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MICROCHK User Guide

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Detailed Revision History

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d2	19-Sep-19	Mohamed Elarabawy	Review updates
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Legal Information

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Granted

The technology discussed in this document is protected by one or more of the following patent grants:

EP1906159 B1, EP2419770B1, SG175725, SG 179018, EP2545406 B1, JP2013522600 A, CN102834764 B, EP 2 769 257 B1, JP6040253B2, EP2941621B1, CN105051484, JP6386477B2, EP2761253B1, US7796267 B2, JP5204450 B2, US 8497619, EP 2 419 370 B1, JP5721697 B2, SG 175240, US8736843 B2, JP 6082594, US 8531675 B2, JP5860809 B2, US 8873125 B2, US 8508745 B2, US 9046690 B2, US 9429474 B2, JP2015-535886, US 8922787 B2, US 8411340 B2, SG 175724, JP5709839 B2, US 8792105 B2, US 9158109 B2, US 9658053, CN105103030B, US9557556 B2, US 10120134, US 9574880, US9476713, US 9970819 B2, US 9793478, US 9658107 B2 and US 10060791 B2

Pending

The technology discussed in this document is protected by one or more of the following patent applications:

EP20100755038, EP20130783730, US2015010026 A1, EP20130747718, EP20140704976, JP2016516220A, EP20140725821, US20160246010, EP3259227A1, CN 2016800111622, JP2017-542406, EP3259228A1, CN 201680011152, JP2017-542384, EP3274674A2, EP3320313A2, JP2018533812A, EP 167196732, JP 2018530588, CN 108474690 A, US 20180143245 and US 62793231

References

1. Si-Ware Systems. Document Control Procedure. SWS-12010001
2. Si-Ware Systems. Si-Ware Systems Master Internal Document Template. SWS-12010001

Table of Contents

1 Introduction

MICROCHK is a customized LabVIEW-based software for interfacing with NeoSpectra Micro devices (SWS62231). MICROCHK is also capable of measuring certain specifications of Micro devices to ensure that DUTs (Devices Under Test) are functioning properly.

MICOCHK measures the following specifications for every tested unit: SNR (Signal-to-noise ratio, wavelength repeatability, wavelength accuracy, photometric stability and photometric accuracy. The testing time on average PC is usually less 110 sec per unit.

This user guide consists of 4 sections starting by an introductory section highlighting software main functionality and user guide document structure. The next section will highlight the testing setup hardware installation. Section 3 will introduce the software installation steps. Finally in last section “Getting started”, the testing procedure will be presented with more details on software user interface functionality.

2 Hardware Installation

The testing setup should be connected as shown in Figure 1: Testing Setup

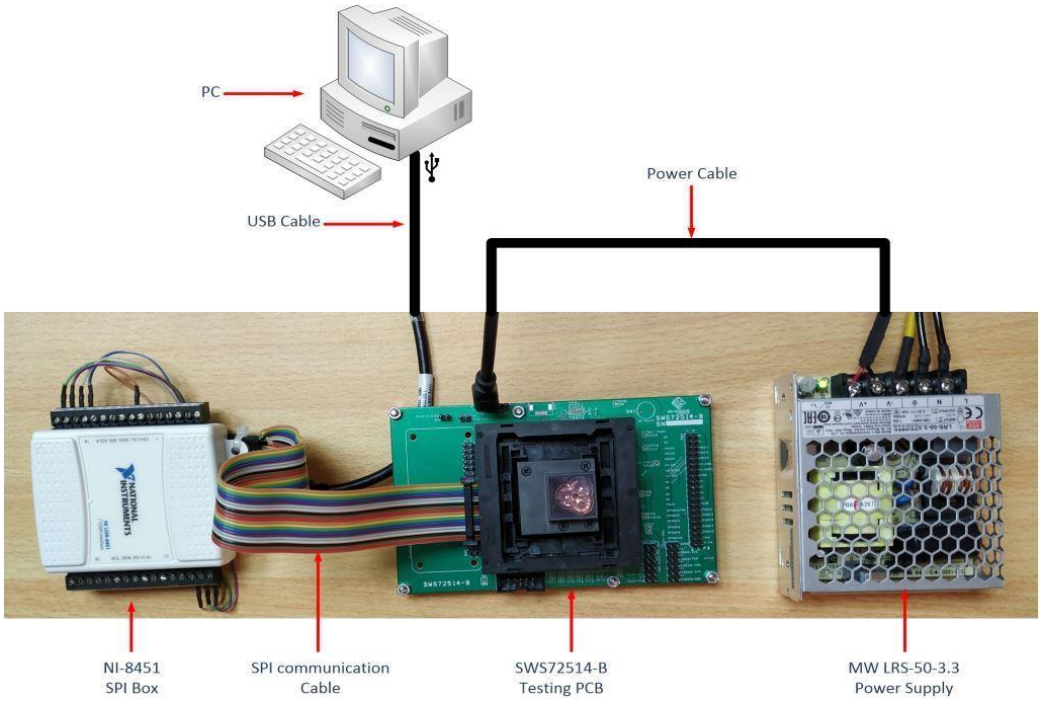

Figure 1: Testing Setup

The testing setup different components, their part numbers and their functionalities are shown in Table 1

Table 1: Testing setup components

Component	PN	Functionality	Included in shipped testing setup
Testing PCB	SWS72514-B	Provide mechanical interface, power and communication to DUT	☑
Power Supply	MW LRS-50-3.3	Provide 3.3V to power DUT (1)	☑
SPI Box	NI-8451	Provide SPI and digital control signals to DUT (2)	☑
Polystyrene Sheet	NA	A diffuse-reflection reference material with specific-wavelength absorption lines to be used in reference material test	☑
PC	NA	Tester platform for software operation (3)	
Spectralon	NA	Background reference with a white response over the IR range to be used in SNR test and as a background in reference material test	☑

(1) Power supply output voltage can be adjusted by turning the screw knob as shown in Figure 2. It is recommended to set the output voltage at the power supply terminals (-V and +V) to 3.35V

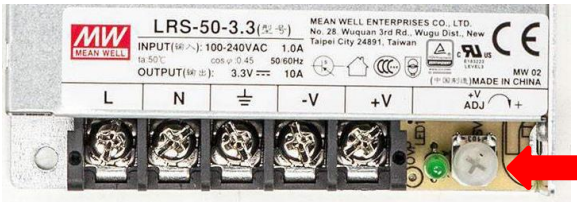

Figure 2: Power supply adjusting

(2) SPI box is shipped with USB cable and communication cable where needed signals are labeled on the wires.

(3) PC minimum requirements are as follows:

- Processor: Core 2 Duo, 2 GHz or higher
- RAM: 2 GB or higher
- Prerequisite: .NET Framework 2 or higher
- Microsoft Windows 10 (x64)

3 Software Installation

Kindly follow the step-by-step installation steps:

1. Open the installation folder directory.
2. Run “Setup” as administrator.

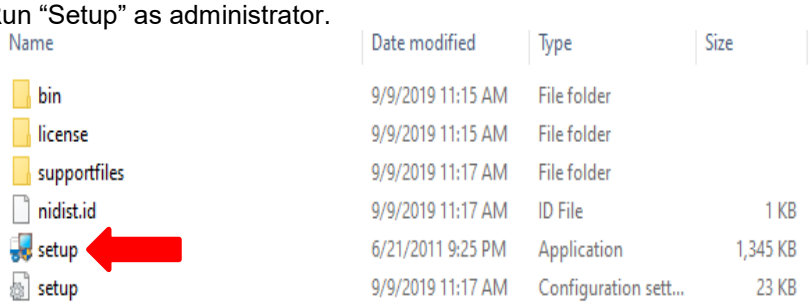

Figure 3: Installation folder directory

3. The installation process will start as shown in Figure 4

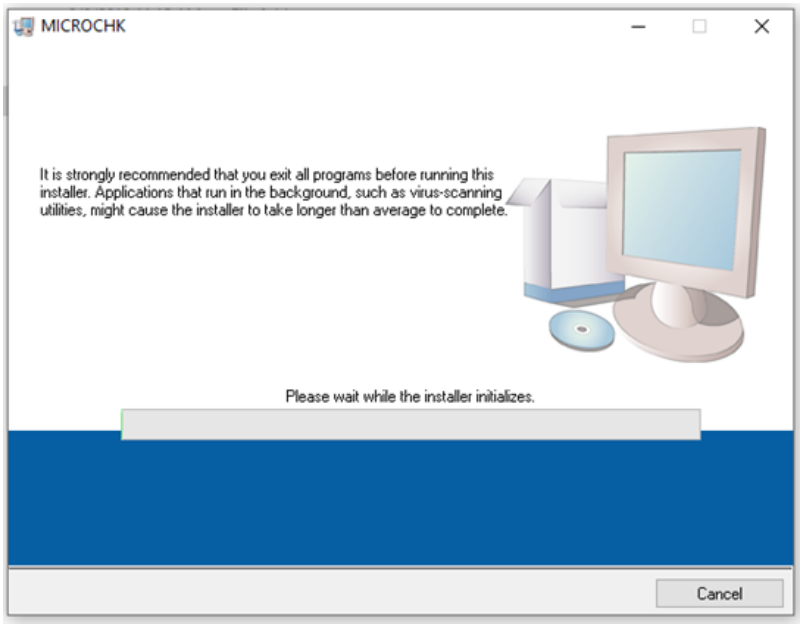

Figure 4: Installation wizard

4. In the next window, select the MICROHK and National Instruments products installation directories and press “Next”.

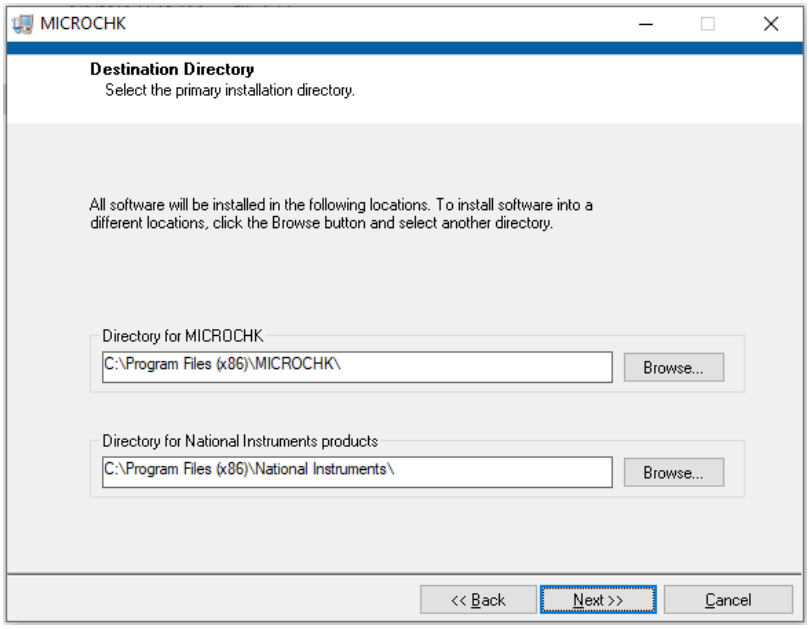

Figure 5: Installation directory selection

5. Press “Next” to start installation.

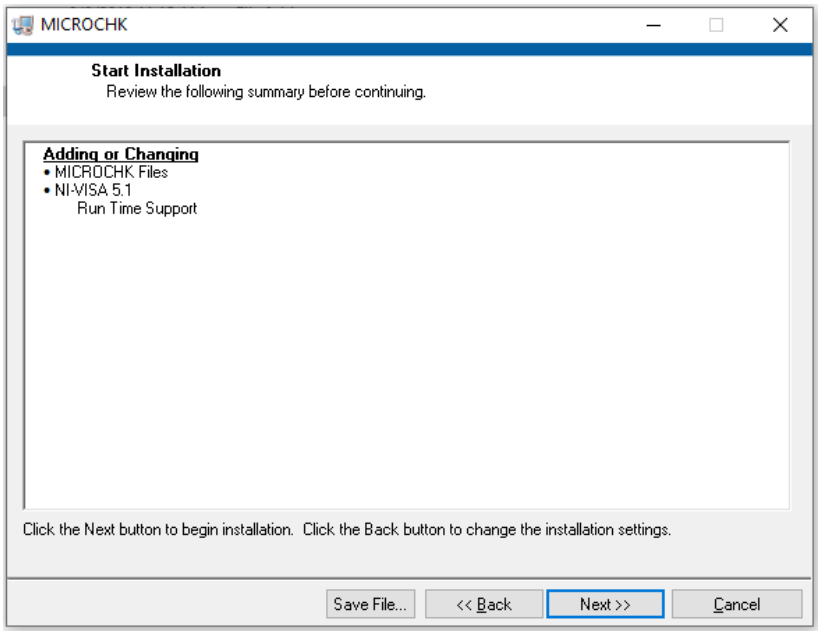

Figure 6: Start Installation

6. The installation will run for about 5 min.

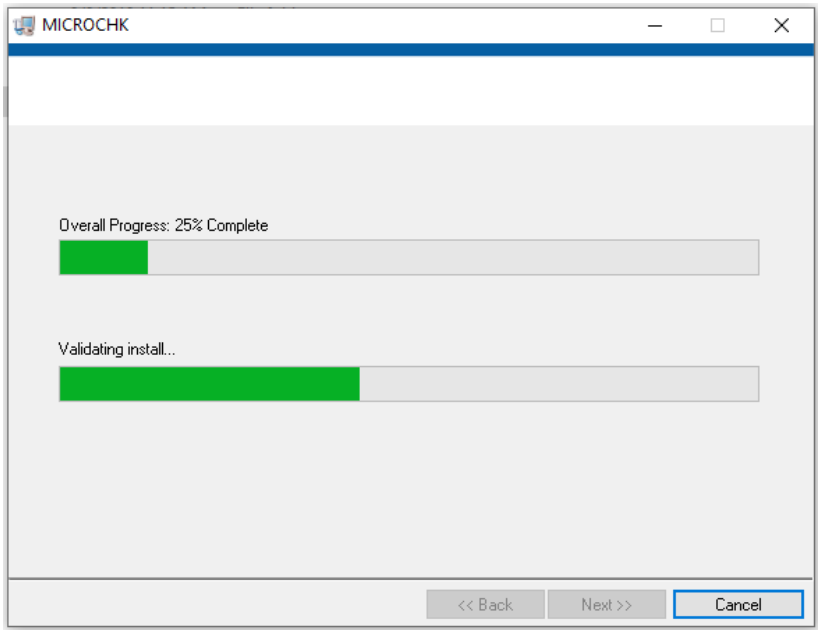

Figure 7: Installation running

7. Once the installer finishes, press “Finish” to end installation wizard. Software is now successfully installed and ready to be used.

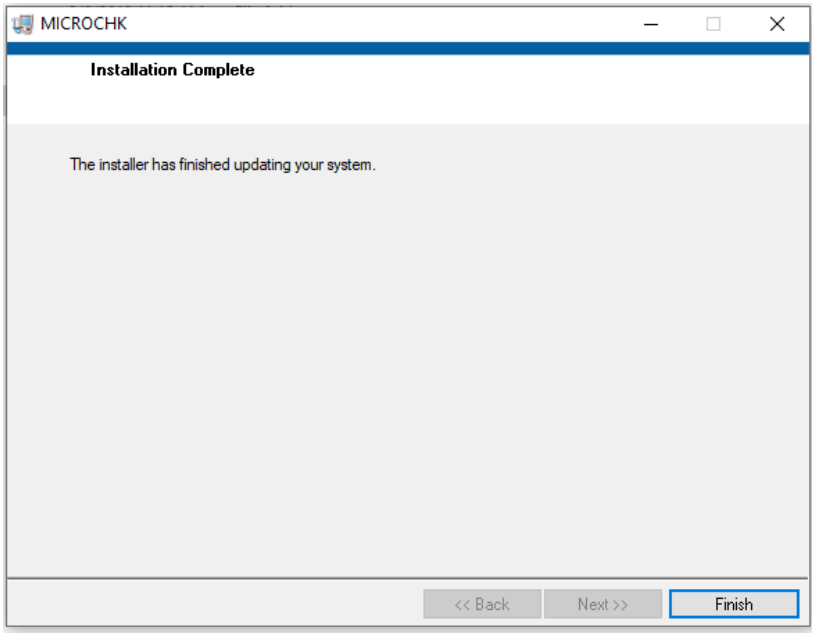

Figure 8: Installation complete

4 Getting Started

To start testing devices, please follow the next steps

1. Ensure that the testing setup is connected as shown in 2.

2. Make sure the DUT is placed in the testing board in the correct orientation per board label instruction. To place the DUT in socket, press on all test socket edges simultaneously, then place the unit inside the socket. Release the socket four edges once the DUT is stable inside the socket.

3. Start running MICROCHK from installation directory as shown in Figure 9

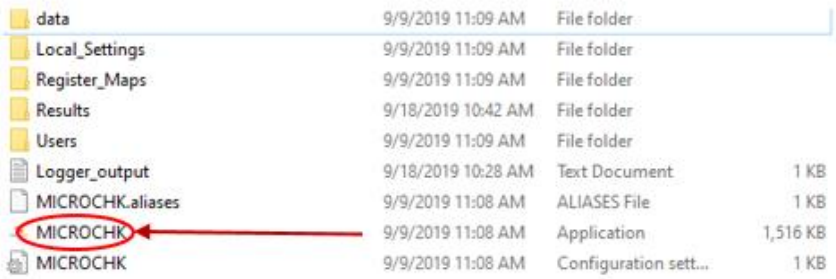

Figure 9: MICROCHK directory

4. The software user interface shall open as shown in Figure 10

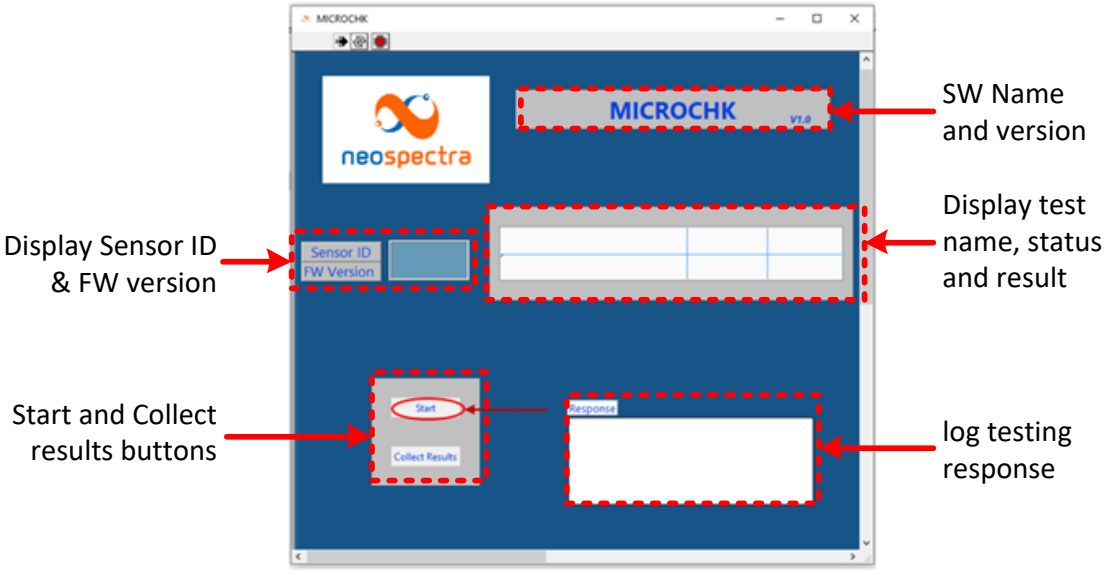

Figure 10: MICROCHK user interface

5. Press “Start” to begin testing.

6. The software will display the read DUT ID and installed FW (Firmware) version and a message will pop-up “Please put the Background material [Diffuse Reflection Ceramic Tile or Spectralon]”.

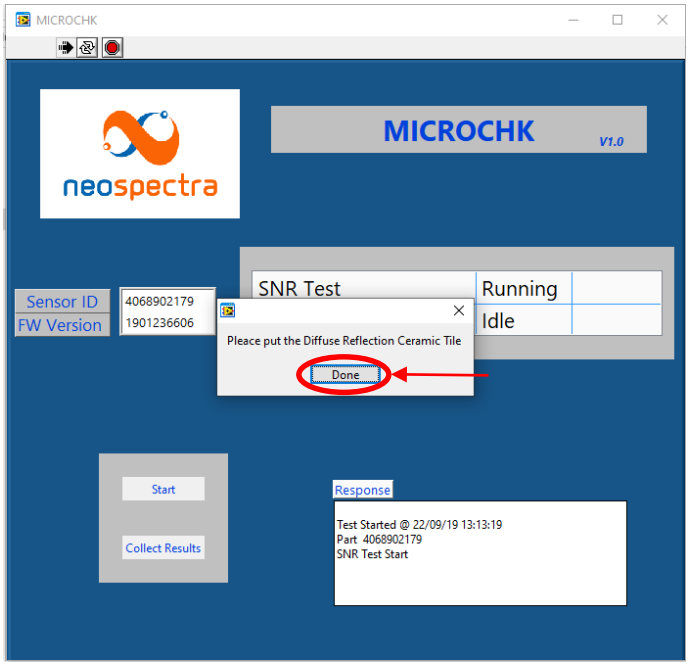

Figure 11: SNR test prompt message

7. Kindly place the Background tile with white response as shown in Figure 12, then press “Done”.

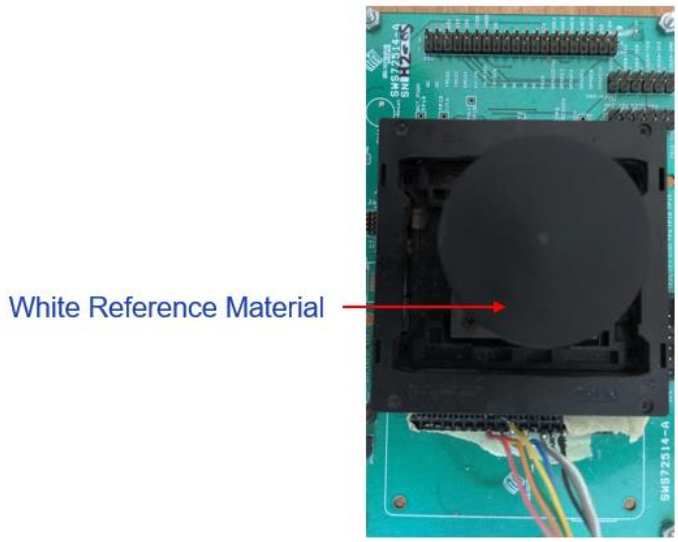

Figure 12: Testing Setup with white reference material

8. The 1st test (SNR test) will start running. You should notice DUT light source turning on and the test status will indicate if the test passed or failed as shown in Figure 13. If test failed, the software will stop and will not run the next test.

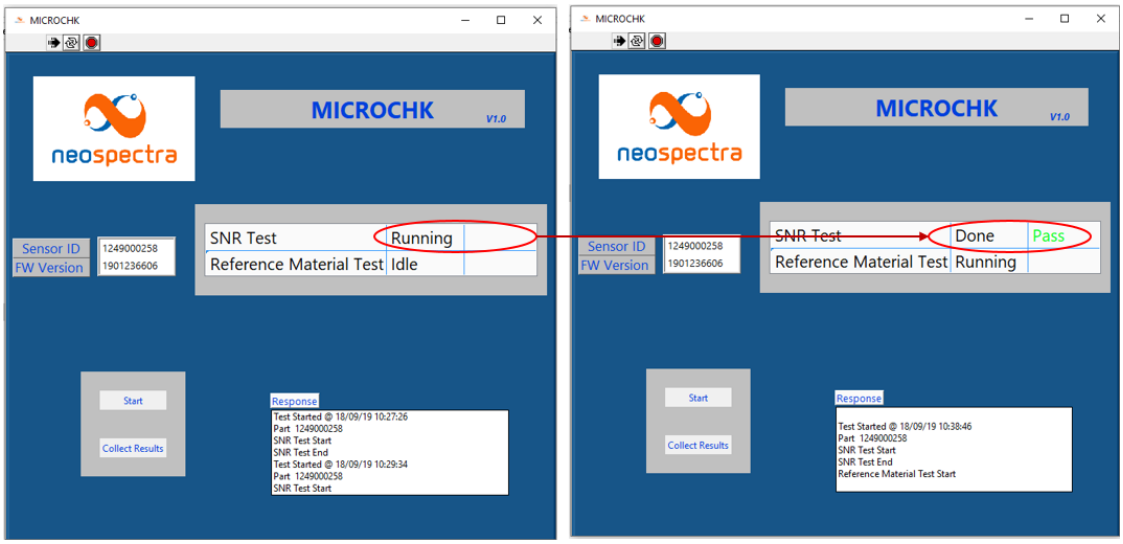

Figure 13: SNR Test

9. If SNR test in previous step passed, MICROCHK will proceed automatically to 2nd test "Reference material test". A message will pop-up "Please put the Polystyrene Sheet" as shown in Figure 14.

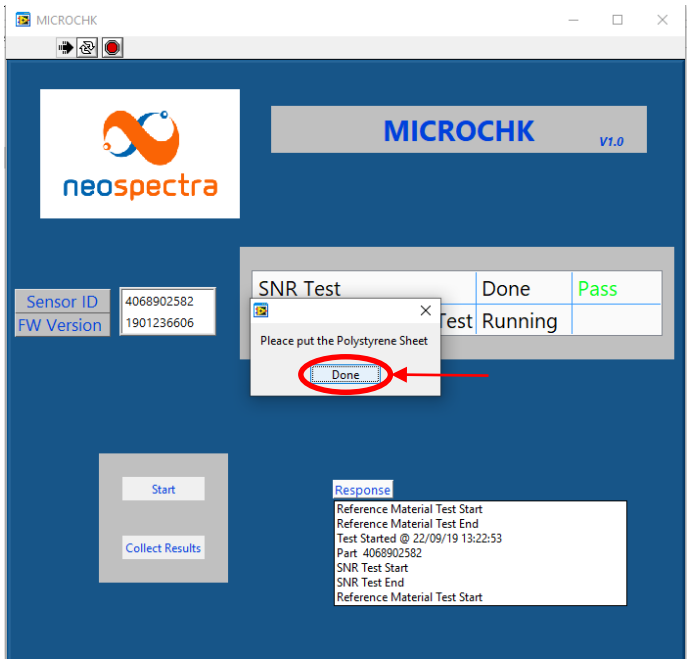

Figure 14: Reference material test prompt message

10. Kindly place the reference material “Polystyrene Sheet” as shown in Figure 15, then press “Done”.

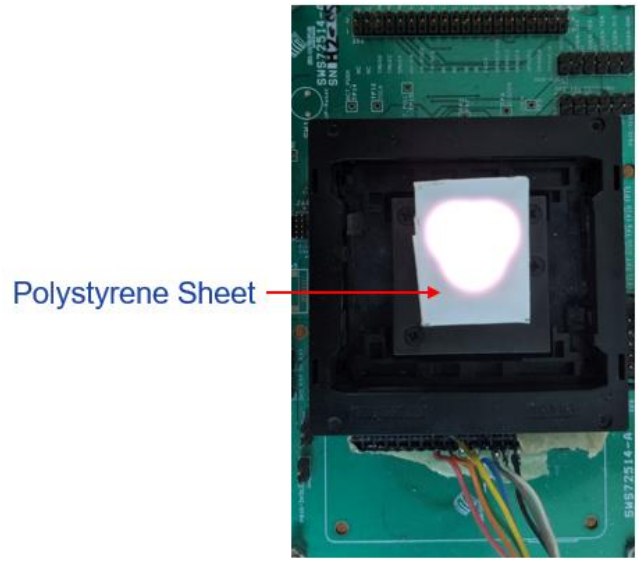

Figure 15: Testing setup with reference material

11. The reference material test will start running. The test status will indicate if the test passes or fails as shown in Figure 16.

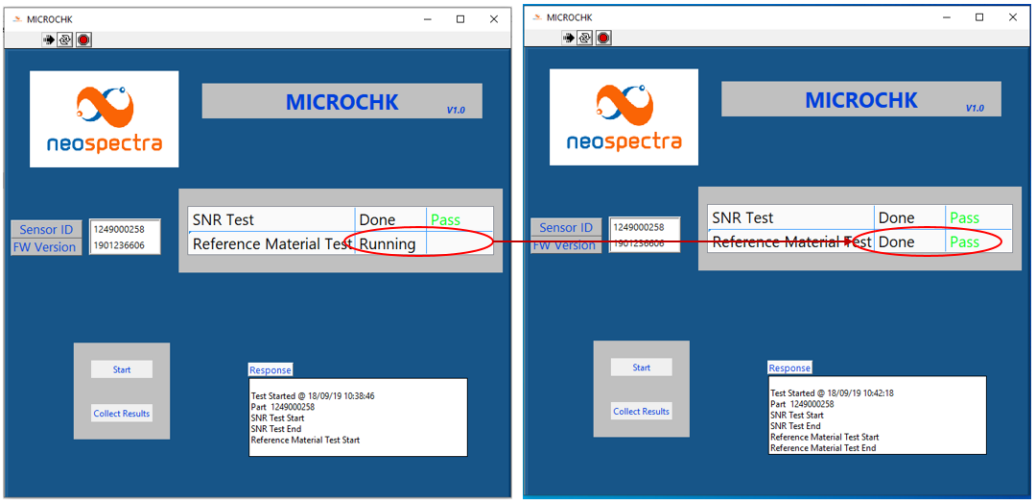

Figure 16: Reference material test

12. Once both tests pass, the unit shall be good for use.

13. Remove the current DUT by pressing on all test socket edges simultaneously to release the DUT, the pick it up out of test socket.
14. Place a new DUT and start testing steps from step 1 again.

15. To collect the results of tested units press “Collect Results” button. This will summarize the results of all tested units in a tab delimited text file called “All Results”

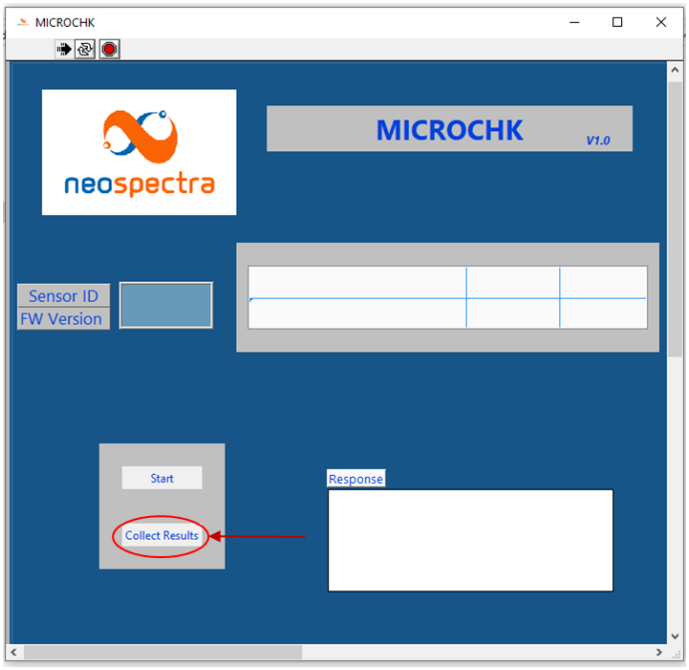

Figure 17: Collect results

16. This file is located inside the “Results” folder located in MICROCHK directory as shown in Figure 18.

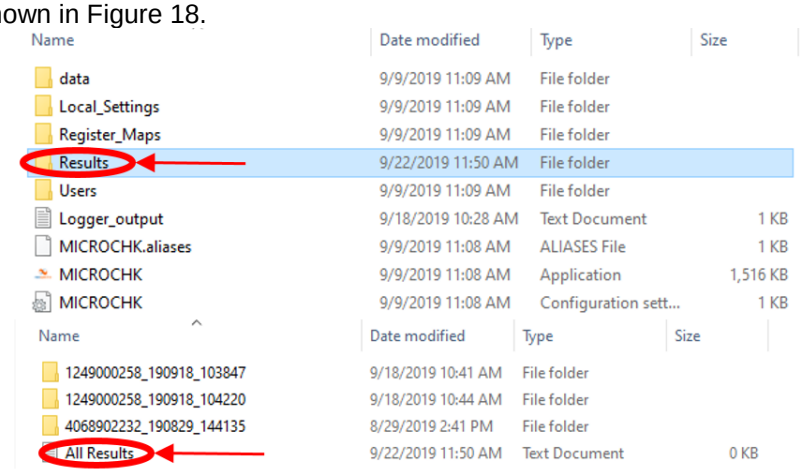

Figure 18: collected results location