

Guardian RFID Machine

Guardian RFID 01

User Manual



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Chapter 1 Precautions

This chapter describes the precautions for using the instrument. Before use, please read the content carefully to ensure the correct operation of the instrument.

1.1 Important Reminder

In this manual, some texts are preceded by the following symbols, which are used for warnings and special reminders. The specific usage methods are as follows:

Project	Description
 Warning	Operators are reminded to follow the instructions; otherwise, personal injury may occur.
 Caution	Operators are reminded to follow the instructions; otherwise, instrument malfunction or damage may occur.

1.2 Safety Tip

1.2.1 General Safety



Warning

- Do not perform any operations on the instrument before reading the manual, to avoid damaging the instrument or causing personal injury.
- This instrument must be operated by trained doctors or laboratory technicians.
- Do not place this instrument in a humid environment or near water sources, to avoid low insulation which may lead to electrical leakage and electric shock.
- Do not use this instrument in flammable and explosive environments; otherwise, personal harm may occur.
- When the power of this instrument is on, unauthorized personnel must not remove the instrument casing to avoid personal injury.



Caution

- This instrument may only be disassembled, debugged, and repaired by technical support personnel authorized by our company and qualified through training. Improper operation may affect the stability of the instrument or cause damage to it.
- This instrument is not waterproof; do not spray liquids on it. Otherwise, it may cause damage to the components.
- If liquid enters the interior of this instrument, please turn off the power immediately and contact technical personnel in a timely manner.
- Do not use accessories or consumables other than the designated ones.

1.2.2 Electrical Safety



Warning

- Do not use this instrument near strong radiation sources (such as unshielded high-power radio frequency sources). Otherwise, it may interfere with the normal operation of the instrument.
- Do not remove the instrument's casing and expose its internal components. Otherwise, there may be a risk of electric shock.
- If the power adapter is damaged, worn, cracked, or broken, please replace it immediately.
- Do not replace the instrument's dedicated power adapter with one that has insufficient ratings.

Otherwise, it may cause overheating and ignition, leading to a fire.



Caution

- Please ensure that the input voltage complies with the requirements of this instrument.
- Please use the power adapter provided with this instrument to connect to the power supply.

1.2.3 Accessory Safety

- Do not uninstall the App of this instrument. If any problem occurs during the software operation, please contact the technical support personnel.

1.3 Identification Explanation

The main body, labels, and outer carton of this instrument contain the following symbols, whose names and explanations are as stated in the table below.

Sign	Name	Explanation
	Manufacturer	Manufacturer's Name and Address
	Manufacturing Date	The manufacturing date of the instrument
	Product Model	The product model of the instrument
	Serial Number	The serial number of the instrument
	Please refer to the user manual	Please refer to the instrument's product manual.
	Temperature Limits	Temperature Range to Maintain During Transportation
	Humidity Limits	Humidity Range to Maintain During Transportation
	Up	Please keep it vertically upward during transportation
	Fragile Items	Please handle with care during transportation.

Sign	Name	Explanation
	Keep Away from Rain	Avoid moisture and keep dry during transportation
	Keep Away from Direct Sunlight	Avoid direct sunlight during transportation
	WIFI Antenna	Used to connect to WIFI
	Power Button	Used for turning the instrument on/off
12VDC	Power Interface	Used to supply power to the device
USB2.0	USB 2.0 Port	Used to connect USB devices, such as barcode scanners (Zebra DS55, Newland NLS-HR22)
LAN	Network Port	Used to connect to a network
HDMI	Video Port	Used for screen expansion
	Headphone Port	Used to connect external audio equipment
TYPE-C	Type-C	Used for programming (such as app flashing) and interface debugging
ANT1	Antenna Port 1	Used to connect to the Guardian RFID Multi-Read Rack Antenna Port 1 / Guardian RFID Multi-Read Bar Antenna
ANT2	Antenna Port 2	Used to connect to the Guardian RFID Multi-Read Rack Antenna Port 2

Sign	Name	Explanation
ANT3	Antenna Port 3	Used to connect to the Guardian RFID Multi-Read Rack Antenna Port 3
ANT4	Antenna Port 4	Used to connect to the Guardian RFID Multi-Read Rack Antenna Port 4

Chapter 2 Instrument Overview

2.1 General

Product Name: Guardian Fold Touch Screen

Product Model: GUAR-TSC-01

Software Name: Guardian

Version: V2.0.8.53

Intended Use: For sample verification in medical laboratories

Contraindications: None

2.2 Product Overview

Guardian Fold Touch Screen Developed by Genea Biomedx, the Guardian Fold Touch Screen is an integrated sample verification device. It combines a sensor and a display screen, and utilizes RFID (Radio Frequency Identification) technology for label comparison and identification. Seamlessly connected to business systems, it displays patient-related information associated with the samples, enabling verification checks between samples and patients or among samples across multiple stages. If sample matching errors or patient matching errors are detected during the verification process, the system triggers an alarm, interrupts the operation process, and effectively reduces human errors. Additionally, it supports functions such as pending task tracking and historical record query.

2.3 Technical Specifications

Project	Description
---------	-------------

Size	45° Expand: 270mm (Length) ×190mm (Width) ×260mm (Height)
Net Weight	2.314kg
Operating System	Android11
RAM	4+32G
Touch Screen	Type: Touch Screen Size: 10.1 Inches Resolution: 1280× 800
Camera	Front-Facing 13MP Camera
Audio	Speaker
RFID Reading Distance	0~70mm, depending on the label size and type
RFID Radio Frequency	Operating Frequency Band: 13.56MHz Supported Protocol: High-Frequency ISO15693
Power Adapter	Input: 100-240V~ Output: 12VDC 5A Frequency: 50/60 Hz Applicable Sockets: US Standard, Australian Standard, European Standard, UK Standard, Chinese Standard
Operating Environment	Ambient Temperature: 5°C ~ 40°C Relative Humidity: 20% RH ~ 80% RH, No Condensation Atmospheric Pressure Range: 70 kPa ~ 106 kPa

	Maximum Altitude: 3000 m
Storage/Transportation Environment	Ambient Temperature: -20°C ~ 50°C Relative Humidity: 15% RH ~ 90% RH, No Condensation

2.4 Component Structure

The basic components of the Guardian Fold Touch Screen are shown in Figure 1, Figure 2, Figure 3, and Figure 4 below.



Figure 1



Figure 2



Figure 3

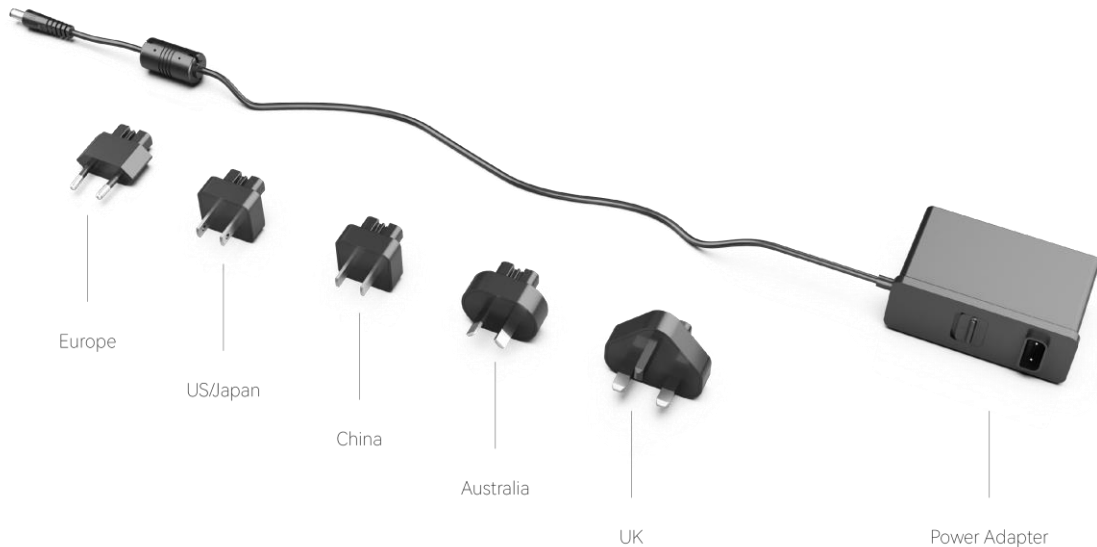


Figure 4

2.5 Compliant with Standards

Project	Description
Electromagnetic Compatibility (EMC)	EN IEC 61326-1:2021 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
Electrical Safety	EN 61010-1 :2010+A1:2019 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements

2.6 Transportation, Unpacking and Inspection

The Guardian Fold Touch Screen from Genea Biomedx is supplied in a brand-new condition. To protect your interests, please allocate sufficient time to check for any external damage upon delivery. Improper handling of the device—including transporting or shipping it in an unapproved orientation—may cause product damage. If the instrument is dropped or impacted with sufficient

force, it may result in instrument malfunction.

When opening the outer packing box, please check whether all items are complete according to the packing list. If there is transportation damage or any sign of missing or damaged items, please contact the logistics carrier and your local Genea Biomedx distributor/representative.

Chapter 3 Instrument Installation

Preparation work must be completed in advance for instrument installation, including preparation of the laboratory before instrument installation and preparation before the instrument is put into use.

3.1 Installation Space



Caution

- This instrument is for indoor use only. Do not place it near water sources or heat sources.
- The instrument must be placed on a flat and stable tabletop.
- Do not place the instrument in a location that is difficult to operate. For the safe operation and use of the instrument, please place it on a tabletop, with a distance of no less than 100mm between the instrument and the edge of the tabletop on all sides.

3.2 Network Requirements



Warning

Warning: This device may only have software provided by our company installed and run. Installing or running software from any other sources may result in data loss, device malfunction, or software failure. To ensure the stable operation of the device and data security, please strictly comply with the relevant requirements.

3.2.1 Network Conditions

- **Network Architecture:** To ensure the smooth operation of the software and the secure transmission of data, it is recommended to adopt a stable and reliable network architecture. Depending on the specific environment and needs of the laboratory, either a wired network or a

wireless network can be selected for connection.

- **Network Types:** This device supports multiple network types, including but not limited to Local Area Network (LAN), Wide Area Network (WAN), and Virtual Private Network (VPN). Please select the appropriate network type for connection based on actual circumstances.

- **Network Bandwidth:** To ensure the software's fast response and efficient data transmission, it is recommended that the network bandwidth be no less than 100 Mbps. Insufficient bandwidth may lead to issues such as slow software operation and data transmission delays.

3.2.2 Access Permissions

Access permissions are strictly controlled based on user roles and responsibilities. Only authorized users are allowed to use the relevant software.

3.3 Prepare the Power Supply

- **Wall Outlet and Power Voltage:** 100-240V~, 50/60Hz. The power voltage fluctuation shall not exceed $\pm 10\%$ of the nominal voltage.

- **Transient Overvoltage Category:** II

3.4 Instrument Installation

This instrument can be connected for use with the Guardian RFID Multi-Read Rack (GUAR-MRR-01) and Guardian RFID Multi-Read Bar (GUAR-MRB-01). The wiring harness connection is shown in Figure 1 and Figure 2. Take out the WIFI antenna and screw it in clockwise as shown in Figure 3.



Figure 1



Figure 2



Figure 3

Chapter 4 Interface Introduction

This chapter is intended for the introduction of the main interface of Guardian, the built-in software of the Guardian Fold Touch Screen.

4.1 Initialization

After the Guardian Fold Touch Screen device is powered on, it will enter the software automatic startup interface as shown in Figure 1.



Figure 1: Software Auto-Startup Interface

The default homepage is the Active interface, as shown in Figure 2.

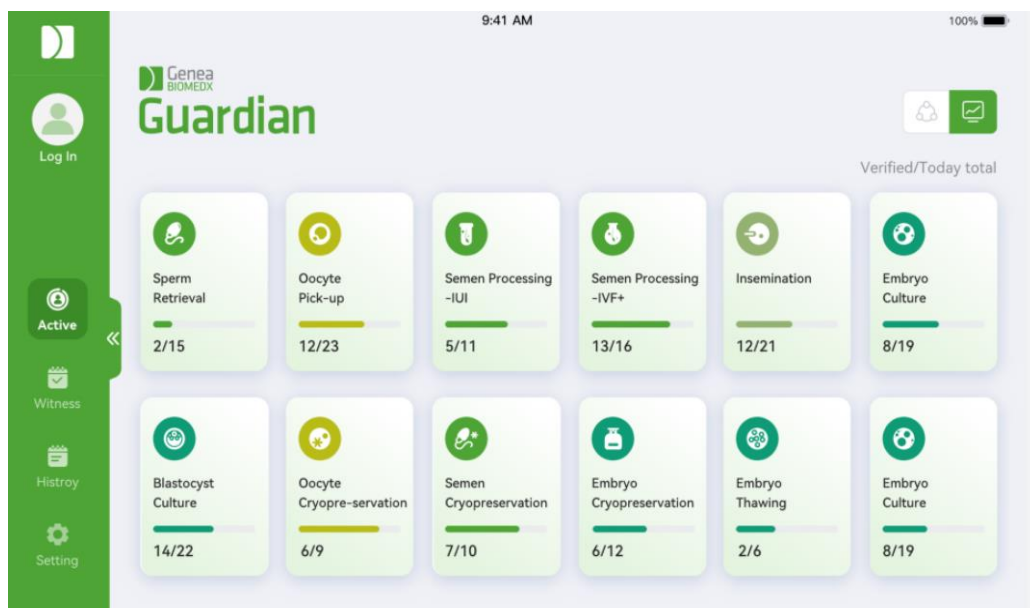


Figure 2: Active Interface

4.2 Log On

Select the user to log in, as shown in Figure 3.

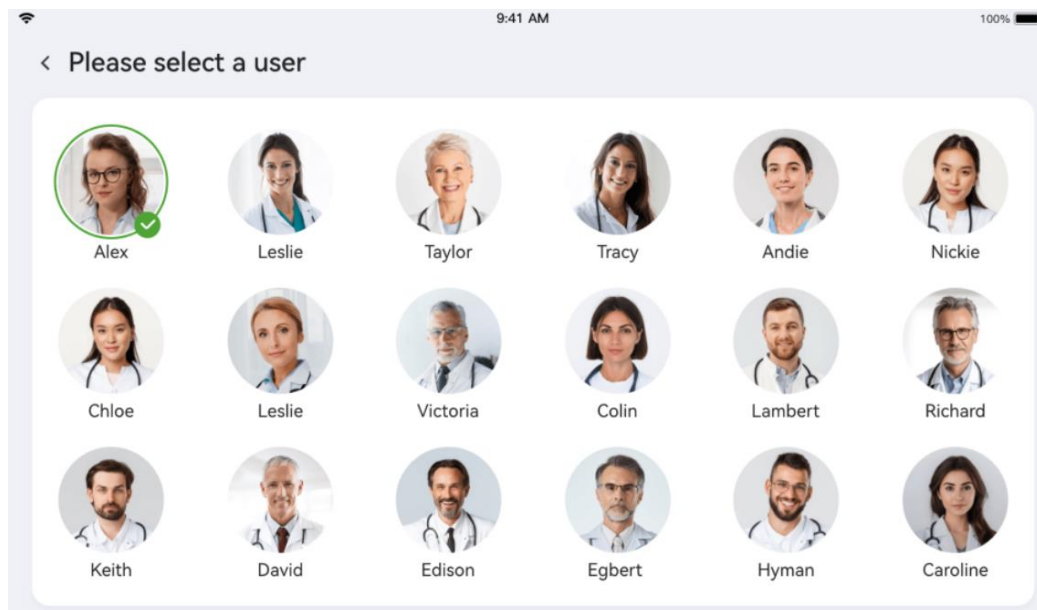


Figure 3: User Selection for Login Interface

Enter the password, as shown in Figure 4.

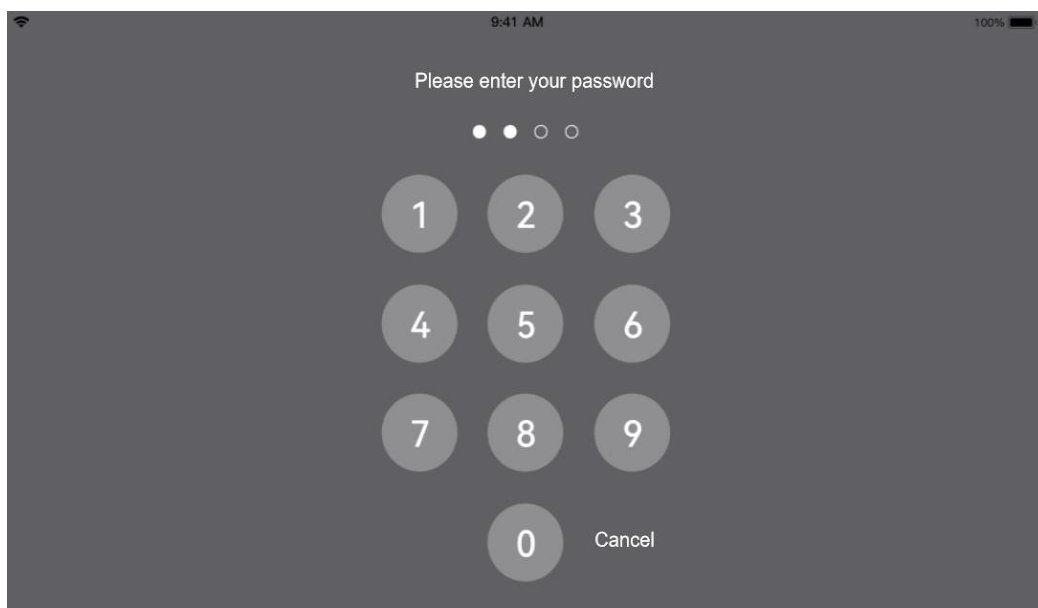


Figure 4: Password Input Interface

4.3 View the activity cycle

The Active module is used for overviewing daily pending tasks and viewing detailed information about cycles, and it is divided into 3 levels in total. Level 1 is the task overview, which displays the

daily cycle task status from two dimensions: the D0~D7 cycle days and operation links.

The full-process mode displayed from the dimension of D0~D7 cycle days is shown in Figure 5.

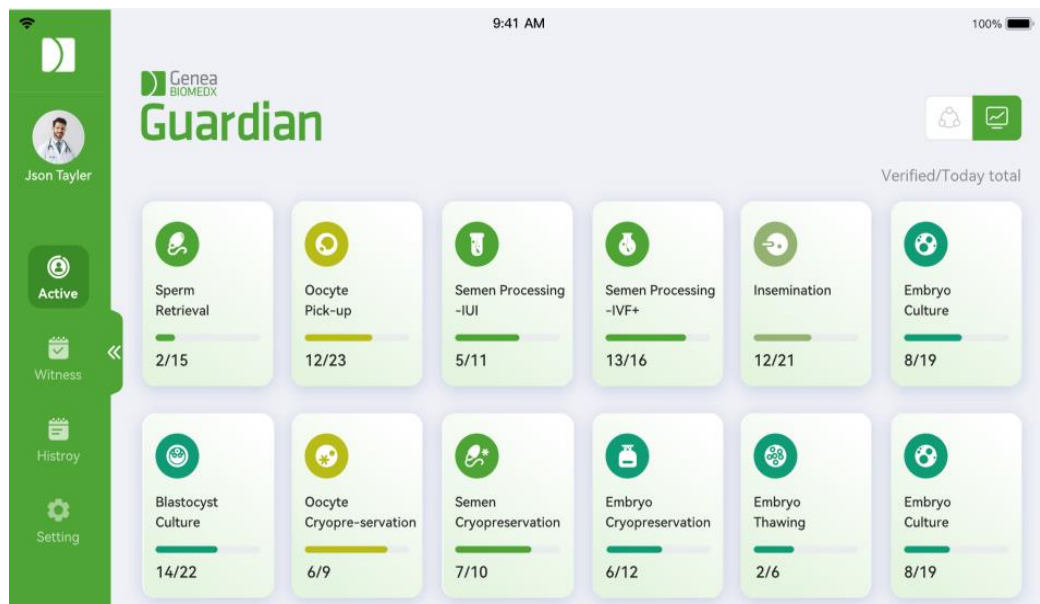


Figure 5: Workstation Mode Interface

The operation desk mode displayed from the dimension of operation steps is shown in Figure 6.

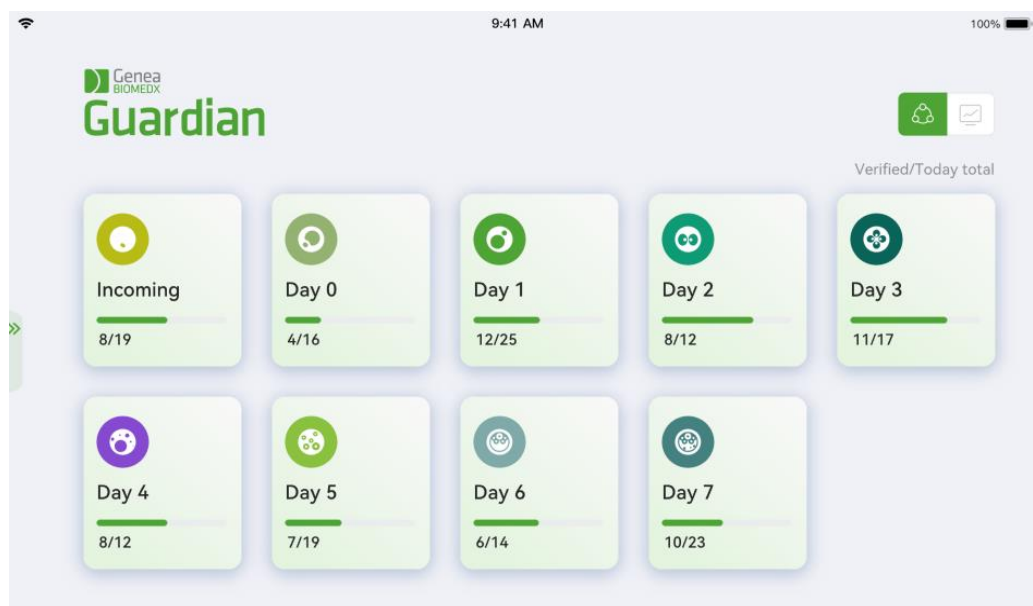


Figure 6: D0~D7 Mode Interface

Click on the Level 1 card to navigate to the Level 2 interface, as shown in Figure 7. The Level

2 interface displays the cycle list under the Level 1 card, and the cycle list is divided into three statuses: Verified, Unverified, and Abnormal.

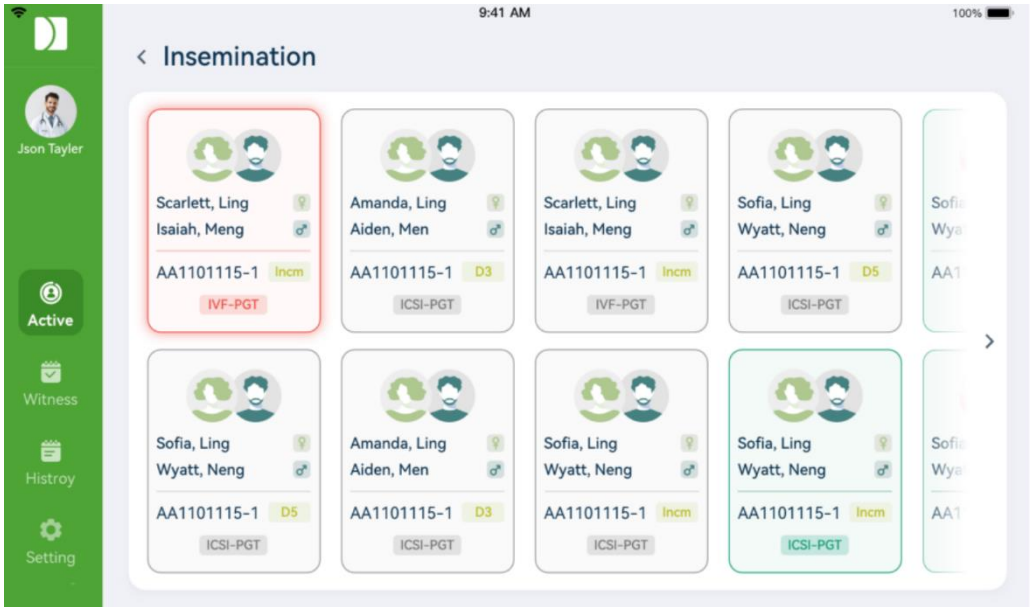


Figure 7: Cycle Card Interface

Click on the Level 2 card to navigate to the Cycle Details Interface, as shown in Figure 8. Here, you can view the current cycle status and verification records, and perform operations to end the daily task or conclude the current cycle.

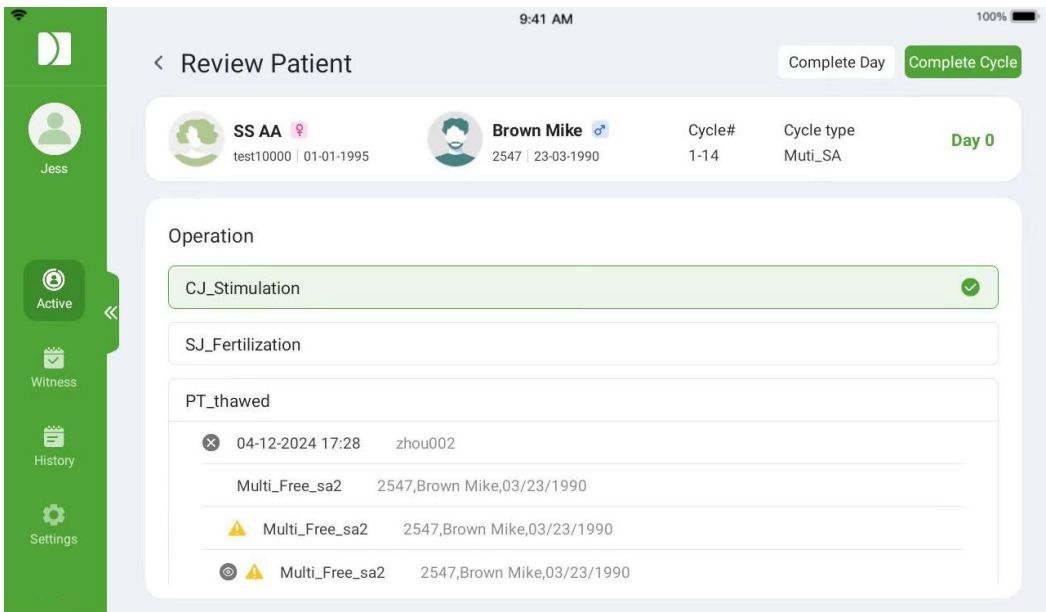


Figure 8: Cycle Details Interface

4.4 Verify

Switch the system to the Witness menu, and place the tag close to the RFID sensing area. If the verification is successful, it will display cycle information, verification progress, current sample information, pending verification samples, etc. If the sample is abnormal, a corresponding error pop-up window will appear.

Interface Effect When the Tag Is Not Read, as shown in Figure 9.

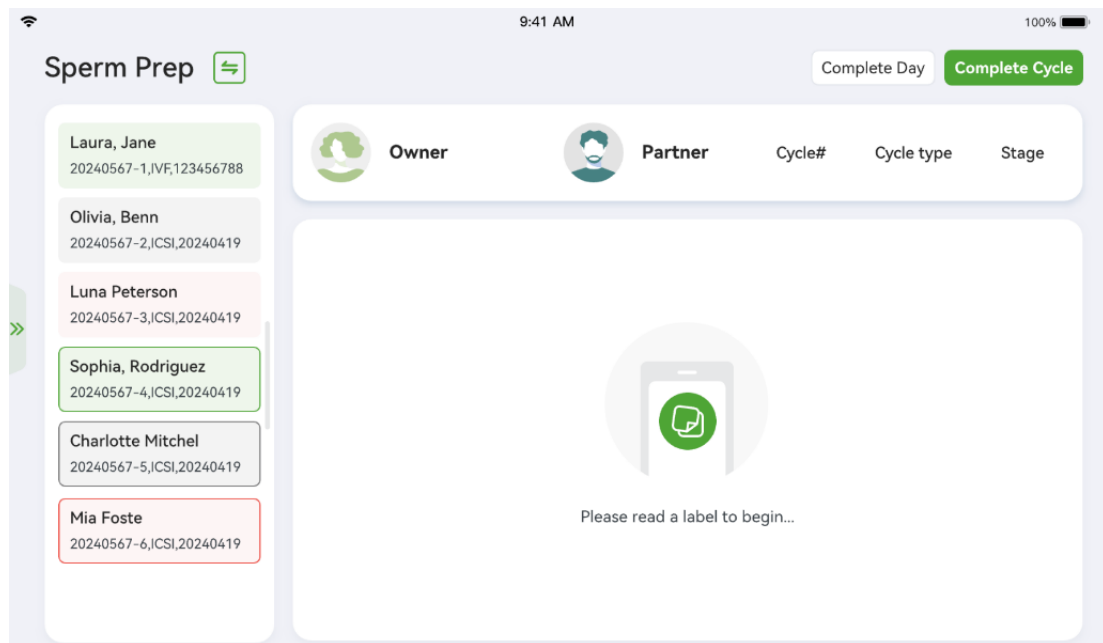


Figure 9: Tag Not Read Interface

Interface Effect When the Tag Is Successfully Read, as shown in Figure 10.

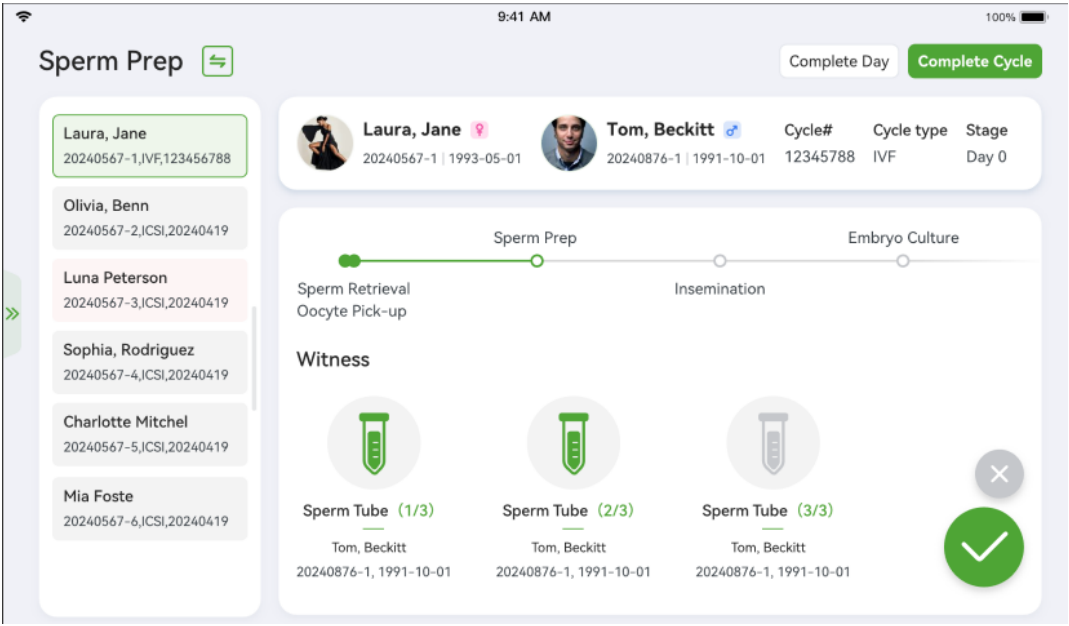


Figure 10: Tag Successfully Read Interface

Interface After Submitting Verification Information, as shown in Figure 11.

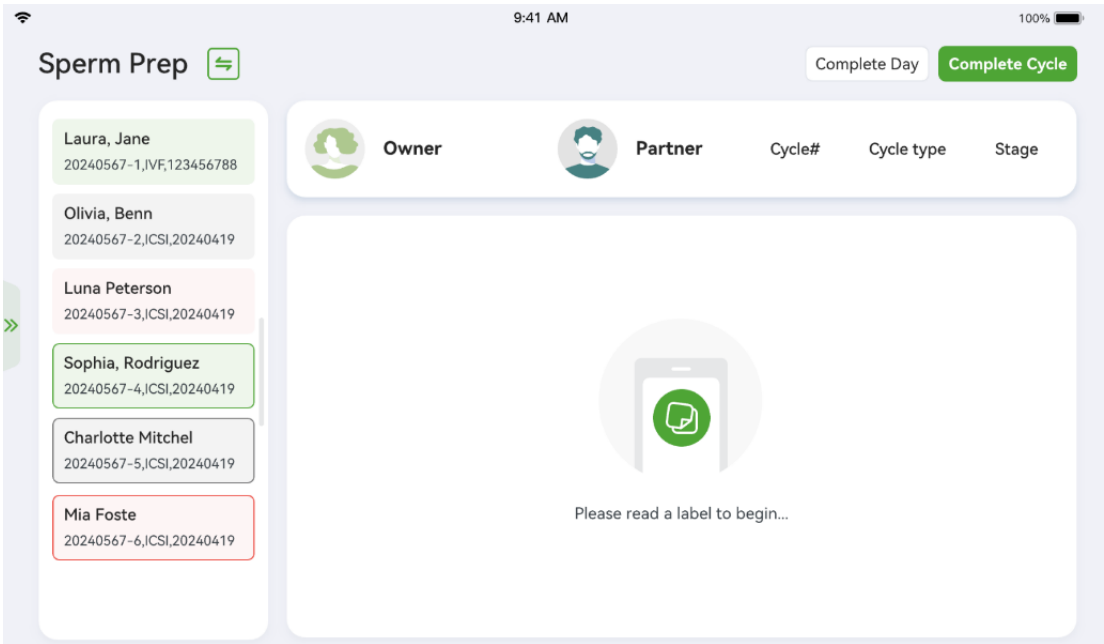


Figure 11: Interface After Submitting Verification Information

Figure 12: Verification Exception Alert Interface.

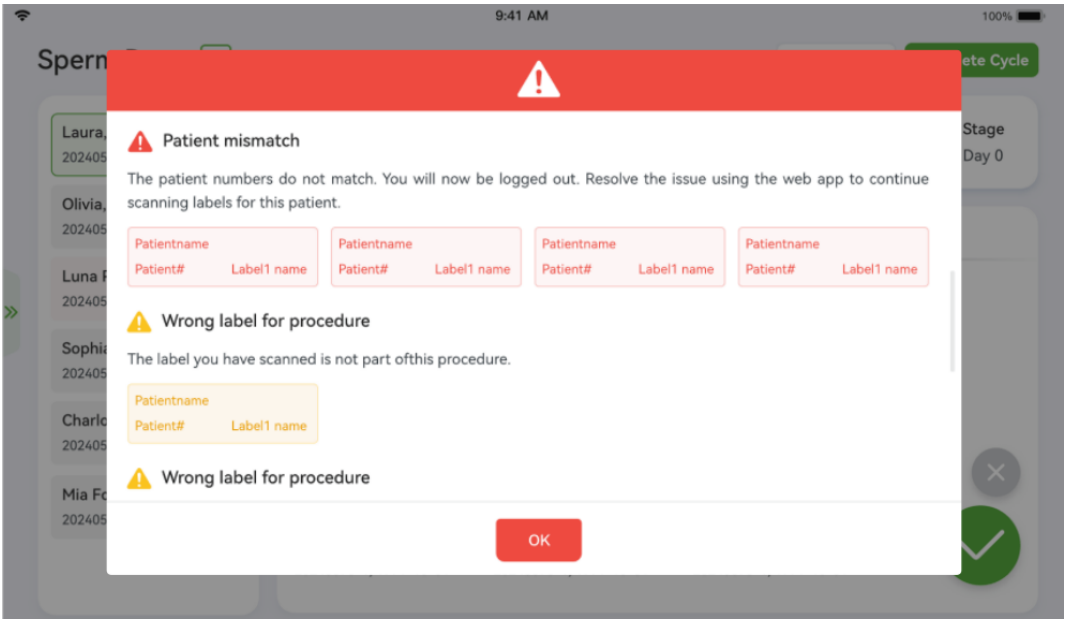


Figure 12: Verification Exception Alert Interface

4.5 View Historical Verification Records

Switch to the History menu, as shown in Figure 13. Place the tag close to the RFID sensing area—after the tag is read successfully, it will display cycle information, verification progress, verification records, and more.

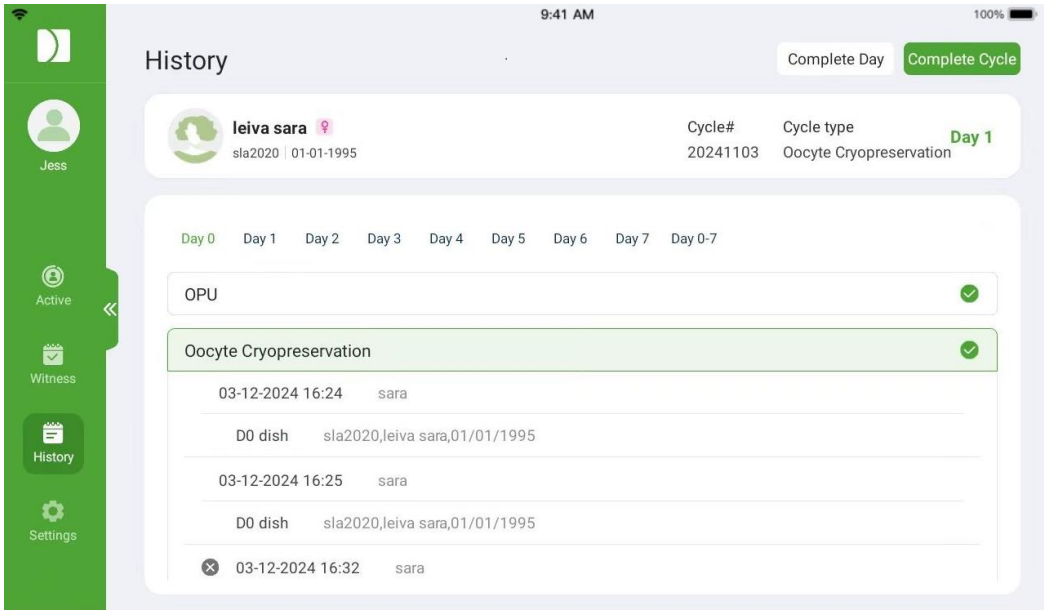


Figure 13: History Menu

4.6 Settings

Change Password, as shown in Figure 14.

The screenshot shows the 'Setting' screen of the Guardian Fold Touch Screen. On the left is a green sidebar with a user profile 'Json Tayler' and icons for 'Active', 'Witness', 'Histroy', and 'Setting'. The main area is titled '< Setting' and contains a list of settings: 'Password Setting' (highlighted), 'Version Number', 'Server Setting', 'RFID Read Method', and 'Log Out'. To the right is a 'Profile Photo' section with a 'Confirm' button. Below this are input fields for 'Name' (test-Embryologist), 'Username' (test-Embryologist), 'Email', 'PIN', 'Level' (Embryologist), and 'Confirm PIN'.

Figure 14: Change Password

View Version and Automatic Update, as shown in Figure 15

The screenshot shows the 'Setting' screen of the Guardian Fold Touch Screen. On the left is a green sidebar with a user profile 'Json Tayler' and icons for 'Active', 'Witness', 'Histroy', and 'Setting'. The main area is titled '< Setting' and contains a list of settings: 'Password Setting', 'Version Number' (highlighted), 'Server Setting', 'RFID Read Method', and 'Log Out'. To the right is a 'Version Information' section with the 'Guardian' logo and 'V1.0.0' version number. Below this is a 'Version Update' section with a green update icon.

Figure 15: Version and Update

Modify Server Address, as shown in Figure 16.

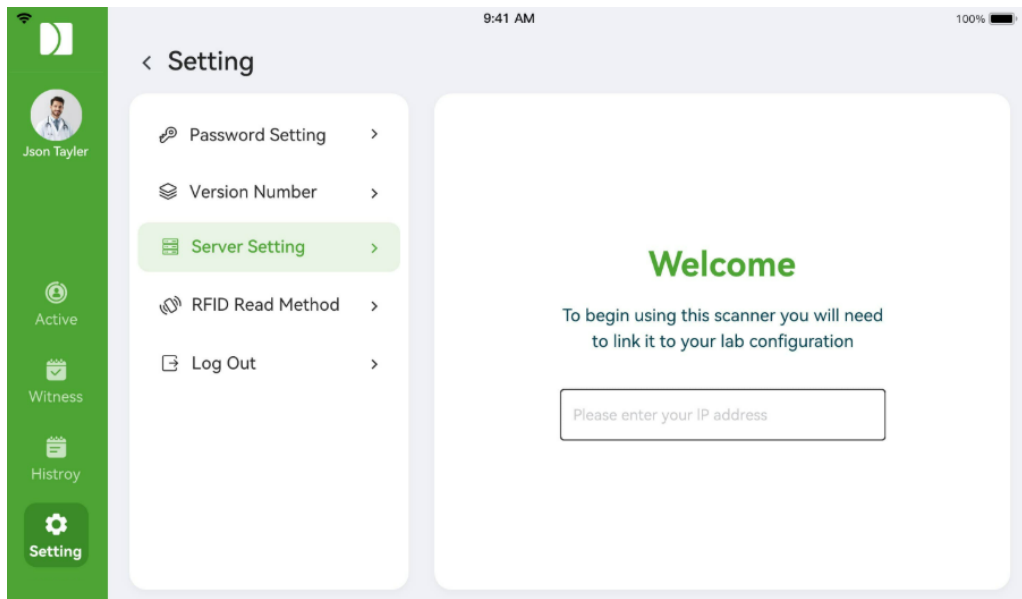


Figure 16: Modify Server Address

Modify RFID Reading Mode, as shown in Figure 17.

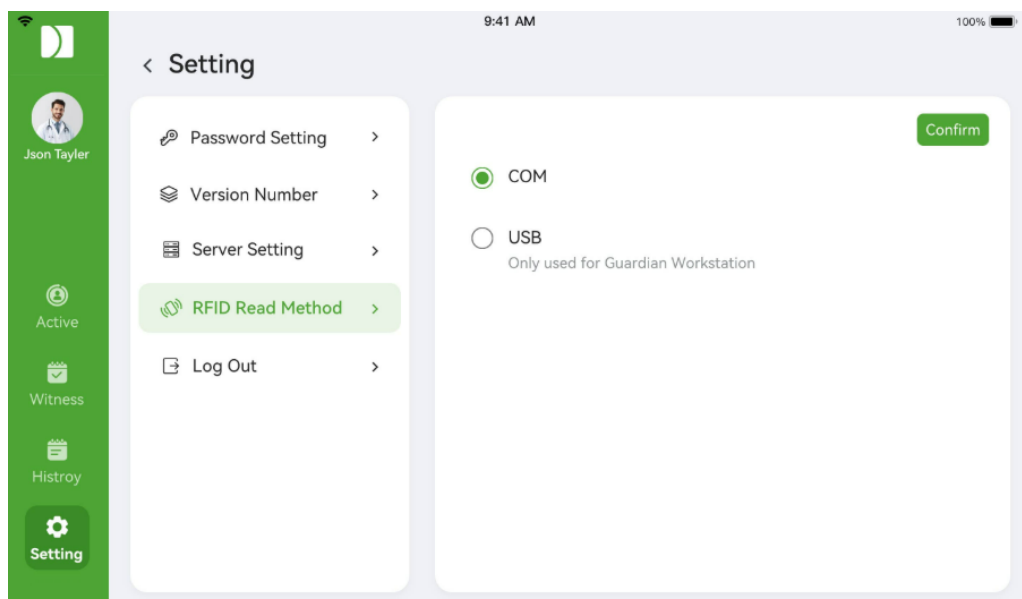


Figure 17: Modify RFID Reading Mode

Click **Log Out** to log out.

Chapter 5 Instrument Operation

This chapter introduces the instrument usage method. To ensure the normal operation of the instrument, please operate it in accordance with the requirements.

5.1 Power On and Power Off



Caution

- It is recommended to use the company's power adapter and adapter connector to connect to the power supply.
- Power adapter: compatible with American-standard, Australian-standard, European-standard, British-standard, and Chinese-standard sockets. Please switch according to actual needs.
- If the plug of the power adapter is incorrectly selected, please toggle the switch at the bottom of the power adapter while pulling out the incorrect power adapter plug.

5.1.1 Power On

There is a 12VDC power interface on the bottom of the instrument. The specific operation steps are as follows:

- 1) Connect the DC end of the power adapter to the 12VDC power interface on the bottom of the instrument.
- 2) According to the type of socket in the laboratory, select a suitable adapter connector and insert it into the power adapter.
- 4) Insert the power adapter into the laboratory socket.

After power-on, press the power button. The power button will light up green, the screen will turn on, and the App will start automatically.

5.1.2 Power Off

If the instrument is not in use for a long time, please turn off the power. The specific operation steps are as follows:

- 1) Press the power button. The power button light will go out, and the screen will turn black.
- 2) Unplug the power adapter from the socket.

5.2 Connect to WiFi

- 1) Swipe down from the top of the screen to see the WiFi icon  :

2) Long-press the WiFi icon to enter the WiFi connection interface, select the WiFi name you want to connect to, and connect after entering the password.

5.3 Language Settings

The default language of the device at the factory is English. If you want to change the language, you need to follow the instructions below to make the modification:

1) Swipe up on the screen, tap Settings, then tap System.

2) Tap Languages & input, then tap Languages, and tap + Add a language to add the language you want to set, as shown in Figure 1 below.

3) Item 1 is the default current system language. Press and hold the "=" icon on the right side of the language you want to set, and move it up to Item 1 to complete the language setting, as shown in Figure 1.

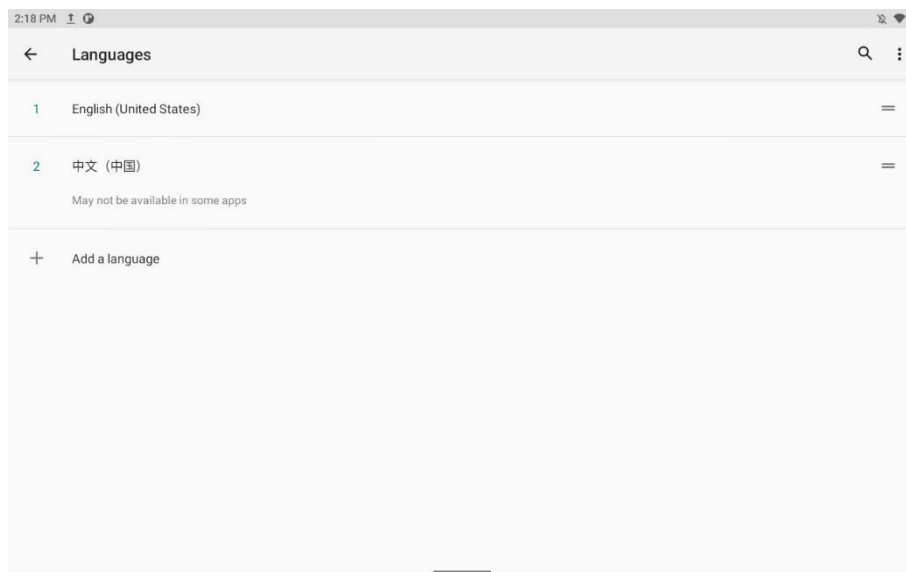


Figure 1

5.4 App Operation

5.4.1 Login

After the Guardian Fold Touch Screen device is powered on, the App starts automatically. By default, it is not logged in after startup, so you need to log in first. Tap the avatar frame on the left side, select a user to log in as from the pop-up window. After tapping the selected user, you will be

redirected to the password input interface. Log in successfully after entering the correct password.

Some operational functions of the instrument's App require connecting to either the Guardian RFID Multi-Read Rack (GUAR-MRR-01) or the Guardian RFID Multi-Read Bar (GUAR-MRB-01) device, and must be used with consumables attached with RFID electronic tags, as shown in Figure 1.



Figure 1: Instrument, RFID Reading Device, and Consumables with RFID Electronic Tags

5.4.2 Check the Active Period

Tap Active to open the Task Overview interface. The daily periodic task status can be displayed through two dimensions: Workstation and Cycle Days (D0~D7), as shown in Figures 2 and 3.



Figure 2: Workstation Mode

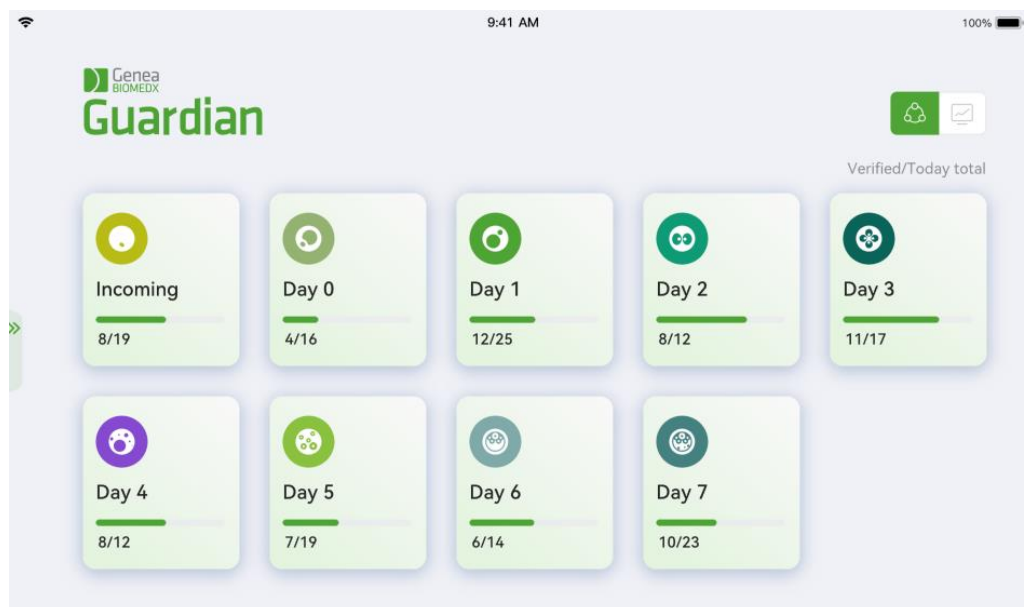


Figure 3: D0~D7 Mode

Tap the card to navigate to the Cycle Card interface, as shown in Figure 4. The Cycle interface displays the cycles belonging to the upper-level card, and the cycles are divided into three statuses: Verified Status, Unverified Status, and Abnormal Status.

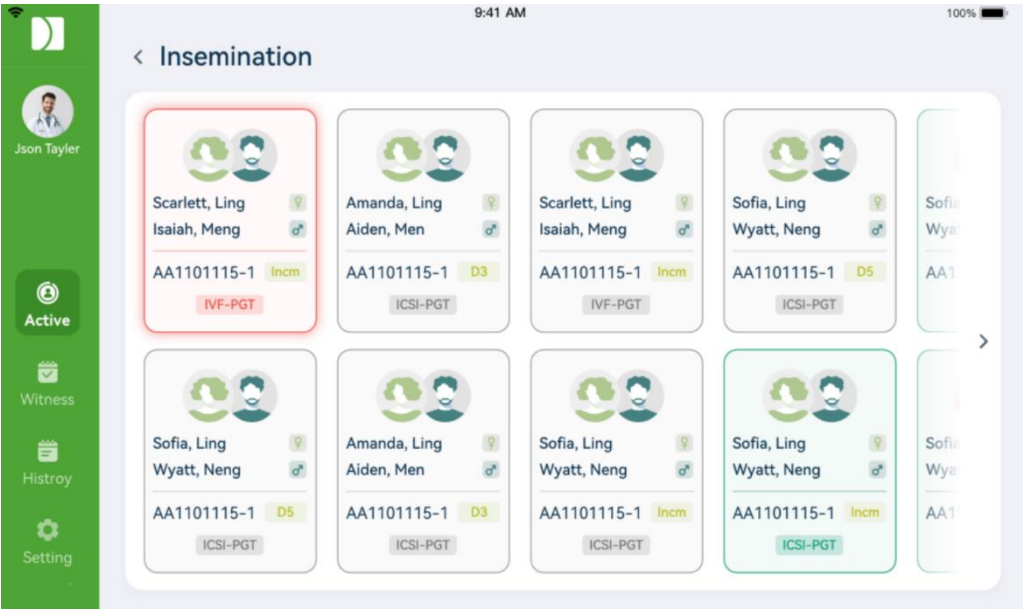


Figure 4: Cycle Card Interface

Tap the Cycle Card to navigate to the Cycle Details interface, where you can view the current cycle status and verification records. You can also perform operations to end the daily task or end the current cycle, as shown in Figure 5.

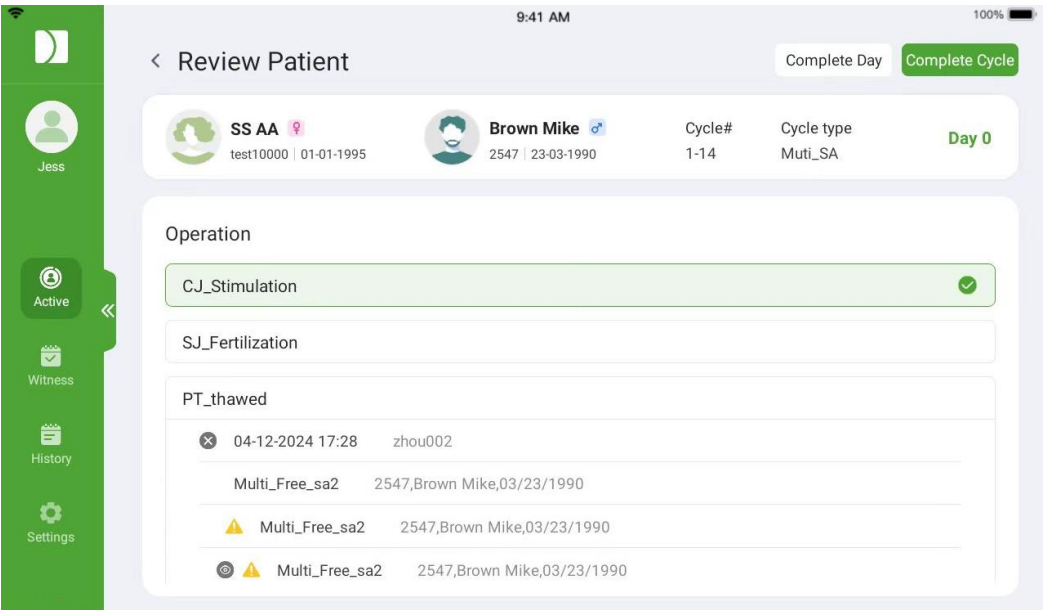


Figure 5: Cycle Details Interface

5.4.3 Verify

Switch the system to the Witness menu, bring the tag close to the RFID sensing area. If the verification is successful, it will display cycle information, verification progress, current sample information, and samples to be verified. If the sample is abnormal, a corresponding error pop-up window will appear, as shown in Figures 6 and 7.

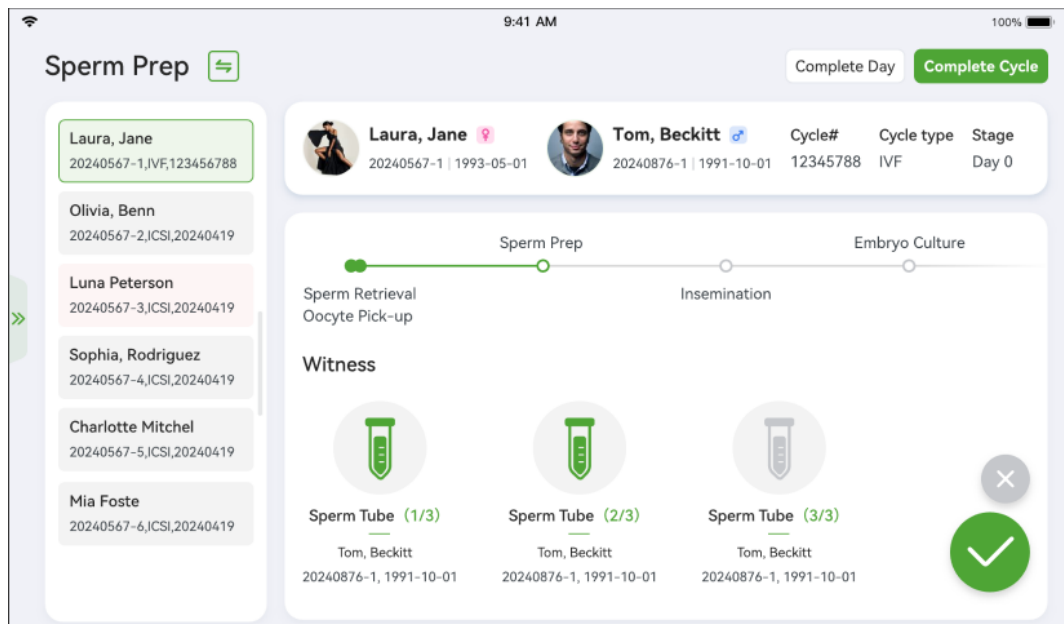


Figure 6: Successful Tag Reading

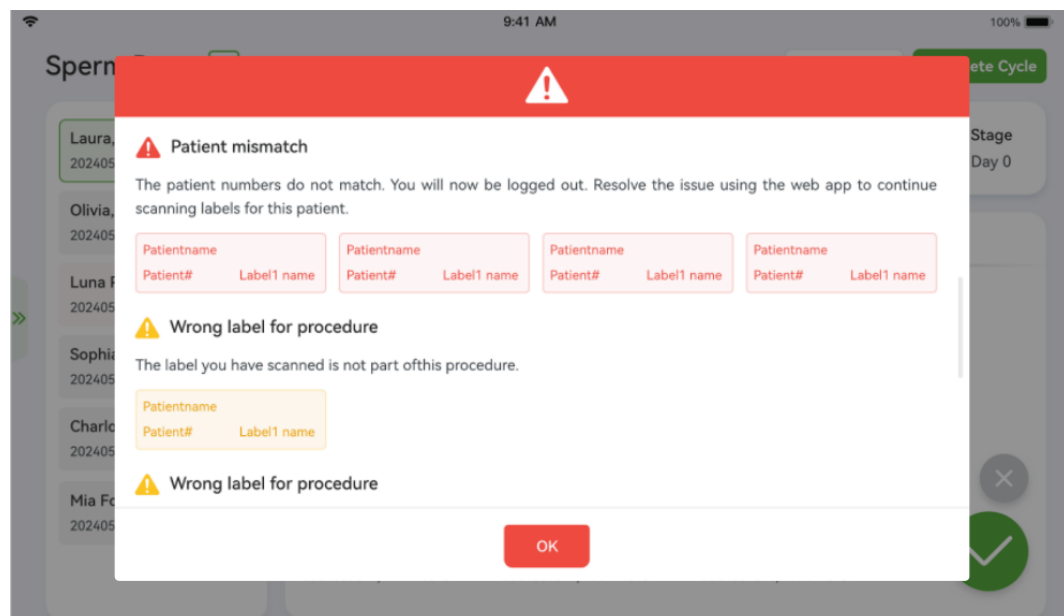


Figure 7: Abnormal Verification Alert

5.4.4 View Historical Verification Records

Switch to the History menu and bring the tag close to the RFID sensing area. If the reading is successful, information such as cycle details, verification progress, and verification records will be displayed, as shown in Figure 8.

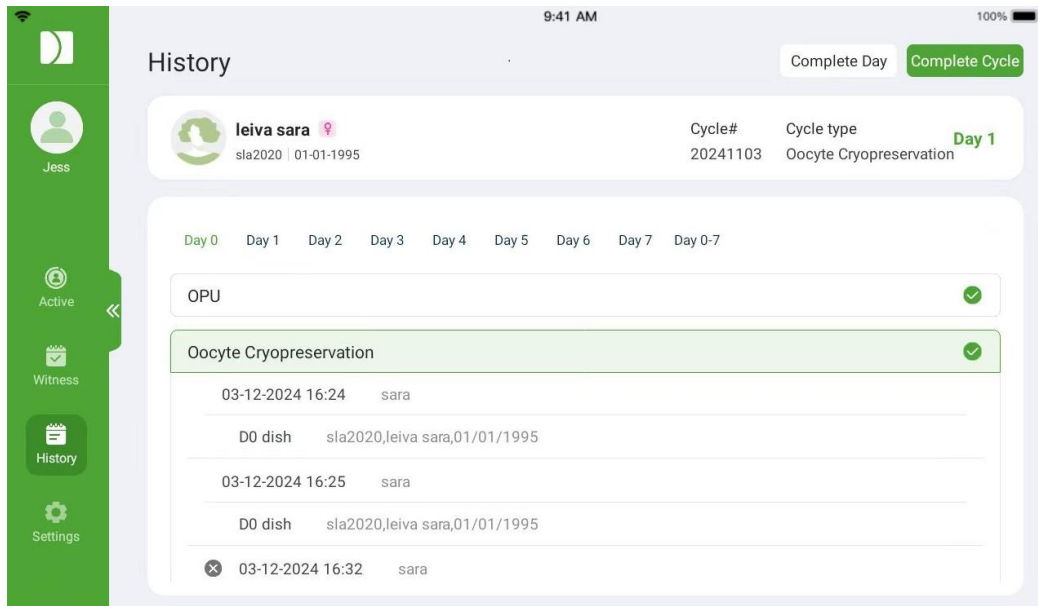


Figure 8: Verification History

5.4.5 Setting

Tap **Setting**, then tap **Password Setting** to change the password, as shown in Figure 9.

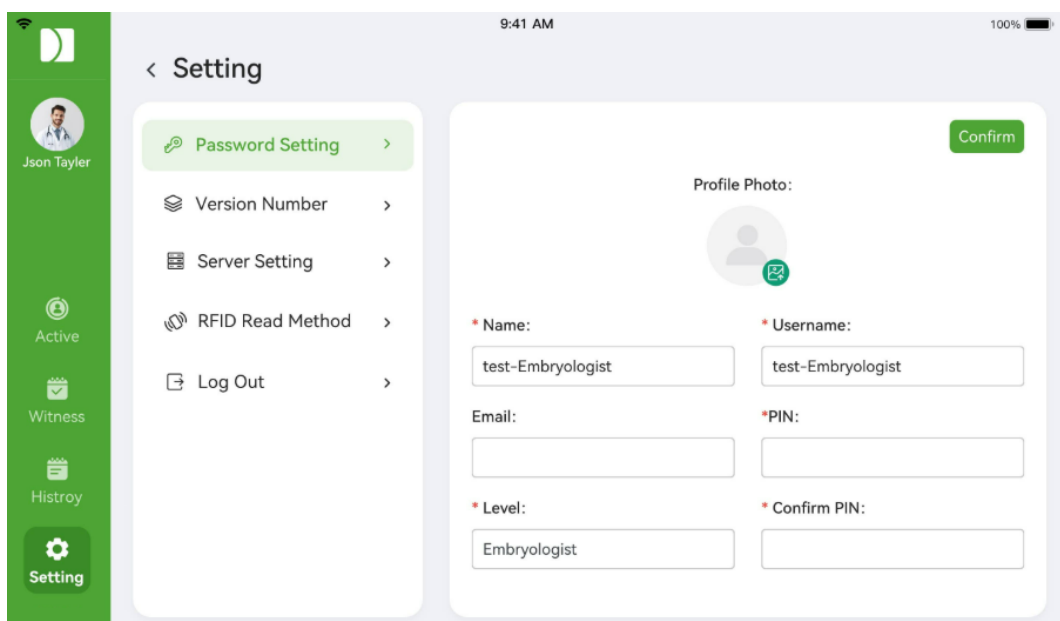


Figure 9: Change Password

10. Tap **Version Number** to view the version and check for automatic updates, as shown in Figure

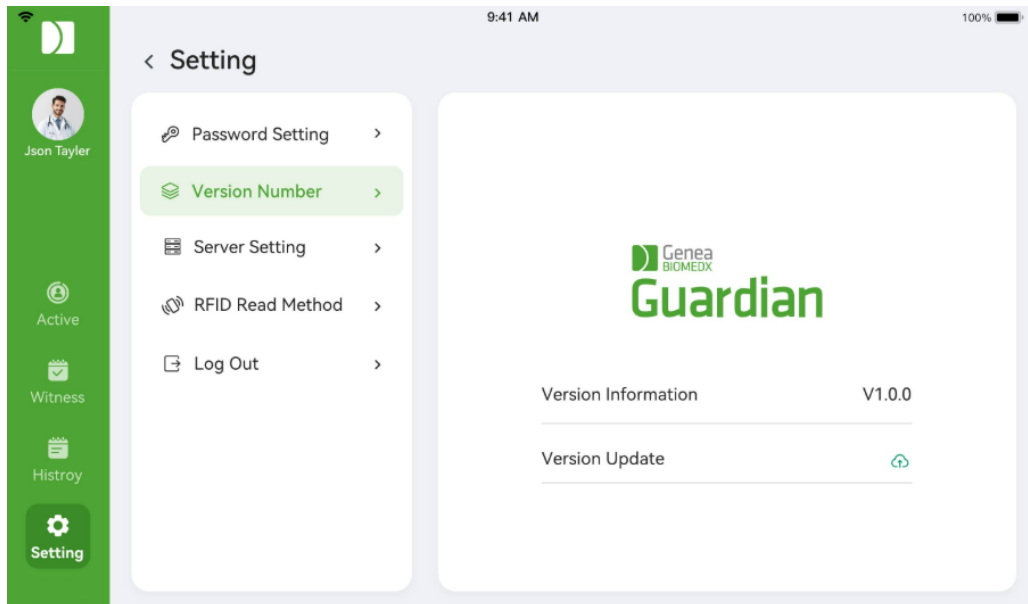


Figure 10: Version and Update

Tap **Server Setting** to open the page for modifying the server address, where you can change the server address, as shown in Figure 11.

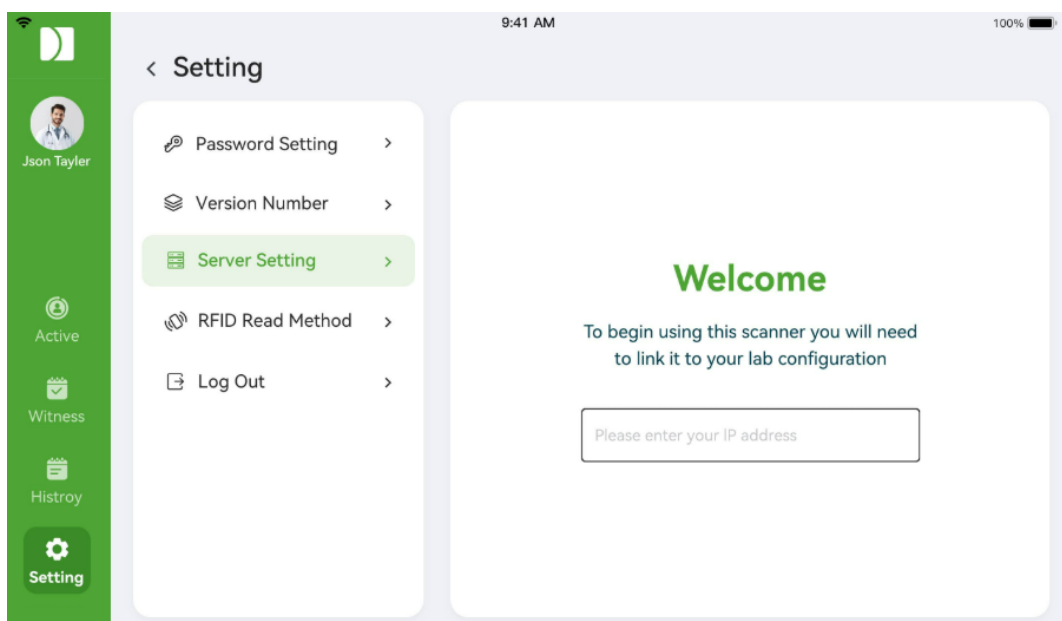


Figure 11: Modify Server Address

Tap **RFID Read Method** to open the page for modifying the RFID reading mode. The default mode is COM, which does not need to be changed. When using the device **Guardian Workstation**, you need to switch the mode to USB, as shown in Figure 12.

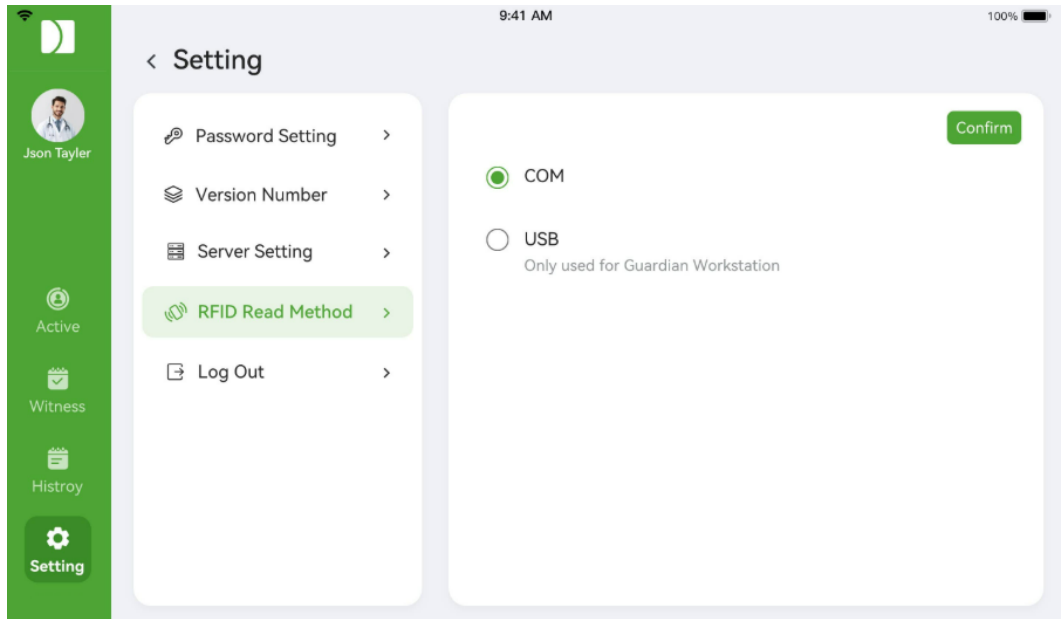


Figure 12: Modify RFID Reading Mode

Tap **Log Out** to log out.

Chapter 6 Maintenance

6.1 Host Maintenance

Perform the following maintenance while the power is off:

- It is recommended to wipe the instrument shell (including the touch screen) with a lint-free cloth once a month.
- Use a small brush to remove dust from the 9 external sound holes on the lower side of the instrument, ensuring the instrument's sound works normally.

6.2 Power Supply Maintenance



Warning

- When the instrument is not in use for more than 7 days, the power should be turned off and the power adapter should be unplugged from the socket.
- Check the power adapter before each use to ensure it is connected correctly and the cable is in good condition. If it is damaged, replace it promptly.

6.3 Software Maintenance

The maintenance and update of the instrument's built-in software must be performed by professional technicians or under the guidance of technicians. If the software malfunctions during operation, please contact the technicians promptly.

6.4 Transportation and Storage

Store and transport the instrument in accordance with the environmental requirements specified in "2.3 Technical Specifications".

Chapter 7 Common Faults and Troubleshooting Methods

During the operation of this instrument, if a fault occurs, the operator can conduct preliminary fault diagnosis and handling according to the prompts. The table below lists some faults and their troubleshooting methods. If you encounter other faults not mentioned in this manual, please contact the technicians.

Fault Phenomena	Fault Analysis	Troubleshooting Methods
Cannot Power On	The power adapter is not connected	Please firmly connect the power adapter to the converter, and then plug the power adapter into the socket.
	The power adapter is not plugged into the socket	
Cannot connect to the server	The server address is incorrect	Enter the correct server address on the settings page.

Fault Phenomena	Fault Analysis	Troubleshooting Methods
	Cannot access the server	DNS configuration error or firewall restriction.
Label Recognition Failure	The scanning frequency is too high	Rescan the label.
	Label Damage	Replace with another label.
The App responds slowly	Network Latency	Please switch to another network or wait for the network to stabilize.
The instrument has no sound	The built-in speaker is damaged	Contact the technical support staff.
Other	/	In addition to the above, if you have any unclear points, please contact the technical support staff.

Chapter 8 Accessories List

The following is the list of instrument accessories for this product. Please confirm that all accessories are complete before installation. If any accessory is missing or damaged, please contact the dealer immediately.

No.	Name	Quantity
1	WIFI Antenna	1
2	Power Adapter	1
3	Plug Adapter	5

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.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: 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.

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