QRG: mmWave Calibration – No Power Supply

Introduction

This document is intended to guide repair technicians in performing mmWave Calibration without an ODA2CH power supply.

About mmWave Calibration

mmWave Calibration is performed using Daseul, and must be completed when the following kinds of repair are done on 5G mmWave capable devices:

- IMEI Rewrite (Main PBA Replacement)
- 5G mmWave Antenna Module Replacement

Following successful calibration, Galaxy Diagnostics will test the integrity of each mmWave Module; if any instances fail, the module with the failing instance must be replaced, and mmWave Calibration repeated.

Note: mmWave Calibration is NOT OPTIONAL, and must be completed with these repair types on 5G mmWave capable devices.

Hardware Configuration

The following equipment is required to complete mmWave Calibration without an ODA2CH power supply:

Category	Item		SVC Jig Code	QTY
Shield Box	AS 3.1, 5G (mmWave) AUTO CAL Shield Box		GH81-17197A	1
Anyway Jig and Cable	• Anyway Jig		GH81-12520B	1
	• Anyway Jig Adaptor		GH81-14495A	1
	• 25pin Serial Cable		GH81-17200A	1
	• USB to Serial Cable		GH81-13470Z	1
I/F Cable	Type-C		GH81-17202A	1
Common Model Jig	• Comm.Radiation JIG_Main Base		GH81-19033A	1
	• Comm.Radiation JIG_Mounting(Variable)		GH81-19033B	3
	• Comm.Radiation JIG_Mounting(Fixed)		GH81-19033C	2
	• Comm.Radiation JIG_LM Unit		GH81-19033D	1
	• PACK HOLDER)Slim Molding Pack Assy)		GH81-17204A	1

Follow the instructions in the step table below to complete mmWave Calibration when an ODA2CH power supply is not available:

Note: mmWave RF Calibration can be performed without the use of a Power Supply; however, device battery should be charged over 50% before executing the calibration. If the state of charge is less than 50%, the calibration will not start.
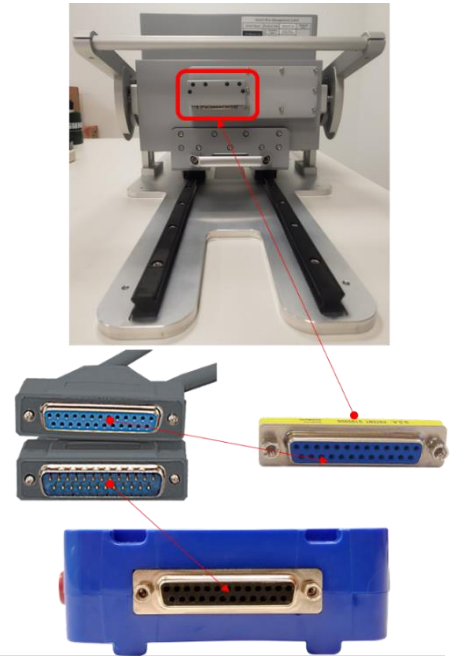
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| Step	Action
1.	Connect the Anyway Jig to the Service PC: • Connect the serial side of the USB to Serial Cable to the serial UART port on the Anyway Jig • Connect the USB side of the USB to Serial Cable to an open USB port on the Service PC **Note:** Connecting the Anyway Jig to the Service PC will generate a COM Port for the Anyway Jig, which can be found in the Windows Device Manager
2.	Connect the Anyway Jig to the Shield Box: • Connect one end of the 25 pin Serial Cable to the Test Pack port on the Anyway Jig • Connect the other end of the 25 pin Serial Cable to the Anyway Jig Adapter • Connect the 25 pin Serial Cable with the attached adapter to the port on the Shield Box door
3.	Configure the Common Model Jig for the device model being calibrated: • Remove the screws from the holder(s) to be moved • Move the holder(s) to the coordinates labeled for the device model to be tested ¬ Make sure that the screws are facing away from where the device will be positioned ¬ The upper variable holder should be secured so that the device does not move after securing the lower side variable holder • (x, y) are the coordinates on the pegboard where the screws should be fastened ¬ There will be at least two points listed for each variable holder ¬ The points will be listed in sets of two in the format (x, y)/(x,y)

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4. Insert the Common Model Jig into the Shield Box:

    - Pull open the Shield Box chamber and place the Common Model Jig in the center
    - Align the notches on the Common Model Jig to the pegs on the Shield Box to secure the Common Model Jig in place

    Note: Do not pull the chamber drawer all the way out; this will derail the chamber from its sliding tracks

5. Connect the Common Model Jig to the Shield Box using the I/F Cable:

    - Connect and secure the I/F cable to the Shield Box port located behind the chamber of the shield box
    - Slide the I/F plug into the Common Model Jig; be careful not to lift and damage the clip
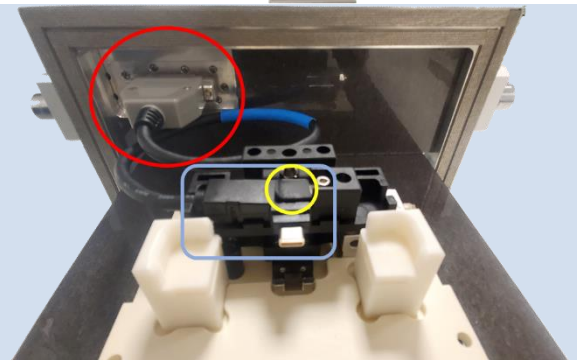
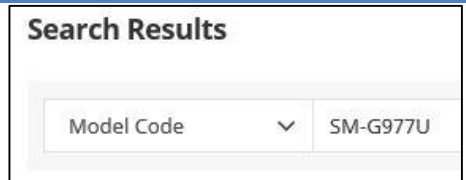**Downloading, Configuring Daseul & Calibration**

There are three (3) files required to complete mmWave Calibration:

- Daseul Launcher (.exe)
- Calibration Runtime (.cab)
- Model File (SM-GXX.cab)

Follow the instructions in the step table below to download the required files from SKP and configure Daseul:

Step	Action
1.	Log in to G-SPN, and click on **Knowledge** from the top menu bar

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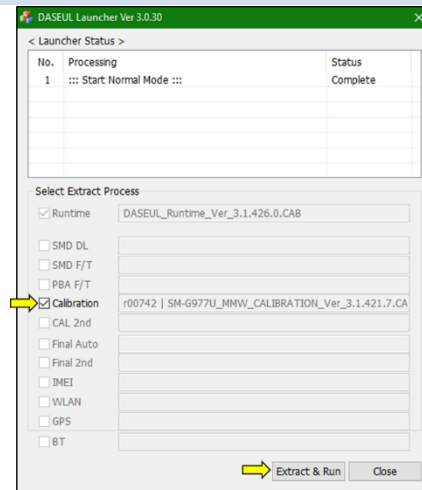| 2.	Type the device model number in the **Model Code** search field, and click on **Search**	**Search Results** Model Code ∨ SM-G977U
3.	Scroll the scroll bar left until you reach the **Compliance Software** column, and click on the hyperlinked number in the Compliance Software column	**Compliance Software** 3
4.	Select the file to download and click **Download Selected** to download the .zip file to the Service PC G977U_MMW_CALIBRATION Kenneth Schepps (06.03.2019) ☑ G977U_MMW_CALIBRATION.zip (164.33 MB) Download Selected Download All	
5.	Extract the .zip file contents into a folder that will contain all three files	
6.	Navigate to and open the folder containing the extracted files, then the Daseul Launcher • With all of the files in the folder, Daseul Launcher should automatically load MMW_Calibration file • Check the box next to **Calibration** • Click **Extract & Run**	launch same the DASEUL Launcher Ver 3.0.30 < Launcher Status > No. Processing — Status 1 ::: Start Normal Mode ::: — Complete Select Extract Process ☑ Runtime — DASEUL_Runtime_Ver_3.1.426.0.CAB ☐ SMD DL ☐ SMD F/T ☐ PBA F/T ☑ Calibration — r00742	SM-G977U_MMW_CALIBRATION_Ver_3.1.421.7.CA ☐ CAL 2nd ☐ Final Auto ☐ Final 2nd ☐ IMEI ☐ WLAN ☐ GPS ☐ BT Extract & Run Close
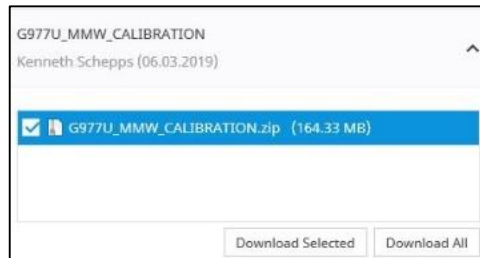
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7. Once the extraction process is completed, the **Select Sequence Files & Login** window will appear:
   - Click and check off **CAL**
   - Click the **...** button next to the CAL dropdown
   - Navigate to and select the Model File, then click **Open**
   - Click **Start** in the bottom right corner of the window
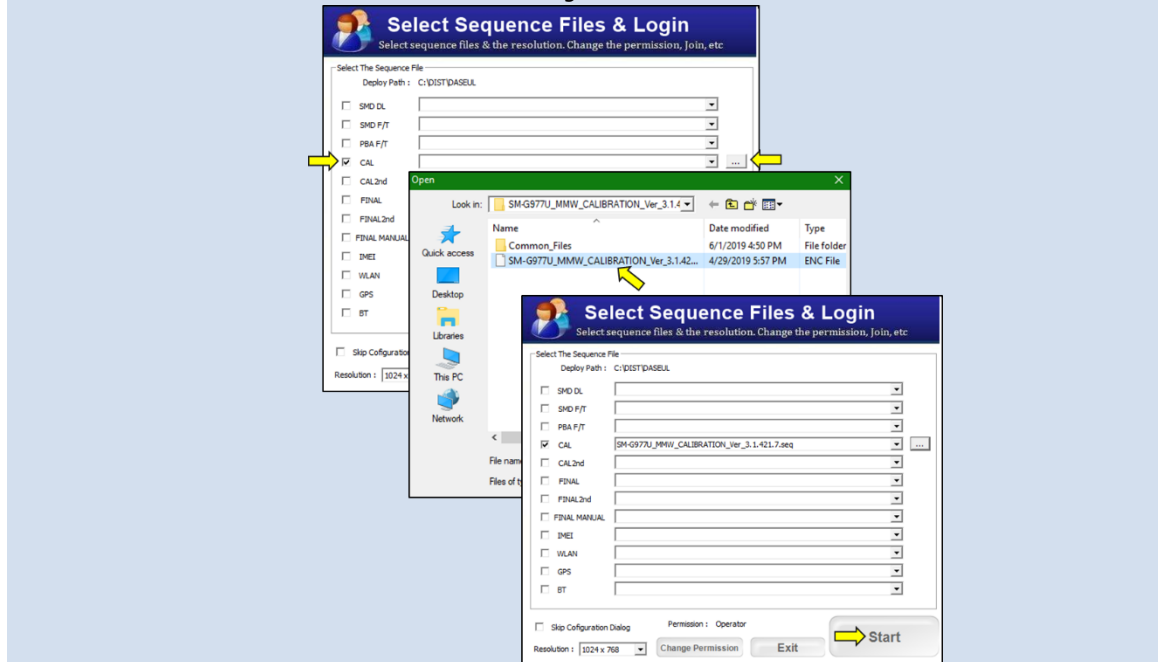
8. The **Set System Configuration** dialog window will open:
   - In the **Test Process** section, select **Calibration**
   - Select **Operation Condition** and ensure **Prevent Process Secession (NV)** is **unchecked**; click **OK**
   - Click **Hardware Config** to continue

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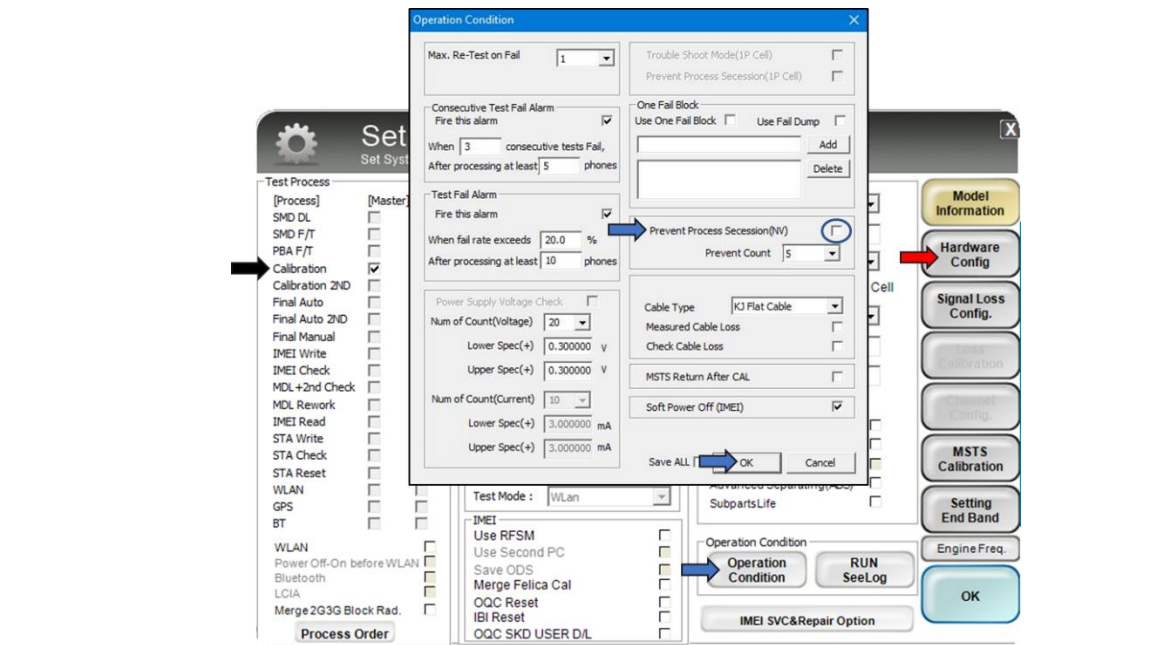
9. Configure the Shield Box:

- Make sure that the Anyway Jig is connected as outlined in the above section, *Hardware Configuration*
- In the Phone section, select **AnyWay Jig** as the IF Jig Type
- Click on **Port Setting** to configure the COM Port number (found in the Windows Device Manager), then click **Save**
- In the **Robot/Shieldbox** section, set the **Control Type** to **N/A** and the **I/F Type** to **Serial COM**
- In the **Power Supply** section, make sure that the **Power Supply** box is unchecked
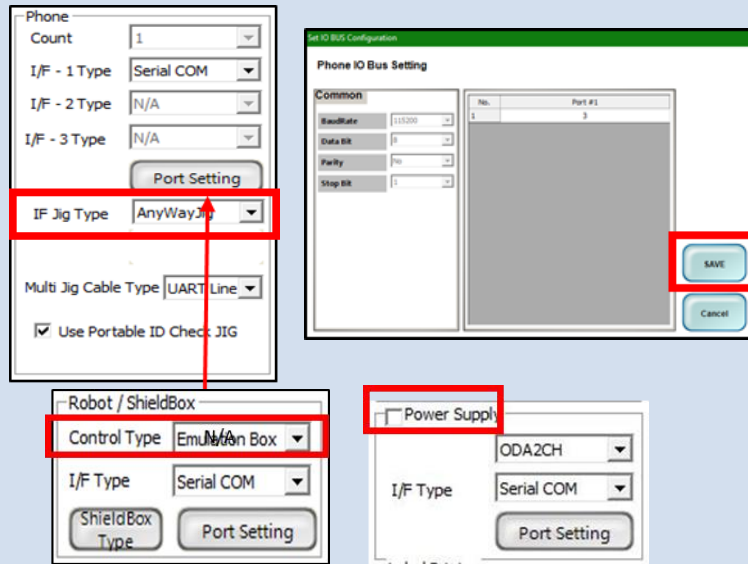
10. Congifure DBMS and Save:

- In the **Server** section, select **Home(GUMI)**
- In the **Type** section, select **N/A**
- Click **SAVE** to save the hardware configuration

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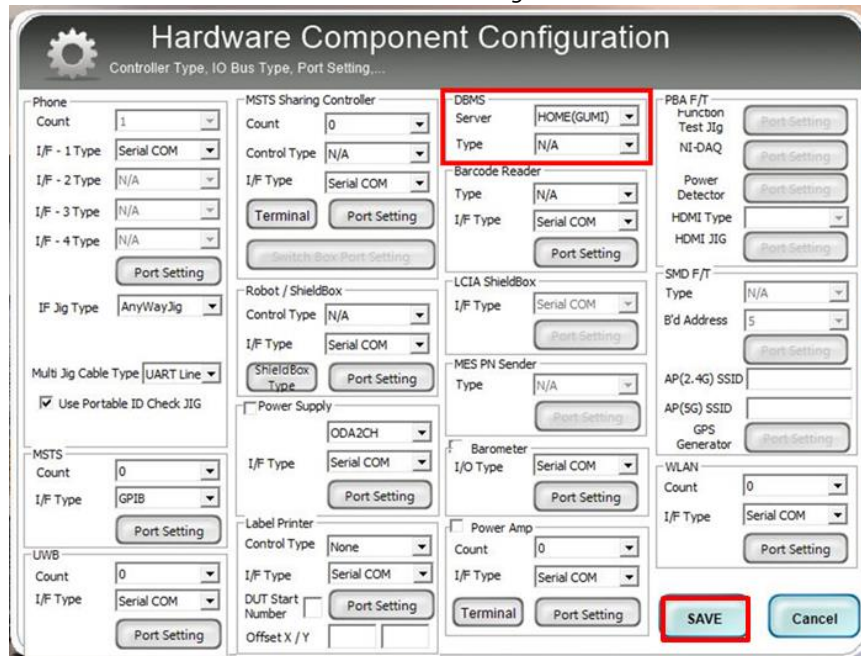
11. Once hardware has been configured, you will return to the Set System Configuration window:

- To save your settings and proceed to Daesul, click **OK**
- You may encounter a MSTS pop-up notification upon clicking OK; disregard this notification and proceed to launching Daesul
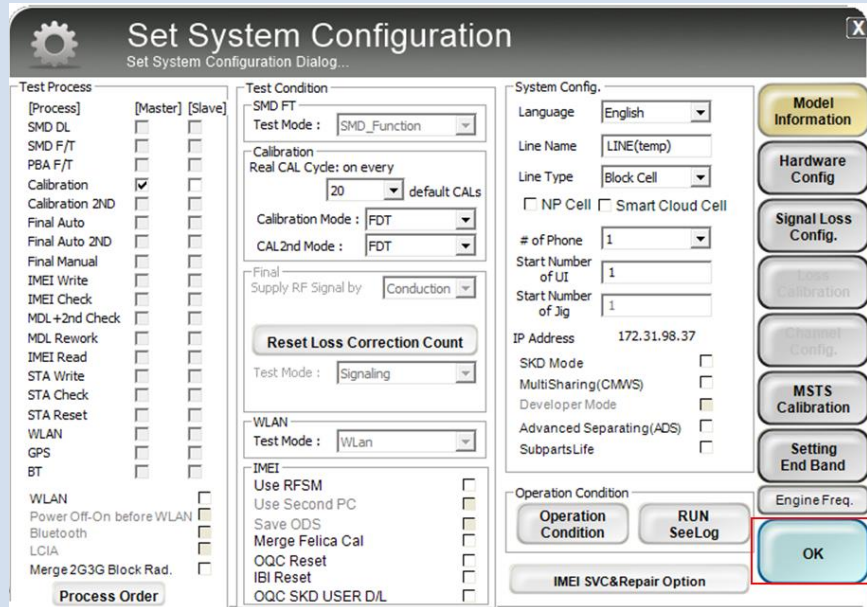
12. Configure Daseul:

- Click on the **Test Item** option within Daseul, and then select the **SVC Opt. (only SVC PBA)** option in red font
- Save and close your settings by selecting the left **??** option below the **CAL Test Option** settings window
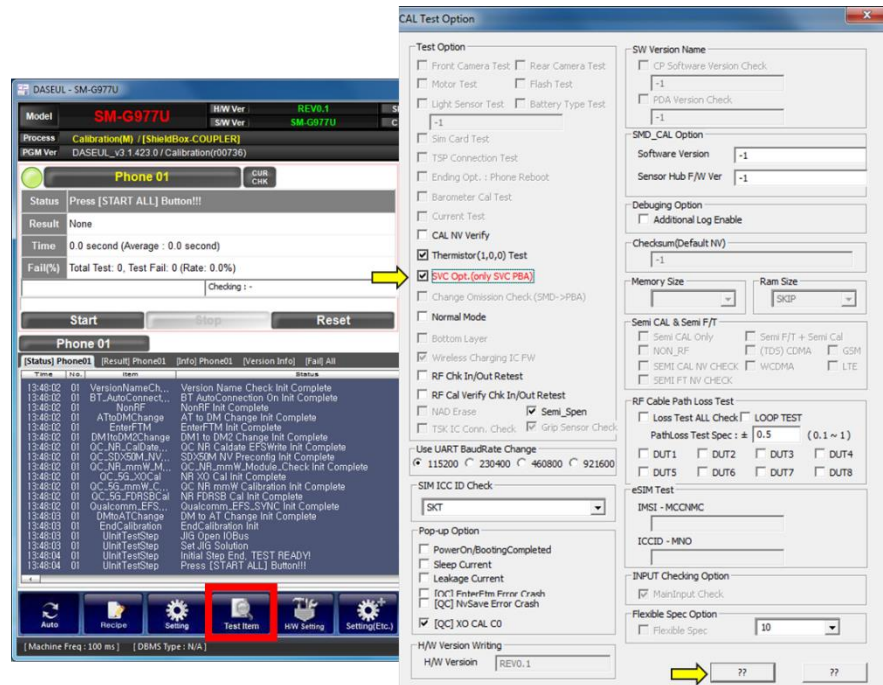
13. Select **Start** :
- Place the powered off device in the Common Model Jig and connect it to the IF Port
- Hold the Power Key to turn the device on
- Close the chamber while the device is booting up, making sure that the Shield Box is closed and locked by pulling **down** on the handle

Note: If the calibration fails, do not stop the tool; allow Daseul to retest, then power the device off, reconnect it to the IF Port, hold the Power Key to turn the device on and close the chamber again while the device is booting up

14. When calibration completes successfully, Daseul will display **<Test Pass>** in the **Result** section
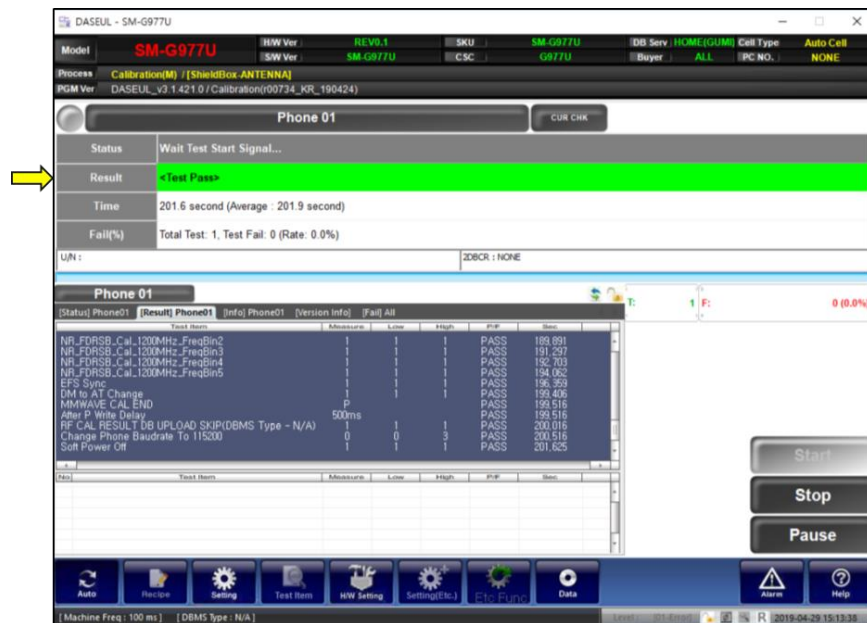

Troubleshooting   If the tool fails, Daseul will display **Alarm !!!** in the **Result** field; a pop up window will provide details of the failure:

Error	Troubleshooting Steps
Tool failing for "Booting Completed Msg Error"	1. Check Anyway Jig COM Port Mapping/Settings
Tool failing for "StartCalibration Fail to Read Test Items All"	1. Ensure the device does not have Screen Lock turned on
Tool failing for "Erase Fail History"	1. Click Abort on the Alarm Screen and let the tool reset

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It is important to make sure that the Fail History is erased manually when a failure occurs; double click on the failure line to view the Alarm Detail, and click the Abort button to clear the failure history. **DO NOT** click Retry, as this will only cause the tool to fail again.
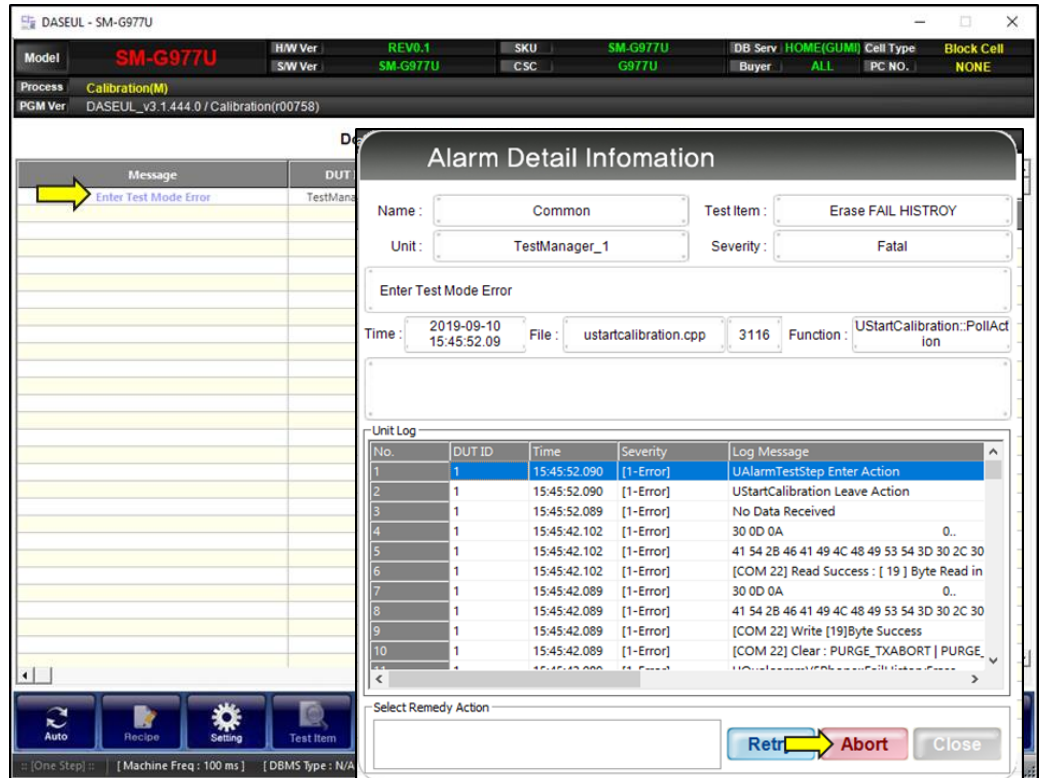
Once the failure history has been cleared, click the **Auto** option and allow Daseul to retest the device:

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