Pixel Watch Diagnostic Tool User Guide

September / 2025

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Introduction

The Diagnostic Tool APP is designed to assess the functionality of key hardware components on devices. It is pre-installed on your Pixel Watch, and made available for repair technicians to run diagnostics on a device under test (DUT). The Diagnostic Tool can be used to assess the health of supported Pixel Watches before or after repairing a device.

Revision history

Rev	Remark	Date
v1.0	Launch version for Pixel Watch 4	September 2025

Getting started

Before using the tool, ensure the following prerequisites are ready:

1. **Wifi connected with a network connection**

2. **Bluetooth is turned on**

3. **NFC is enabled**

4. **LTE is turned on**
   (if applicable for device)

5. **Permissions granted**
   (prompt will pop up in the diagnostic APP after activating it for the first time. Select “while using the app”.)

Note: Please ensure the local device time is correct before executing a test to prevent potential network errors.

Recommended Tool List

Hardware	Description
Charging Cable	In-box accessory for charging the device
Watchband	In-box accessory
Bluetooth Device	Any bluetooth device should be nearby for bluetooth testing Ex. headphones, phone, etc.
NFC Device	Any device with NFC capability should be nearby for testing Ex. phone, NFC card, etc.
Kapton Seal Tape (For Seal Test) **Pixel Watch 4 Only**	Tape for properly preparing the watch if executing the seal test Can be purchased with repair parts PN: G806-16208-00
ESD Tweezers (For Seal Test) **Pixel Watch 4 Only**	Recommended to easily grab & place the seal tape
Cotton Swab (For Seal Test) **Pixel Watch 4 Only**	A cotton cloth swap or similar tool can be used to apply pressure to the seal tape
ESD Pick (For Seal Test) **Pixel Watch 4 Only**	Recommended to safely remove the band cover cap for seal testing
Seal Test Fixture (For Seal Test) **Pixel Watch 4 Only**	Test enclosure fixture needed to complete seal testing PN: G940-01073-00

Device time verification

Please ensure the device time is correct before executing a test to prevent potential network errors.
If it is not at the correct local time, follow the steps to set the time & date manually:

Step 1

Navigate to Settings > System > Date & Time

Step 2

Disable (or turn OFF) the “Automatic date & time” and “Automatic time zone” toggles

Step 3

Manually select the local time zone under *“Set time zone”*

Step 4

Manually update the date under *“Set date”*

How to enable the diagnostic app

Step 1

Enable Developer Options

1. Open the watch's Settings
2. Tap System > About > Versions
3. Tap the Build number item seven times
4. A message appears confirming that you are now a developer.

Step 2

Re-open settings app & select developer options

Step 3

Select diagnostics tool

Test process

Test Process Flow

Preparation for Seal Testing

Test Steps

Seal Test

Test Result Viewer & Retry Processes

Test process flow

The diagnostic application has an automated recommended flow that will guide the user through testing all aspects of the device. Upon completion, users can retry test manually to select individual items they with to verify.

Note:

The device under test (DUT) should be ***prepared for seal testing*** before beginning the test process to ensure a smooth test experience if you are planning on running that test.

First, choose your diagnosis method

Full Diagnosis or *Self-Directed*

Google recommends diagnosing your device using the **Full Diagnosis** method, which provides an automated, full system assessment. For manual troubleshooting of specific components (e.g., Display, Wi-Fi, GPS), comprehensive details for the **Self-Directed** approach are provided in the appendix.

Note

Google recommends selecting the Full Diagnosis option to minimize testing time.

Some diagnostic tests will run in the background during this process and do not require your interaction to save test time. Device can continue operating during testing.

Getting started

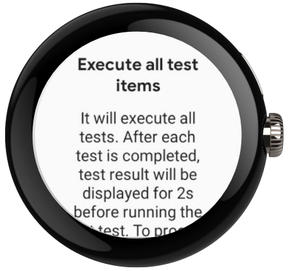
Step 1

Make sure WiFi Is enabled and connected

Step 2

Select “Check Now” to start the automated flow.

Step 3

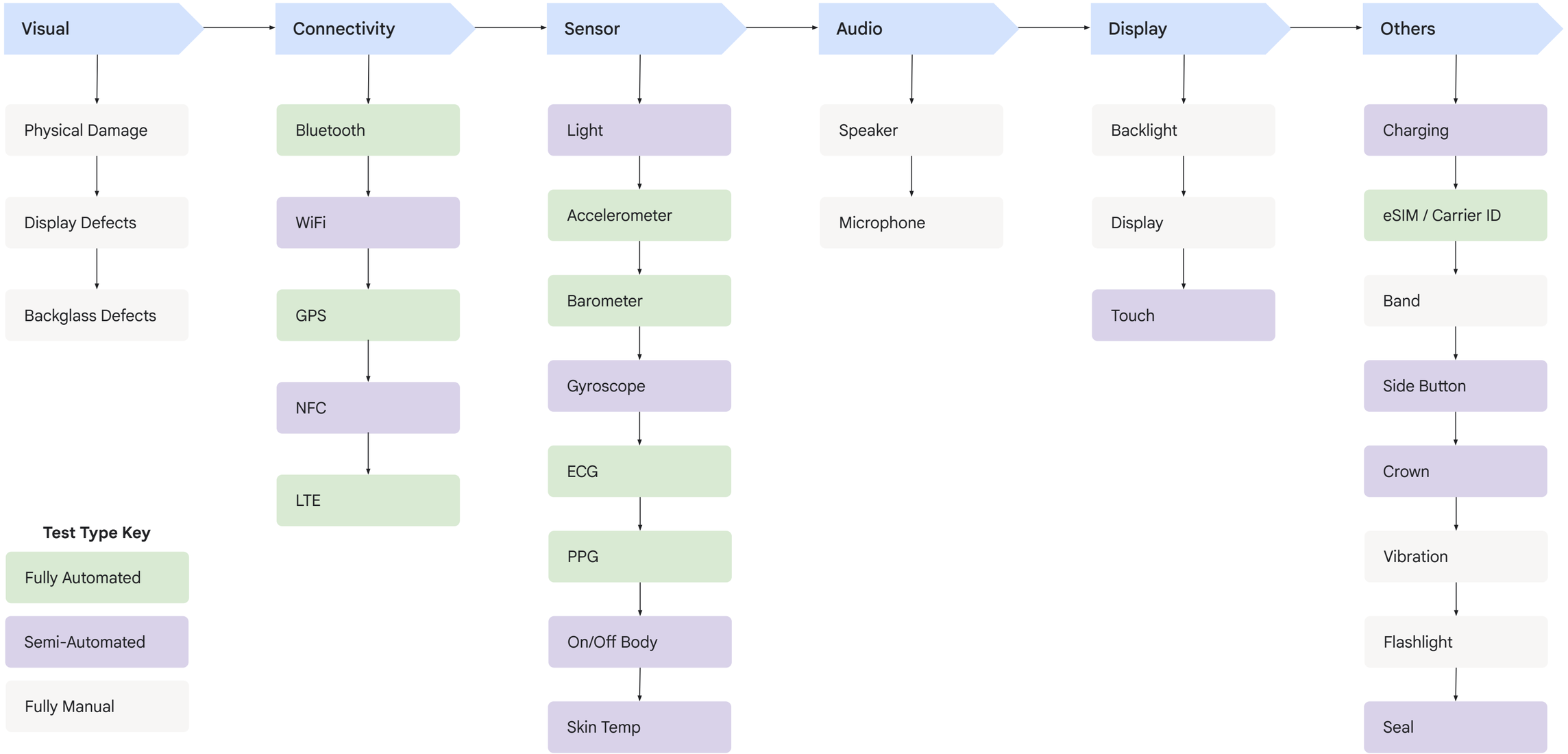


Scroll down to end of message to view start dialog.

Step 4

Begin diagnostic by selecting “start”.

Diagnostic flowchart



Preparation for seal testing

Reminder: Preparing the device under test (DUT) for seal testing before beginning the test process is essential for a smooth experience.

Materials/Tools

Device Preparation

Test fixture setup

Note:

If you have just completed a repair on the device, the band cover should be left off until testing is complete to make the process easier.

Materials/Tools Reminder

Baro egress seal tape

ESD tweezer

Dust free cotton swabs

ESD Pick

Seal Test fixture

Device Preparation

Important:

- The band cover (right clockwise from the crown) must be removed & the air egress hole needs to be sealed with kapton tape prior to testing
- If the tape is not well pasted in the correct position & can cause a false failure

Band cover (added pry slot)

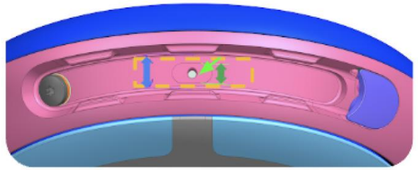
Step 1

Remove Band Cover using esd pick in the band cover pry slot

Step 2

Place ESD tape over the hole in the highlighted area

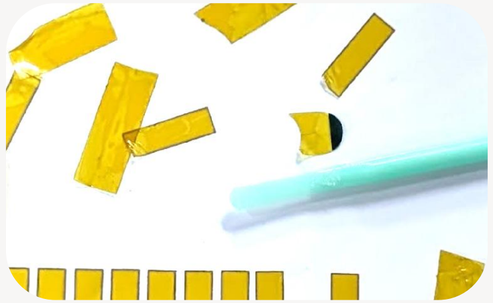
Note: the goal of the tape placement is to ensure the egress hole is properly covered & the tape is positioned correctly.



Step 3

Press tape down over seal area with cotton swab to ensure a full seal before testing

Note: the goal of this sealing process is to ensure no air can move in/out of this specific hole in the device.



Important: If the tape is not well pasted in the correct position & pressed firmly in place, test reliability issues may occur.

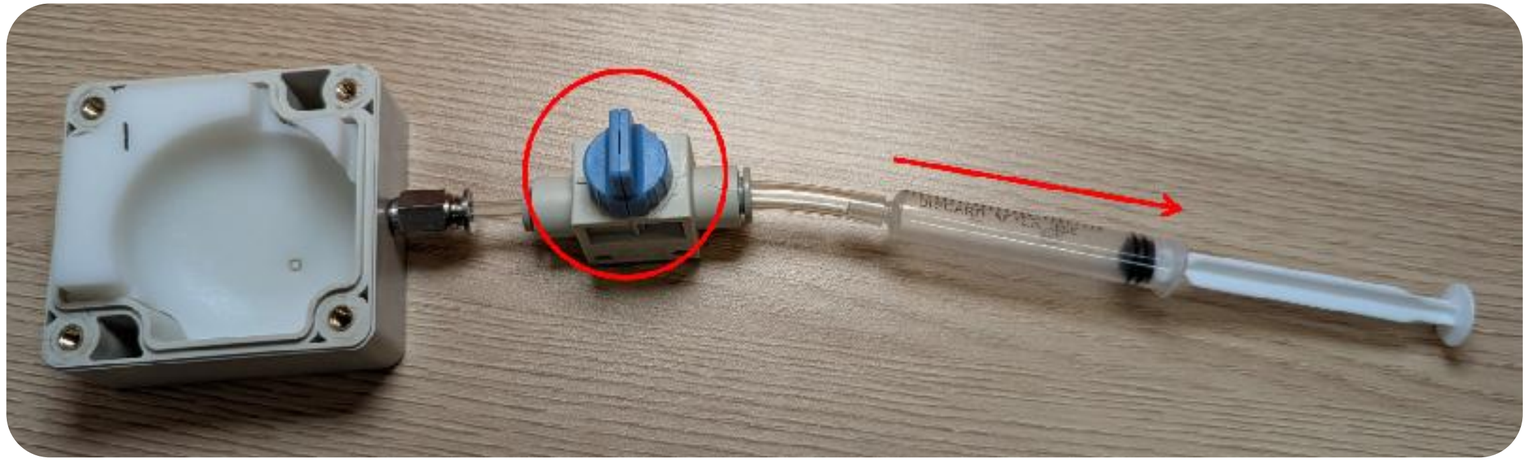
Seal test fixture setup

Step 1

Ensure the cover is removed & the cover & screws are easily accessible

Step 2

Turn the valve to the vertical position and pull the plunger out to the 2.5ml line



Running The Test

Login

Full Diagnostic

Visual

Connectivity

Sensor

Audio

Display

Others

Individual Test Items & Interactions

Login

Connectivity

Sensor

Audio

Display

Others

Note:

The self directed path for running tests will allow you to individually select the tests you want to check.

Visual

This section is an opportunity to highlight any failures identified through a visual mechanical inspection & other failures that can occur outside of the typical test flow.

1. Physical Damage

Result:

- *Clicking “No” will complete this test item.*
- *Clicking “Yes”, it will display the relative T-codes to this section for you.*

2. Display Defects

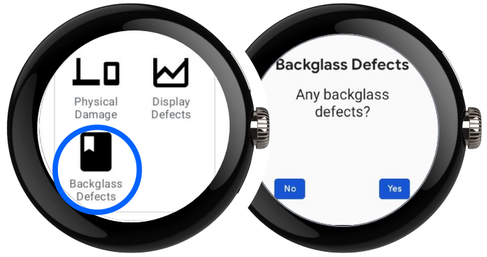
Result:

- *Clicking “No” will complete this test item.*
- *Clicking “Yes”, it will display the relative T-codes to this section for you*

3. Backglass Defects

Result:

- *Clicking “No” will complete this test item.*
- *Clicking “Yes”, it will display the relative T-codes to this section for you to select the relevant identified failures.*



Connectivity

This section is an opportunity to test connectivity functionality of the device.

1. Bluetooth
2. WiFi
3. GPS
4. NFC Tag

1. Bluetooth

Check if the device can detect nearby BT devices.

Test type
Automatic pass/fail judgement

Requirement
BT device within 10 meters

Result:

- ✓ *BT Scan can detect nearby BT device*
- ✗ *BT Scan can't detect nearby BT device*

2. NFC Tag

Make sure NFC function is working by tapping to a NFC device or reader to the DUT NFC area.

Test type
Automatic pass/fail judgement

Result:

- ✓ *Success to scan via NFC reader*
- ✗ *Fail to detect NFC tag*

3. WiFi

Detects wifi network and successfully downloads a dummy file.

Test type
Automatic pass/fail judgement

Result:

- ✓ *Detect network connection and success to download*
- ✗ *Fail to detect network connection or download*

4. GPS

Require near the window or outdoor to ensure GPS signal then check GPS function.

Test type
Automatic pass/fail judgement

Result:

- ✓ *Successfully detect precise GPS lock*
- ✗ *Fail to get location but have signal or no signal*

Sensor 1/2

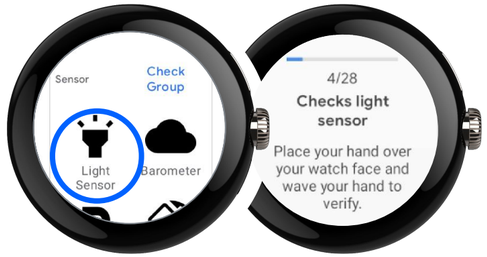
This section is an opportunity to test each sensor functionality.

1. Light
2. Barometer
3. Accelerometer
4. Gyroscope

1. Light Sensor

Cover and wave your hand over watch-facing in a few seconds.

Test type
Automatic pass/fail judgement



Result:

- ✓ *3+ changes in sensor readings*
- ✗ *Output hasn't changed 3+ times*

2. Barometer Sensor

Verification that the sensor is reading an expected pressure level (1084.8f ~ 870.0f).

Test type
Automatic pass/fail judgement

Result:

- ✓ *Under 1084.8f ~ 870.0f*
- ✗ *Out of 1084.8f ~ 870.0f*

3. Accelerometer

Verification of the accelerometer's ability to record movement.

Test type
Automatic pass/fail judgement

Result:

- ✓ *X,Y,Z readings changed during testing*
- ✗ *X,Y,Z readings weren't changed*

4. Gyroscope Sensor

Verification of the device's ability to detect gyroscopic movement in a figure 8 pattern.

Test type
Automatic pass/fail judgement

Result:

- ✓ *X,Y,Z readings changed during testing*
- ✗ *X,Y,Z readings weren't changed*

Sensor 2/2

This section is an opportunity to test each sensor functionality.

5 ECG
6 PPG
7 On Off Body
8 Skin Temperature (from EoS)

5. ECG

Verify if the ECG functionality is working

Note
user needs to be wearing the device for this test

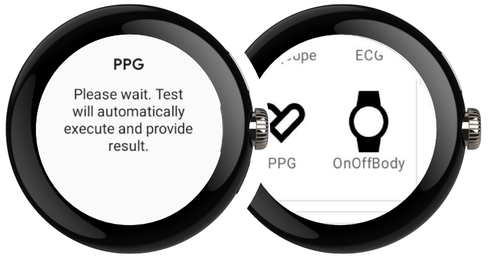
Result:

- *Success to detect ECG*
- *Fail to detect ECG*

6. PPG

Verify if the PPG sensor array is working

Note
user needs to be wearing the device for this test



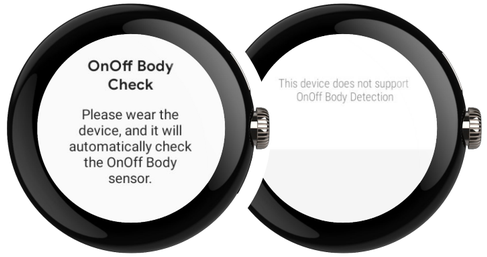
Result:

- *Under 1084.8f ~ 870.0f*
- *Out of 1084.8f ~ 870.0f*

7. On/Off body

Verification that the watch can detect if the device is on or off of the user.

Note
user needs to be wearing the device for this test



Result:

- *Fail to detect sensor*
- *Success to detect sensor*

8. Skin Temperature

Check skin temperature automatically

Note
user needs to be wearing the device for this test

Result:

- *Fail to get skin temperature*
- *Success to skin temperature*

Audio

This section is an opportunity to test the speakers and microphones.

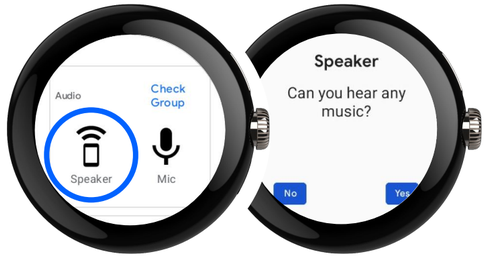
1 Speaker

2 Microphone

1. Speaker

Play a 5 sec ringtone to the user

Test type
Requires user input.



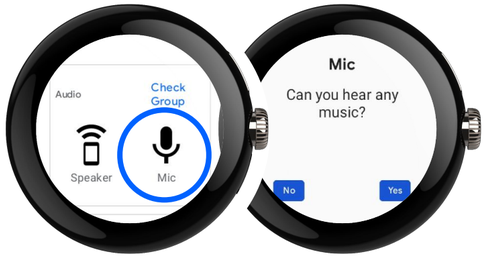
Result:

- ✅ *Success to hear sound*
- ❌ *Fail to hear sound (<threshold:60db)*

2. Microphone

Play and record a 5 sec ringtone then play recorded ringtone

Test type
Requires user input.



Result:

- ✅ *Each microphone successfully records ringtone*
- ❌ *One (or more) of the microphones fails to hear the recorded ringtone (<threshold:60db)*

Display

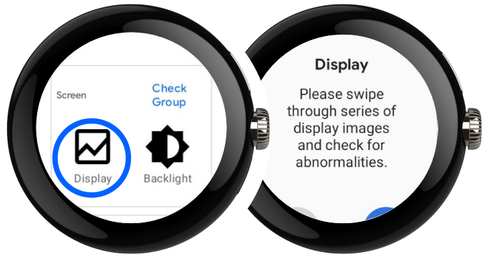
This section is an opportunity to test the display & touch performance.

1. Backlight
2. Display
3. Touch

1. Display

Rotate through a series of display patterns

Requires user input to verify/detect problems such as screen color, light/dark spots, dust particles



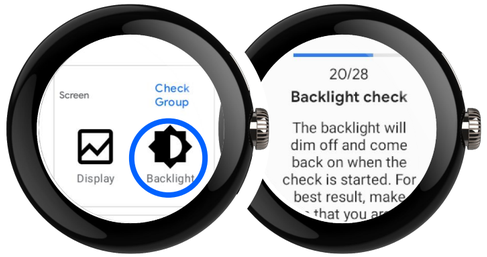
Result:

- ✓ *Color patterns check PASS*
- ✗ *Color patterns check FAIL*

2. Backlight

Backlight: Check for changes in brightness

Requires user input to verify/detect problems with the backlight brightness change.



Result:

- ✓ *Brightness level is 255-0-255*
- ✗ *Brightness isn't on-off-on*

3. Touch

Tap the screen to erase all points - Multitouch (two points)

Note
Multitouch requires 2 fingers. Start by pressing the top two circles and dragging down to the second set of circles.

Result:

- ✓ *Screen changes to white*
- ✗ *Screen doesn't change to white*

Others 1/3

This section is an opportunity to test additional device functions like charging, physical buttons, & the state of the seal.

1. Wired Charging
2. Wireless Charging
3. Mechanical Band
4. Side button
5. Crown
6. FlashLight
7. Carrier ID
8. eSIM
9. Vibration
10. Water Seal (Air Leak)

1. Wired Charging

Connect the in-box Charger cable, to check wired charging function and quick charging function if device supports it.

Result:

- *Success charging and quick charging*
- *Fail charging and quick charging*

2. Wireless Charging

Prepare a wireless charger Charging the phone on a wireless device like google stand

Result:

- *Success charging*
- *Fail charging*

3. Mechanical Band

Users should install the bands and check the engagement

Note
Prepare a watchband to confirm functionality.

Result:

- *Hard to attach and detach unit*
- *Easy to attach and detach unit*

8. Side Button

Click side button twice manually to check launch all apps at the first press

Test type
Automatic pass/fail judgement

Result:

- *Success launch all apps at the first press*
- *Fail to launch all apps at the first press*

Others 2/3

This section is an opportunity to test additional device functions like charging, physical buttons, & the state of the seal.

5. Crown

1. Check Crown button functional via scrolling clockwise and counterclockwise 360°

2. Check crown key manually via clicking crown button

Result:

- ✅ *Feel the vibration from the device*
- ❌ *Don't feel the vibration from the device*

6. Flashlight

Touch the screen three times to check flashlight, swipe back to finish test

Result:

- ✅ *Screen is on (White) and off (Black and Red)*
- ❌ *Don't see any change on the screen*

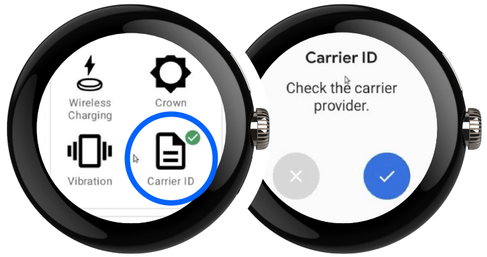
Others 3/3

This section is an opportunity to test additional device functions like charging, physical buttons, & the state of the seal.

7. Carrier ID

LTE SKUs only

Check and get Carrier ID



Result:

- *Success to get Carrier ID*
- *Fail to get Carrier ID*

8. eSIM

LTE SKUs only

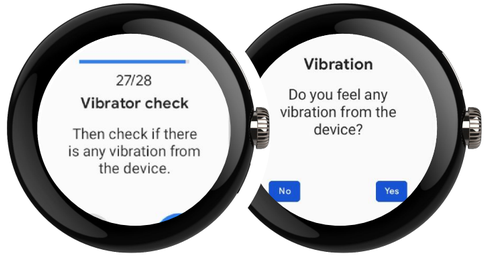
Check and get eSIM ID

Result:

- *Success to get eSIM ID*
- *Fail to get a eSIM ID*

9. Vibration

Device will vibrate. This requires user to feel and verify if the vibration is working.



Result:

- *Feel the vibration from the device*
- *Don't feel the vibration from the device*

10. Water Seal (Air Leak)

See the dedicated seal test section below

Result:

- *The pressure drops*
- *No pressure drops*

Seal test

Install the DUT

Seal the case

Lock the valve

Pressurization

Test completion

Seal test flow

Step 1

Install the DUT

Place the DUT into the case

The **crown** of the DUT must be in the bottom-right corner of the case as marked in the

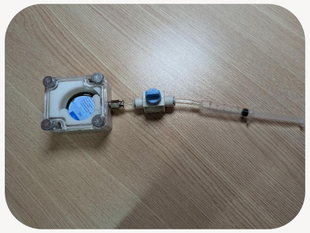
Step 2

Seal the case

Close the lid of the case

Fasten the 4 screws until they are fully hand tight

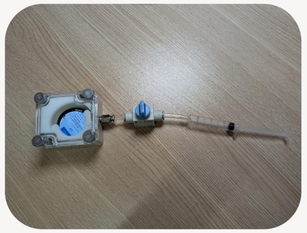
Important: if the cover is not fully pressed down on the o-ring & the screws are not fully tightened then there is a risk to test result reliability.



Step 3

Lock the valve

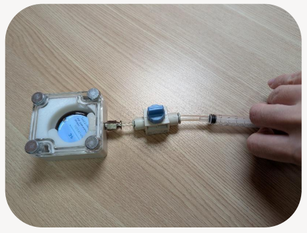
Turn the valve to the horizontal position. If you turn the valve before closing the lid, the device may collect incorrect data



Step 4

Pressurization

When prompted: Fully **push** and hold the syringe when finished the set up. The app will show **Test in Progress** and a progress bar. Make sure the syringe does not bounce back during the test

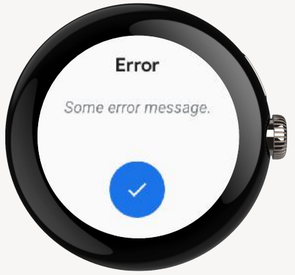


Step 5

Test Completion

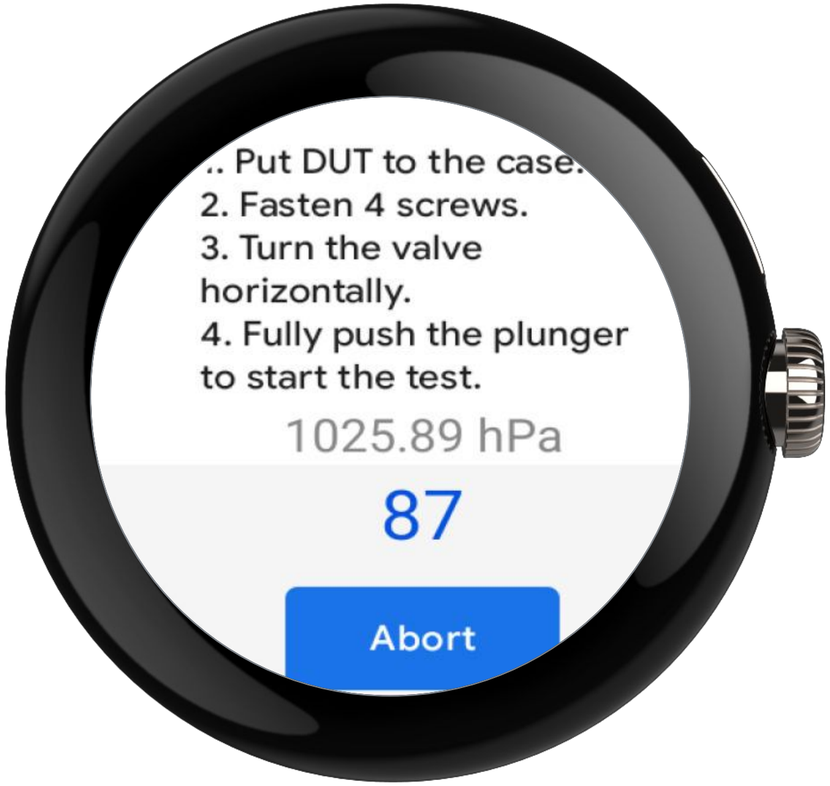
The test result will appear on the screen upon completion.
You may then safely open the lid and remove the DUT.

or



Install the DUT

- Put DUT to the case
- The crown of the DUT must be in the bottom-right corner of the case as marked in the



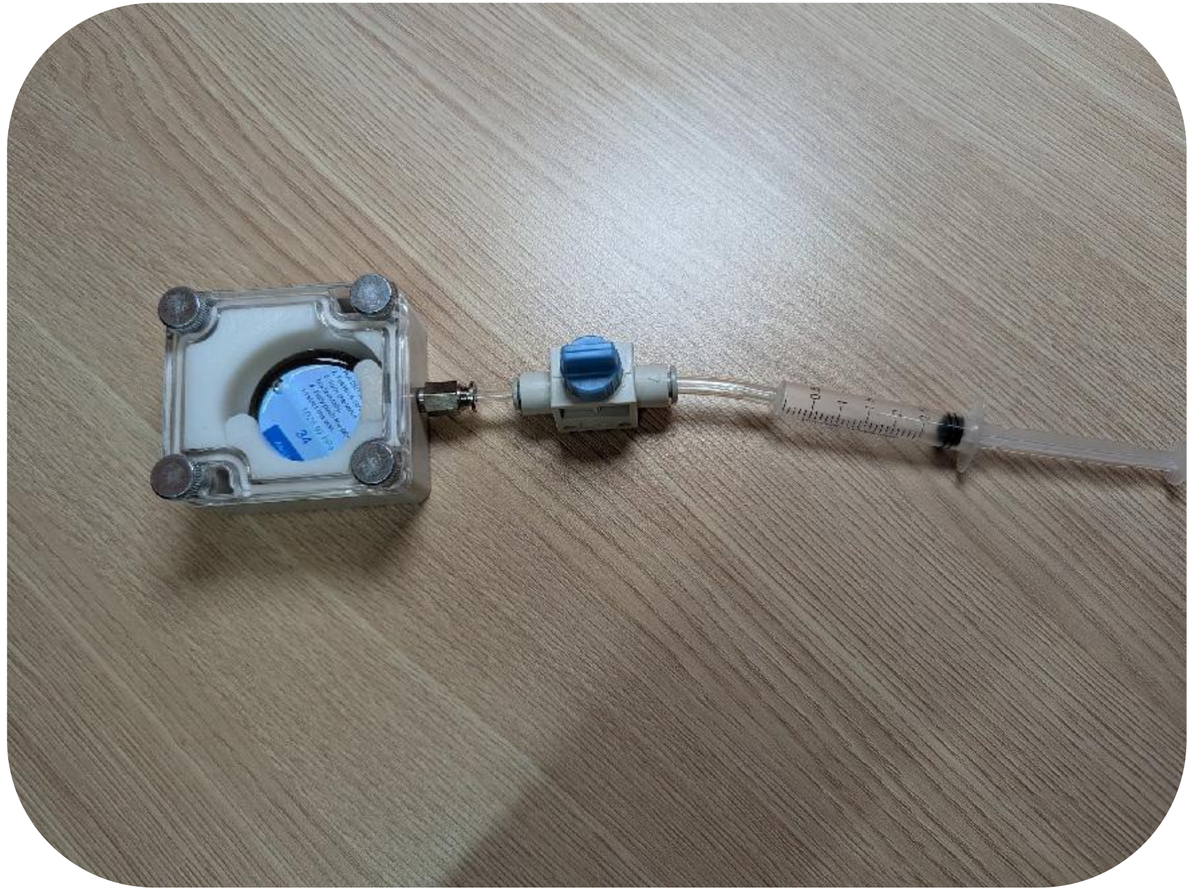
Seal test

Seal the case

- Close the lid of the case
- Fasten the 4 screws until they are fully hand tight

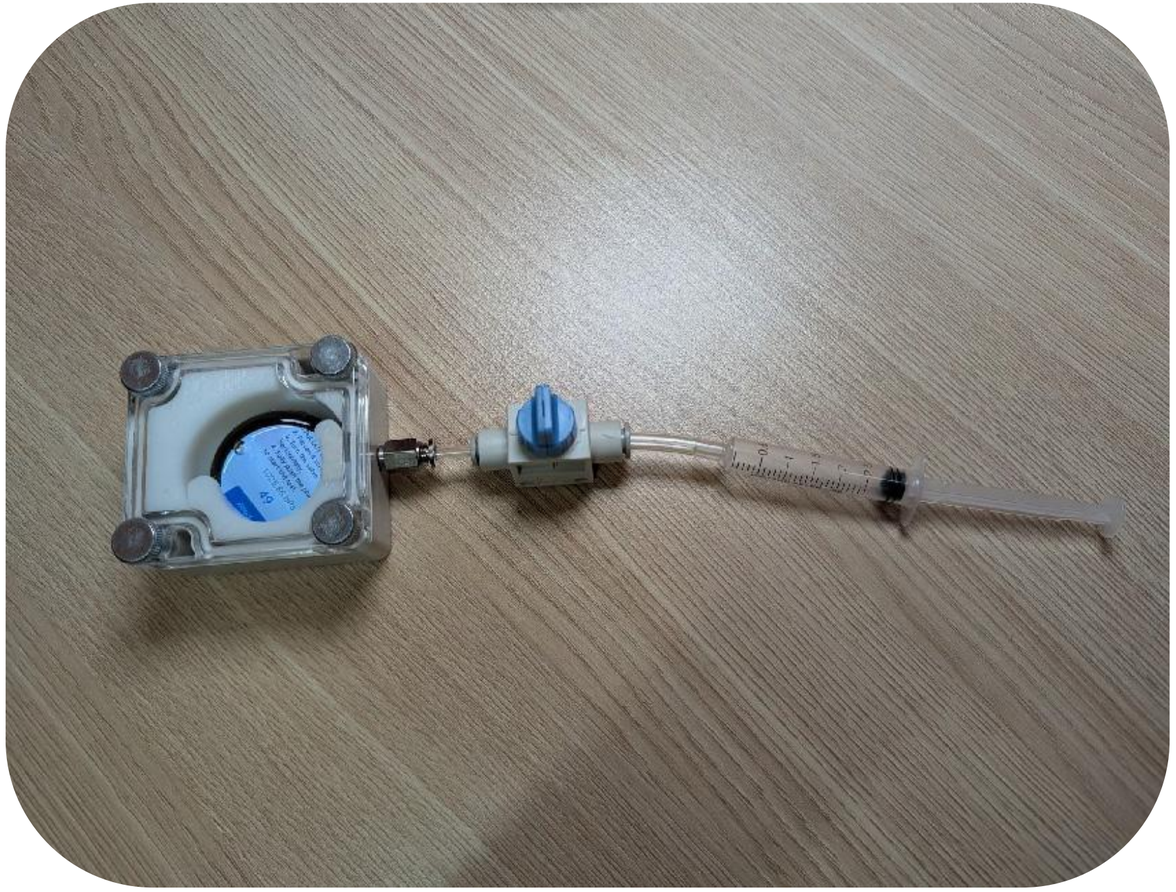
Important

If the cover is not fully pressed down on the o-ring, a false failure will occur



Lock the valve

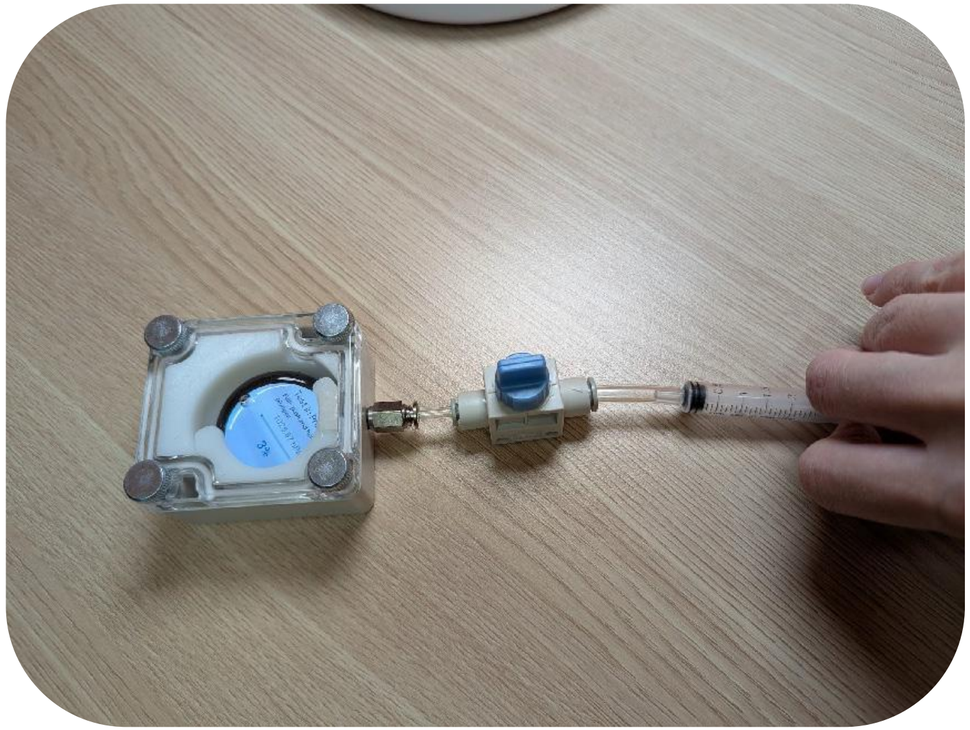
Turn the valve to the horizontal position. If you turn the valve before closing the lid, the device may collect incorrect data



Install the DUT & pressurize the fixture

When prompted:

Fully push and hold the syringe when finished the set up. The app will show Test in Progress and a progress bar. Make sure the syringe does not bounce back during the test

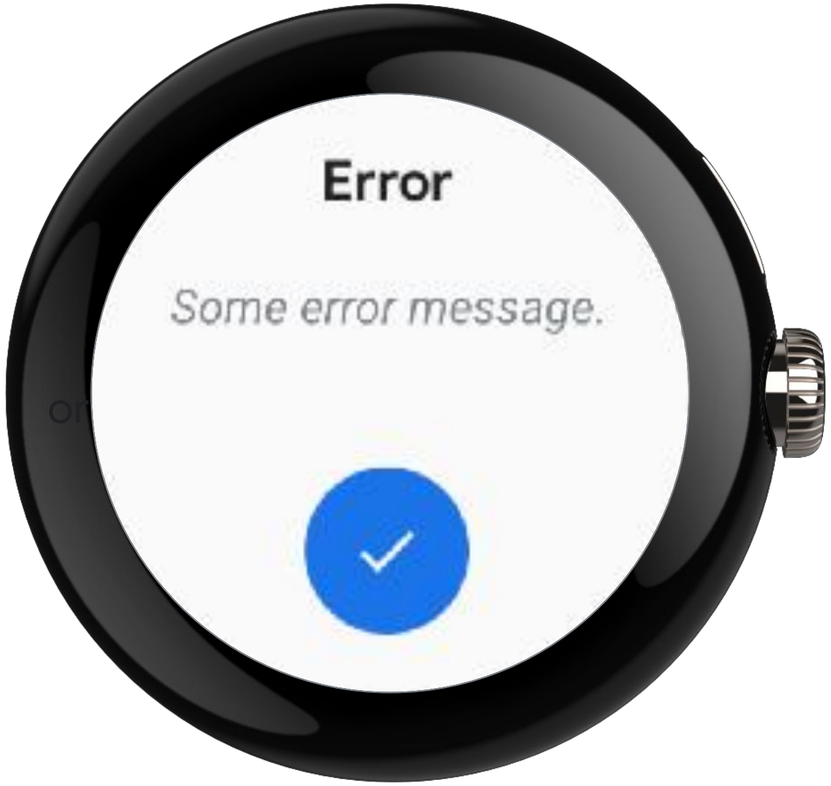


Seal test

Test completion

The test result will appear on the screen upon completion.

You may then safely open the lid and remove the DUT.



Test result viewer & retry processes

Retry

About Upload check result QR code

Upload report

Test Result

After the fully automated diagnostic flow is completed, a retry process will be triggered allowing the user to automatically retry any skipped or failed items if they wish.

Additionally users can use theresult viewer to check the individual test results completed in the current login session.

Test Result Viewer & Retry Processes

Result Pass Fail

Step 1

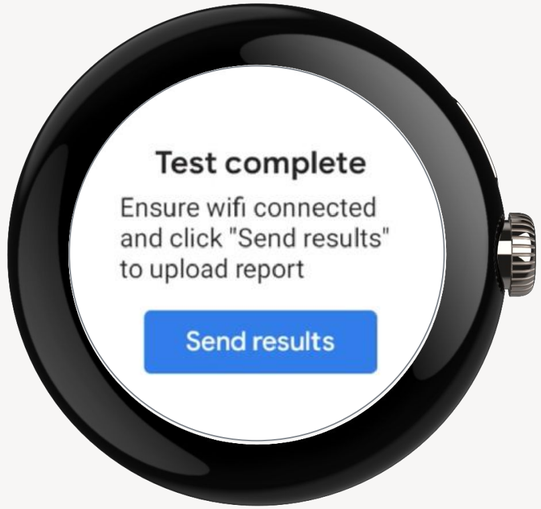
Retry

Popup "retry dialog" after finishing run all process and have skipped

Step 2

Upload report

Ensure wifi connected before Send



Test Result Viewer & Retry Processes (cont.)

Step 3

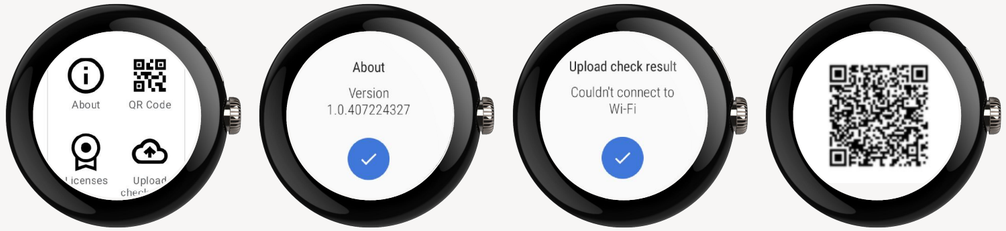
Result QR code

App version

QR code: A QR code will pop up after a full diagnostic completion mapping any failure codes to their respective failure results. The anonymised test results and error codes will also be uploaded to Diagnostic Backend Service.

QR Code

- T-codes will show in the QR code
- T000 means there are no failures
- If there are failures, their respective codes will show



Step 4

Test Result

Display test result on the home screen once test and result upload completed

Licenses: List all open source licenses

Upload check result: Ensure wifi check result: Ensure wifi connected before Send Result once test completed