SHC55 User Manual

Manual Revision

Revision Date	Revision Level	Description
May, 2023	1	SHC55 Handheld Controller User Guide A1

SHC55

Handheld Controller User Manual

Preface

Introduction

Welcome to the Satlab SHC55 handheld controller. This introduction describes how to use this product.

Experience Requirement

In order to help you use Satlab series products better, Satlab suggests you carefully read the instructions.

If you are unfamiliar with the products, please refer to https://www.satlab.com.se

Tips for Safe Uses

Notice: The contents here are special operations and need your special attention. Please read them carefully.

Warning: The contents here generally are very important. Wrong operation may damage the machine, lose data, even break the system and endanger your safety.

Exclusions

Before using the product, please read these operating instructions carefully, they will help you to use it better. SatLab Geosolutions assumes no responsibility if you fail to operate the product according to the instructions, or operate wrongly due to misunderstanding the instructions.

Satlab is committed to constantly perfecting product functions and performance, improving service quality and reserves the rights to change these operating instructions without notice.

We have checked the contents of the instructions and the software & hardware, without eliminating the possibility of deviation. The pictures in the operating instructions are for reference only. In case of non-conformity with products, the products shall prevail.

Technology and Service

If you have any technical issues, please call Satlab technology department for help, we will answer your question.

Relevant Information

You can obtain this introduction by:

1. After purchasing Satlab products, you will find this manual in the instrument container to guide you on operating the instrument.
2. Log onto the Satlab official website, download the electronic version introduction at *Partners → Partner Center*.

Advice

If you have any suggestions for this product, please email *info@satlab.com.se*. Your feedback information will help us to improve the product and service.

Chapter 1

SHC55 Handheld Controller

This chapter contains:

- Introduction
- Appearance
- Controller accessories
- Operation
- Application

1.1 Introduction

1.1.1 Foreword

The SHC55 controller is a professional data collector, based on the Android system. Using a combination of physical buttons and touch screen to operate, the default input languages are Chinese and English, and it supports multiple languages. The industrial-standard design can withstand 1.5 meters drop to a stainless steel floor, is IP68 waterproof and dustproof standard to adapt to a complex operating environment. At the same time, the super capacity lithium battery can handle all weather requirements.

The SHC55 controller configures 5.5 inches 720*1440 highlighted LCD; 2.0 GHZ, eight-core 64-bit CPU; and 32GB ROM +3 GB RAM memory. It has a built-in Micro SD card slot, and maximum support 256GB expansion card (it only supports both FAT32 and NTFS format SD); dual card dual stand-by, and supports the entire 4G network. With the Android 11.0 operating system, the interface is optimized and easy to use.

1.1.2 Features

1. Industrial-standard design, with IP68 it can withstand 1.5 meters drop to a stainless steel floor and adapt to a complex operating environment.

2. Highlighted LCD, the LCD screen is normally readable under strong sunlight.

3. Supports Bluetooth, Wi-Fi and 4G，which is convenient to carry out a variety of wireless data transmissions with the receiver. Wi-Fi and 4G can be used at the same time. Refer to the Hi-Survey Road Software User's Guide for more details.

4. Internal 13-million-pixel camera: for field collection of image information.

5. Internal removable large capacity lithium battery for more than 14 hours of work.

6. Internal NFC chip, supports NFC data transmission for a rapid connection between the RTK and hand-held controller.

7. Fast charge technology: for a rapid battery charge.

8. Full keyboard input method.

9. Local online upgrade to facilitate quick changes.

1.1.3 Caution

Although the SHC55 hand-held controller is made with chemical and impact resistant materials, it needs to be carefully used and maintained, and should be kept in a dry environment. In order to improve the stability and usage cycle of the SHC55 hand-held controller, please avoid exposing it to extreme environments, such as humidity, high temperatures, low temperatures, corrosive liquids or gases, etc.

Notice: The SHC55 hand-held controller must be used within the temperature range from -20℃ to 55℃

1.2 Appearance

1.2.1 Front of the controller

The front of the SHC55 controller includes a touch screen, keyboard microphone and indictor light.

Figure 1-2-1 SHC55 controller

1- Indictor light 2- Microphone 3- Touch screen 4- Keyboard

- Indictor light: Display different color changes as the battery level changes.

- Touch screen: multipoint capacitive touch screen with touch pen (open the touch pen function: Settings - Accessibility - Handwriting pen), which supports Chinese and English input.

- Keyboard: direction control, switch between Chinese and English, data collection, volume control, power on, power off and other functions.

- Microphone: the internal microphone can be used for field collection of voice messages.

1.2.2 Reverse side of the controller

There is a camera, belt, NFC, trumpet, etc. on the reverse of the controller.

Figure 1-2-2 the backside of the SHC55

1- Camera 2- NFC 3-Trumpet 4- Belt hole

- Camera: used for field collection of images.

- NFC: supports NFC data transmission to achieve rapid connection between RTK and the hand-held controller.

- Bracket nut: Connect the bracket to secure the hand-held controller to the alignment rod.

- Trumpet: conduct real-time voice broadcasts for instrument operation and status.

- Belt hole: connect the belt to prevent it sliding down.

1.2.3 Side of the controller

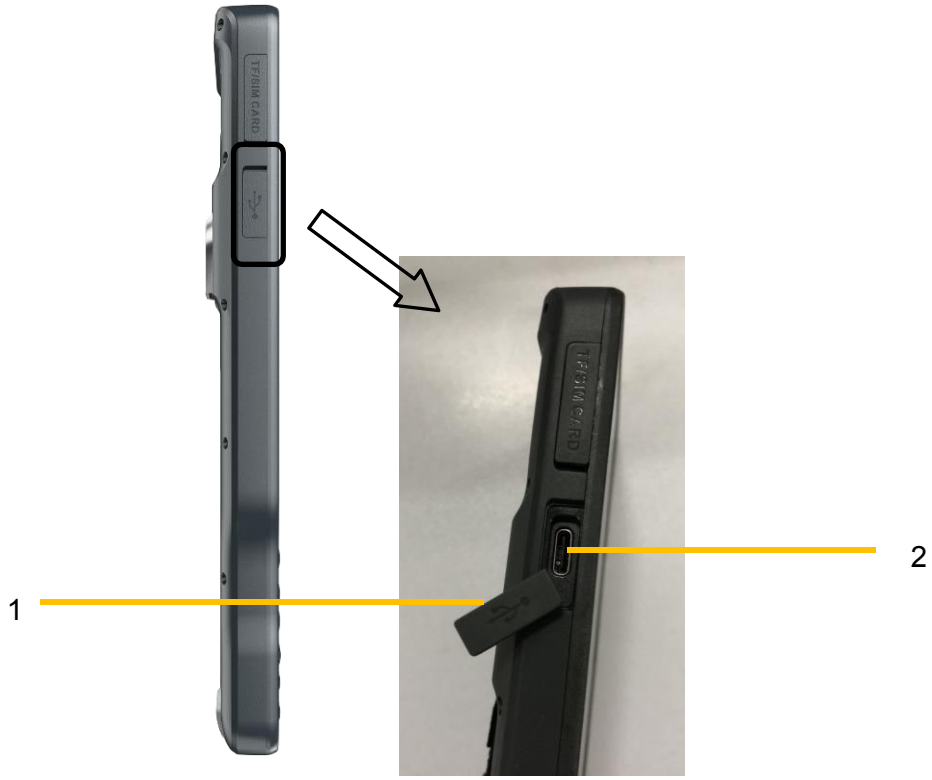


Figure 1-2-3 the port of SHC55

1- Waterproof & dustproof rubber cover 2- Type-C port

- Type-C port: for connecting the USB data line and the controller.

Notice: When not using Mini USB, please close the rubber cover to make it waterproof and dustproof.

1.3 Controller accessories

1.3.1 Data cable

Figure 1-3-1 Data cable

USB data cable: connect to the USB port of a computer, for download of data; connect to the Type-C port of the charger for charging the controller.

1.3.2 Touch pen

Figure 1-3-2 Touch pen

Touch pen: located on the strap of the controller.

1.3.3 Bracket

Figure 1-3-3 Bracket

Bracket: to secure the hand-held controller to the alignment rod.

1.4 Operation

1.4.1 Keyboard

Most settings and operations of the SHC55 hand-held controller can be completed by the touch pen, and commonly used operations can be completed on the keyboard. Appearance and functions of the keyboard are as follows.

SHC55 keyboard includes: Back, OK, Power, APP, Fn, Collect, etc.

Figure 1-4-1 Keyboard

1- Power 2- APP 3- Fn 4- Back 5- OK

6- Collect 7- Delete 8- Space 9- Shift

- Power: press it for over 3secs to power on/off. Press it for 1sec to turn off /on the screen backlight in the power on status.

- APP: quick start of the APP. The default is Hi-Survey Road software.

- Fn: when inputting, short press this key to cycle the input method (English association en/ number 123). In any interface, long press this button to pop-up the selection box to switch the system input method.

- Back: cancel or exit the operation of the current window.

- OK: confirmation.

- Collect button: collect data by manual operation.

- Delete: press this button to delete inputting.

- Space: press this button to add space.

- Shift: switch key of the input function.

- Fn + direction up/ down key: volume increase/ decrease.

- Power+ direction down: Screenshot. The screen capture will be kept in the folder of Mobile phone storage→Pictures→ Screenshots.

1.4.2 Battery and Charger

1. Battery: The controller has a built-in 9200mAh/3.85V battery and supports MTK PE2 fast charging.

Notice: When the SHC55 hand-held controller is not used, please turn off the backlight to save electricity and prolong working time.

2. Charger: To charge the controller, use the standard charger. When it is in charge, the power button light will turn red.

Notice:

If the battery needs to be stored for a long time, it should be charged to about 70% and then placed in a dry, low temperature environment. It is recommended that you charge and discharge the battery every 3 months.

Figure 1-4-2 Cable and charger

Notice: Please use this product's standard charger to charge the receiver. We will not be responsible for any accidents that occur during the charging process or any damage to the instrument if you use other chargers instead.

1.4.3 Power system

1. The battery model of the SHC55 hand-held controller

Table 1-4-1 the battery model

Name	Model
Lithium battery	BLP-9200

2. Charge

The special charger should be within a certain temperature range when charging, and a certain charge time is required. Specific use methods and requirements: use the special charger of the controller to charge in the temperature range of 5℃-45℃. There is a certain amount of electricity in the battery on first use, let the power completely run out from the first charge, then the first three times you will need to charge for 3 hours. After that, the SHC55 supports fast charging with the original charger and the charge time is then less than 3 hours. If the battery is not used often, it must be charged once every two months.

Notice:

1. Please use the configured battery and charger, do not put battery into fire or metal short circuit electrode.
2. If the battery is hot, deformed, leaks, has an odour or any other abnormalities during use, charging or storage, please replace it.
3. If the using time is obviously shortened, please stop using the battery.

1.4.4 SIM card setting

The SHC55 hand-held controller supports DSDS, the default card is SIM1. Both SIM1 and SIM2 support full network 4G.

1. Installation of the SIM card

Step1: remove the left side cover and expose the SIM card slot. Slot 1: Micro SIM card; slot 2: standard SIM card.

Step2: put the SIM card into the slot with the front side (metal contact side) down.

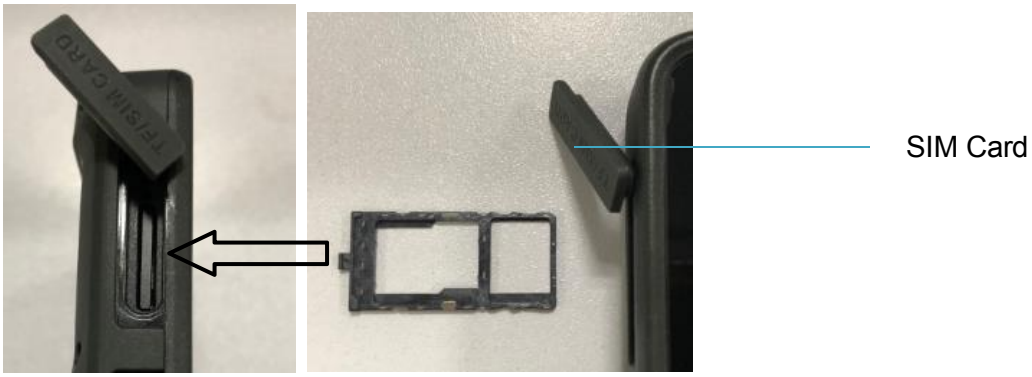
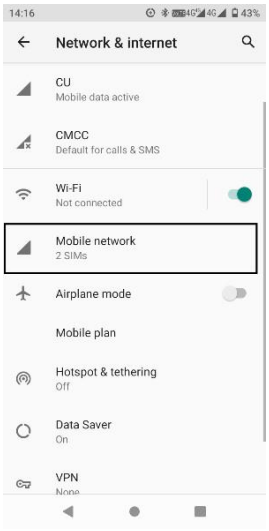


Figure 1-4-3 Installation of SIM card

2. Network: Settings → Data usage.



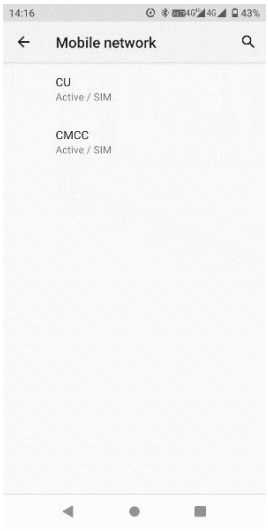


Figure 1-4-4 Data usage

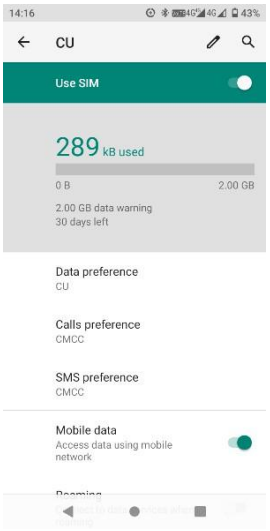
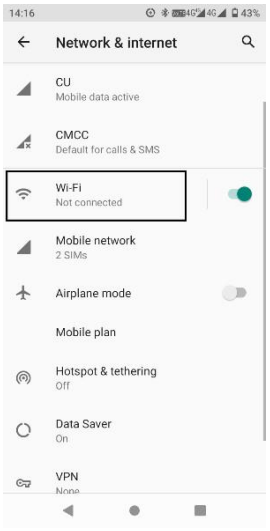
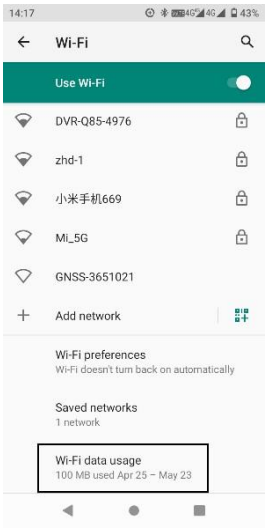


Figure 1-4-5 Overview of data





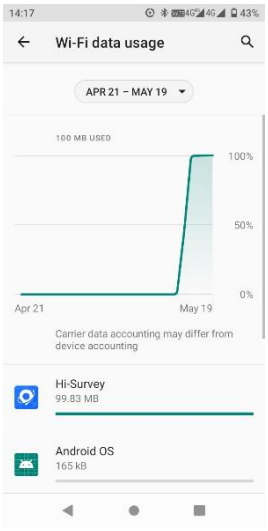


Figure 1-4-6 Cellular data network

1.4.5 Installation of the Micro SD card

The Micro SD card can save collected data and program files.

Notice: Micro SD card（TF card）is an external storage card, usually used in mobile phones and PDAs. If you buy this, please note the difference to ordinary SD cards. The volume of the ordinary SD card is larger than the Micro SD card, and is not suitable for the SHC55 hand-held controller.

Step1:remove the left side cover and expose the Micro SIM card slot..

Step2: Put Micro SD card into the slot (metal contact side down).

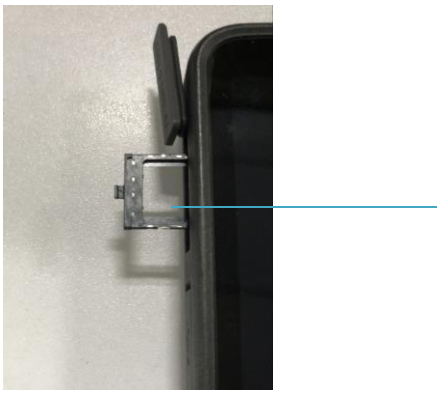


Figure 1-4-7 Micro SD slot

Figure 1-4-8 Installation of Micro SD card

1.4.6 Power on/off

In the off state, long press the power button for 3 seconds, it will power on.

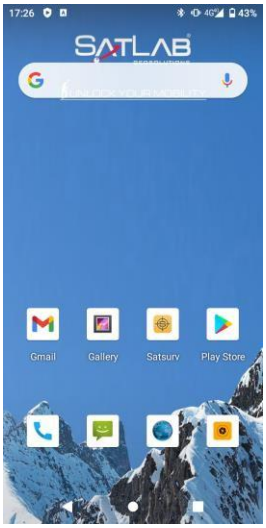


Figure 1-4-9 The interface of the SHC55 screen

In the *power on* state, long press the power button for 3 seconds, it will prompt to shut down and to confirm, click Power off.

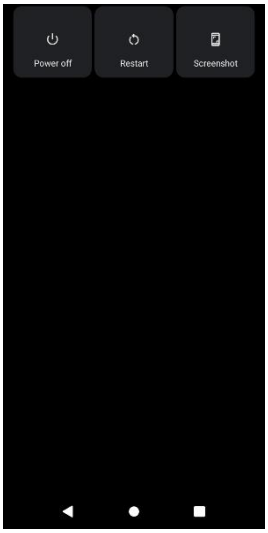


Figure 1-4-10 Power off

1.5 Application

1.5.1 Connecting the controller to computer

1. Connect the controller to computer via the USB data cable.

2. Transfer files: pull down the notice column and click USB for charging.

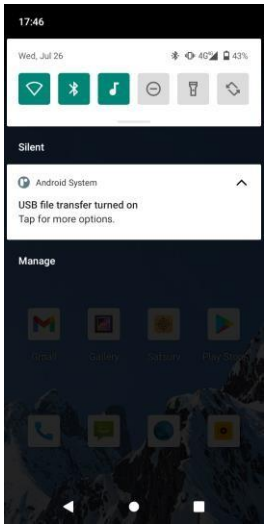


Figure 1-5-1 USB connected

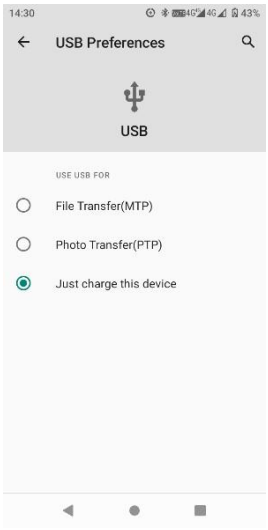


Figure 1-5-2 Charging

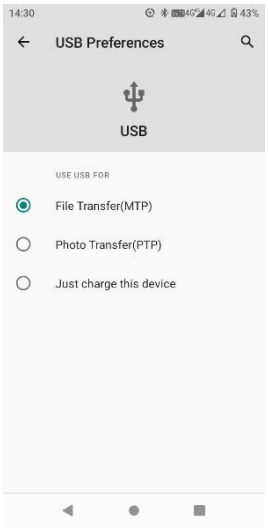


Figure 1-5-3 File transfers

3. Connect the PC version mobile phone assistant: open the hand-held controller, click Setting → System →About Controller → clidk Build number 7 times → Developer options → USB debugging.

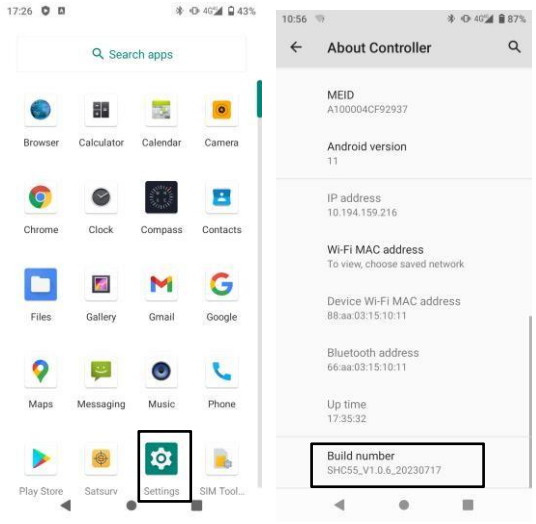


Figure 1-5-4 entering developer mode

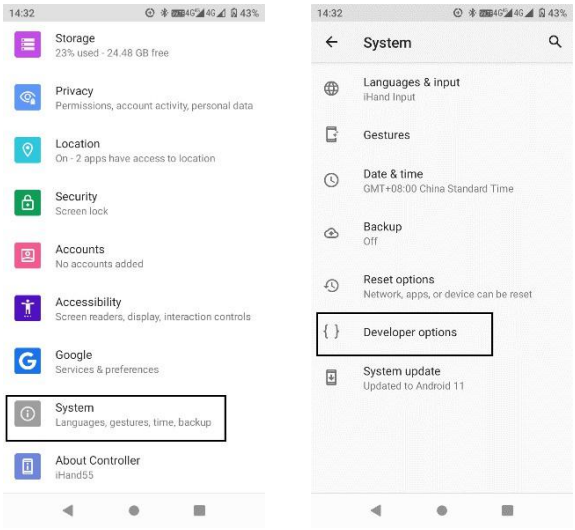


Figure 1-5-5 Developer options

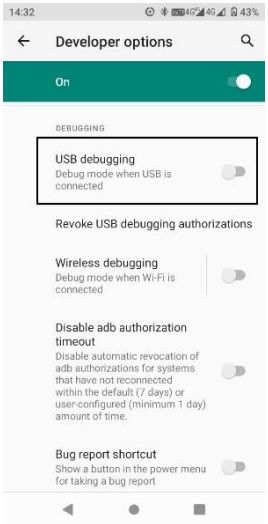


Figure 1-5-6 USB debugging

1.5.2 Upgrade method

SHC55 controller supports two methods for upgrading, local upgrade and wireless upgrade.

1. Local upgrade of SHC55 controller (download the firmware from the Satlab official website first).

Step1: copy the upgrade firmware to the SD directory.

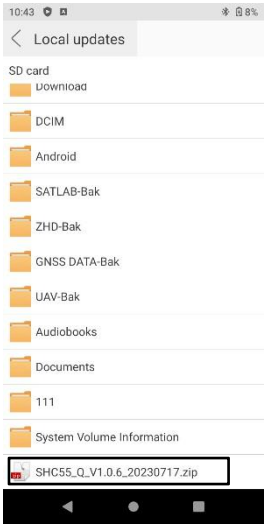


Figure 1-5-7 Upgrade patch

Step2: choose the *System Update*.

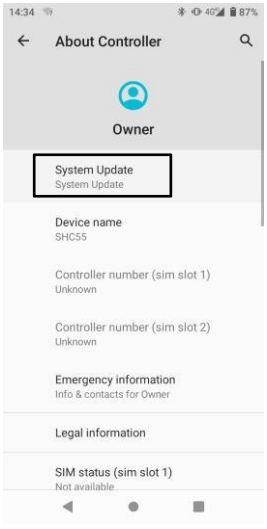


Figure 1-5-8 Update App

Step3: entering the *System Update* interface, as shown below.

Figure 1-5-9 Interface of the update

Step4: click the top right menu selection in the interface, and choose *Local updates*.

Figure 1-5-10 Local updates

Step5: enter the interface.

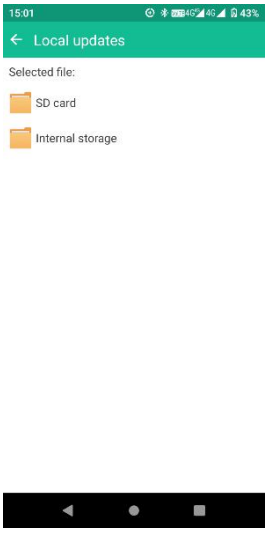


Figure 1-5-11 Local updates

Step6: select the SD directory file, then select the update firmware.

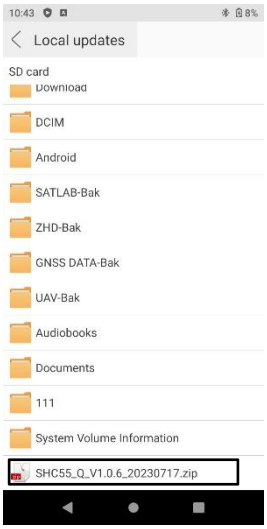


Figure 1-5-12 Choose the firmware

Step7: after selecting the upgrade firmware, click *Install Now*.

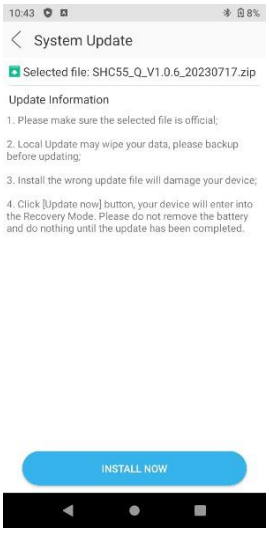


Figure 1-5-13 Install

Step8: the system will restart and begin to update.

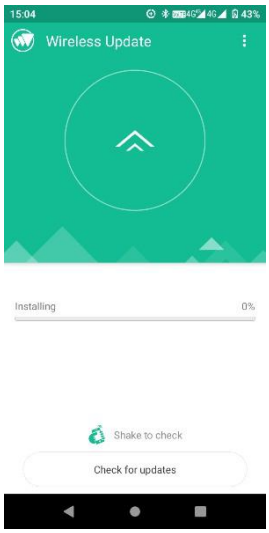


Figure 1-5-14 Interface of upgrade

2. Wireless update

Step1: select Wireless Update.

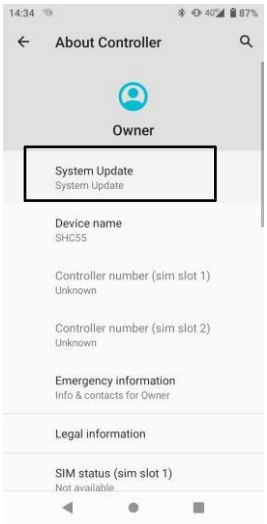


Figure 1-5-15 Update App

Step2: after entering the System update App, if there is a new version, the interface will show it and display the update. The complete update content will appear if you draw up the screen.

Step3: click Download, the firmware update patch will be downloaded.

Step4: when the system upgrade package is downloaded, come out of the prompt window, and click Confirm. Special attention should be paid here. After clicking, it’s forbidden to operate of the device.

Step5: after completing step 4, the device will enter the upgrade interface, waiting for the progress bar to reach the full grid that completes the system wireless upgrade.

Step6: when the upgrade is completed, the device will restart automatically, repeat steps 1 and 2 to check whether the update is complete, then finish it.

FCC Caution:
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.
The device has been evaluated to meet general RF exposure requirement. The device can be used in portable exposure condition without restriction.

Specific Absorption Rate (SAR) information:
This device meets the government's requirements for exposure to radio waves. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons regardless of age or health. FCC RF Exposure Information and Statement the SAR limit of USA (FCC) is 1.6 W/kg averaged over one gram of tissue. Device types: This device has also been tested against this SAR limit.
This device was tested for typical body-worn operations with the back of the This device kept 0mm from the body. To maintain compliance with FCC RF exposure requirements, use accessories that maintain an 0mm separation distance between the user's body and the back of This device. The use of belt clips, holsters and similar accessories should not contain metallic components in its assembly. The use of accessories that do not satisfy these requirements may not comply with FCC RF exposure requirements, and should be avoided.