DIAMTECH RESEARCH CENTRE PVT. LTD.

SENTINEL©

Quick Start Guide
&
User Manual 1.0.1

<u>INTRODUCTION</u>

SENTINEL is a cutting-edge diamond screening device designed to quickly and accurately detect lab-grown diamonds including CVD (Chemical Vapour Deposition) and HPHT (High Pressure High Temperature)—as well as gives positive ID to identify CZ (Cubic Zirconia) and Moissanite. Whether the stones are loose, rough, or set in jewelry, SENTINEL provides fast and reliable results to ensure full transparency in the diamond trade.

With an easy-to-use interface and built-in AI technology, SENTINEL offers over 99% accuracy in automatic detection mode. Dual viewing options and a detachable mobile display make the device flexible and user-friendly. It supports diamond sizes from as small as 0.003 carats, in all shapes and color grades (D to K), including treated stones.

Additional features like 20x zoom, position pointer, and report generation (PDF export and print) make SENTINEL an essential tool for retailers, wholesalers, and manufacturers who prioritize authenticity and trust.

This manual will guide you through using SENTINEL effectively and safely. We recommend reviewing it carefully to get the best performance and most accurate results from your device.

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1. Safety First

At DRC, the safety of everyone who uses our instruments is important. We recommend reading the safety information and operating instructions before operating SENTINEL. Failure to observe these instructions can lead to injury, damage to the device, and less-than-optimal operating results.

SENTINEL has been designed to be operated safely and effectively by conscientious operators who observe the safety and operational protocols explained in this document.

1. Symbol Notations and Definitions

Please observe the written and graphic cautions and warnings explained in this manual

Symbol	Description
⚠	This symbol indicates possible software damage or loss of data that may occur and result in a permanent loss of stored information. Attention is required by an authorized DRC technical specialist.
CAUTION LASER RADIATION DO NOT STARE INTO BEAM OR VIEW DIRECTLY WITH OPTICAL INSTRUMENTS	This symbol indicates potential exposure to rays of invisible laser radiation. Avoid exposing eyes and skin to direct or scattered radiation. Proper eye and skin protection is required.
DANGER Electric shock risk	To reduce the risk of electric shock or damage to the equipment: • Do not disable the power cord grounding plug. It is an important safety feature. • Plug the power cord into a grounded electrical outlet that is always easily accessible. • Unplug the power cord from the power supply to disconnect power to the equipment. Place the power cord where it is not damaged by or compressed by items placed near it.

2. Caution – Laser Radiation

Adhere to all written and graphics symbol warnings in this user manual. For safe and productive operations, this instrument should only be operated by authorized and trained users who have read the procedures and guidelines of this manual.

Do not stare at the internal light or view it through optical devices. This is a Class II-A laser product. Always avoid eye and skin exposure to direct or indirect radiation. Use proper, approved eye and skin protection.

Lasers are classified for safety purposes based on their potential for causing injury to human's eyes and skin. Most products that incorporate lasers are required by law to have a label listing the Class.

Eye injury hazard

*Eye injury hazard descriptions above are valid for for exposures relatively close to the laser. Because the beam spreads, less light will enter the pupil at greater distances. The hazard decreases the farther a person is from the laser, and the shorter the exposure time (e.g., do not deliberately look or stare into the beam). For example, a 1mW Class 2 laser beam is eye safe for unintentional exposures after about 23 ft (7 m), a 5mW Class 3R beam is eye safe after about 52 ft (16 m), a 500 mW Class 3B beam is eye safe after about 520 ft (160 m), and a 1500 mW Class 4 beam is eye safe after about 900 ft (275 m). (Calculations are for visible light, a 1 milliradian beam, and a 1/4 second Maximum Permissible Exposure limit.)

2. Physical Specifications, Designed Functions, Capabilities, and Features

Physical Specifications for SENTINEL

- Dimensions: 178 x 250 x 220 (In mm)
- Weight: 5.2kg (approximately)
- Scanning Area: 4.7" x 4"

Power Supply

- Input voltage range: 110 to 230 V
- Input Current: 3A
- Typical Response Time: 5 s
- Temperature Range: 5 – 35 degrees C

Detection Capabilities:

- Accurately identifies CVD and HPHT lab-grown diamonds while positively distinguishing simulant stones.
- Works with **all shapes**, including **rough or unfinished stones**
- Detects diamonds from **0.003 carat** and above (approx. 0.80–0.85 mm; Sieve +0000 – 000)
- Designed for loose or mounted diamonds, suitable for both polished and rough stones.
- Supports **D to J-K colour range** (GIA scale)

Usage & Safety Tips:

- Use only as described in the manual and with the integrated mobile app
- Keep the device **dry**—avoid contact with liquids
- Not heat-resistant—**keep away from heat and open flames**
- **Do not attempt repairs**—contact authorized DRC service for support
- Avoid **modifying** the device
- **Do not use** if the cord, plug, or device is damaged—contact DRC for help

3. SENTINEL Machine Set up and Included Accessories
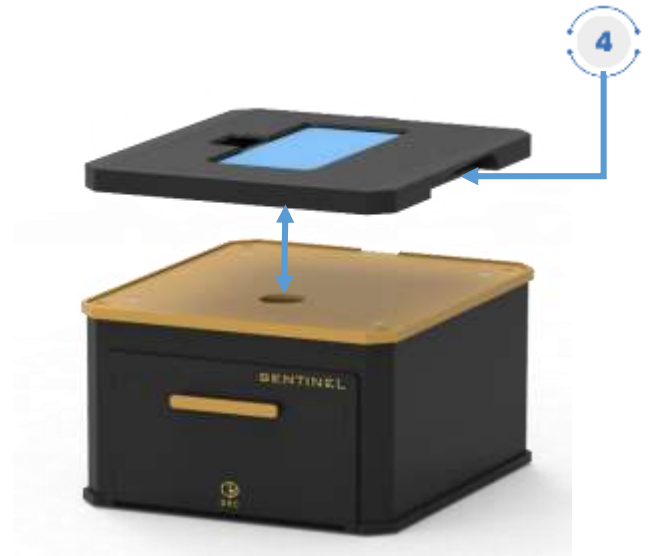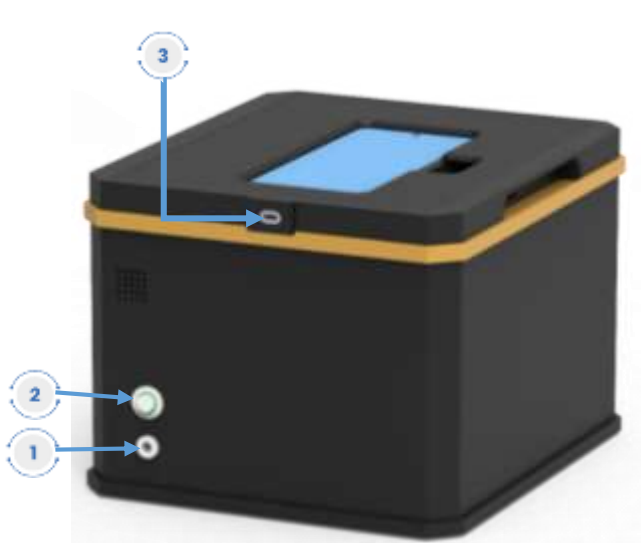
1.	**DC Jack** – Connects the machine to a power source using a **round 5.30mm power cable** for a stable power supply.
2.	**Power Button** – Used to **switch the machine ON/OFF**. Press once to start and press again to shut down the machine.
3.	**Mobile charging socket** – It is designed to allow devices to be powered or recharged using an external power source with the help of a **USB Type-C charger** to provides efficient power delivery.

4.	**Detachable Mount** – Securely holds the smartphone during scanning for stable and accurate results. After scanning, the foldable design lets the operator easily lift or remove the phone to check results by hand.

Accessories

Loose Diamond Tray

Ring/Jewelry Tray

Mobile Charger

Power Adaptor

Power Cable

Allen Key Set

Silver Sample Pendant
with three diamonds, each
0.003 carat

UV Pen

4. Trays and their attachments

Before You Scan: To ensure accurate diamond detection, it is important to choose the right attachment for the SENTINEL Machine.

	Mounted Jewellery Tray: - The Mounted Jewellery Tray contains slots for up to fifteen (15) rings. Pendants, earrings and other jewellery can be positioned on this tray for scanning.
	Loose Stone Tray: - The Loose Stone Tray has an inscribed alpha-numeric grid so that you can identify the location of specific diamonds when you view multiple stones. SENTINEL can scan and detect either rough or finished stones.

5. Set Up (no tools are required for assembly)

1. Unboxing

1. **Carefully remove any exterior strapping or plastic wrapping** and dispose of it responsibly.
2. **Open the box gently** to avoid damaging the contents inside.
3. **Take out all components** and separate them from the protective foam packaging.
4. We recommend keeping the original packaging for at least 60 days in case you need to store or return the device.

2. Inventory the Contents

1. Lay out everything from the box on a clean, flat surface.
2. Make sure you have all parts and trays listed in the manual
3. Check for missing items and inspect anything that appears to be broken or scratched.
4. If anything is missing or damaged, reach out to the DRC Support Team using the contact info on the laminated card included in the box.

3. Set Up the Machine

1. Use a sturdy table, countertop, or desk to ensure the device stays secure during operation.
2. A level surface helps maintain scanning accuracy and prevents any movement during use.

6. Initial Start-Up

1. Mobile Device

Note that the default mobile device used in the SENTINEL is the Nokia. User instructions for this mobile phone can be found here: https://www.hmd.com/en_in/support/search?q=xr%2020

a. The integrated Nokia phone is **not intended for personal use** (calls, messaging, apps). Please **do not remove or repurpose** the device.

b. The mobile device comes with DRC's proprietary **SENTINEL app pre-installed and configured** for immediate use.

c. Only **remove the mobile phone from its housing** if specifically instructed by the **DRC Support Team**.

d. The phone may have minimal charge on arrival. After plugging in the SENTINEL, allow **2 to 3 hours** for a full initial charge.

e. If the battery is fully drained, it may take a few minutes for the **charging icon to appear**. This is normal.

f. Insert the **correct end of the USB cable** into the port at the base of the SENTINEL.

g. Plug the other end into the **power adapter**, then connect it to a **grounded electrical outlet**.

1. Fingerprint Sensor
2. Camera
3. Microphone
4. Flash
5. SIM and Memory Card Slot
6. The Google Assistant /Google Search key1
7. Front Camera
8. Earpiece
9. Headset Connector
10. Volume keys
11. Power/Lock key
12. USB connector
13. Microphone
14. Loudspeaker
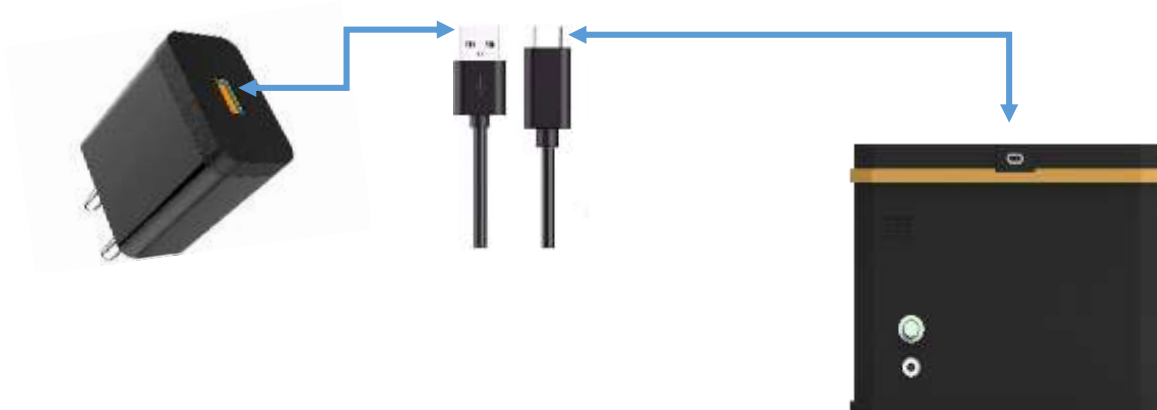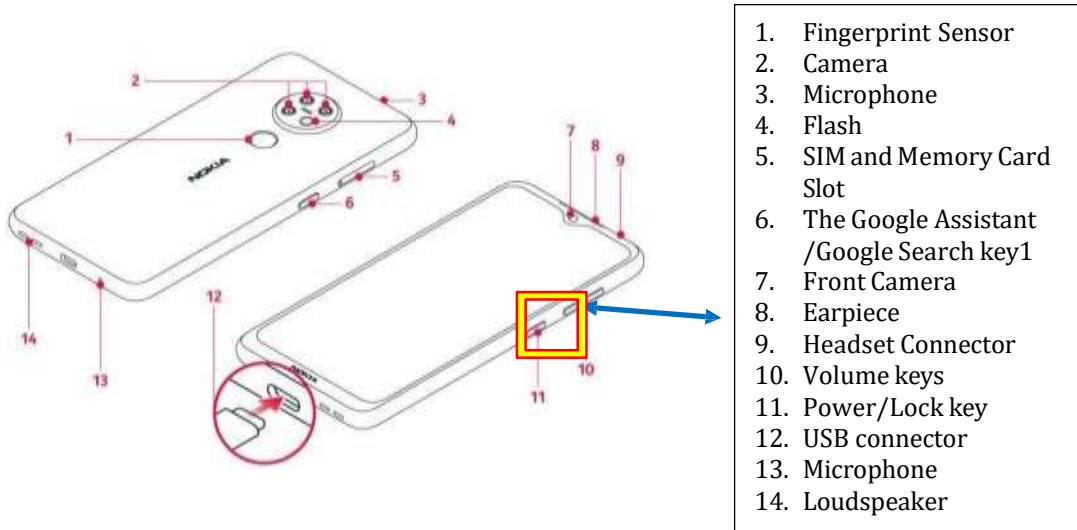
2. System Setup

a) Switching ON the Phone

- Press and hold the Power Key of mobile until the phone vibrates to switch it on.

b) Initial Setup (First-Time Use)

- Choose your **language** and **set the time**:
  - Go to **Settings/Menu** > **Time & Language** > **Date and Time**
  - Note: The default language for DRC is **English**.
- Follow the on-screen instructions to complete the initial setup.

c) Connect to Wi-Fi

- This phone **does not support mobile data**. A **Wi-Fi network is required**:
  - Tap **Settings/Menu** > **Network & Internet** > **Wi-Fi**
  - Turn the **Wi-Fi switch ON**
  - Select your desired **Wi-Fi network**
  - Enter your **Wi-Fi password**
  - Ensure the **Wi-Fi icon** appears in the status bar to confirm connection

d) Install Available Updates

- Check for and install any **available Android system updates**:
  - Go to **Settings** > **System** > **Advanced** > **System Update** > **Check for Update**

o If an update is available, follow the on-screen prompts to install it

e)   Powering the Device for Daily Use

- To use the device:
    - o Plug in the Adaptor to DC socket
    - o Press the **Power Button** on the side of the phone to turn it on
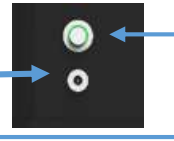
f)   Loading a Tray into the DRC Sentinel

- Choose the appropriate tray:
    - o Select either the **Loose Diamond Tray** or the **Jewellery Tray**
    - o Seat the tray onto the **Slide-In Tray**
    - o Push the tray fully into the **machine**

g)   Launching the DRC Sentinel Application

- Once the device is on:
    - o On the **Home Screen**, tap the **Sentinel** icon
    - o Wait for the **DRC SENTINEL** scanning program to load and display the **home screen**

7. SENTINEL Application

Tap the SENTINEL icon and the introductory splash screen at the right will appear on the screen before the operating desktop for the SENTINEL will appear.
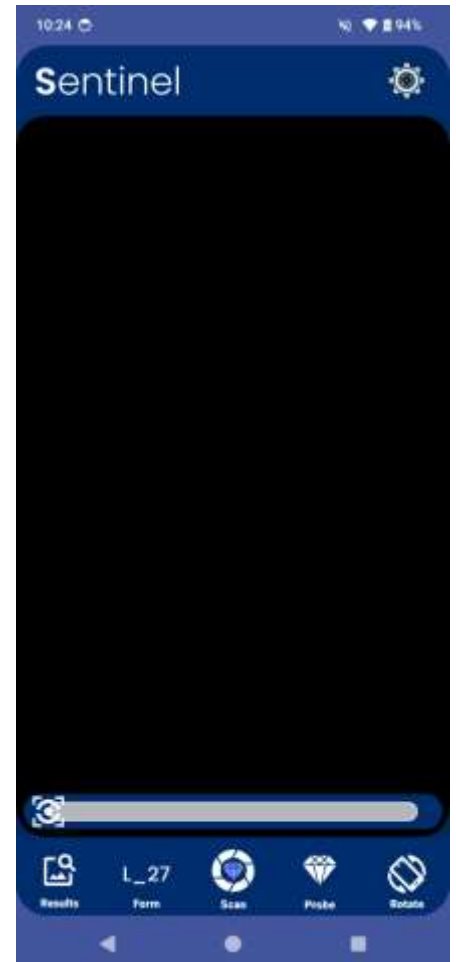
8. Navigating the SENTINEL Home Page

The screen will appear like the graphic below. In this view, the loose diamond tray has been set onto the Scanning Platform.

1. Settings
2. Scanning Field
3. Manual Focus
4. Archive File of Scans & Report
5. Automatic Lot Number
6. Main Scan Button
7. Scan Mode: loose or mounted diamonds (the pictured ring icon indicates mounted goods)
8. Invert Screen View
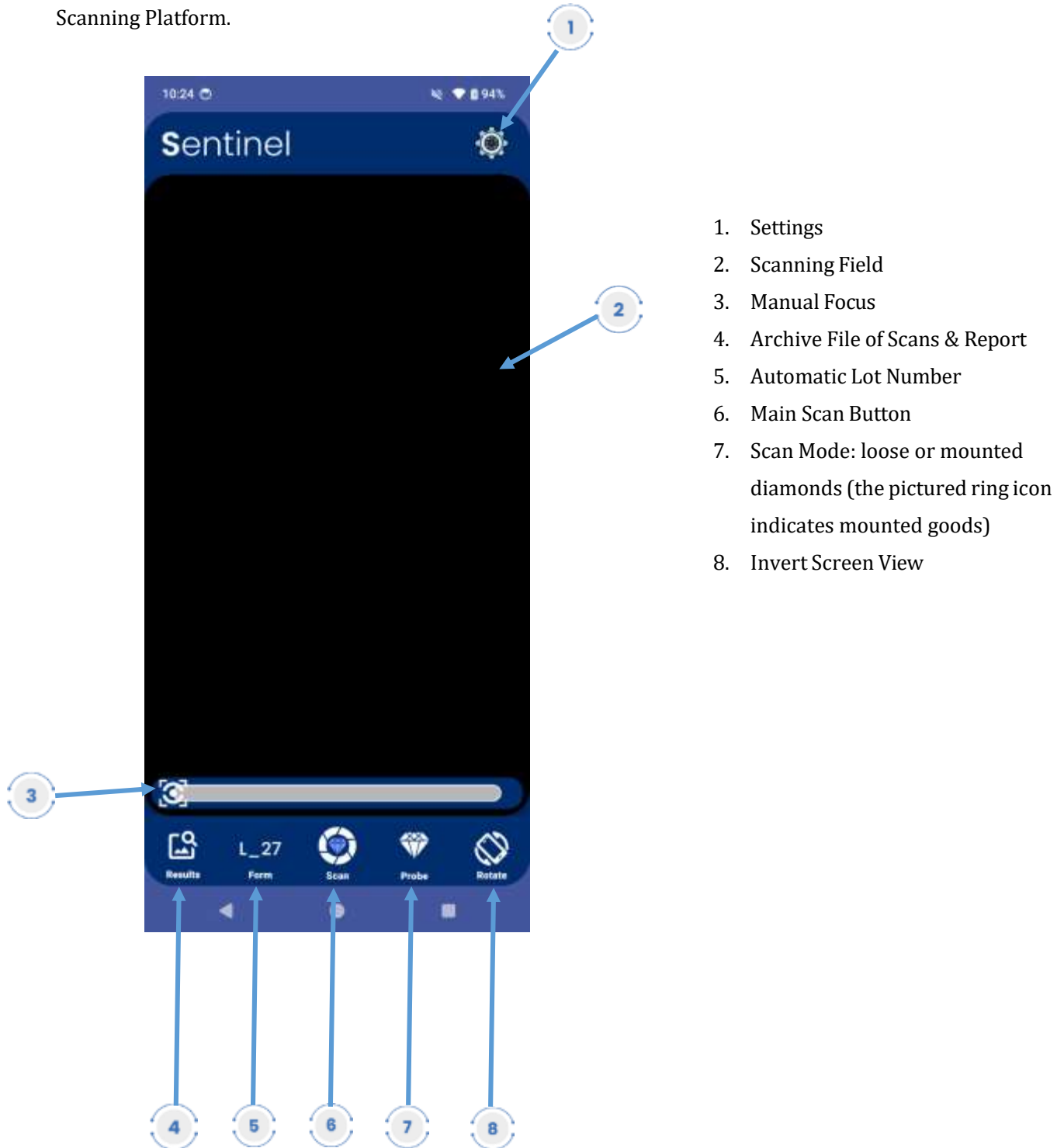
9. Scanning

a) Results
- Tap this to **view saved scan results**.
- Allows you to access previous scans for review, printing, or exporting.

b) Form
- Opens the form to **enter or edit item details** before scanning.
- You can add lot number, SKU, carat weight, and more.

c) Scan
- Starts the **scanning process**.
- After placing the item, tap this to initiate automatic screening.

d) Probe
- On the home screen, the default is **loose diamond mode**.
- Tap the **diamond icon** to switch to **jewelry mode** when scanning mounted pieces.

e) Rotate
- Rotates the **display view** for better visibility or different angles.
- Useful when adjusting for lighting or viewing comfort.

f) Jewelry Placement:

- Place all jewelry at the same height. If they're at different levels, the images might be blurry and affect the scan quality.
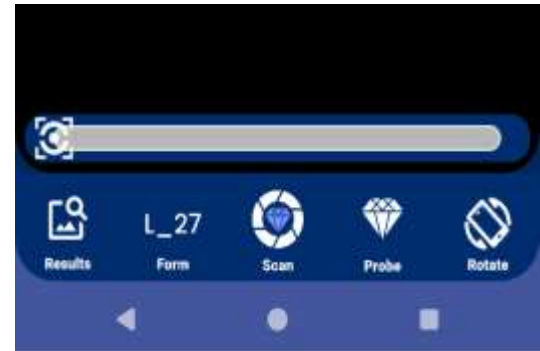
CAUTION: When scanning jewelry, it is important to hide or turn tags on their edge because these tags are highly fluorescent. The Sentinel uses light-based scanning, and the fluorescence from tags can interfere with the analysis, causing disruptions and slowing down the scanning process.

Additionally, avoid scanning jewelry while it is placed in display stands or boxes, as these materials often contain fluorescent components that negatively affect the scan. Large tags or inserts left on the tray can also increase scan time and reduce the accuracy of the results, so it's best to keep the scanning area clear for optimal performance.

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10. Preparing for Merchandise Scanning

To ensure accurate scanning results, it's important to select the correct merchandise category before you begin. This allows the SENTINEL's camera to properly capture and analyze each item.

- **Every scan is automatically saved** for easy access later.
- If you want to **customize the scan details** (such as labels, lot numbers, or item descriptions), just follow these steps:

    1. **Tap the "Form" button** on the bottom menu.
    2. **Select the correct merchandise type** — such as *loose diamond* or *diamond jewelry*.
    3. **Enter any specific details** (e.g., item name, reference number, description).
    4. Make sure you complete this **before starting the scan**.

Note: If you don't enter any custom data, the system will automatically assign a lot number for you.

- **The Upper section is for Loose Diamond.**

1. **Lot Number:** Enter your own lot, SKU, or tracking number to identify the diamond batch.

2. **Carat Weight:** Record the carat weight of the diamonds being scanned.

3. **Sample Required:** Add any notes or special instructions about the sample.

4. **Details:** Include additional information or remarks as needed.

- **The Lower section is for Jewellery**

1. Lot/Purchase Order Number: **Enter the order or lot number.**

2. SKU Number: **Add the inventory SKU.**

3. Size: **Specify finger size (for rings) or other relevant size.**

4. Carat: **Total carat weight of main stones.**

5. Gemstone Weight: **Weight of additional gemstones.**

6. Gross Weight: **Total weight of the jewelry.**

7. Net Weight: **Weight without packaging or non-gem parts.**

8. Diamond Quantity: **Number of diamonds.**

9. Diamond Weight: **Total carat weight of diamonds.**

11. Start Scanning:

- Tap the **Scan (camera) icon** to begin.
- Scanning takes **less than a minute**, even for multiple items.
- Ensure the jewelry is **clean and smudge-free** for the best results.
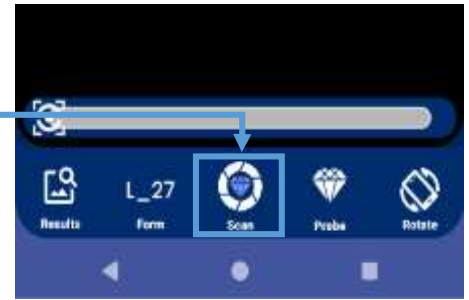
12. Result-Multiple View

You can view **multiple result screens simultaneously**, with each diamond displayed separately. This allows you to see **all screening results at once** for easier comparison and analysis.

➢ **Original Screen:** The screen displays the initial image of the tray where the diamond/merchandise is placed.

➢ **HPHT Screen:** This screen specifically highlights diamonds created in laboratories using the High-Pressure High-Temperature (HPHT) process. Diamonds displayed on the screen are marked in red for clear identification.

➢ **CVD Screen:** This screen highlights diamonds created in laboratories using the Chemical Vapor Deposition (CVD) process. Only CVD diamonds glow on this screen, helping users easily identify and differentiate them.

➢ **CZ Screen:** This screen provides a positive identification of Cubic Zirconia (CZ), a common simulant stone. Scanned CZ stones will glow in a yellow shade, allowing users to quickly distinguish them. This feature enhances accuracy and transparency in the screening process.

➢ **Glow Screen:** This screen helps users differentiate between natural and lab-grown diamonds by analyzing their reaction to UV waves. When exposed to UV light, diamonds exhibit different luminescent properties depending on impurities within their lattice structure. Natural diamonds generally do not glow or, in rare cases, emit a faint fluorescence. In contrast, lab-grown diamonds, particularly HPHT stones, show a strong reaction, emitting a vibrant Turkish blue to green glow of high intensity. CVD diamonds may display different colors based on their unique structural properties."

➢ **UV Result: The screen helps to distinguish b/w natural and lab grown diamond based on their reaction when exposed on short UV Rays.** When diamonds are exposed to UV light, they absorb energy and then release it in the form of visible light depend upon the impurities in lattice structure and its properties, it exhibits different reaction.

- **Natural Diamonds –** D to K Diamonds show blue colour or, in rare cases, a green or yellow colour, as they lack strong impurities that respond to UV.

- **HPHT Lab-Grown Diamonds –** Exhibit a strong Turkish blue to green glow due to boron impurities introduced during the growth process.

- **CVD Lab-Grown Diamonds –** Can display varied fluorescence colors, depending on nitrogen content or post-growth treatments.

- **Cubic Zirconia & Other Simulants –** Usually show different responses or no clear glow, making them distinguishable.

➢ At the top of the screen, you can see a chart displaying the diamond colours. Based on these colours, you can determine whether the diamonds are Natural, HPHT, CVD, or CZ.

➢ **LUV Result:** The screen help user to identify natural diamond, when exposed to a LUV the natural diamond will except any colour depend upon the lattice properties having blue as a common colour, where a lab grown stone show no reaction and show null.

➢ **Why LUV Matters in Diamond Testing**

- **Authentication**: Helps differentiate natural diamonds from synthetic and treated stones.
- **Quality Assessment**: Fluorescence intensity can influence a diamond's appearance and value.

➢ **Gemological Studies**: Used by labs like **GIA** to document fluorescence in grading reports.

> ➢ **Bottom Section**: At the bottom, four filter buttons allow users to view specific diamond types:

>> 1. **HPHT** – Highlights HPHT-treated diamonds.
>> 2. **CVD** – Displays only CVD-grown diamonds.
>> 3. **CZ**   - Display only CZ stone glow in shades of Yellow.

> This screening system provides a quick and effective way to classify diamonds based on fluorescence and treatment. It helps users differentiate between natural, HPHT-treated, and CVD-grown diamonds, ensuring accurate identification and valuation.

12.1 Natural Diamond Identification
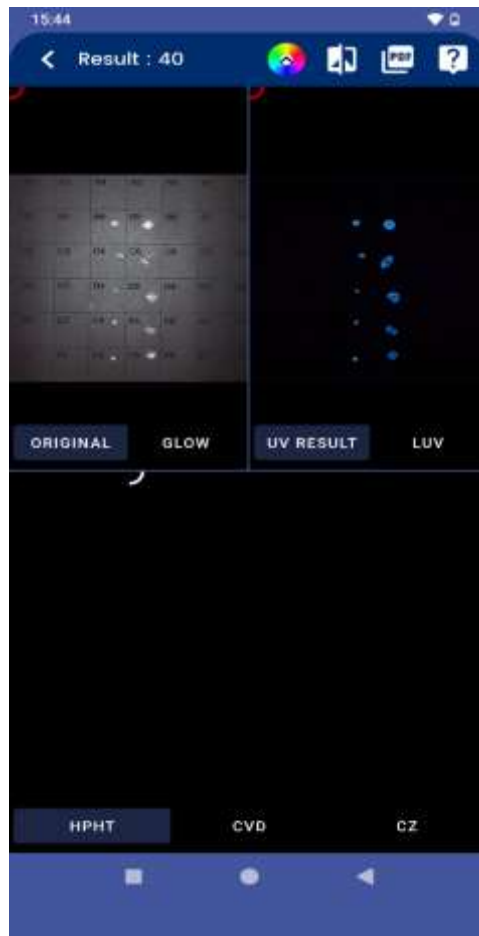
❖ What this Screen Do?

- This screen helps identify **Natural Diamonds**.
- 99% of Natural Diamond usually shows blue color under a specific UV Spectrum however in some rare case it can show slight green and yellow for this user need to confirm on LUV screen.
- The UV fluorescence helps to differentiate natural diamonds from lab-grown (HPHT/CVD).
- The screen displays how diamonds react under UV light, allowing us to observe their natural fluorescence

patterns for identification.

12.2   HPHT Screen (Bottom Left) – HPHT or Treated Diamonds
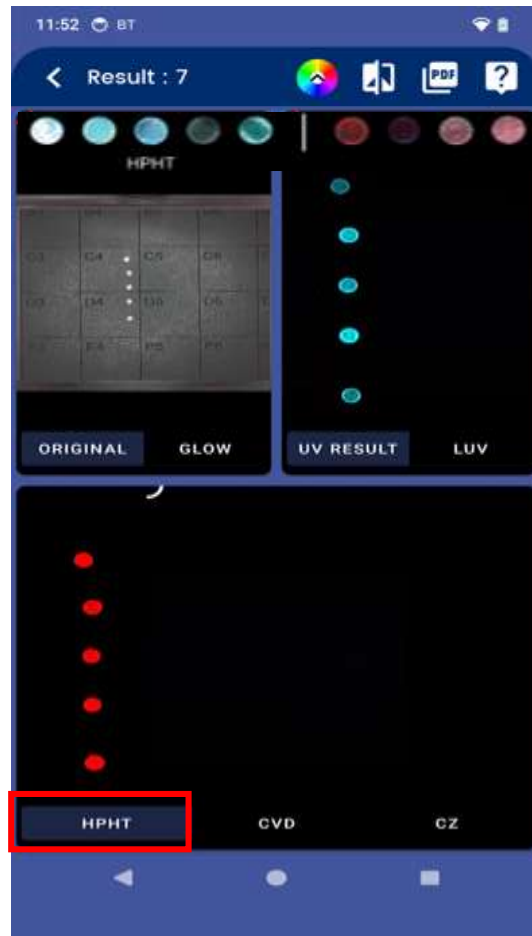
❖ What this Screen Do?

- This screen helps identify **HPHT (High Pressure High Temperature)** diamonds.
- These are **lab-grown diamonds** that are created by mimicking the high-pressure, high-temperature conditions in which natural diamonds form.
- HPHT diamonds can closely resemble natural diamonds, so it's important to detect them correctly for proper valuation.

❖ How We Know It's a HPHT Diamond

1.   How It Glows Under UV Light

- In the **'UV RESULT'** section, all stones exhibit a uniform, vivid glow in Turkish blue or bluish-white hues, with consistent intensity mirrored in the **'GLOW SCREEN'** display.
- This **uniform Turkish blue fluorescence** is commonly seen in HPHT-grown diamonds.

2. **Glow Pattern**

- The glow is **even and bright**, without any patchiness.

- In the **HPHT result panel**, the stones are clearly marked and **show with a red marking** indicating they are HPHT.

- This result **matches the typical UV Result of HPHT diamonds**, confirming the identification.

12.3   CVD Screen – CVD-Grown Diamonds
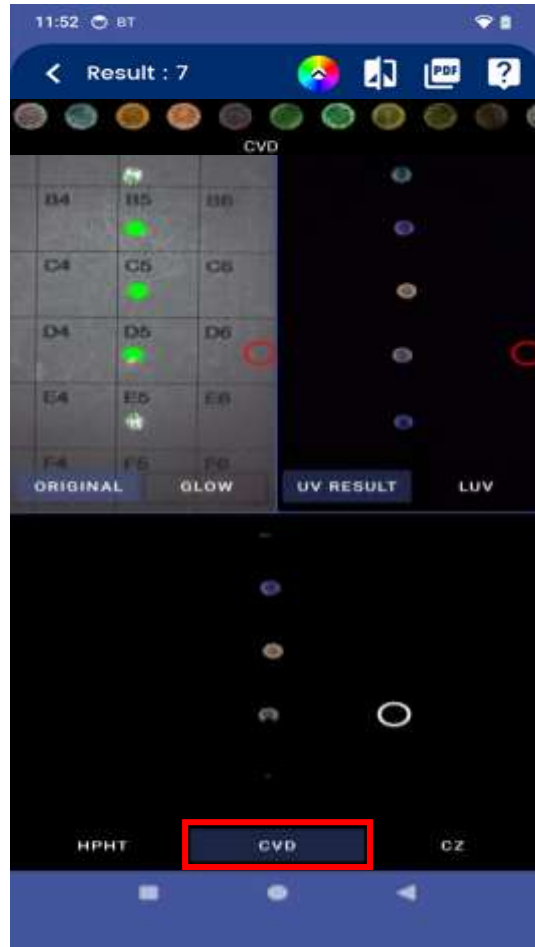
❖ What this Screen do?

- This screen helps identify diamonds that are made using the Chemical Vapour Deposition (CVD) method.
- These diamonds are grown in a lab and can look just like natural diamonds, so it's important to tell them apart correctly.
- In the ORIGINAL image, the **green-colored** stones indicate that these are identified as CVD (Chemical Vapour Deposition) treated diamonds.

❖ How We Know It's a CVD Diamond

1. **How It Glows Under UV Light**

- When we shine UV light on the diamonds (as seen in the "UV RESULT" section), **CVD diamonds often glow in many colours** some of them are as shown in the chart below.

- This kind of **multi-color glow is a strong sign** the diamond is CVD, because natural and HPHT diamonds usually don't glow like this.

12.4   CZ Screen – Cubic Zirconia Diamonds
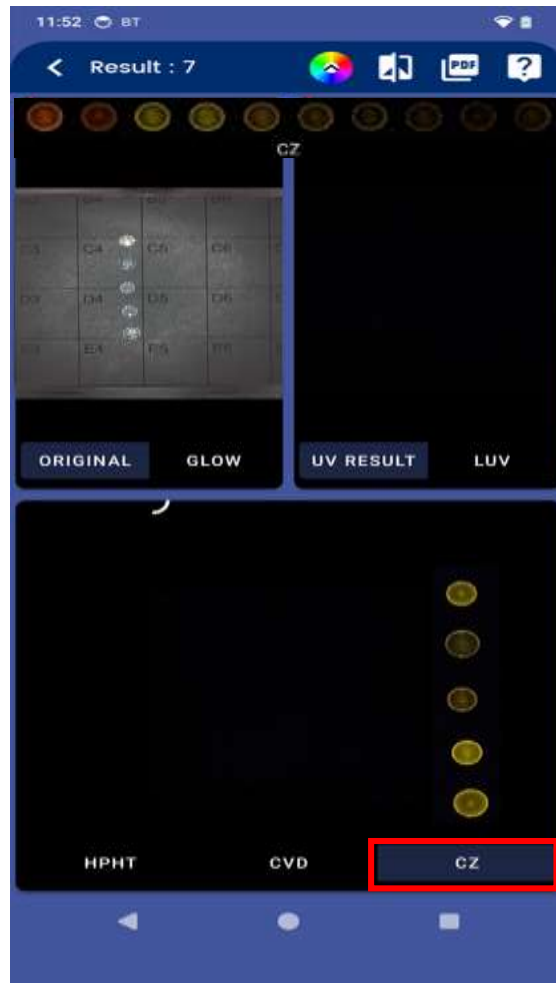
❖ What this Screen do?

- This screen provides a positive ID for **Cubic Zirconia (CZ)**, a **man-made diamond simulant**.
- CZ stones can **look very similar to real diamonds** but are **not actual diamonds**, which is why proper identification is important.

❖ How We Know It's a Cubic Zirconia (CZ)

1.   How It Glows Under UV Light

- In the **UV RESULT, a Cubic Zirconia (CZ)** usually show different responses or no clear glow, making them distinguishable.

2. **Glow Pattern**

- CZ stones **do not show multicolor or patchy fluorescence** like CVD diamonds.

- In the CZ result panel, all stones glow in the **same yellowish tone and intensity**, confirming they are **not real diamonds**, but **CZ simulants**.

13. PDF Report
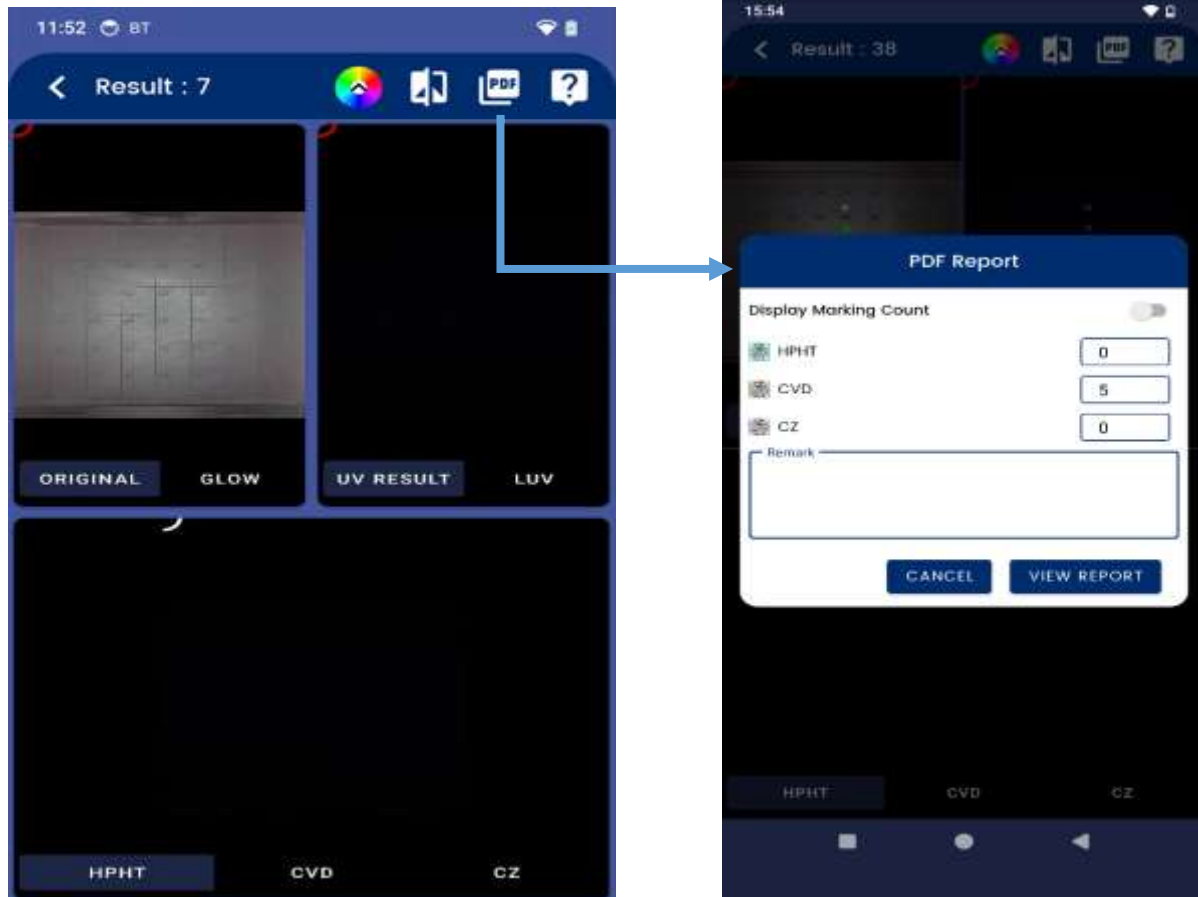
- ➢ This screen allows the user to **generate and view the PDF report**.

- ➢ Users can **edit the count** for HPHT, CVD, and CZ stones.

- ➢ A **Remarks box** is provided to add additional notes.

- ➢ Options are available to **enable/disable "Display Marking Count"**.

- ➢ Buttons: **Cancel** (close without saving) and **View Report** (generate PDF).

14. Display Marking Count Function

This option lets the user show or hide the stone count in the PDF report.

14.1. Enable Display Marking Count:

- ➢ By **enabling** the 'Display Marking Count', original mark count is display on the generated PDF report
- ➢ The user can also edit the marking count if extra marks are detected due to dust particles or metal reflection.
  - o **HPHT**
  - o **CVD**
  - o **CZ**

14.2. Disable Display Marking Count:

> By **Disabling** the "Display marking Count" the original mark count will not display on the generated PDF report.

❖ **Remarks Section**

> A text box is provided for entering remarks.

> Users can add **notes, comments, or specific observations**, which will appear in the final PDF report.

❖ **Action Buttons**

- **CANCEL –** Exit without creating the report.
- **VIEW REPORT –** Generate and preview the PDF Report based on the selected options.

15. View Report

> Once the user clicks **View Report**, the system generates and displays the **Report** in PDF format.
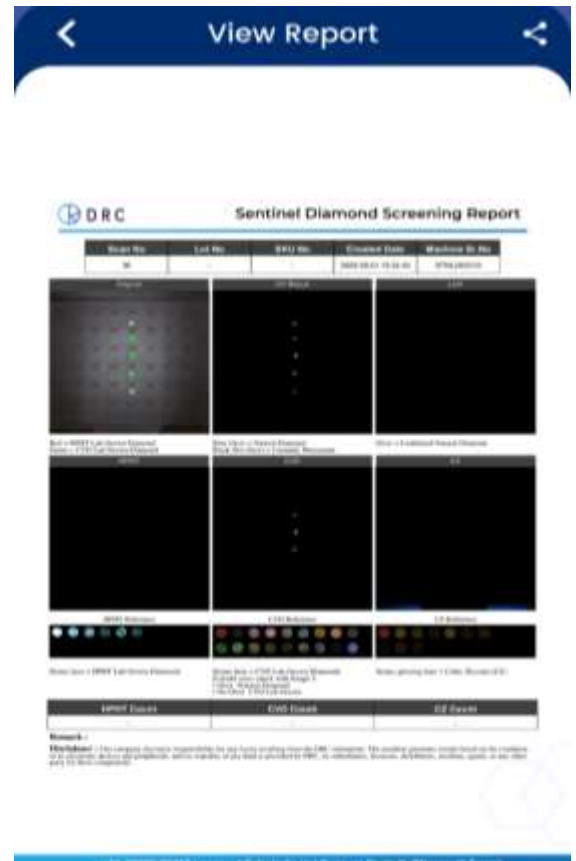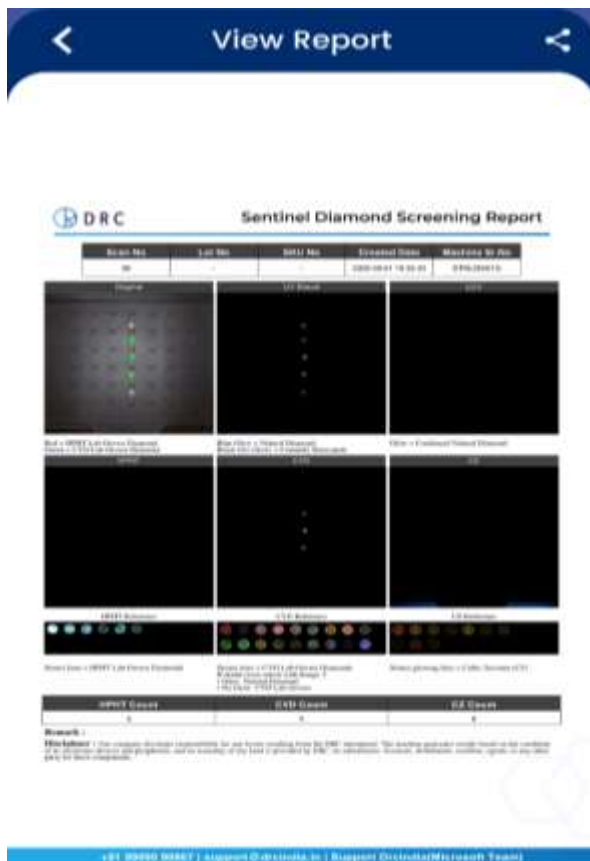
> **Report Contents:**

❖ **Header Information:**

o Scan No, Lot No, SKU No, Created Date, and Machine Serial No.

❖ **Result Images (as per selection):**

- o Original Image
- o UV Result Image
- o LUV Image
- o Glow/HPHT/CVD/CZ Images

❖ **Color Coding in Results**

❖ **Reference Images:**

- o HPHT Reference
- o CVD Reference
- o CZ Reference

❖ **Counts Table:**

- o HPHT Count
- o CVD Count
- o CZ Count
- o (Counts shown only if *Display Marking Count* was enabled.)

❖ **Remarks Section:**

- o Displays any user-entered remarks or observations.

❖ **Disclaimer:**

- o Important note regarding the accuracy and responsibility of results.

❖ **Sharing & Printing Options:**

- o The generated PDF report can be **shared directly** (via email, WhatsApp, etc.) using the share button.

- o The report can also be **printed** for physical records.

16. Select Files to Share (PDF Format)

➤ This screen allows the user to share inspection results in **PDF format**.
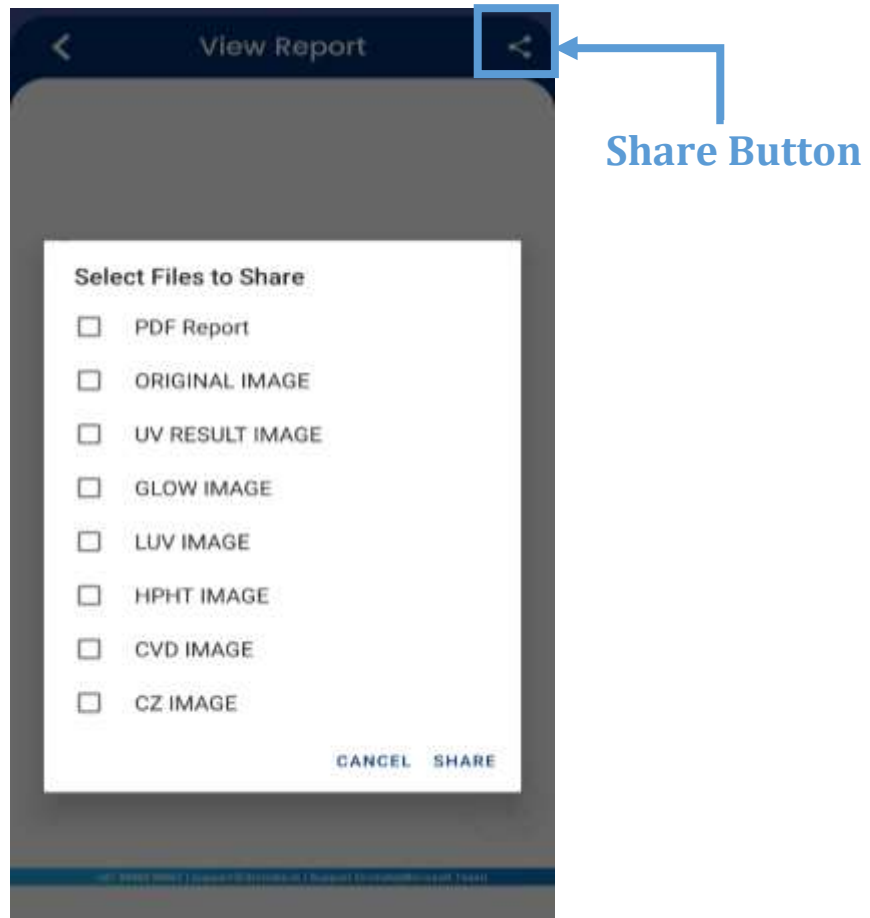
➤ The user can select from the following results:

- o Original Image
- o UV Result Image
- o Glow Image
- o LUV Image
- o HPHT Image
- o CVD Image
- o CZ Image

➤ The user may choose **any single result, multiple results, or all results**, and the selected data will be **compiled into a PDF report** for sharing.

➤ This feature provides flexibility to share only the required test results instead of the entire report.

17. Retesting

Laboratory-grown diamonds, particularly, CVD-grown stones are continuing to evolve at a rapid rate of development. The formulae for these stones literally change on a daily basis as manufacturers strive to improve or obscure the origin of their laboratory-grown diamonds. Therefore, we encourage users to go beyond automatic testing if there is any question about the origin of a particular diamond.

It can be helpful to remove a loose diamond or jewelry with an identified diamond from the original scanning tray and to scan it by itself or with other suspect items. Look for differences in the results and observe these stones in different views.

DRC updates the software for SENTINEL as we continually work to provide the most accurate analysis of diamonds.

Additionally, our Support Team and our Research and Development Team are available to assist users in the testing and analysis process. Contact our Support Team for further assistance.

18. Additional Features and Viewing Options

"The support option allows users to send data directly to DRC Support. If a user encounters any difficulties or issues with the scanned image, they can use this feature to share the image instantly with our support team, which is available 24/7 to assist."
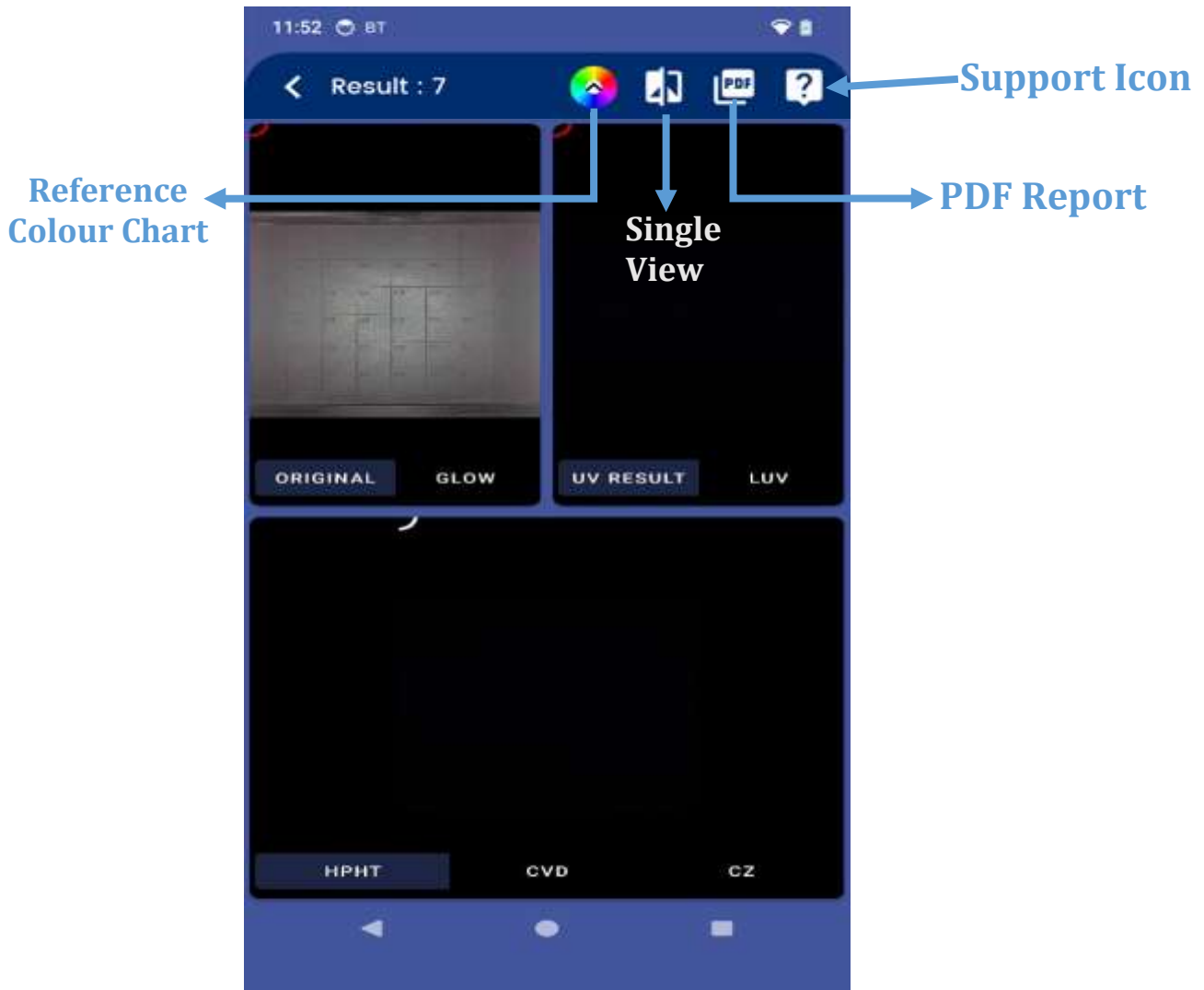
18.1 Split-Screen Analysis

Original / Glow

UV Result / LUV

HPHT   CVD   CZ
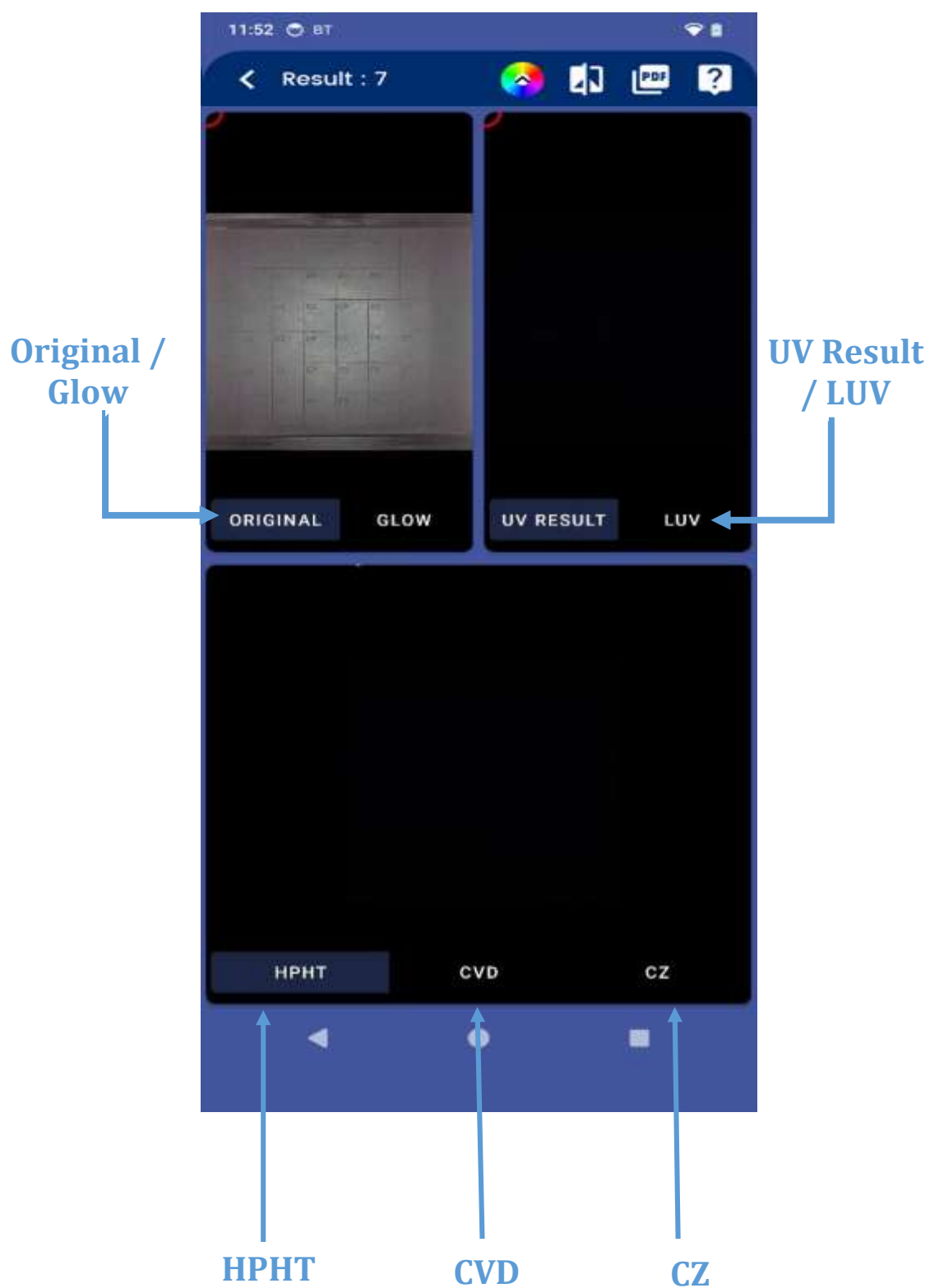
18.2   Additional Features
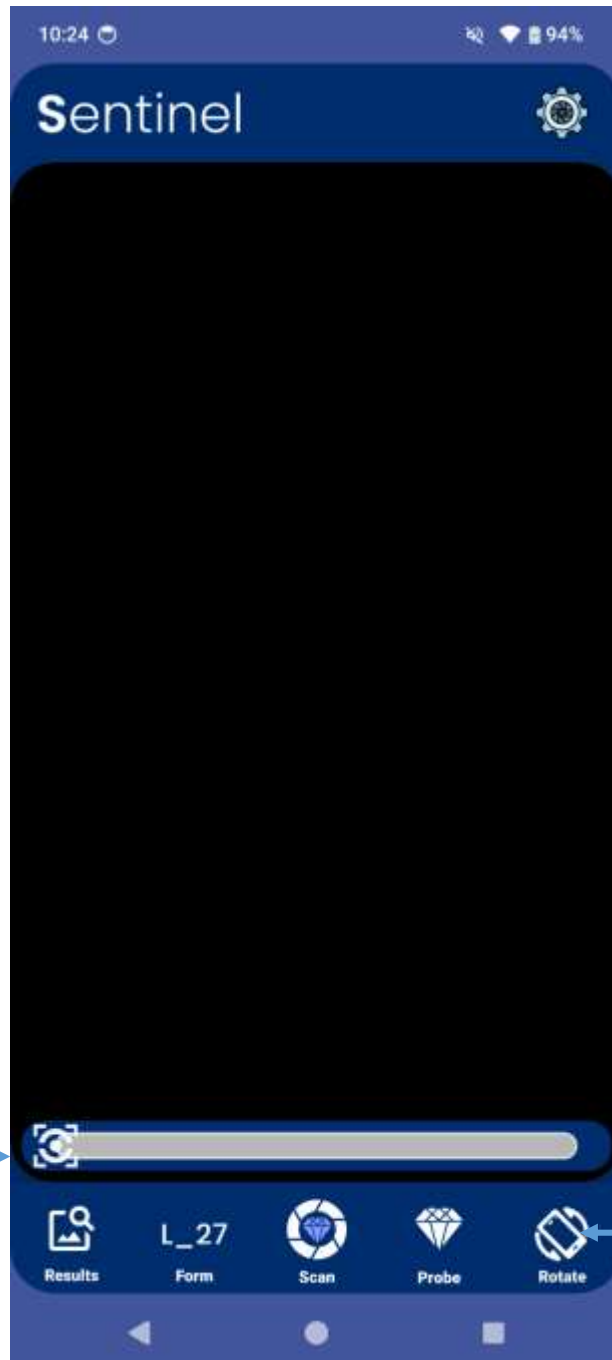
Automatic Focus

SENTINEL software will automatically focus merchandise; however, the user can further refine the focus for better clarity by using the Automatic focus slider that is made visible by tapping on the Focus icon.'

Screen Rotation

The viewing screen can be rotated for viewing by a customer or other person opposite you by tapping this icon.

18.3 Archived Scans and Reports

Search Report

The Archive of Scans can be viewed by tapping on the 'File' Icon.

The Lot Number and the Date of the Scan Are Shown in the default View.

19. Maintenance and Support

SENTINEL requires little maintenance or upkeep. It is best, whenever possible, to keep the machine clean and dust free. The lenses and filters used in the machine are sensitive to dust and debris contamination. If you experience a problem, contact DRC's 24-hour-a-day Support Team for their assistance.

Your SENTINEL machine comes with a one-year comprehensive warranty. All hardware, software, and labour are covered. Also included are unlimited updates from DRC. As the development in the manufacturing of laboratory-grown diamonds changes, it is important to keep the software current and up to date.

Shown below is contact information and procedures for speaking with someone on our Support Team. We will assist you, at no charge, in learning how to operate your SENTINEL and in answering your questions about laboratory-grown diamond identification.

If you experience a particular operational or identification problem, just advise Support. They will do their best to be of assistance.

19.1   Warranty Claim Process

If the original purchaser of the SENTINEL believes that the SENTINEL is defective, then the original purchaser will promptly contact DRC Warranty or Customer Service at +91 9909990867 or Support@drcindia.in.

The original purchaser will provide to the DRC customer service representative the product model and serial number, the date of purchase, and details of the alleged defect. In addition, if requested by the DRC customer service representative, the original purchaser will also provide to DRC customer service representative additional information regarding the alleged defect and the use of the SENTINEL.

DRC will review the information provided by the original purchaser to confirm that the Warranty Period has not yet expired, and (c) DRC's belief that the SENTINEL is likely defective, DRC will guide the further steps to the original purchaser.

19.2   Software License

DRC hereby grants to the original purchaser of the SENTINEL a non-exclusive, non-transferable license, without the right to sublicense, to use the software embedded in the SENTINEL (the "Software") solely with the SENTINEL and solely for the purpose for which it was designed, and not for any other purpose. This license terminates when the owner of the SENTINEL ceases to possess the SENTINEL (including without limitation upon the transfer or sale of the SENTINEL to a third party). No license is granted and no person or entity has the right to sell, transfer, license, loan, or otherwise make available in any form to third parties the Software other than the transfer of the Software to the purchaser or transferee of the applicable SENTINEL. No owner of the SENTINEL may disassemble, decompile or reverse engineer, copy, modify, enhance, or otherwise change or supplement the Software without DRC's prior written consent. DRC

retains all right, titles, and interest in and to the Software and the intellectual property rights in the Software and the SENTINEL, whether such intellectual property rights are registered or unregistered, and wherever in the world those rights may exist.

20. Troubleshoot

20.1   If the machine is not working.

- Plug in the right power supply as specified in the operation manual. Switch on the "Device" and "Mobile".
- Inspect the diamond/ jewellery tray to see if it is properly inserted into the machine.
- Switch on the software and wait for the device to get started.
- Wear gloves while mounting the jewellery so as to keep it free from masking, coating, greasy or dusty surfaces.
- Make sure that diamonds are properly boiled at 250 degrees Celsius for 30 minutes with a solution mix H_2So_4 30% and HNO_3 70% for testing the diamonds appropriately.
- Slide the tray inside the device.
- Initiate the scanning process.
- This device has been invented to detect laboratory-grown diamonds only.

20.2   I have laboratory-grown diamonds, but some of the stones are not detected by SENTINEL.

- Ensure you have followed all the operation instructions correctly.
- It is common to face such a scenario; we have gone through them too. After a deep analysis we have found that these diamonds are not Lab-Grown but Natural diamonds.
- There are chances that they were accidentally replaced during the manufacturing process or the grading process.
- There might be a possibility of them being colored diamonds.
- There might be a chance of them not being properly cleaned or masked.
- Scan it again, if the results achieved are the same, click on the "Help" button on the software to approach our technical team. They will provide you with the necessary assistance.

20.3   My diamonds are natural but SENTINEL detects few of them as Lab-Grown.

- Ensure you have followed all the operation instructions correctly.
- It is common to face such a scenario; we have gone through them too. After a deep analysis we have found that these diamonds are not Natural but Lab-Grown diamonds.
- There are chances that they were accidentally replaced during the manufacturing process or the grading process.
- They may be a possibility of them being colored diamonds.
- They might be a chance of them not being properly cleaned or masked.
- Scan it again, if the result remains the same, click on the "Help" button in the software and our technical team will provide you with the necessary assistance.

21. FAQ

- ## What does SENTINEL do?

The sole purpose of the SENTINEL is to uphold consumer confidence in the natural diamond industry. Most of the diamonds or diamond jewelry purchased today are for emotional occasions like weddings, engagements, anniversaries, birthdays, and so on and so forth. The consumers should know what they are buying. A Lab-Grown diamond may have a place in the jewelry segment but mixing or unethically selling Lab-Grown diamonds with the tag of it being a Natural diamond is playing with the customer's emotions, resulting to a lack of consumer confidence in the industry. This concern was shared with us by many players of the fraternity. Thereafter as a part of this industry, we have taken this situation as a challenge and invented SENTINEL as a result.

- ## Why SENTINEL?

Most of the detection tools or devices available in the market are either very costly or are limited to specific sizes, shapes, speed, accuracy or the device is being made for specific clientele alone. Most devices can only detect TYPE- IIA which requires further testing and analysis to be done in the Lab.

It requires a lot of time and energy to make sure that all purchases are Natural Diamonds. After years of research on the perennial issues, we have consolidated the solution in one single device i.e. SENTINEL. SENTINEL was developed to detect Lab-Grown Diamonds.

- ## What size of diamonds it detects?

SENTINEL is a device that detects lab-grown diamonds of all sizes from 0.003Cts (+0000 Sieve size) and larger, whether colorless or near to colorless Lab-Grown diamonds.

- ## What diamond shapes does it detect?

Any shape or size is detectable weather is rough or polish from 0.003Cts (+0000 Sieve size) and larger, whether colorless or near to colorless Lab-Grown diamonds.

- ## Is it type II-Identification, does further identification required?

SENTINEL directly detects lab grown Lab-Grown diamonds (Diamond grown in laboratory by HPHT as well as CVD techniques) within all colorless or near colorless diamonds. It does not require further testing as the results are shown on the spot.

- ## Is it good for rough diamonds also?

Yes.

- ## What is the speed?

  Currently, it scans one tray (4.7-inch x 4-inch) filled with diamonds in about 45-60 seconds.

- ## How to operate?

  Operating this device is very simple and easily understandable. The operator needs to go through the operation manual before operating SENTINEL. For the test, ensure that the right size tools are chosen, colorless diamonds must be properly cleaned/boiled and they should not overlap one another.

- ## How about after-sales service?

  While designing the machine, we have taken care of using limited parts that require service in the machine. If anything happens to the machine within the warranty period or even after the warranty period, the customer is advised to contact our India support center.

Warranty & Service Contact Information

DRC is a manufacturer of highly technical instruments. They come with a one year, all-inclusive Warranty. After one-year optional service and warranty programs are available on a subscription basis.

DRC Support Contact Options

Email DRC Support Team..support@drcindia.in
Telephone in Surat, India (charges may apply) .....+91-990 999 0867 or
Or call us on WhatsApp (free)   +91 990 999 0867
MS TEAMS...Support DrcIndia

Although your instrument does not require a continual internet connection, most problems and any updates can be handled online in cooperation with our Support Team. We encourage our customers to communicate directly with our support engineers who are generally available 24 hours a day.

Our online service engineers have extensive training on both the hardware and software parts of our instruments, they occasionally require the additional support of hardware engineers, programmers, database software engineers, or someone from our research and gemology teams.

Follow these steps so that we can help you in the resolution of any question or problem.

1. Make sure that you have a proper internet connection. If you elect not to have a constant connection, please have someone from your technical service team establish a stable connection.

2. To connect to your local Wi-Fi network, follow these instructions:

   1. Swipe up on the mobile phone and tap on the settings icon.
   2. Tap on the Network and Internet icons.
   3. Tap on the Wi-Fi icon
   4. Select your local Wi-Fi network from the list

3. Swipe from the bottom and tap on the Team Viewer icon

4. Tap the **OPEN QUICKSUPPORT** bar

5. Send the 10-digit number to DRC Support
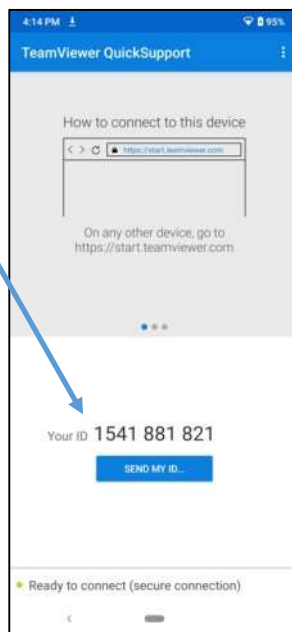
Be prepared to provide a full description of the problem or issue to the service engineer. Stay available if they require your hands-on intervention.

a) Contacting our Support Team directly is the best way to resolve your issue.

   i. We log in only for the duration of the session.
   ii. The Support Team only resolves an issue or performs an update. We do not access your archive of scanned images without your request and permission.

22. Warranty

22.1 Limited Warranty

Subject to the exclusions, limitations, and conditions set forth below, DRC warrants to the original purchaser of the SENTINEL will be free from defects in material and workmanship, when subjected to normal, proper, and intended usage by properly trained and informed users, for twelve (12) months from the date of shipment of the SENTINEL to the original purchaser (the "Warranty Period".)

DRC shall not have any liability if the SENTINEL(a) is unable to determine, distinguish or detect whether an item being analyzed by the SENTINEL is a natural diamond, potential laboratory-grown, processed, or treated, or potentially a diamond simulant or (b) makes an inaccurate determination or gives an inaccurate reading as to whether the item is a natural diamond, potentially laboratory-grown, treated, or processed, or is potentially a diamond simulant.

For any defective SENTINEL that is returned to DRC by the original purchaser during the Warranty Period in compliance with the process specified below, DRC will, at DRC's option, repair or replace the defective SENTINEL, or refund the price paid to DRC for the defective SENTINEL. A replacement may be a new or refurbished SENTINEL in DRC's sole discretion and any such replacement will continue to be subject to the warranty set forth above for the balance of the Warranty Period for the SENTINEL initially purchased.

22.2 Exclusion

SENTINEL will not be deemed defective and DRC will not have any obligation to repair or replace a SENTINEL, or refund the price paid for the SENTINEL as a result of any one or more of the following: (I) normal wear and tear, (ii) accident, disaster, or event of force majeure, (iii) misuse, fault, or negligence of or by any user or other person, (iv) use of the SENTINEL in a manner for which it was not designed, (v) causes external to the SENTINEL such as, but not limited to, power failure, electrical power surges, exposure to fire, water, other liquids, excessive humidity or temperature, virus software attacks (vi) improper storage or handling of the SENTINEL, or (vii) use of the SENTINEL in combination with equipment or software not supplied by SENTINEL.

Using the mobile phone for any other purpose, opening or tampering with the SENTINEL without the supervision of the DRC engineer or written approval of DRC shall immediately void and cancel all warranties.

23. Terms and Conditions

23.1 Definition

In this document the following words shall have the following meanings:

- "Buyer" means the organization or person who buys Goods.
- "Goods" means the articles to be supplied to the Buyer by the Seller.
- "Intellectual Property Rights" means all patents, registered and unregistered designs, copyright, trademarks, know-how, and all other forms of intellectual property wherever in the world enforceable.
- "Seller" means an individual or entity that exchanges any type of good or service in return for the payment.

23.2 General

These Terms and Conditions shall apply to sales of Goods by the Seller to the Buyer to the exclusion of all other terms and conditions referred to, offered, or relied on by the Buyer whether in negotiation or at any stage in the dealings between the parties, including any standard or printed terms tendered by the Buyer, unless the Buyer specifically states in writing, separately from such terms, that it wishes such terms to apply and this has been acknowledged by the Seller in writing. Any variation to these Terms and Conditions (including any special terms and the conditions agreed between the parties) shall be inapplicable unless agreed in writing by the Seller.

23.3 Service and AMC

- In the event that a DRC support engineer must travel to physical service/physical health check-up of an instrument, the cost of their travel will be borne by the customer. These costs may include air or ground transportation, overnight accommodations, and food. We endeavor to keep these costs as low as possible.
- Payment Must be released within 1 week of Service completion, Delay in payment will affect the Credit score of the organization resulting in the Advance payment of Future service.
- Physical check-ups of DRC instruments on customer demand will be scheduled as required or requested in accordance with the engineers' schedules.
- Local taxes may of necessity be added in compliance with regional requirements and regulations. (2 % TDS for Indian clients)
- If the machine is under Expired/ online AMC, Upgradation of comprehensive warranty will be allowed only after the company checks the machine's condition by DRC Engineers Depending on the report DRC has the right to Denial the request.
- DRC machine extended warranty does not cover damage to the machine at the time of the accident, disaster, or natural calamities.

- Separately manufactured components by third parties such as touch screen LCD PC, laptop, notebook computers, D-Imaging cameras, or mobile phones are not covered under AMC.
- At remote locations where DRC Engineers are unavailable we might need help from customers, necessary training and troubleshooting videos will be provided by DRC Online.
- If there are changes in billing name, address, or any other details, it should be rectified when Performa Invoice is issued, not after the final Tax Invoice is issued.
- Client Needs to verify your company name, address, and contact details via multiple departments of your organization to generate Performa Invoice.
- As per Govt. Norms it is mandatory to generate Tax Invoices Will Generate Via Electronic Medium.
- Once the Invoice will generate It cannot change any details.
- As per Indian Government Rule 89 in respect of supplies to a Special Economic Zone evidence regarding the reception of service/goods for authorized operation is Mandatory with the official's sign & stamp.
- For Delivery in Overseas countries respected country custom charges will be bear by the customer only as per their country's norms
- During machine servicing, if any other parts are found to be damaged then our service team will inform you for further charges.
- In case the Machine need to be sent to DRC Head Office or Authorized service centers traveling and Freight charges will be bear by the customer only.

23.4   DRC product Service will be void if,

a)   Any item or component damaged due to external power supply or environmental conditions beyond the limits specified by the company.

b)   Repair carried out by Non-authorized DRC personnel. Other than DRC Engineers.

c)   Natural disasters such as floods, explosions, fire, earthquakes, acts of public enemy, wars, insurrections, riots, labour disturbances, strikes, lack-outs, sabotage, accident to equipment, etc., shall also be excluded from the warranty.

d)   If the product serial number or warranty seal is illegible or has been removed, erased, defaced, altered, and tampered with.

e)   If the consumable parts used by the customer do not meet the standards specified by the company.

f)   In the above Cases DRC Has all the rights to deny any repair or service.

23.5   Order

Order is only valid once a 30% deposit is received. Once the buyer fills out the complete order form, a Performa Invoice will be generated through which the buyer needs to pay 100% of the price of the goods.

23.6   Price & Payment

- The price shall be the Recommended Retail Price less the agreed discount unless otherwise agreed in writing between the parties. The price is exclusive of VAT or any other applicable taxes.
- Credit terms may be offered subject to satisfactory credit vetting of the Buyer by the Seller. The offer of credit will be at the sole discretion of the Seller.
- Where credit is offered payment of the price and VAT and any other applicable taxes shall be due within 15 days of the date of the invoice supplied by the Seller, unless otherwise agreed in writing. In cases where credit is not offered payment will be required before the release of goods by the Seller.
- The Seller shall be entitled to charge interest on overdue invoices from the date when payment becomes due from day to day until the date of payment at a rate of 12 percent per annum.
- If payment of the price or any part thereof is not made by the due date, the Seller shall be entitled to:

  - Require payment in advance of delivery in relation to any Goods not previously delivered.

  - Refuse to make delivery of any undelivered Goods without incurring any liability whatever to the Buyer for non-delivery or any delay in delivery.

23.7   Description

Any description given or applied to the Goods is given by way of identification only and these of such description shall not constitute a sale by description. For the avoidance of doubt, the Buyer hereby affirms that it does not in any way rely on any description.

23.8   Delivery

- Unless otherwise agreed in writing, delivery of the Goods shall take place at the address specified by the Buyer on, or as close as possible to the date required by the Buyer. The Buyer shall make all arrangements necessary to take delivery of the Goods whenever they are tendered for delivery.

- If the Seller is unable to deliver the Goods because of actions or circumstances under the control of the Buyer, then the Seller shall be entitled to place the Goods in storage until such times as delivery may be affected and the Buyer shall be liable for any expense associated with such storage.

- Any damages, shortages, over deliveries, and duplicated orders should be reported to the Seller within 14 days of signed receipt to enable replacement or refund.

- Delivery is strictly based on First come First Serve bases and sole discretions of DRC.

23.9   Risk

Risk in the Goods shall pass to the Buyer upon receipt of the goods. Where the Buyer chooses to collect the Goods itself, risk will pass when the Goods are entrusted to it or set aside for its collection, whichever happens first.

24.   Title

Title in the Goods shall not pass to the Buyer until the Seller has been paid in full for the Goods.

24.1   Return of Unused Goods

- All goods are sold on a firm sale basis, i.e. the Seller will not take back any goods not required or sold by the Buyer unless otherwise agreed, in which case the following terms apply.

- Any returns must be authorized by a representative of the Seller before any credit will be given.

- Credit of the amount due or paid-in will only be given for goods that are in saleable condition.

24.2   Limitations of Liability and Warranty

Warranty is void if the device is tampered / physically damaged/dispersed or dissipated by other than the authorized technician; will full damage is offensive under IP law.

24.3   Intellectual Property Rights

All Intellectual Property Rights produced from or arising as a result of the performance of this Agreement shall, so far as not already vested, become the absolute property of the Seller, and the Buyer shall do all that is reasonably necessary to ensure that such rights vest in the Seller by the execution of appropriate instruments or the making of agreements with the third parties.

24.4   Force Majeure

The Seller shall not be liable for any delay or failure to perform any of its obligations if the delay or failure results from events or circumstances outside its reasonable control, including but not limited to acts of God, strikes, lockouts, accidents, war, fire, breakdown of plant or machinery or shortage or unavailability of raw materials from a natural source of supply, and the Seller shall be entitled to a reasonable extension of its obligations. If the delay persists for such time as the Seller considers unreasonable, it may, without liability on its part, terminate the contract.

24.5 Relationship between Parties

Nothing contained in these Terms and Conditions shall be construed as establishing or implying any partnership or joint venture between the parties and nothing in these Terms and Conditions shall be deemed to construe either of the parties as the agent of the other.

24.6 Assignment and Sub-Contracting

The contract between the Buyer and Seller for the sale of Goods shall not be assigned or transferred, nor the performance of any obligation sub-contracted, in either case by the Buyer, without the prior written consent of the Seller.

24.7 Waiver

The failure by either party to enforce at any time or for any period any one or more of the Terms and Conditions herein shall not be a waiver of them or the right at any time subsequently to enforce all Terms and Conditions of this Agreement.

24.8 Severability

If any term or provision of these Terms and Conditions is held invalid, illegal, or unenforceable for any reason by any court of competent jurisdiction such provision shall be severed and the remainder of the provisions hereof shall continue in full force and effect as if these Terms and Conditions had been agreed with the invalid, illegal or unenforceable provision eliminated.

24.9 Governing Law and Jurisdiction

This Agreement shall be governed by and construed in accordance with the laws of India and the parties hereby submit to the exclusive jurisdiction of Surat district court.

25. Privacy

- Supplementary Mobile can only be used with SENTINEL and not for any other purpose. DRC enjoys the right to access the supplementary Mobile if/when required. Access data may be used for improvement opportunities; such data will be kept confidential by DRC.

- Buyers/Users of this device must keep the supplementary Mobile connected to the internet to receive regular over-the-air software updates.

- Buyers/Users are not allowed to resale or purchase on Behalf without prior permission, SENTINEL is running on an online validation Process, System will stop working if owner details mismatch.

- Buyers of the device must register themselves with a UID provided & listed with each device. The purpose of UID is to maintain the chain of custody system. UID and scanning data may also be used as evidence in the protection of users from fraudulent claims.

25.1 Machine Maintenance policy

Following is the significance of the maintenance policy:

- It ensures that the equipment is always ready and in reliable condition.
- It ensures that the equipment is always maintained and calibrated to provide good results ensuring that your operators should be aware of the machine software and its operations.
- It ensures maintenance of proper earthing, power supply, and spacing (for ventilation) as per the machine standard.

If any organization does not implement an effective maintenance policy, then it can result in the following results:

- It reduces production time.

- It reduces the machine's efficiency.

- It requires daily maintenance/service.

- Parts can be damaged before their expected life.

- It affects the overall machine accuracy.

25.2 Machine Service policy

a) Online Troubleshooting

- Client must have a High-Speed internet facility for service support.

- Online service support will help you to troubleshoot based on virtual analysis.

- Online service support will help you to find out the cause of the problem.

- Online Service support will try to resolve the problems online but in rare cases it needs the engineer visit for further troubleshooting.

b) Physical Troubleshoot

i. Customer Premises (Engineer visit)

- Our engineer will inform the client of critical/non-critical damaged parts in the machine.

- Our engineer will inform/alert the client which parts would get expired in the future.

- Our engineer will guide you on how to maintain external accessories and standards to be maintained.

- During the Machine health check-up visit, our engineer will provide you with a detailed report.

ii.   Company Premises (DRC Office)

- During in-house service if additional parts are found to be damaged in the machine, then it will be replaced after getting the confirmation from the client.

iii.   Machine Transfer Policy

- If any client will sell or transfer the product, then the client must have provided the supportive legal documents to the DRC for continuing service support.

25.3 Using Third-Party Apps and Service Policy

- At the time of troubleshooting, the client must have enabled all the permissions and removed security restrictions from the machine.

- DRC will not take responsibility of the accidental data loss, due to a third-party product that has stopped or malfunctioned. (i.e. Corrupted MS Windows and HDD and accidental data loss.) We always recommend you back up your data for safety and security.

- Third-Party app requires permission and continuous attention for smooth operation.

- MS Windows security could stop the third-party apps and its services so, that it requires updating your Windows software as well the third-party app from time to time.

About DRC

DRC is a privately held, not-for-profit company based in Surat, India. The company's principal focus is on technological advancements for use in the diamond industry. In addition to a variety of instruments designed for the detection of laboratory-grown diamonds, DRC has created a variety of instruments to photograph gemstones or jewelry, uniquely identify diamonds, and assist in the evaluation of their qualities for the trade.

Also, DRC is an industry leader in machinery for the manufacture and finishing of diamonds for factories around the world.

SUPPORT

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WARRANTY

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