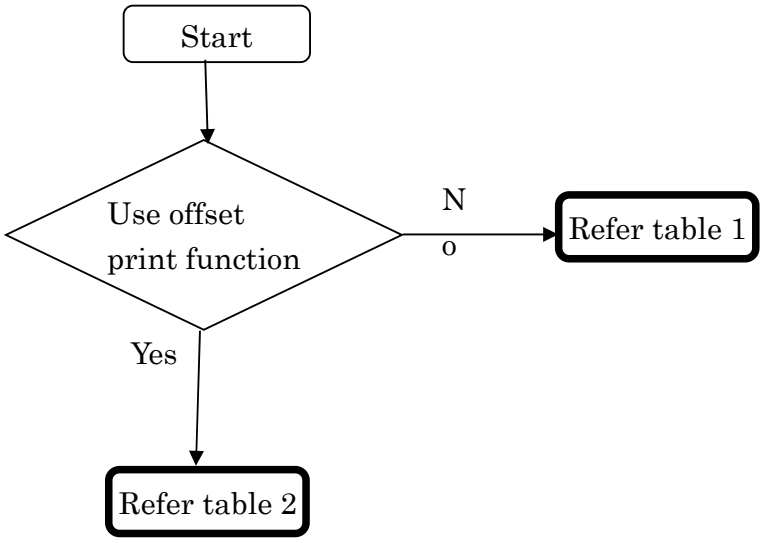


Table 1 (Normal print)

| A(mm) | C(mm) | Antenna | Shield Label | Shielding plate |
|---|---|---|---|---|
| 10 to 20 | 10 to 18 | Front | F | Required |
| over 20 | 10 to 34 | Front | F | Disabled |
| | 34 to 41 | Center | C | Disabled |
| | over 41 | Rear | R | Disabled |

Table 2 (Offset print)

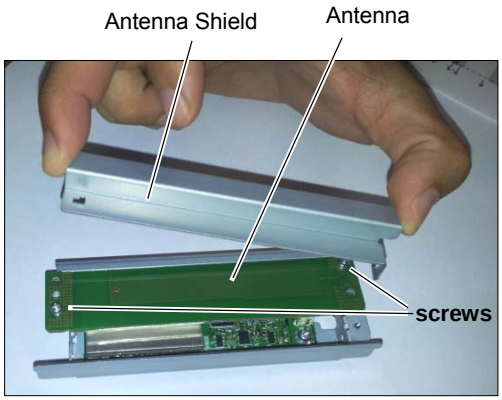
| A(mm) | A+C(mm) | Antenna | Shield Label | Shielding plate |
|---|---|---|---|---|
| 10 to 20 | 10 to 34 | Front | F | Required |
| | 34 to 38 | Center | C | Disabled |
| over 20 | 20 to 34 | Front | F | Disabled |
| | 34 to 41 | Center | C | Disabled |
| | over 41 | Rear | R | Disabled |

-Off Set printing Characteristics is the mode of execution of writing for one piece back word tag from the printing Tag and it should be effective for plural RFID tag is printing continuously.

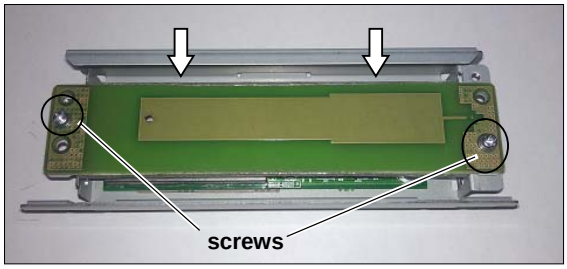
-When this function is enable, the back feed to write data is unnecessary and the through put should be improved, due to the one piece back word Tag from printing label should be just on the RFID Antenna when the around 20mm pitch tag is used.

-Off Set printing function is available, when the @003 command (Writing before RFID ISSUE feed length setting command)

Antenna position : center , shielding plate : not required

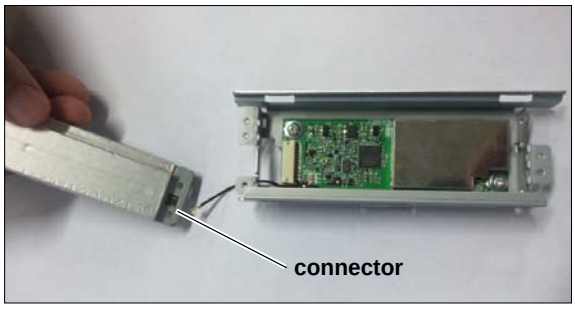



1. Remove the antenna shield as per Step 1 to 2 of Front Position (Antenna Shield Disable), and remove 2 screws as shown.



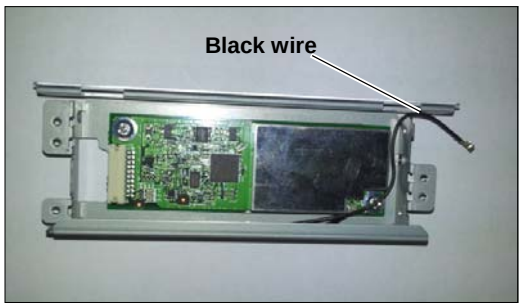

2. Move the antenna in the middle position and observe proper alignment as shown in the figure above. Attach the two screws back with the new

Antenna position : Rear , shielding plate : not required

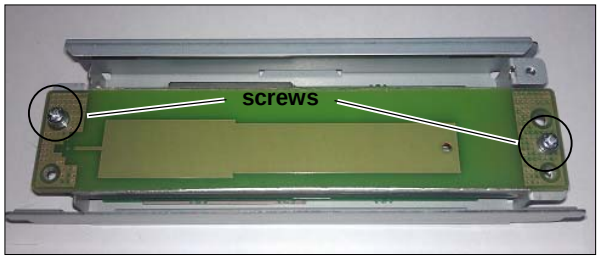



1. After the antenna shield and antenna screws have been removed, detach the connector of the PCB from the antenna.

3. Re- connect the black wire to the antenna as shown in figure above




2. Reroute the black wire to the other side as shown in the figure above.

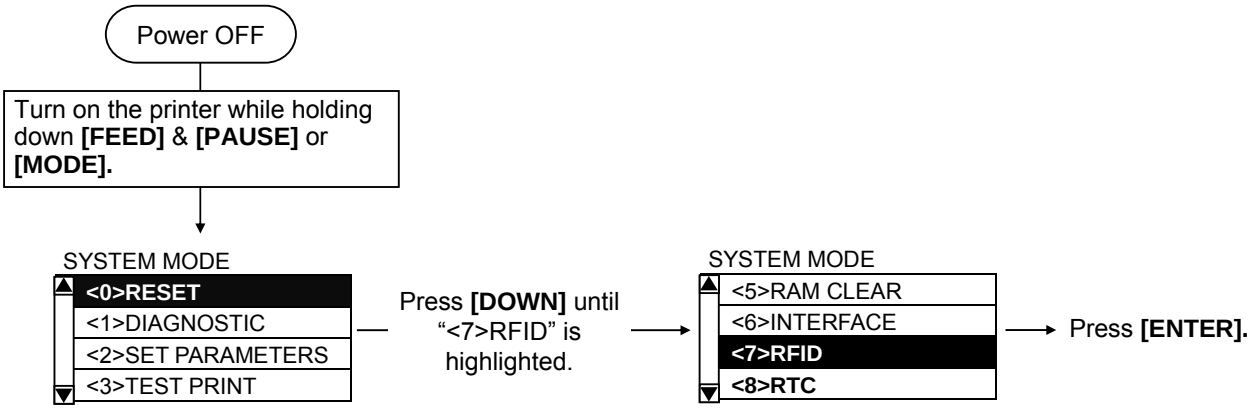



4. Attach the antenna and secure with 2 screws, the proper alignment shown in the figure above.

# 4. RFID Module Settings

After installing the RFID Module on the printer, configure the RFID module settings in the printer system mode.

### ■ How to enter the System Mode




### ■ Contents of the RFID Menu

| Menu | Sub menu | Parameter |
|---|---|---|
| RFID | TEST | ID READ |
| | MODULE | MODULE TYPE |
| | | COUNTRY |
| | | TAG |
| | | RF CHANNEL |
| | RETRY | RETRY POSITION |
| | | RETRY LABELS |
| | | READ RETRY |
| | | WRITE RETRY |
| | UHF SETTING | POWER LEVEL |
| | | Q VALUE |
| | | AGC THRESHOLD |
| | | WRITE AGC THRESHOLD |
| | | WRITE RETRY MIN AGC |
| | OTHER | TAG CHECK |
| | | MULTI WRITE |

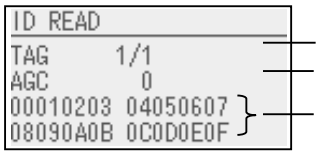
### ■ Key functions in the system mode

| Key | Function |
|---|---|
| [MODE] | Returns to the mode menu screen. |
| [CANCEL] or [FEED]+[RESTAR] | Returns to the upper hierarchy. |
| [ENTER] or [PAUSE] | Displays a next screen. |
| | Saves the setting and returns to the upper hierarchy. |
| [UP] or [RESTART] | Moves the cursor upward. |
| | Increases a value. |
| [DOWN] or [FEED] | Moves the cursor downward. |
| | Decreases a value. |
| [LEFT] | Moves the cursor to the left. |
| [RIGHT] | Moves the cursor to the right. |

## 4.1 TEST

### (1) ID READ

The printer enters the read test mode, and a read test is performed each time the **[ENTER]** key is pressed. When the data of a tag can be read, it is displayed on the LCD.




(Example)

The number tag is being read./The total number of tags read

AGC value of the read tag

U4: EPC code in the EPC area is displayed in hex. value, up to 32 digits on 2 lines

H1: Tag ID

- Only the tags selected for the RFID tag type can be read.
- The RFID tag type shall be selected before the read test is started.
- When the read test failed, the following message is displayed on the LCD:

| Error message | Description |
|---|---|
| MODULE TYPE ERROR | RFID module type has been set to NONE or a communication cannot be established. |
| COUNTRY CONFIG ERROR | Country code has not been set. |
| READ ERROR<br>Confirm Setting or Set other Tag | The type of the tag to be read and one selected by the RFID tag type selection do not match. |
| NOT AVAILABLE | Not supported. |
| NO RESPONSE | No response from the tag |
| READ TIMEOUT<br>Set a RF-Tag on Ant. | Timeout |
| UNKNOWN ERROR | Other errors |

- In the case of 32 digits or more data, only the first 32 digits are displayed. When data is less than 32 digits, the vacant digits will be filled with spaces
- If more than one tag is read at one time, especially when short-pitch tags are used, pressing the **[UP]** or **[DOWN]** key shows the other tags' data.

## 4.2 MODULE

### (1) MODULE TYPE

- NONE: No RFID module is installed.
- H1: not supported
- H2: not supported
- U2/U4: B-EX706-RFID-U4-US/EU/AU-R
- U4 module preinstall model (B-EX6T1-GS18/TS18-CN-R)

***NOTE**: This setting will become effective after the printer power is turned off, and back to on.*

### (2) COUNTRY

The country code of the currently installed module is displayed.
If the module type is set to other than "U2", "INVALID" is displayed.

It is possible to change the country setting when the module type is set to "U2" and the actually installed module type is U4-US or U4-EU. However, this menu is password-protected because changing the country setting causes the output frequency to change.

| | |
|---|---|
| B-EX706-RFID-U4-EU-R | EU0 (Europe) or IN0 (India Use of IN0 is prohibited.)) |
| B-EX706-RFID-U4-US-R | US (North America), AU (Australia), KR2 (Korea) CN2 (China), Use of CN2, US and AU are prohibited. |

### (3) TAG

- NONE
- EPC C1 Gen2

### (4) RF CHANNEL

- AUTO
- 2CH
- 3CH
- 4CH
- 5CH
- 6CH
- 7CH
- 8CH

Set the channel to be used for writing data onto RFID tags.
When a channel is chosen from 2CH to 8CH, that channel will be continuously used.

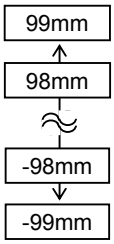
When the channel is set to AUTO, an available channel is searched in the following order.

AUTO: 2CH → 8CH → 6CH → 4CH → 3CH → 7CH → 5CH → 2CH

Though this setting is applicable to all models, it works effectively only for the B-EX706-RFID-U4-R（UHF for Japan）.

## 4.3 RETRY

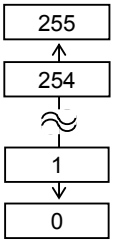
### (1) ADJ RETRY POSITION




If writing data on a tag failed, the printer feeds the RFID tag forward or backward for specified length, in order to retry data write. When “0” is set for this parameter, this function and a retry are not performed.

Only the value of –3mm or less or +3mm or more becomes effective.

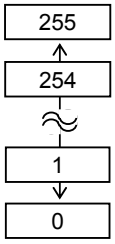
### (2) ISSUE RETRY LABELS




Set a maximum number of retries to issue an RFID tag.
When issuing an RFID tag failed, the printer prints the error pattern, and retries to issue the tag for up to specified number of times. If the printer does not succeed even after having retried for the max. times, the printer stops, resulting in an error.

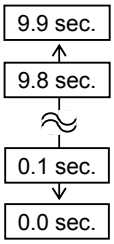
### (3) READ RETRY

- **The number of times a tag read is retried**




Set a maximum number of retries to read an RFID tag.
The printer retries to read the data in an RFID tag for up to specified number of times. If the timeout period expired before the max. number retries have been done, the printer stops the retries at the time.
Whenever the printer writes data onto an RFID tag, the tag is read first. The max. number of retries set by this parameter becomes also effective in this pre-read.

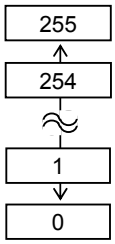
- **Read retry timeout**




Set the timeout period during which RFID tag read retries are allowed, with the **[UP]** or **[DOWN]** key. If the printer has retried for the max. number of times within the RFID read retry timeout, the printer stops the retries at the time.
Whenever the printer writes data onto an RFID tag, the tag is read first. The read retry timeout set by this parameter becomes also effective in this pre-read.

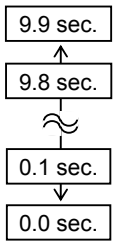
### (4) WRITE RETRY

- **The number of times a tag write is retried**




Set a maximum number of retries to write data onto an RFID tag.
The printer retries to write data onto an RFID tag for up to specified number of times. If the timeout period expired before the max. number of retries have been done, the printer stops the retries at the time.

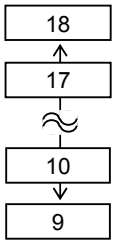
- **Write retry timeout**




Set the timeout period during which RFID tag write retries are allowed, with the **[UP]** or **[DOWN]** key.
If the printer has retried for the max. number of times within the RFID write retry timeout, the printer stops the retries at the time.

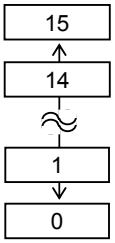
## 4.4 UHF SETTING

### (1) POWER LEVEL



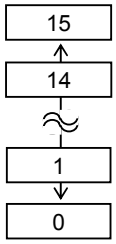

When the value is “9”, the power is the weakest, and when “18”, the power is the strongest. The factory default setting is “18”. The optimum value differs depending on the tag types. Usually, it is not necessary to change this value but changing the value may be able to increase the number of successful read/write times.

### (2) Q VALUE



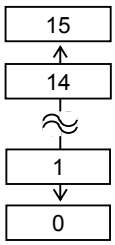

In the case multiple RFID tags are read at the same time, this menu is useful to pinpoint a target tag.
Set the Q value to “1” or greater (2 is recommended.) with the **[UP]** or **[DOWN]** key. Q value “0” causes the tags to interfere with each other and disables proper data write.
When the Q value is set, set an AGC threshold for data write and an AGC threshold lower limit for retry, also. Setting all these values enable writing data to a tag placed just above the antenna.
The factory default is 0.

### (3) AGC THRESHOLD



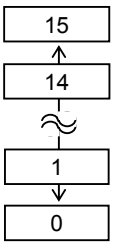

When the obtained gain of an RFID tag is lower than the AGC threshold, the tag is considered as an error tag even if a data write succeeds.
When the AGC threshold is set to “0”, all tags are writable.
When set to “8”, for example, only tags with the AGC threshold level of 9 or greater are writable. The optimum value is different depending on the tag types. The factory default is 0.
If default value fails then try it with the recommended value of 9.

### (4) WRITE AGC THRESHOLD




When the Q value is set to 1 or greater, the AGC threshold for data write becomes effective.
When the obtained gain of an RFID tag is lower than the AGC thresholdfor data write, data write is not performed. In other words, setting an AGC threshold for data write enables writing data only to a tag placed just above the antenna.
The optimum value differs depending on the tag type.
If default value fails then try it with the recommended value of 9.

### (5) WRITE RETRY MIN AGC



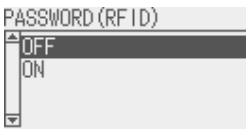

When the Q value is set to 1 or greater, the AGC threshold lower limit for retry becomes effective.
When there are tags of which AGC values fall within the range between the AGC threshold for data write and the lower limit, the printer retries data write for a tag with the highest AGC value among those tags. When printer retries data write, that value is then used as an AGC threshold.
The optimum value differs depending on the tag type.
If default value fails then try it with the recommended value of 8.
Value should be same or 1 smaller value with Write AGC threshold

## 4.5 OTHER

### (1) TAG CHECK

- OFF Error tag detection is not performed. Though a tag is read before writing data on it, data is always written on the tag whatever data is set as the header data.
- ON (ID) Error tag detection is performed. A tag (EPC area for GEN2 tags) is read before writing data on it and data is written on the tag only when the header data is “A5A5”.
- ON (ACCESS PASSWORD) Error tag detection is performed only for Gen2 tags. The access password area of a tag is read before writing data on it. Only when the data read matches the access password setting data, the data is written on the tag.

To prevent unauthorized changes of the setting, a password to protect the error tag detection setting can be programmed.

| | | |
|---|---|---|
| 1 |  | When the TAG CHECK parameter is set to “ON (ACCESS PASSWORD)”, an entry of the password is requested.<br>***NOTE**: Since “ON (ACCESS PASSWORD)” has been selected as factory default, a 4-digit password entry will be requested when you access this menu for the first time.*<br><br>Enter the default password (0000) or a 4-digit password programmed in step 6. |
| 2 |  | When the password matches, TAG CHECK parameter setting screen appears.<br>Selecting “OFF” or “ON(ID)” disables password setting, and the screen returns to the upper hierarchy.<br>If the entered password does not match, an error message is displayed and the screen returns to the upper hierarchy menu. |
| 3 |  | When “ON (ACCESS PASSWORD)” is selected for TAG CHECK, the password entry is requested.<br>Enter the 8-digit access password. |
| 4 |  | Choose whether or not to enable the auto unlock function.<br>When “ON” is selected, locked tags are automatically unlocked by the access password and data write is enabled. |
| 5 |  | Choose whether or not to set the password to protect the error tag detection setting.<br>Selecting “OFF” causes this menu to end, and the screen returns to the upper hierarchy menu. |
| 6 |  | When “ON” is selected, the password can be programmed.<br>Enter a 4-digit password.<br>**NOTICE**: Please do not forget the programmed password as it will be required for an access to the TAG CHECK menu afterward. Take a note of the password, if necessary. |

**(2) MULTI WRITE**

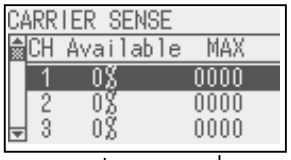
- OFF
- ON

Gen2-compatible Hibiki tag (HITACHI) has a function which reduces the time to write data on the RFID chips. This is called “Multi-word write”. Use of this function enables a speed-up of the data write operation. However, this function is unique to the Hibiki tag, and not usable with the other Gen2-compatible chips. The factory default is set to OFF (disabled).

**(3) CARRIER SENSE**

The printer enters the carrier sense mode, and performs a carrier sense. Environmental radio wave of each channel is picked up for about 30 times during 5 seconds. (This function is enabled only for the B-EX700-RFID-U2-R.)

(Example)




Value of the maximum radio wave picked up
The larger the value is, the stronger radio wave source exists nearby.
“0011” is the maximum value.

The availability of the channel which is determined by performing approx. 30 carrier senses. Thus, 100%” means that this channel is not used by any other devices.

Channel number

- The display can be scrolled up or down, from Channel 1 (1CH) to channel 9 (9CH), by using the [UP] or [DOWN] key.
- Pressing the [ENTER] key causes the printer to perform a carrier sense again. To quit a carrier sense, press the [CANCEL] key.
- When the RFID module type is set to “NONE” or a communication cannot be established, a message, “NO RFID MODULE”, is displayed.
- When the RFID module type is set to other than U2, a message, “NOT AVAILABLE” is displayed.
- When the RFID module type is set to U2 but effective data cannot be obtained, a message, “NO RESPONSE” is displayed.
- If the RFID module’s country setting is not specified (user-inaccessible setting), an “RFID CONFIG ERR” error message is displayed.

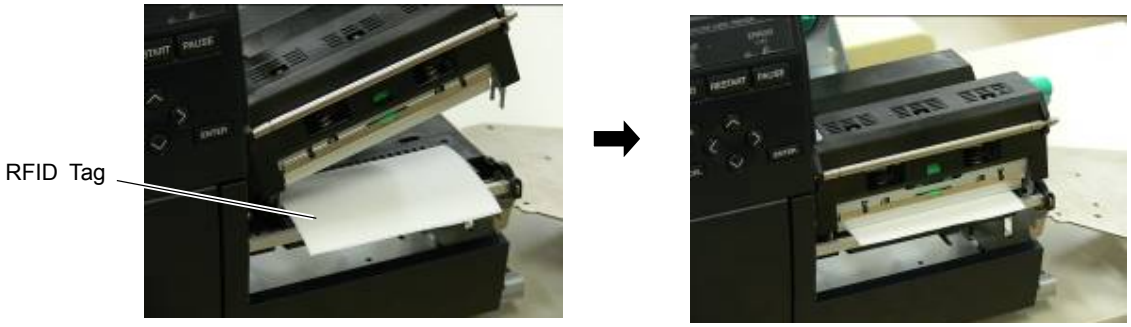
# 5. AGC THRESHOLD SETTING

The B-EX706-RFID-U4-EU-R chooses a tag to write data on according to a radio intensity of RFID tags (AGC value). An AGC threshold value has been set to 0 (00h) as factory default, but it may be necessary to change this value according to the tag type to be used.
When the factory default threshold value is not proper for the tag type used, follow the procedure below to configure the following settings.
As the changes are stored in the internal memory, they are retained after the printer power is turned off and on again. When the tag type is changed or data write cannot be operated properly, perform the setting again.

Step 1. Load an RFID tag embedded media in the printer.
Step 2. Follow the procedure below to measure the radio intensity of the tags.

1) Place the media so that an RFID tag (IC chip) is positioned above the Antenna, and close the Top Cover.
   ***Note**: If an RFID tag is not positioned above the Antenna while the Print Head is at a print start position, use @003 command to adjust the media position so that an RFID tag is positioned above the Antenna. For detail of the command, refer to the External Equipment Interface Specification (Printer Command Manual).*
2) Start the printer in the system mode and perform a read test to measure the AGC value.
   To measure the AGC value, place only one RFID tag on the Antenna.

Example




(1) Turn the printer on while holding down the **[MODE]** key.
(2) Press the **[DOWN]** key until “<10>RFID” is highlighted.
(3) Press the **[ENTER]** key.
(4) Choose “UHF SETTING”, and press the **[ENTER]** key.
(5) Choose “Q VALUE”, and press the **[ENTER]** key.
(6) Set “2” with **[UP]** or **[DOWN]** key, then press the **[ENTER]** key.
(7) Turn off the printer.

(8) Turn the printer on while holding down the **[MODE]** key.
(9) Press the **[DOWN]** key until “<10>RFID” is highlighted.
(10) Press the **[ENTER]** key.
(11) Choose “TEST”, and press the **[ENTER]** key.
(12) Choose “ID READ”, and press the **[ENTER]** key.
(13) Press the **[ENTER]** key to read the tag data.
(14) Read data is displayed. Write down the AGC value.
(15) Press the **[CANCEL]** key to return to the <10>RFID.

| ID READ |
|---|
| TAG 1/1 |
| AGC 9 |
| 00010203 04050607 |
| 08090A0B 0C0D0E0F |

(Example)

3) Set an AGC threshold of data write.
Set a value which is lower than the AGC value by 1 or 2, taking variation of RFID tags in performance into consideration.

(1) Choose “UHF SETTING”, and press the **[ENTER]** key.
(2) Choose “WRITE AGC THRESHOLD”, and press the **[ENTER]** key.
(3) Set a threshold value with **[UP]** or **[DOWN]** key, then press the **[ENTER]** key.
When the measured AGC was 9, for example, set “8” (a value lower than the measured AGC by 1 or 2.)
(4) Choose “WRITE RETRY MIN AGC”, and press the **[ENTER]** key.
(5) Set a lower limit with the **[UP]** or **[DOWN]** key.
Usually, set the same value with the AGC threshold for data write (WRITE AGC THRESHOLD).
In the case of this example, set “8” and press the **[ENTER]** key.
(6) AGC threshold setting is completed.

Reference: Recommended setting for RFID tag and Label (Example)

B-EX6T1, Recommended setting for RFID Tag and Label

| | | | | |
|---|---|---|---|---|
| | Answer date | 5/Sep/2016 | | |
| Basic Information | Dealer/SI | ○○○○/□□□□ | End User | △△△△ |
| | Label | Manufacturer ◎◎◎ | Label Size | W 80mm X L 60mm Gap 5 mm |
| | Antenna Position | | (F) / C / R | |
| | Kinds of sealed label | | (F) / C / R | |
| | Antenna sealed sheet | | (Need) / No need | |
| Printer setting | Retry | The adjustment for reprinting | +3mm | |
| | | The number of re print | 3 | |
| | | Reading try | 5 times 4.0s | |
| | | Writing try | 5 times 2.0s | |
| | UHF | Out put level | 13 | |
| | | Q value | 2 | |
| | | Tag performance judgment | 10 | |
| | | The performance threshold for writing | 10 | |
| | | The performance threshold for writing(Lower limit) | 10 | |
| Application setting | Writing position(@0003) | | | |
| Remarks | | | | |

These value should be set on the SYSTEM mode.RFID setting.
(Caution)
These values should be different one by one for using Tag.