



USB4 v2 Receiver Test Application Help

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Welcome

The USB4v2 Rx application performs the test as per the USB4 V2 Gen 4 Electrical Compliance Test Specification Revision 0.9.

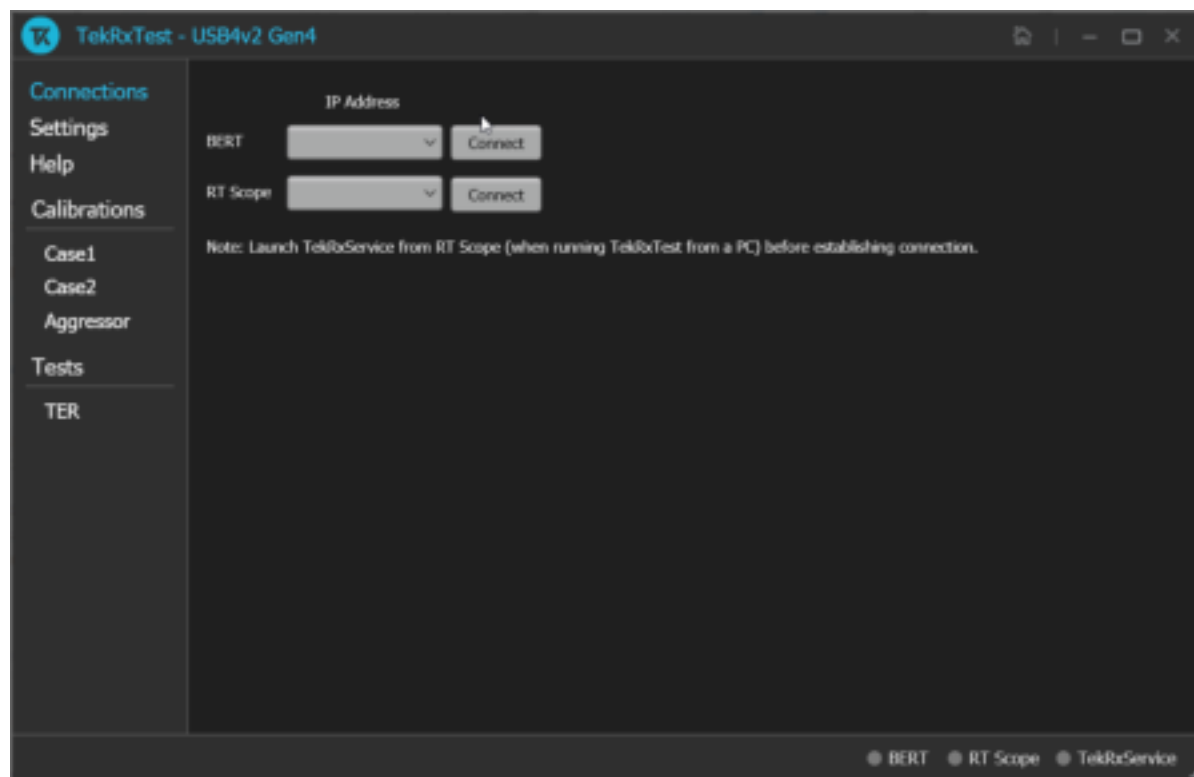


Figure 1: TekRxTest - USB4v2 Gen4 Rx application

Key features and benefits

- Calibration and Compliance Testing comes as a part of the receiver solution.
- Automated Calibration procedure is handy along with the ability to reload and resume partially completed calibrations.
- Supports Case 1, Case 2, and Aggressor calibrations, with a built-in verification step to ensure calibration accuracy once the target is achieved.
- Receiver TER test for the DUT using the Electrical Testing Tool (ETT) from USB-IF. A manual option is supported for the same for the user to perform the test step by step.
- Jointly with Anritsu BERT MP1900A series, the receiver solution provides the tools and flexibility required to visualize and control the impairments, observe real-time performance for USB4v2 devices at 25.6 Giga baud per second.
- TER test can be performed using the Case1 and Case2 calibration files.
- Detailed reports are at one's disposal for all calibrations and tests performed and saved.

Getting help and support

Related documentation

The following documentation is available as part of the **USB4v2 Gen 4** receiver test application.

Table 1: Product documentation

Item	Purpose	Location
Application Help	Application operation and User Interface details	Help panel of the application

Technical support

Tektronix values your feedback on our products. To help us serve you better, please send us your suggestions, ideas, or comments on your application or Real Time Oscilloscope. Contact Tektronix through mail, telephone, or the Web site. See [Contacting Tektronix](#).

When you contact Tektronix Technical Support, please include the following information (be as specific as possible):

General information

- All instrument model numbers
- Hardware options, if any
- Modules used
- Your name, company, mailing address, phone number, and FAX number
- Please indicate if you would like to be contacted by Tektronix about your suggestion or comments.

Application specific information

- Software version number
- Description of the problem such that technical support can duplicate the problem
- If possible, save the setup files for all the instruments used and the application.

Getting started

Required equipment and accessories

This section lists the accessories and test fixtures required to perform the tests.

Table 2: Required equipment and accessories

Equipment	Vendor	Type	R/O	Qty	Description
MP1900A	Anritsu	Equipment	Required	1	BERT
DPO77002SX Oscilloscope of higher bandwidth	Tektronix	Equipment	Required	2	Tektronix Real time Oscilloscope Bandwidth ≥ 25 GHz, ≥ 2 - channel oscilloscope
PMCABLE1M	Tektronix	Accessory	Required	4	Precision Phase Matched Cable Pair, 1m
PMCABLE0.5M	Tektronix	Accessory	Required	6	Precision Phase Matched Cable Pair, 0.5 m
K261	Anritsu	Accessory	Required	2	DC Block
J1789A	Anritsu	Accessory	Required	2	40 cm coaxial cable, V connector
41VA-6	Anritsu	Accessory	Required	4	6 dB attenuator(V-V)
41VA-10	Anritsu	Accessory	Required	2	10-dB attenuator(V-V)
AH54192A	Anritsu	Equipment	Required	1	Differential Linear Amplifier
34VKF50	Anritsu	Accessory	Required	2	Fixed Adapter (V-M, K-F)
AH54192A-01	Anritsu	Equipment	Required	1	Power Supply
USB4v2 Micro-controller	Wilder	Equipment	Required	1	Wilder USB4 Micro-Controller Test Module with USB cable
Receptacle test fixture	Wilder	Equipment	Required	1	Wilder USB4 Plug and receptacle Test fixtures
PCB Fixture	Wilder	Equipment	Required	1	For additional channel loss
Type A-B connector	Wilder	Accessory	Required	1	USB Type A-B Cables
Type C-C connector	Wilder	Accessory	Required	1	USB Type C Cables

Installing the software

Follow the below steps to download and install the latest USB4v2 Gen 4 TekRxTest application.

1. Go to www.tek.com.
2. Click **Downloads**. In the Download menu, select DOWNLOAD TYPE as Software and enter **USB4v2 Gen 4** in the MODEL OR KEYWORD field and click **SEARCH**.
3. Select the latest version of the software and follow the instructions to download.
4. Copy the executable file into the instrument to install the software (Real-time oscilloscope or PC).
5. Follow the installation instructions that is available in the website. The software is installed at C:\ProgramFiles\Tektronix\BERTScope\RxTest60.
6. Click the shortcut icon on the desktop to launch the application.



Note:

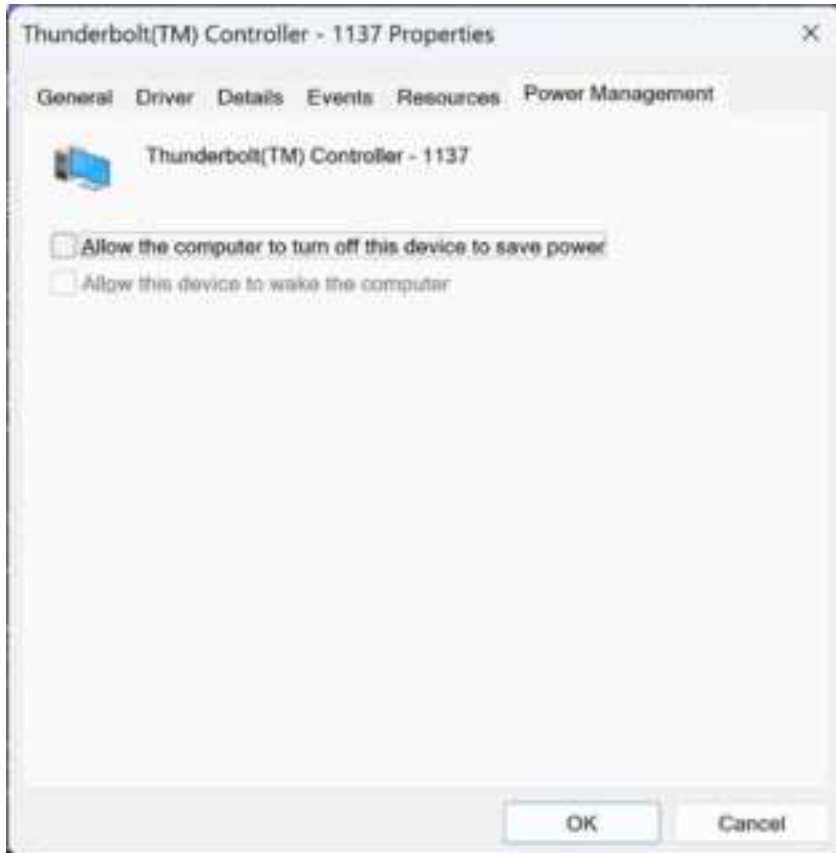
- The USB4v2 Gen 4 TekRxTest application can be installed on a Tektronix real-time oscilloscope or a PC (Optional).

- You must install the TekRxService application in the real-time oscilloscope to successfully connect the application with the real-time oscilloscope.
- TekRxService must be installed in the PC where TekRxTest application will be running.

PC configuration

If the DUT requires link training, connect it to the thunderbolt port of a PC and configure the following settings as below:

Device Manager > System Devices > Thunderbolt (TM) controller > Power Management.



Operating basics

Launch the application

To launch the Gen 4 TekRxTest application, click the shortcut icon **TekRxTest** on the desktop and select **USB4 v2 Gen 4** in the application window.



Close the application

To exit the application, click  on the application title bar. Follow on-screen instructions to save the unsaved session or test setup.



Note: Using other methods to exit the application may result in abnormal termination of the application.

Launch Real-Time Oscilloscope

The TekVISA Socket Server application on the oscilloscope provides the necessary connectivity between the TekRxTest application and scope. Although it is launched in the background when the scope boots up and the socket is initialized for communication, it is recommended to verify the status by clicking on the Desktop Tray → TekVISA LAN Server Control as shown in the image below. If it is ready to exchange data, then a wizard would appear as in the below image.

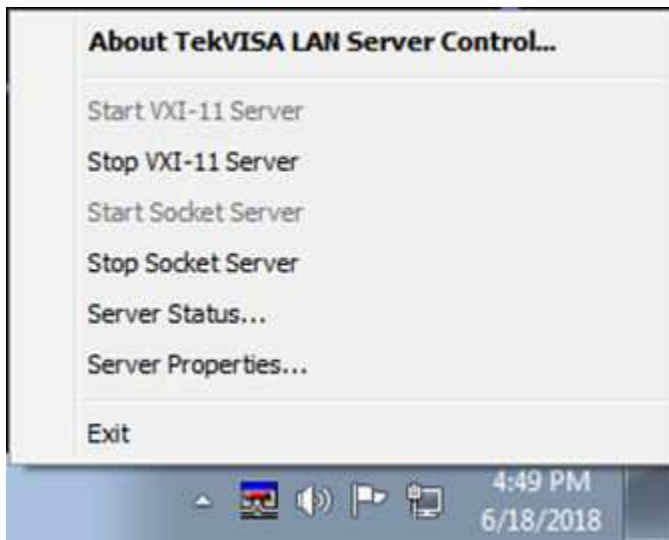


Figure 2: Launch Real-Time Oscilloscope



Note: In the unlikely event when the socket is not initialized, the process can be started by clicking on “Start Socket Server” which gets enabled during such a scenario.

Launch TekRxService

The USB4v2 Gen 4 TekRxTest application interfaces with the oscilloscope for data acquisition, analysis, and data retrieval utilizing TekRxService application. TekRxService should be launched from the oscilloscope before initiating a connection between the oscilloscope and TekRxTest application.

TekRxService must be installed in the PC where TekRxTest application will be running.

Application panels

Application panels overview

The USB4v2 Gen 4 receiver test application uses panels to group the configurations and settings. Click on any panel to configure the associated settings. A panel may have one or more tabs that lists the selections available in that panel. Controls in a tab may change depending on the settings made in the same tab or another tab.

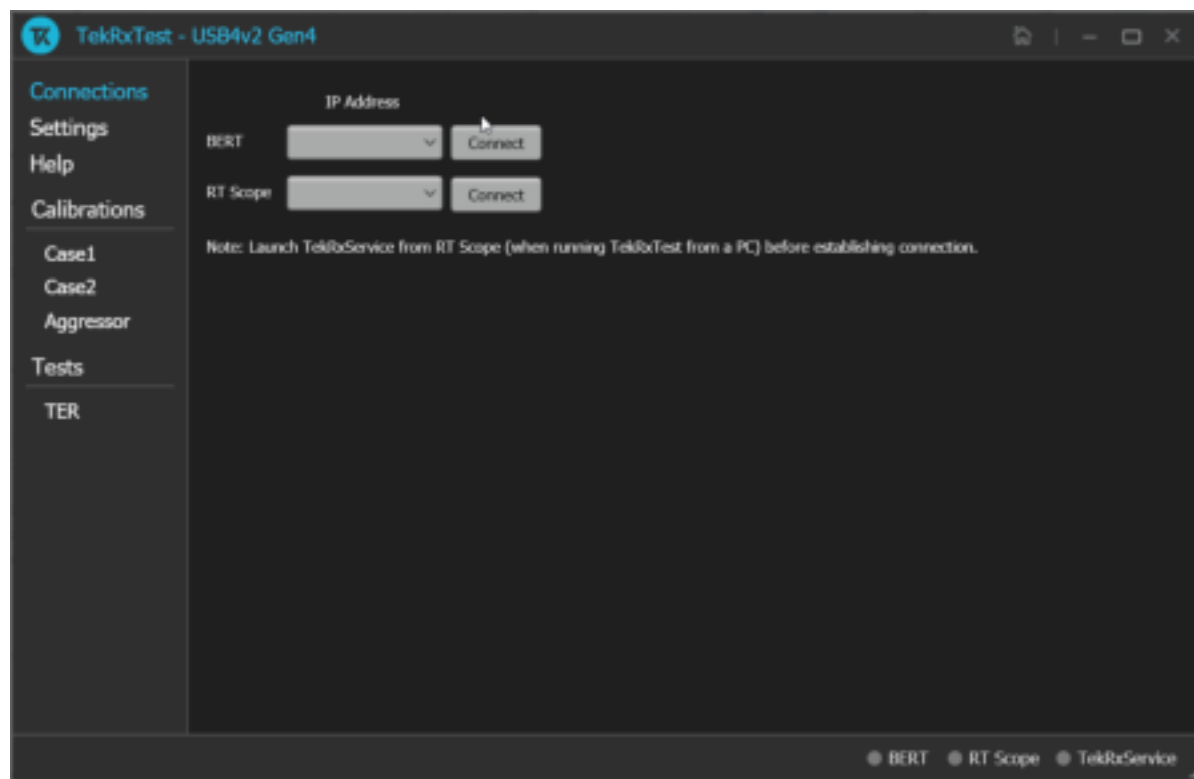


Figure 3: Application panels overview

Table 3: Application panels overview

Parameter	Description
Connections	This panel displays the Real-Time Oscilloscope and Bit Error Rate Tester (BERT) connection settings. You can connect to a real-time oscilloscope and BERT by entering the IP address of the instruments.
Settings	This panel allows configuring various settings for the RT Scope, Analysis Tool, and the Remote Access.
Help	This panel displays the application help.
Calibrations	This panel allows you to configure the calibration parameters for Case1, Case2, and Aggressor and save the results.
Tests	This panel allows you to configure the TER test settings and view the results.

Connections panel

The Connections panel allows you to connect to a real-time oscilloscope and BERT with the USB4v2 Gen 4 TekRxTest application. Enter the IP address of these instruments and click **Connect** to establish the connection.

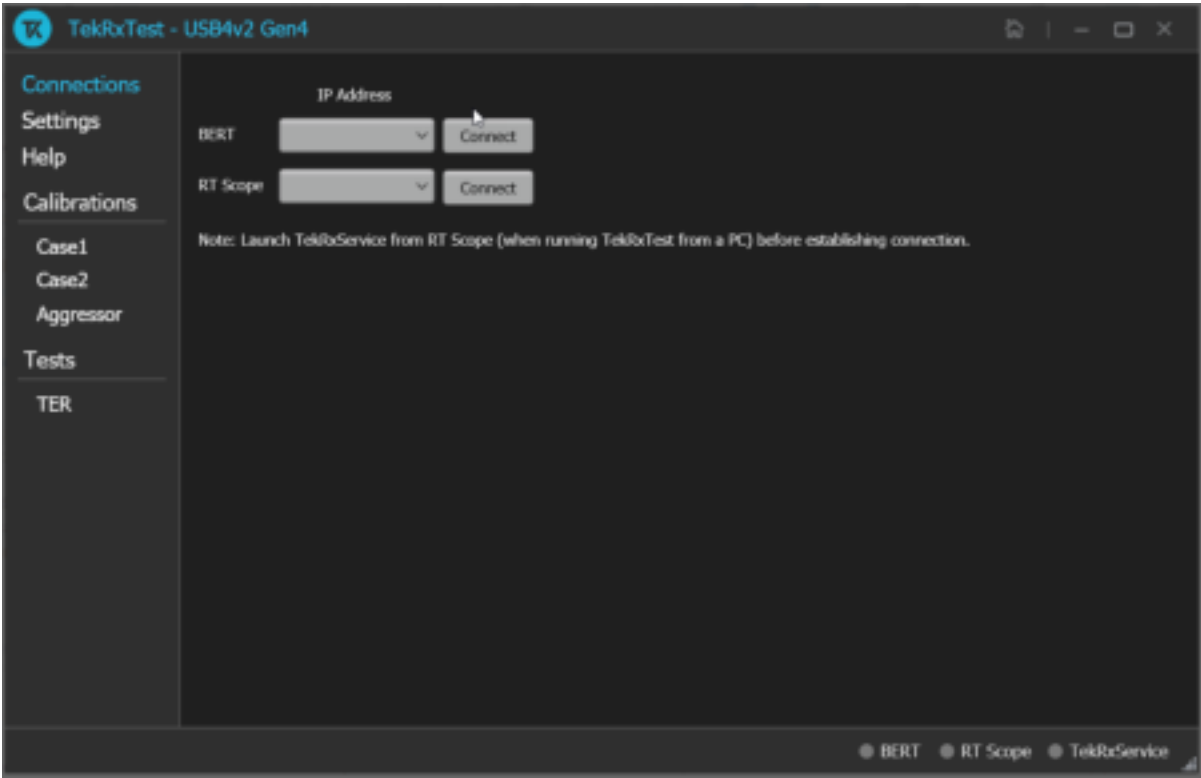


Figure 4: Connections panel

Table 4: Connections panel

Connections	Description
BERT	Enter the BERT IP address in the address field and click Connect . When the BERT is connected successfully, the circle next to BERT in the right end corner turns green.  Note: It is recommended to launch the MP1900A software in the administrator mode to use the TekRxTest Application.
RT Scope	Enter the RT Scope IP address in the address field and click Connect . When the RT Scope is connected successfully, the circle next to RT Scope and TekRxService in the right end corner turns green.  Note: Before you click Connect , you must launch the TekRxService in the real-time oscilloscope.

Settings panel

The Settings panel allows you to configure the settings for instruments, analysis tool, and remote access. Click on any tab to configure the associated settings.

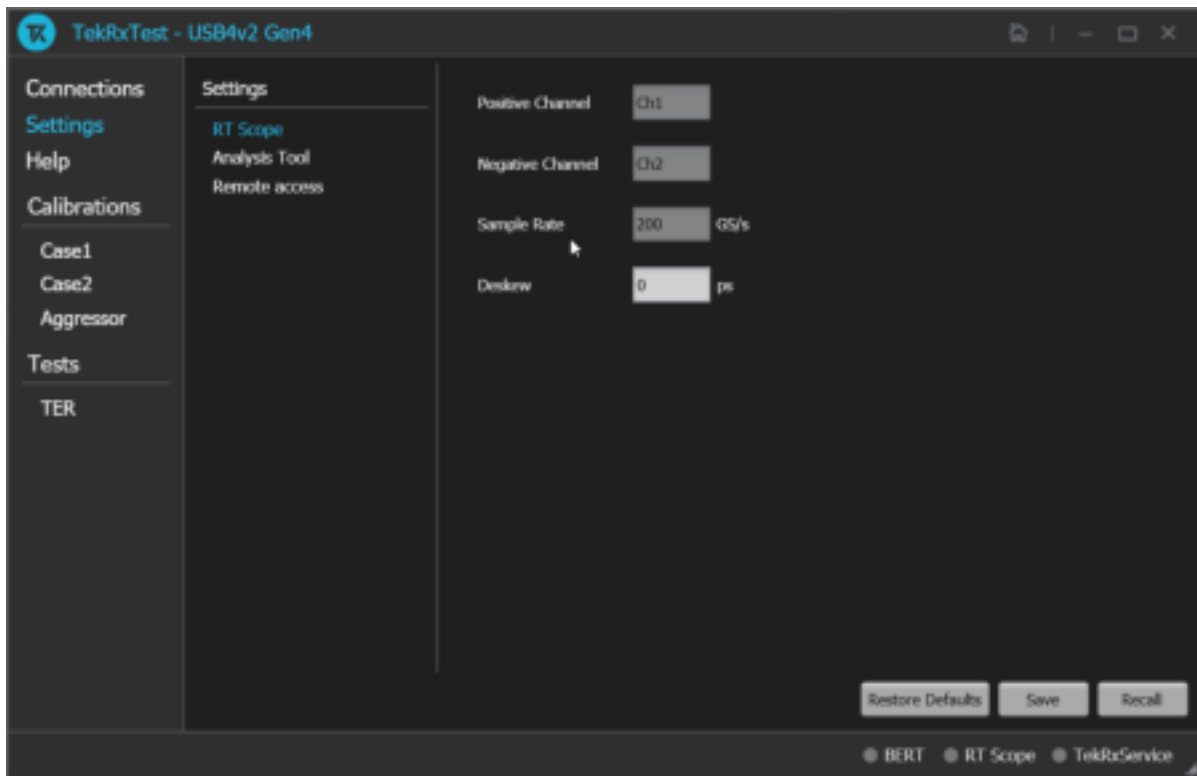


Figure 5: Settings panel

Table 5: Settings panel configurations

Parameter	Description
Restore Defaults	Restores the application with default settings.
Save	Saves the current test setup.
Recall	Recalls the saved test setup.

Basic settings

The basic settings display the parameters for RT Scope, Analysis Tool, and Remote access.

RT Scope

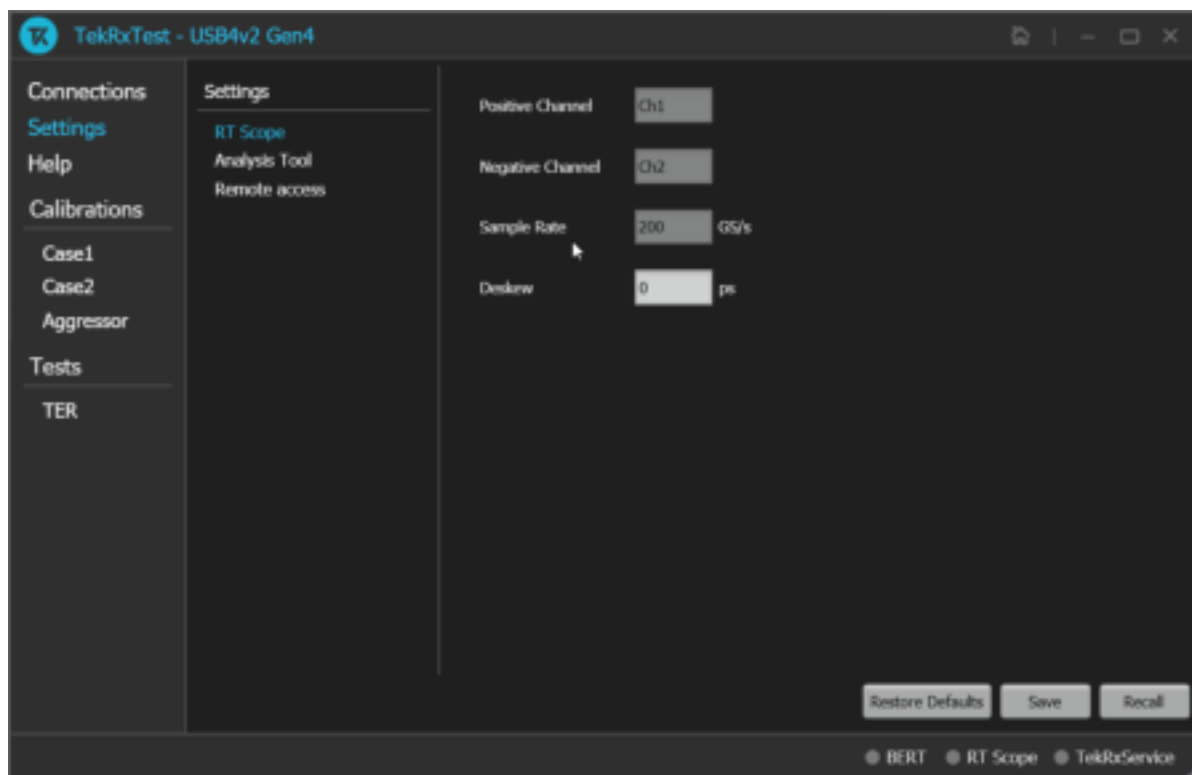


Figure 6: Settings panel

Table 6: RT Scope

Parameter	Description
Positive Channel	Displays the generator data positive channel from BERT.
Negative Channel	Displays the generator data negative channel from BERT.
Sample Rate	Displays the sample rate in GS/s used for the selected channels.

Analysis Tool

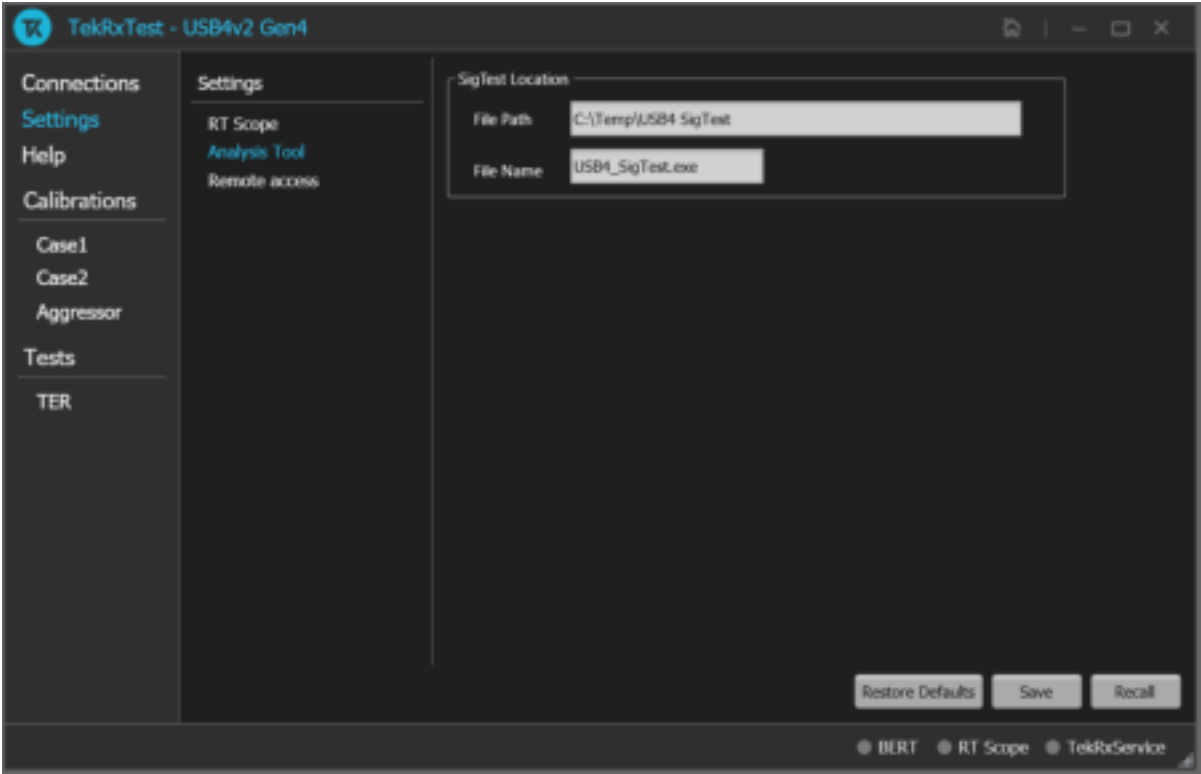


Figure 7: Analysis Tool

Table 7: Analysis Tool

Parameter	Description
SigTest	Displays the signal quality measurements captured using a real-time oscilloscope. You need to provide a valid file path for the USB4v2 Sigtest executable in the Text box File Path and the name of the executable in the Text box File Name.  Note: TekRxTest application supports the usage of SigTest Analysis for TP3 Calibration.

Remote access

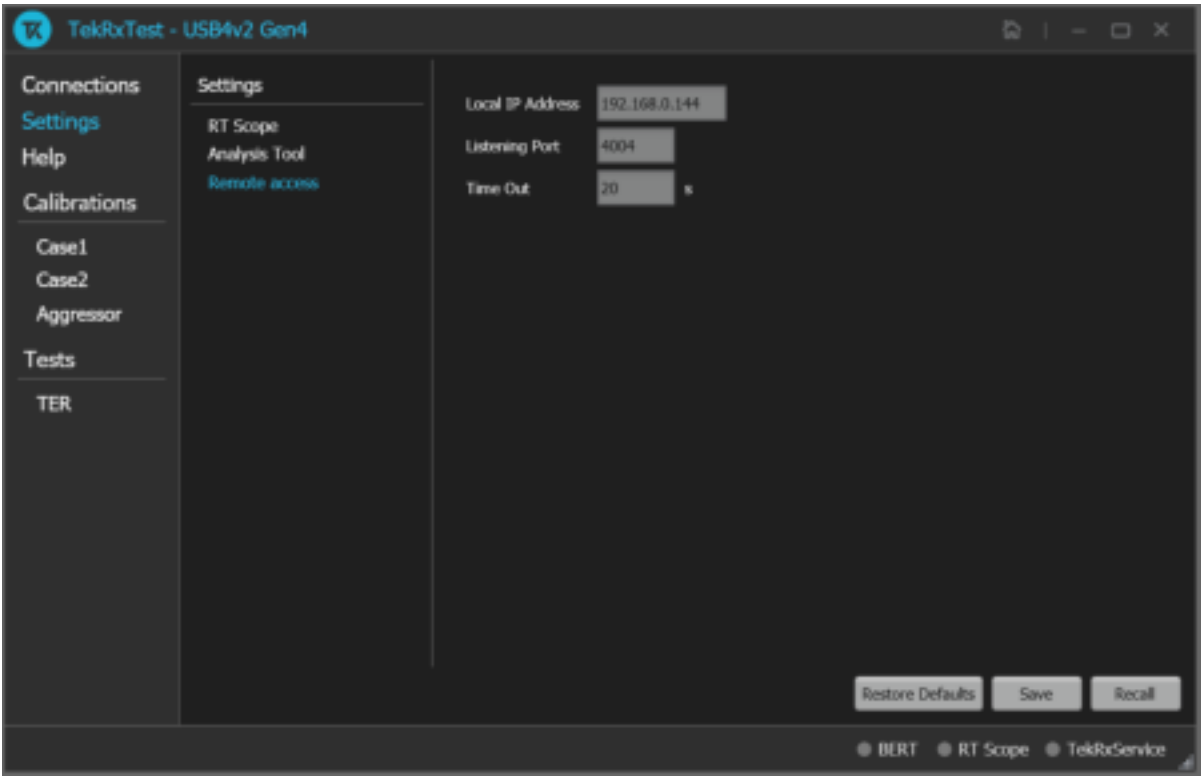


Figure 8: Remote access

Table 8: Remote access

Parameter	Description
Local IP Address	Displays the IP address for connecting to the application over socket server.
Listening Port	Displays the TCP/IP port number of the port that the socket server is listening through. Default Value: 4004
Time Out	Displays the timeout value used when communicating with the socket server. Default Value: 20 Seconds

Help panel

The help panel launches the USB4v2 Gen 4 TekRxTest application help document.

Calibrations panel

Complete Case1, Case2, and Aggressor calibrations before you start the DUT testing using the USB4v2 Gen 4 application. Follow the instructions in the calibration wizards to automate the calibration for the Case1 and Case2 calibration points. After calibrating these points, you can save the results.

Case1 Calibration

The **Case1** calibration panel allows you to perform Case1 calibration for **USB4v2 Gen 4** and save the results.

Case1 Calibration Procedure

Click **Case1** under the Calibrations tab to view the previously run calibration reports. When you click on , the Case1 wizard will be launched for the selected generation. This wizard will guide you through the sequential procedure to perform the calibration.

During this process, the TekRxTest application calibrates the following items:

1. **Voltage Swing Calibration:** The Voltage Swing calibration is performed to ensure that the required peak to peak voltage is achieved on the output of the BERT. The nominal value to be achieved after calibration is 1090mV p-p $\pm$ 15mV.
2. **Level Mismatch Calibration:** The Level Mismatch Calibration is performed to correct the imbalance between the upper and lower eye of the PAM3 signal. The nominal value to be achieved after calibration is 0.975 $\pm$ 0.005.
3. **RJ Calibration:** The RJ Calibration calibrates the Random Jitter associated with the PRTS7 pattern. The target value for RJ are 0.0085UI p-p $\pm$ 0.0005UI.
4. **SNDR Calibration:** SNDR stands for signal to noise distortion ratio. The target value for SNDR is 32.5dB $\pm$ 0.15dB. This can be achieved by varying DMSI (Differential Mode Sinusoidal Interference) on the BERT.
5. **ACCM Calibration:** ACCM stands for AC Common Mode Voltage. The target value for ACCM is 100mV p-p $\pm$ 10mV at a frequency of 400 MHz. This can be achieved by varying CMI (Common Mode Interference) on the BERT.
6. **PJ Calibration:** PJ Calibrates the sinusoidal Jitter associated with the PRTS7 pattern. The target value for PJ are 0.085UI p-p $\pm$ 0.002UI. PJ needs to be calibrated at 1MHz, 2MHz, 10 MHz, 50MHz and 100 MHz.

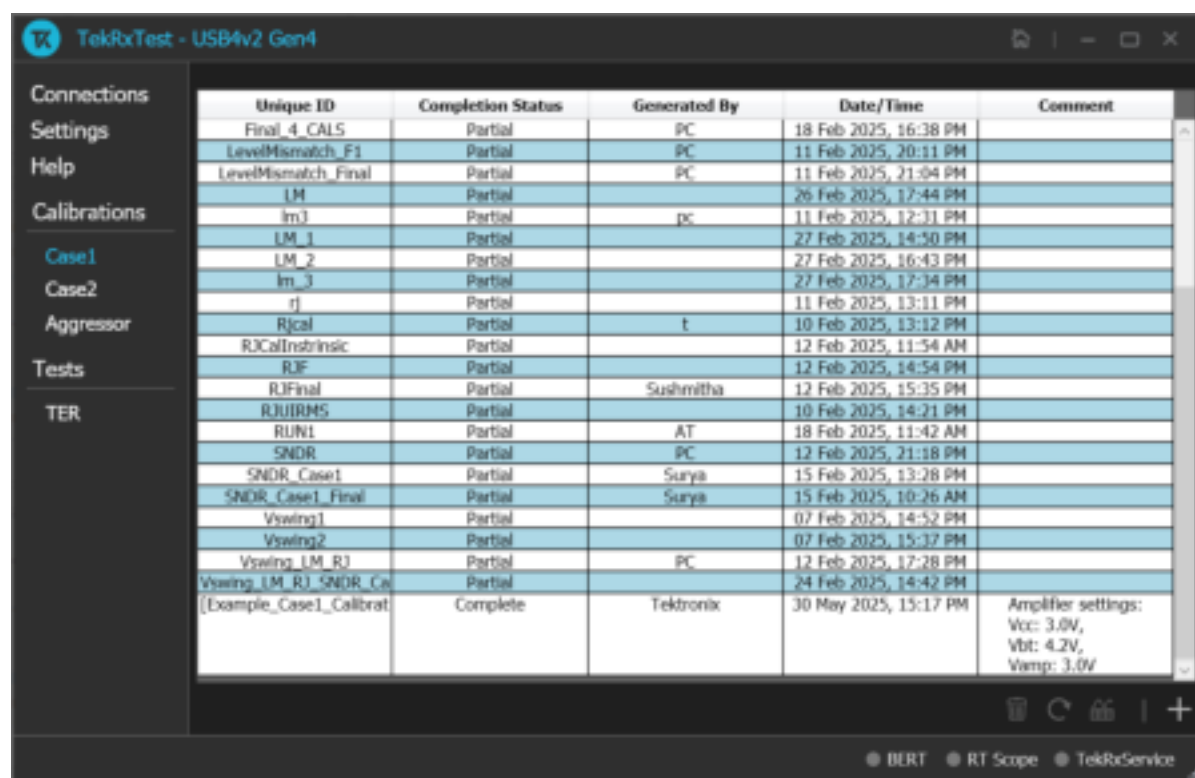


Figure 9: Case1 Calibration Panel

1. Connection Diagram: This page displays the connection diagram for the Case1 setup.

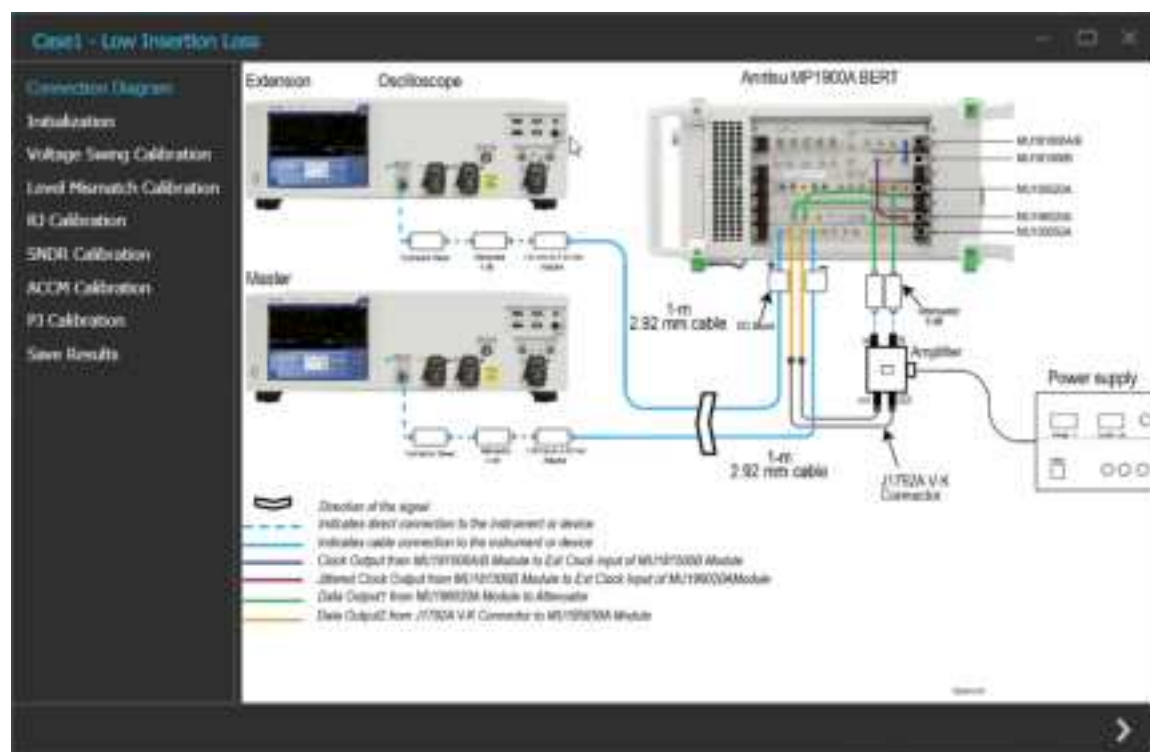


Figure 10: Case1 Calibration-Connection Diagram

Click  to move to the next step in the calibration process.

2. **Initialization:** This page displays the description and allows you to initialize the equipment. Click **Initialize Equipment** to complete the initialization process.

You can click **Automatic Calibration** to perform the automatic calibration with the default settings for Voltage Swing, Level mismatch, SNDR, ACCM, RJ, and PJ parameters without user intervention.

The output of PAM4 PPG needs to be amplified to meet the voltage criteria for calibration.

The following settings must be configured on the **AH54192A Differential Linear Amplifier** before proceeding with the Calibration:

- Vcc: 3.0V
- Vbt: 4.2V
- Vamp: 3.0V

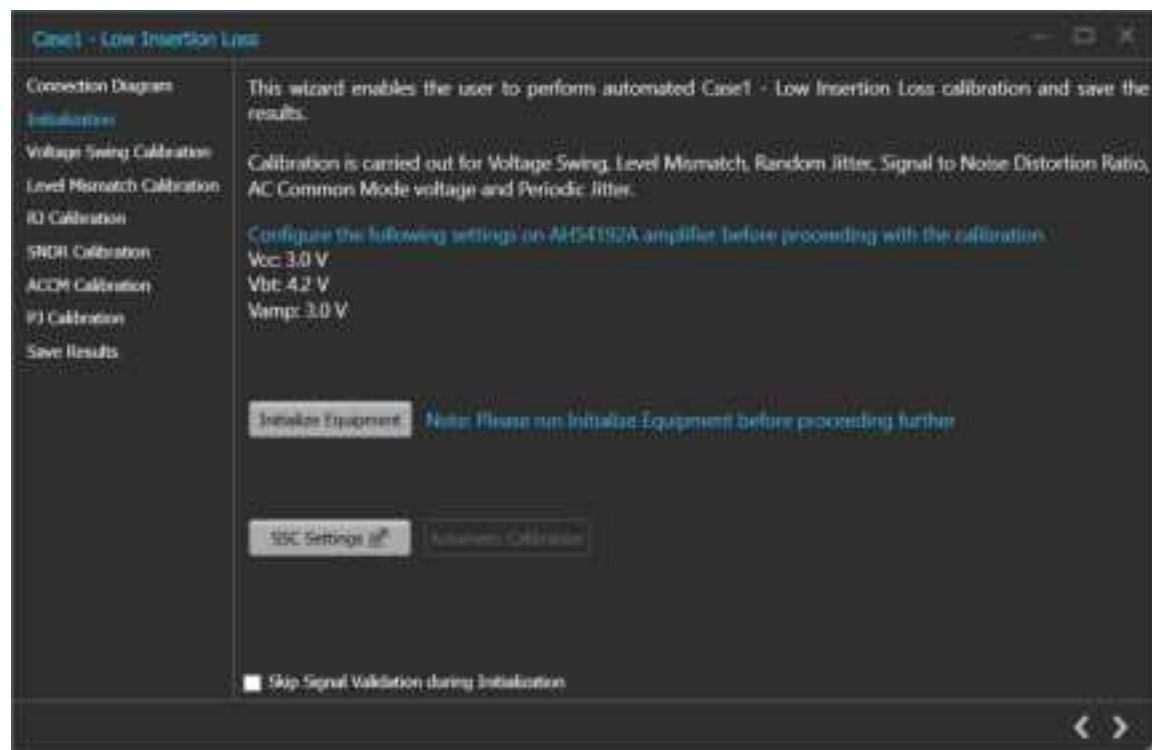


Figure 11: Case1 Calibration - Initialization

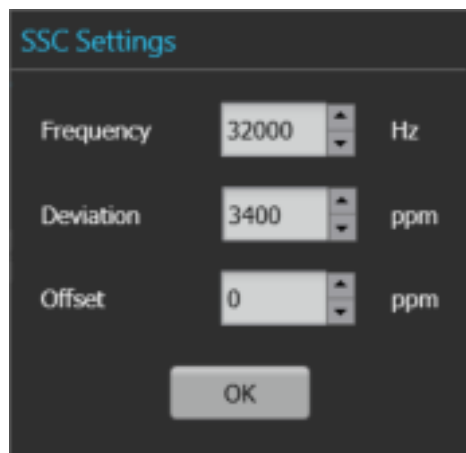


Figure 12: SSC Settings

SSC Settings: You can configure the SSC settings at the beginning of Case1 calibration.



Note: The profile of the SSC is down spread

Table 9: SSC Settings

Parameter	Description
Frequency	Enter the frequency in Hz for SSC to be used for all calibration and test modules.
Deviation	Enter the deviation in ppm for SSC to be used.
Offset	Enter the offset in ppm for SSC to be used.

Click  to move to the next step in calibration process.

3. Voltage Swing Calibration: This page displays the graph plots of voltage swing calibration.

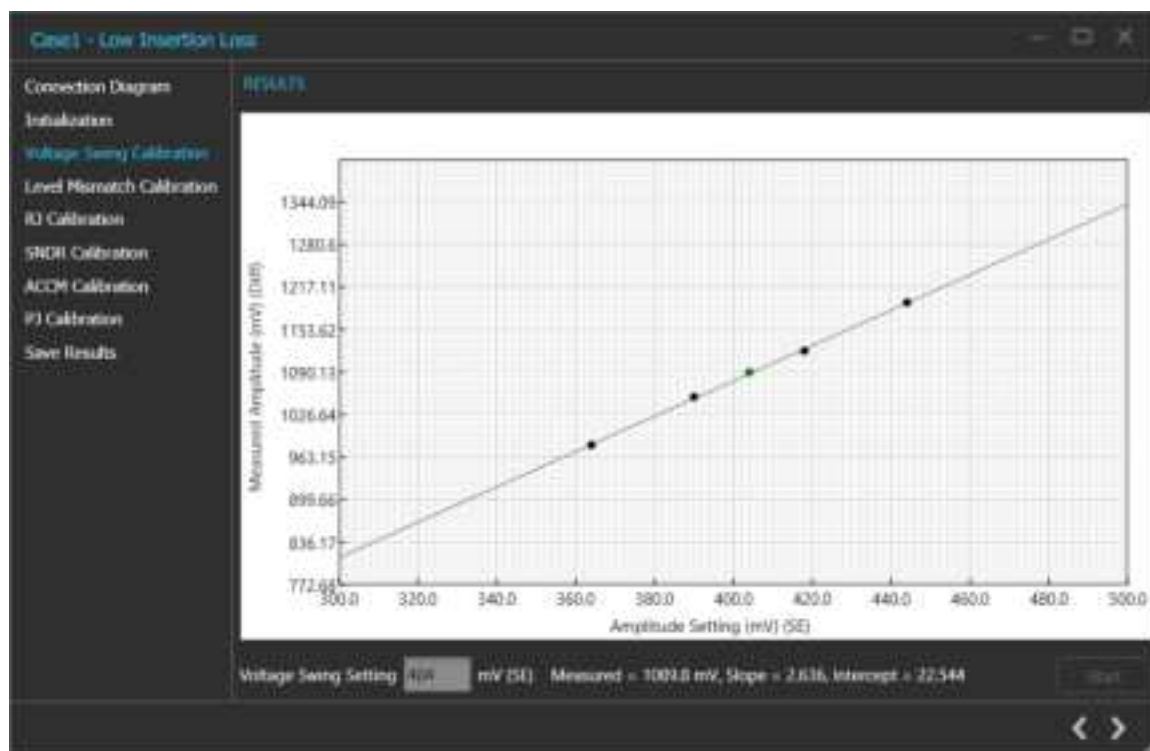


Figure 13: Case1 Calibration - Voltage Swing Calibration

Table 10: Case1 Calibration: Voltage Swing Calibration

Parameter	Description
Voltage Swing Setting	Displays the calibrated voltage swing setting corresponding to the nominal value.
Nominal	1090mV p-p $\pm$ 15mV
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

- 4. Level Mismatch Calibration:** This page displays the graph plots of level mismatch calibration.

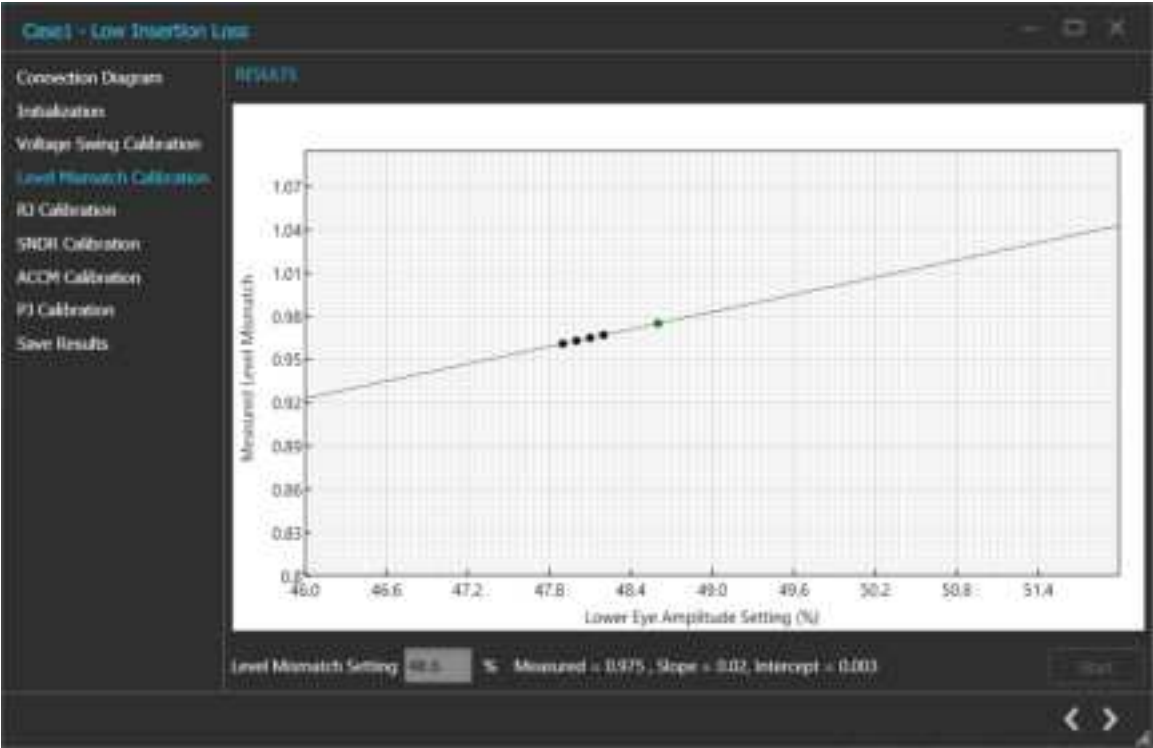


Figure 14: Case1 Calibration - Level Mismatch Calibration

Table 11: Case1 Calibration: Level Mismatch Calibration

Parameter	Description
Level Mismatch Setting	Displays the calibrated level mismatch setting corresponding to the nominal value.
Nominal	0.975 ± 0.005
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

5. **RJ Calibration:** This page displays the graph plot for RJ calibration.

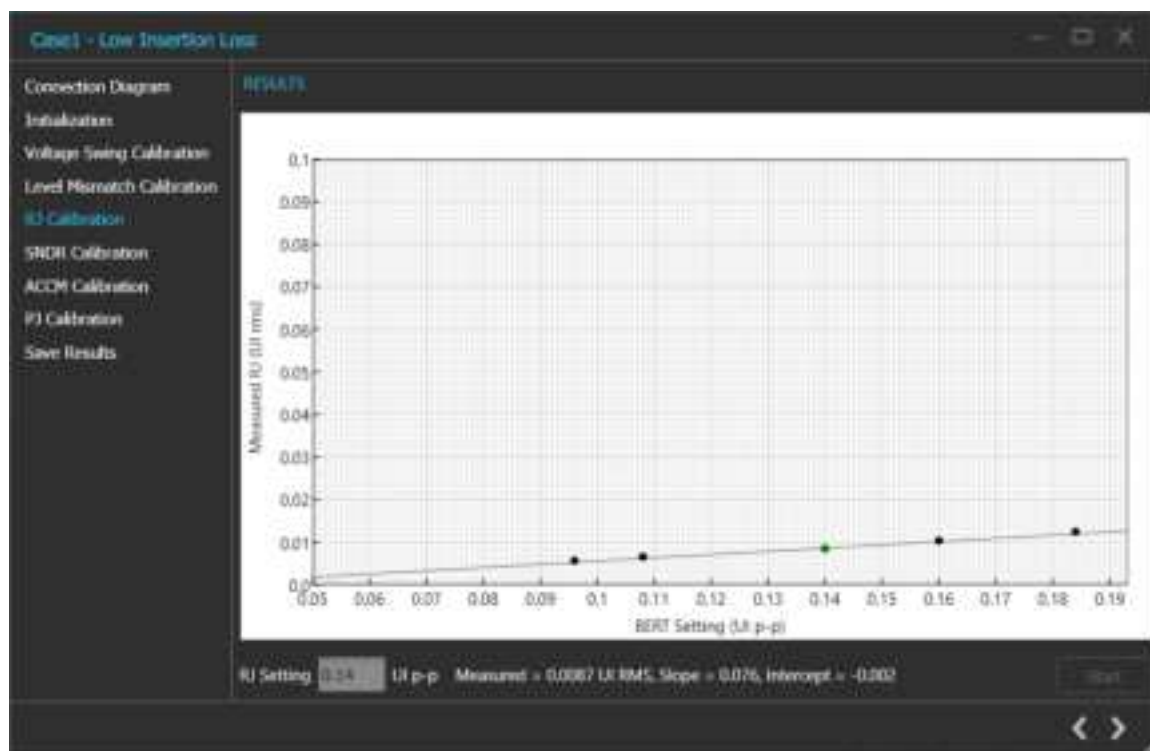


Figure 15: Case1 Calibration - RJ Calibration

Table 12: Case1 Calibration: RJ Calibration

Parameter	Description
RJ Setting	Displays the calibrated RJ value corresponding to the nominal value.
Nominal	$0.0085\text{UI p-p} \pm 0.0005\text{UI}$
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

- SNDR Calibration:** This page displays the graph plot for signal to noise distortion ratio calibration.

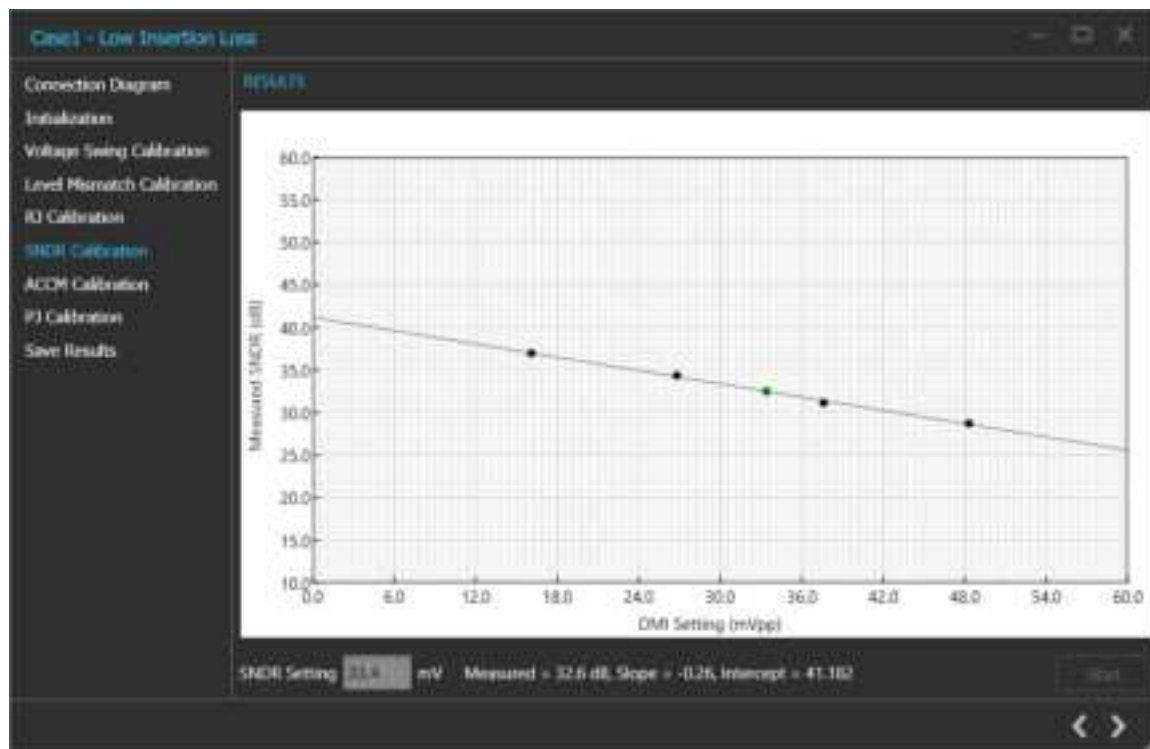


Figure 16: Case1 Calibration - SNDR Calibration

Table 13: Case1 Calibration: SNDR Calibration

Parameter	Description
SNDR Setting	Displays the calibrated SNDR value corresponding to the nominal value.
Nominal	32.5dB $\pm$ 0.15dB
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

- ACCM Calibration:** This page displays the graph plot for ACCM calibration.

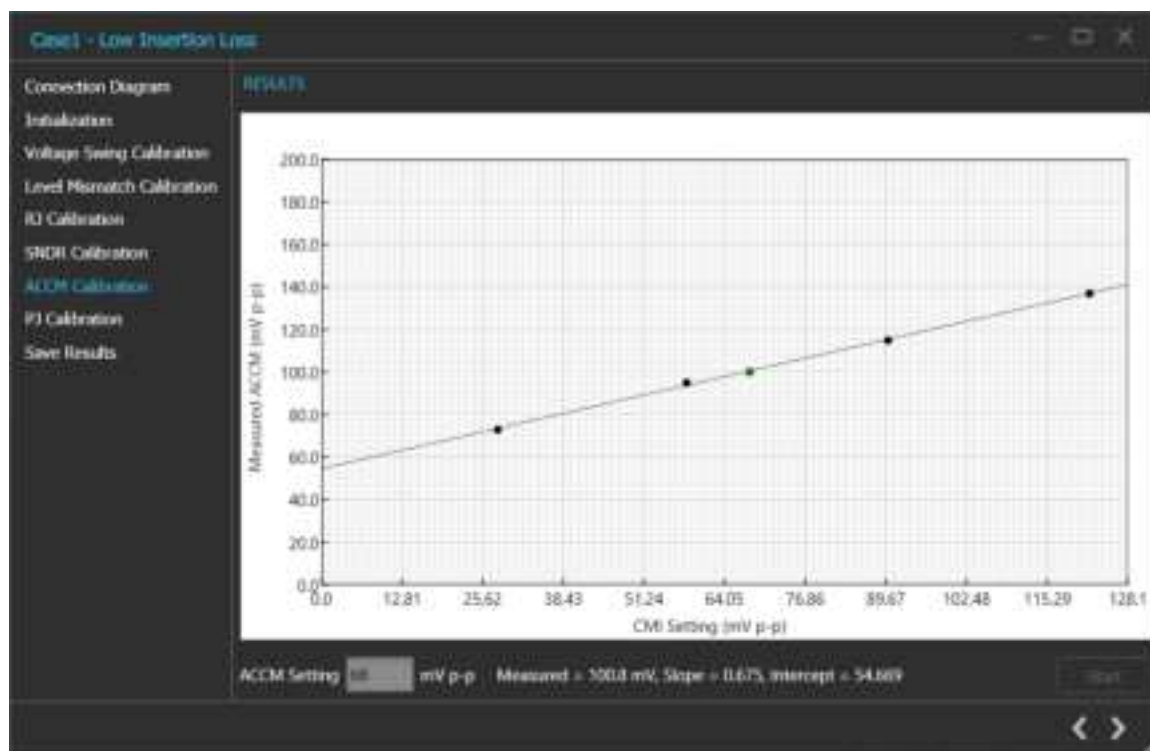


Figure 17: Case1 Calibration - ACCM Calibration

Table 14: Case1 Calibration: ACCM Calibration

Parameter	Description
ACCM Setting	Displays the calibrated ACCM value corresponding to the nominal value.
Nominal	100mV p-p $\pm$ 10mV
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

8. **PJ Calibration:** This page displays the graph plots for PJ calibration for the frequencies of 1, 2, 10, 50 and 100 MHz.

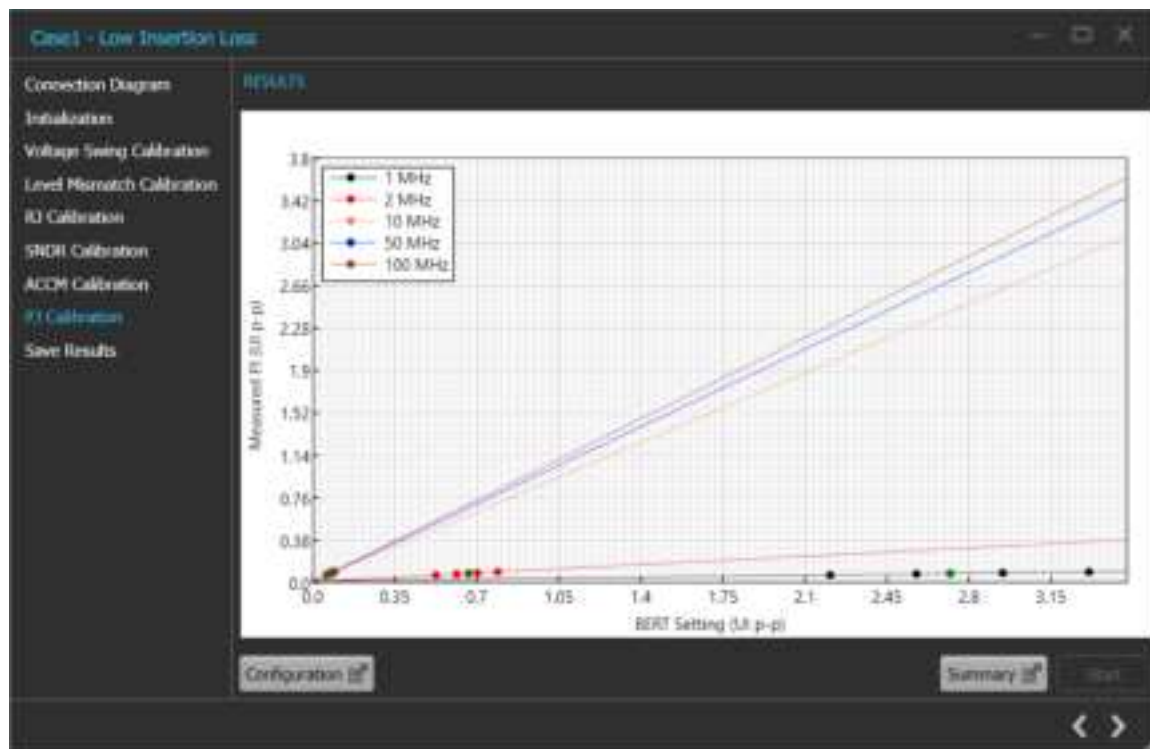


Figure 18: Case1 Calibration - PJ Calibration

No.	Frequency (MHz)	Target (UI p-p)	Setting (UI p-p)	Slope	Intercept	Measured (UI p-p)
1	1	0.085	2.72	0.025	0.017	0.0846
2	2	0.085	0.664	0.107	0.014	0.085
3	10	0.085	0.082	0.89	0.013	0.0865
4	50	0.085	0.074	0.99	0.013	0.0867
5	100	0.085	0.072	1.041	0.011	0.0868

Figure 19: Case1 Calibration - PJ Calibration-Summary

PJ Calibration Configuration

Choose the frequencies for PJ Calibration:

☒ 1 MHz
 ☒ 2 MHz

☒ 10 MHz
 ☒ 50 MHz

☒ 100 MHz

OK

Figure 20: Case1 Calibration - PJ Calibration-Configuration

Table 15: Case1 Calibration: PJ Calibration

Parameter	Description
Summary	Displays a summary of the calibrated PJ value corresponding to the nominal value for the frequencies of 1, 2, 10, 50 and 100 MHz.
Configuration	Select the frequencies in MHz to configure all calibration and test modules.
Nominal	0.085UI p-p $\pm$ 0.002UI.
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

9. **Save Results:** This page allows you to save the Case1 calibration results.

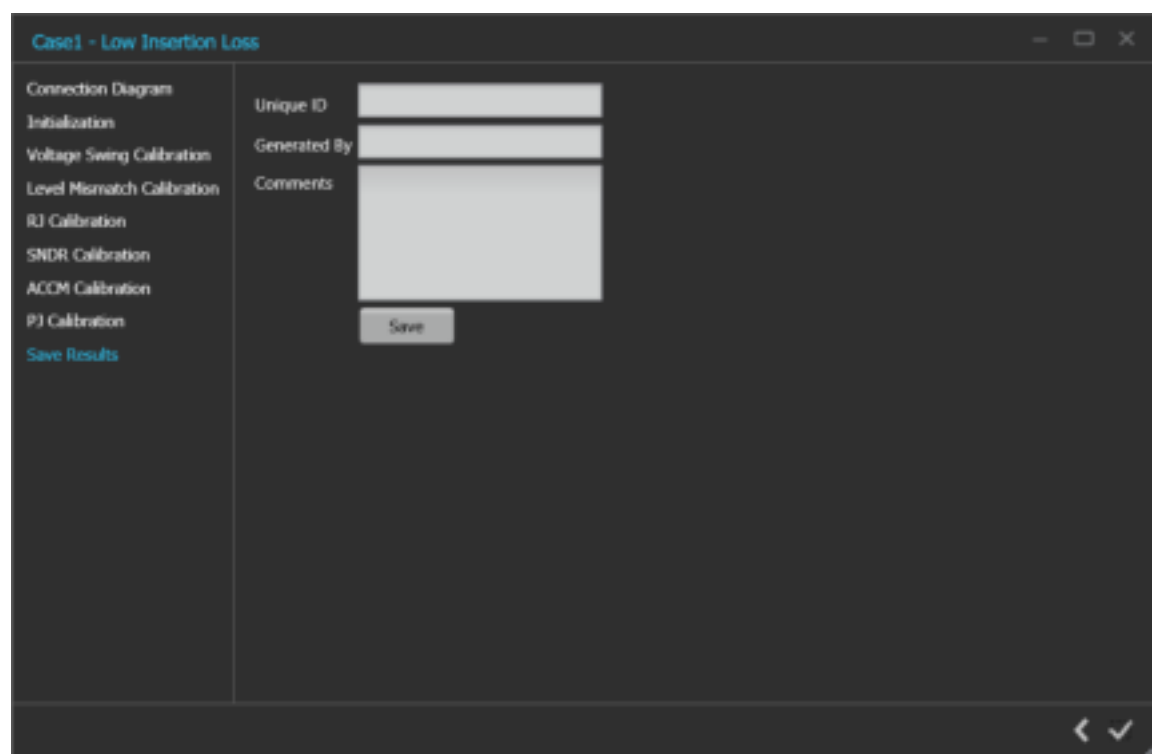


Figure 21: Case1 Calibration-Save Results

Table 16: Case1 Calibration: Save Results

Parameter	Description
Unique ID	Enter the Unique ID of the calibrated equipment in the text box.
Generated By	Enter the user name in the text box.
Comments	Enter the required comments in the comment box (Optional).
Save	Click to save the results.

Click  to complete the Case1 calibration and close the wizard.

Case2 Calibration

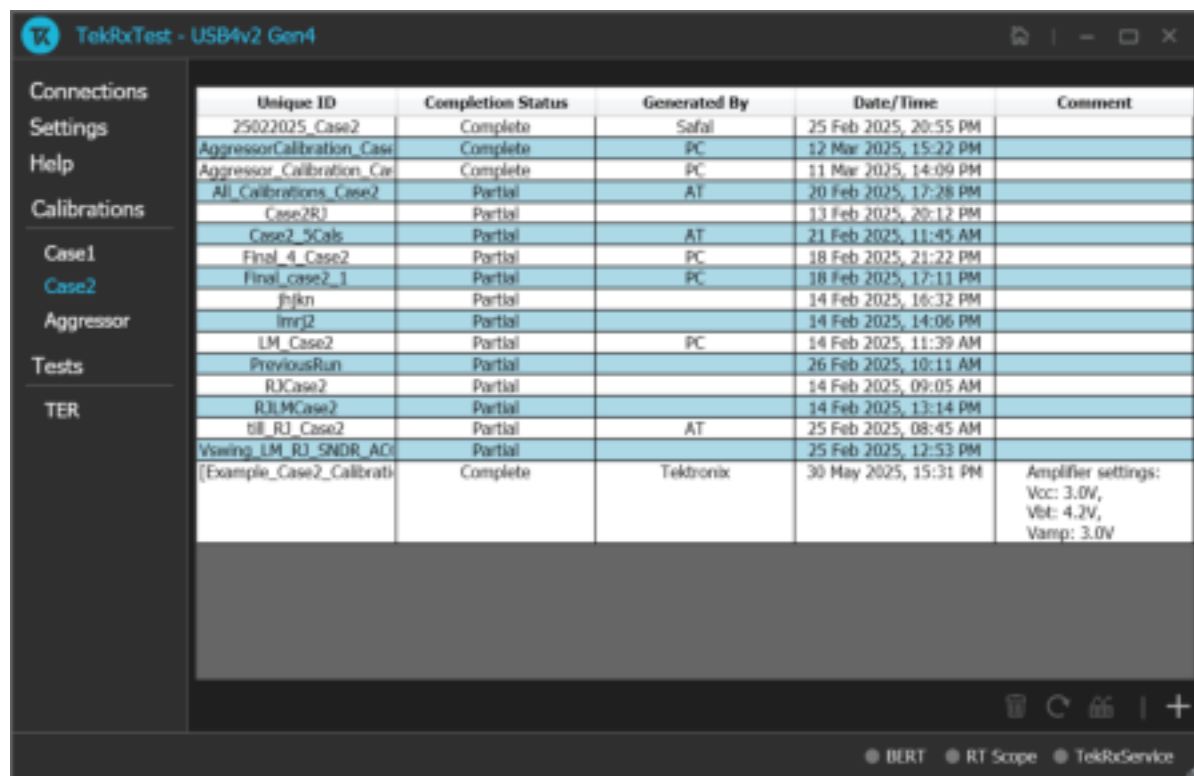
The **Case2** calibration panel allows you to perform Case2 calibration for **USB4v2 Gen 4** and save the results.

Case2 Calibration Procedure

Click **Case2** under the Calibrations tab to view the previously run calibration reports. When you click on , the Case2 wizard will be launched for the selected generation. This wizard will guide you through the sequential procedure to perform the calibration.

During this process, the TekRxTest application calibrates the following items:

- Voltage Swing Calibration:** The Voltage Swing calibration is performed to ensure that the required peak to peak voltage is achieved on the output of the BERT. The nominal value to be achieved after calibration is 820mV p-p $\pm$ 15mV.
- Level Mismatch Calibration:** The Level Mismatch Calibration is performed to correct the imbalance between the upper and lower eye of the PAM3 signal. The nominal value to be achieved after calibration is 0.975 $\pm$ 0.005.
- RJ Calibration:** The RJ Calibration calibrates the Random Jitter associated with the PRTS7 pattern. The target value for RJ are 0.0085UI p-p $\pm$ 0.0005UI.
- SNDR Calibration:** SNDR stands for signal to noise distortion ratio. The target value for SNDR is 32.5dB $\pm$ 0.15dB. This can be achieved by varying DMSI (Differential Mode Sinusoidal Interference) on the BERT.
- ACCM Calibration:** ACCM stands for AC Common Mode Voltage. The target value for ACCM is 100mV p-p $\pm$ 10mV at a frequency of 400 MHz. This can be achieved by varying CMI (Common Mode Interference) on the BERT.
- PJ Calibration:** PJ Calibrates the sinusoidal jitter associated with the PRTS7 pattern. The target value for PJ are 0.075UI p-p $\pm$ 0.002UI. PJ needs to be calibrated at 1MHz, 2MHz, 10 MHz, 50MHz and 100 MHz.



Unique ID	Completion Status	Generated By	Date/Time	Comment
25022025_Case2	Complete	Safai	25 Feb 2025, 20:55 PM	
AggressorCalibration_Case2	Complete	PC	12 Mar 2025, 15:22 PM	
Aggressor_Calibration_Case2	Complete	PC	11 Mar 2025, 14:09 PM	
All_Calibrations_Case2	Partial	AT	20 Feb 2025, 17:28 PM	
Case2R1	Partial		13 Feb 2025, 20:12 PM	
Case2_5Cals	Partial	AT	21 Feb 2025, 11:45 AM	
Final_4_Case2	Partial	PC	18 Feb 2025, 21:22 PM	
Final_case2_1	Partial	PC	18 Feb 2025, 17:11 PM	
h1kn	Partial		14 Feb 2025, 16:32 PM	
lmrj2	Partial		14 Feb 2025, 14:06 PM	
LM_Case2	Partial	PC	14 Feb 2025, 11:39 AM	
PreviousRun	Partial		26 Feb 2025, 10:11 AM	
RJCase2	Partial		14 Feb 2025, 09:05 AM	
RJLMCase2	Partial		14 Feb 2025, 13:14 PM	
till_RJ_Case2	Partial	AT	25 Feb 2025, 08:45 AM	
Viewing_LM_RJ_SNDR_ACI	Partial		25 Feb 2025, 12:53 PM	
[Example_Case2_Calibrati	Complete	Tektronix	30 May 2025, 15:31 PM	Amplifier settings: Vcc: 3.0V, Vbt: 4.2V, Vamp: 3.0V

Figure 22: Case2 Calibration Panel

- Connection Diagram:** This page displays the connection diagram for the Case2 setup.

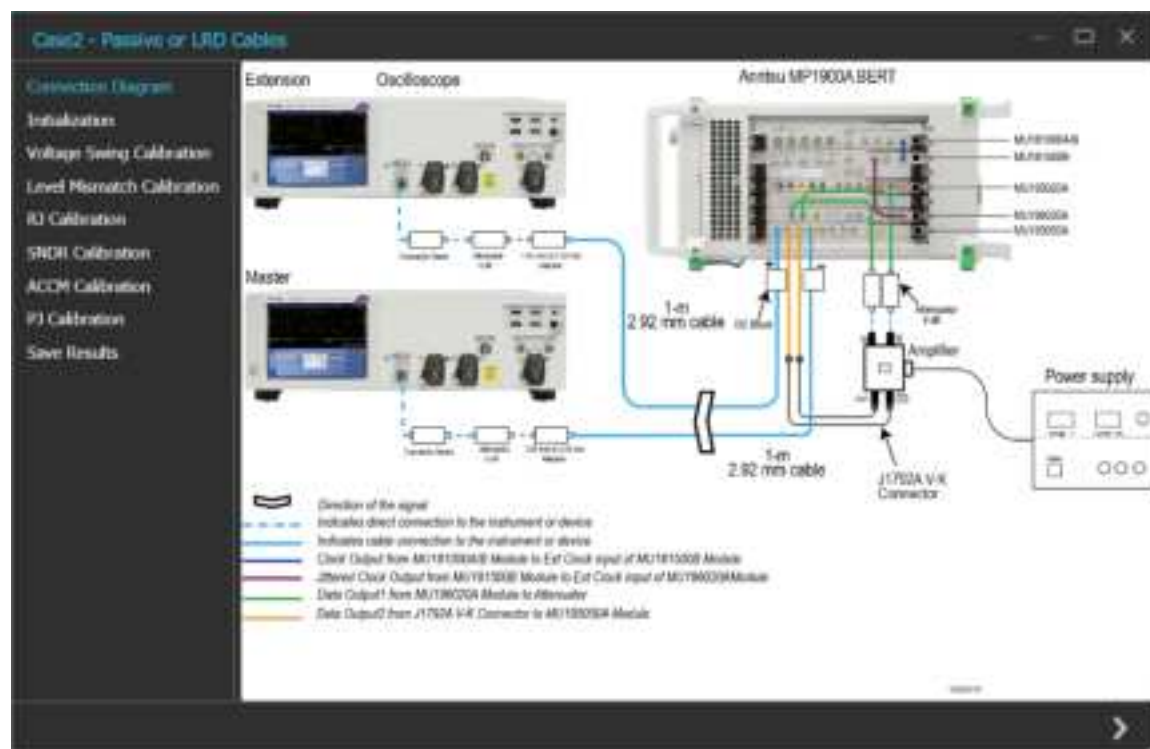


Figure 23: Case2 Calibration-Connection Diagram

Click  to move to the next step in the calibration process.

2. **Initialization:** This page displays the description and allows you to initialize the equipment. Click **Initialize Equipment** to complete the initialization process.

You can click **Automatic Calibration** to perform the automatic calibration with the default settings for Voltage Swing, Level mismatch, ACCM, RJ, SNDR, and PJ parameters without user intervention.

The output of PAM4 PPG needs to be amplified to meet the voltage criteria for calibration.

The following settings must be configured on the **AH54192A Differential Linear Amplifier** before proceeding with the Calibration:

- Vcc: 3.0V
- Vbt: 4.2V
- Vamp: 3.0V

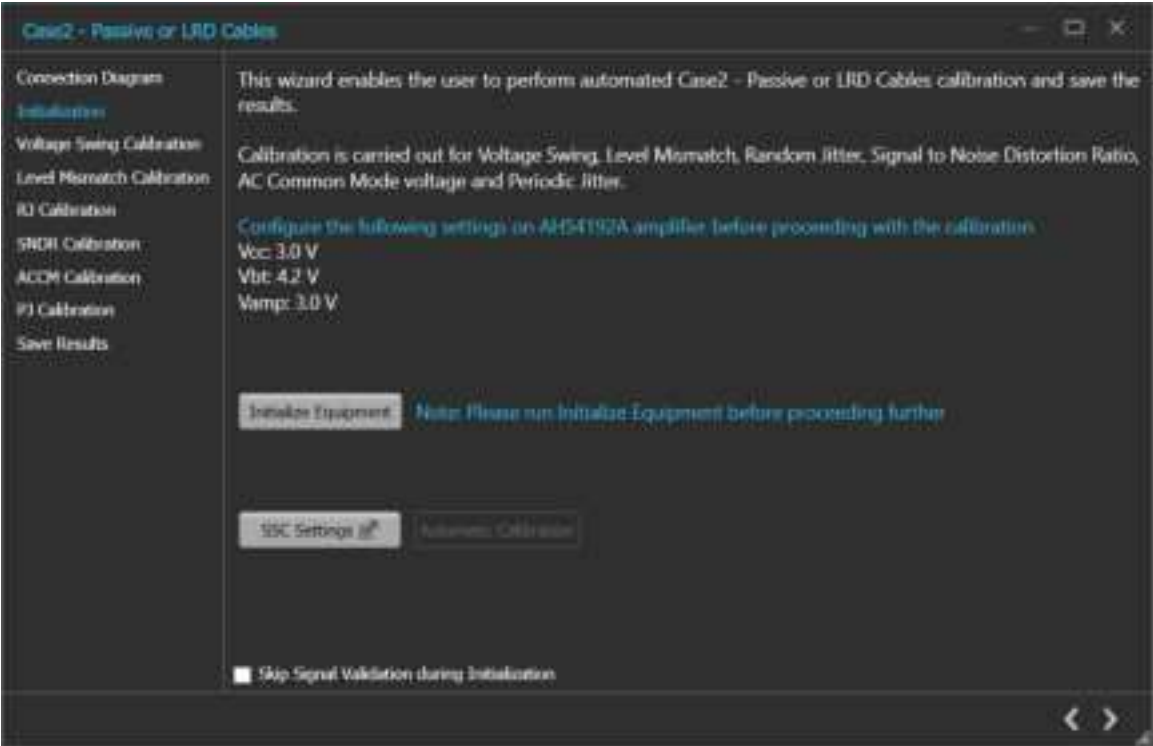


Figure 24: Case2 Calibration - Initialization

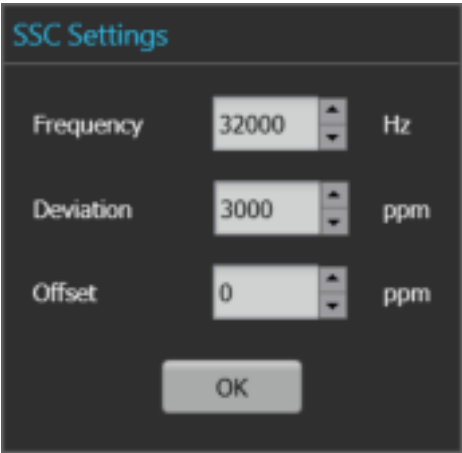


Figure 25: SSC Settings

SSC Settings: You can configure the SSC settings at the beginning of Case2 calibration.

 **Note:** The profile of the SSC is down spread

Table 17: SSC Settings

Parameter	Description
Frequency	Enter the frequency in MHz for SSC to be used for all calibration and test modules.
Deviation	Enter the deviation in ppm for SSC to be used.
Offset	Enter the offset in ppm for SSC to be used.

Click  to move to the next step in calibration process.

- Voltage Swing Calibration:** This page displays the graph plots of voltage swing calibration.

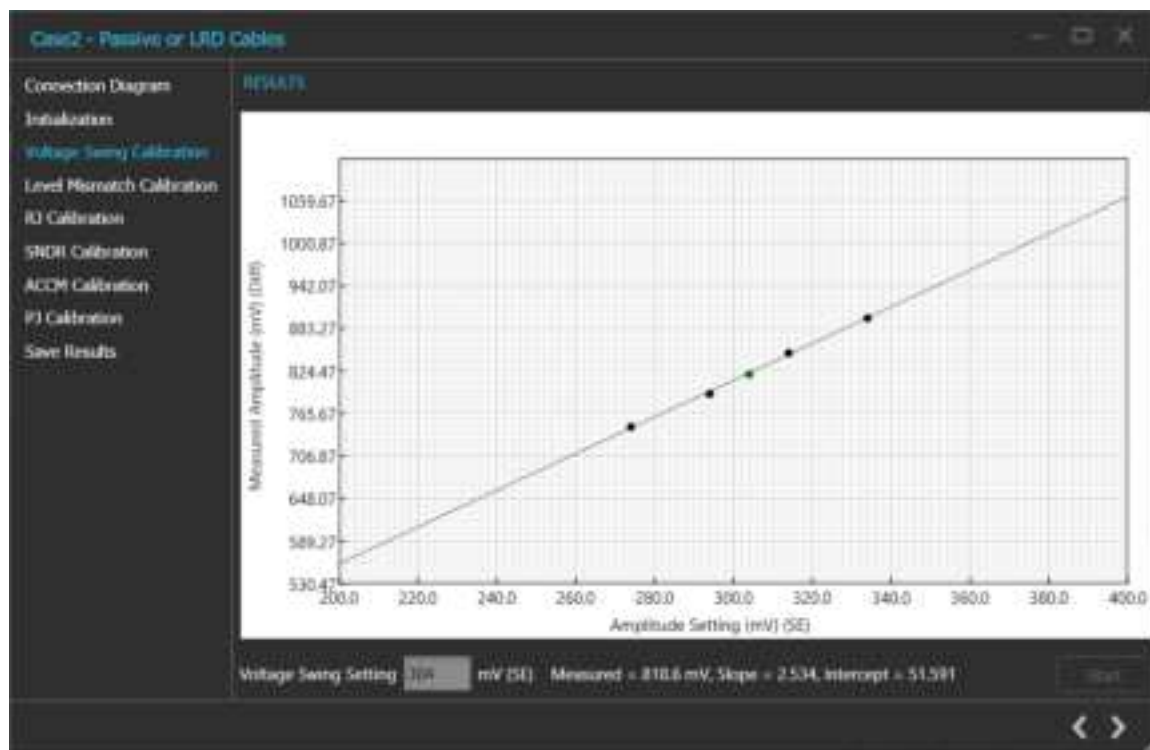


Figure 26: Case2 Calibration - Voltage Swing Calibration

Table 18: Case2 Calibration: Voltage Swing Calibration

Parameter	Description
Voltage Swing Setting	Displays the calibrated voltage swing setting corresponding to the nominal value.
Nominal	820mV p-p $\pm$ 15mV
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

- Level Mismatch Calibration:** This page displays the graph plots of level mismatch calibration.

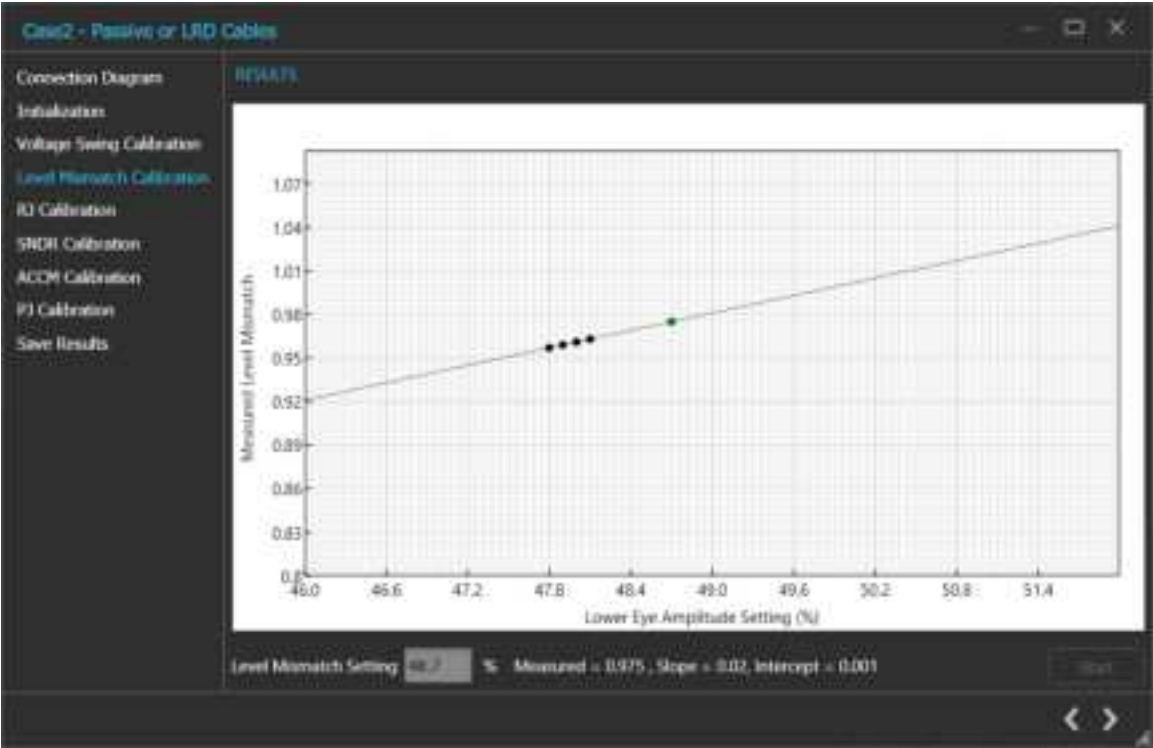


Figure 27: Case2 Calibration - Level Mismatch Calibration

Table 19: Case2 Calibration: Level Mismatch Calibration

Parameter	Description
Level Mismatch Setting	Displays the calibrated level mismatch setting corresponding to the nominal value.
Nominal	0.975 ± 0.005
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

5. **RJ Calibration:** This page displays the graph plot for RJ calibration.

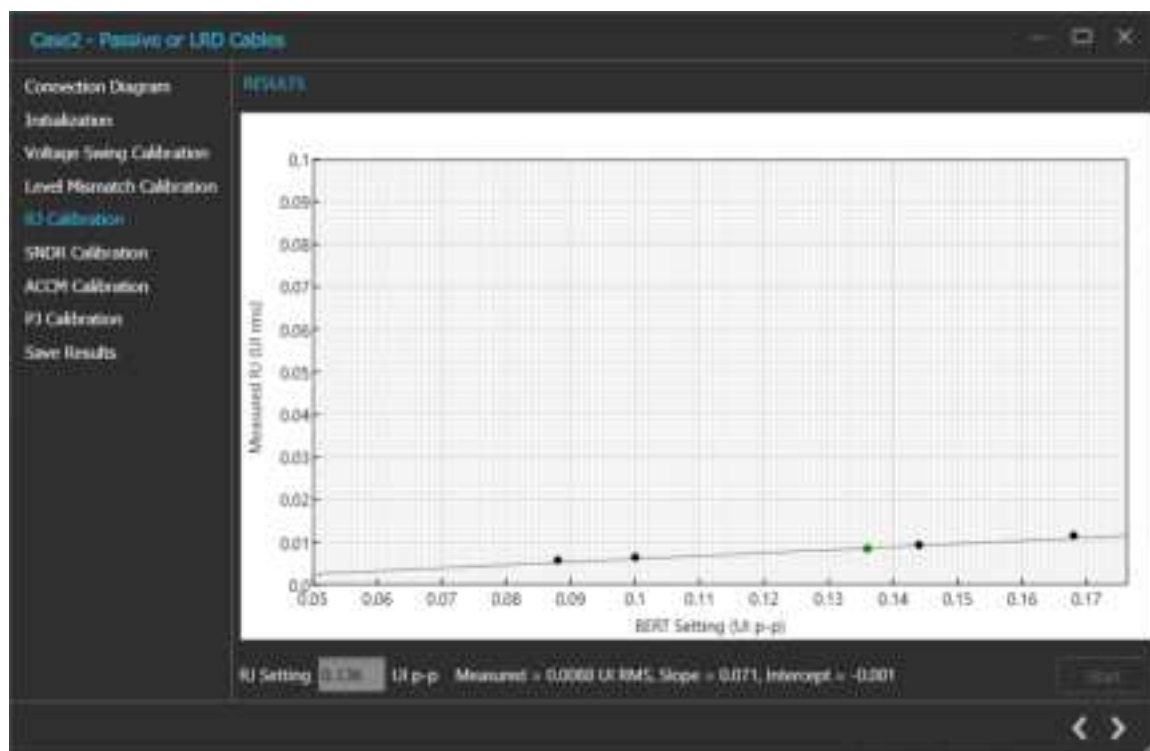


Figure 28: Case2 Calibration - RJ Calibration

Table 20: Case2 Calibration: RJ Calibration

Parameter	Description
RJ Setting	Displays the calibrated RJ value corresponding to the nominal value.
Nominal	0.0085UI p-p $\pm$ 0.0005UI
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

- SNDR Calibration:** This page displays the graph plot for signal to noise distortion ratio calibration.

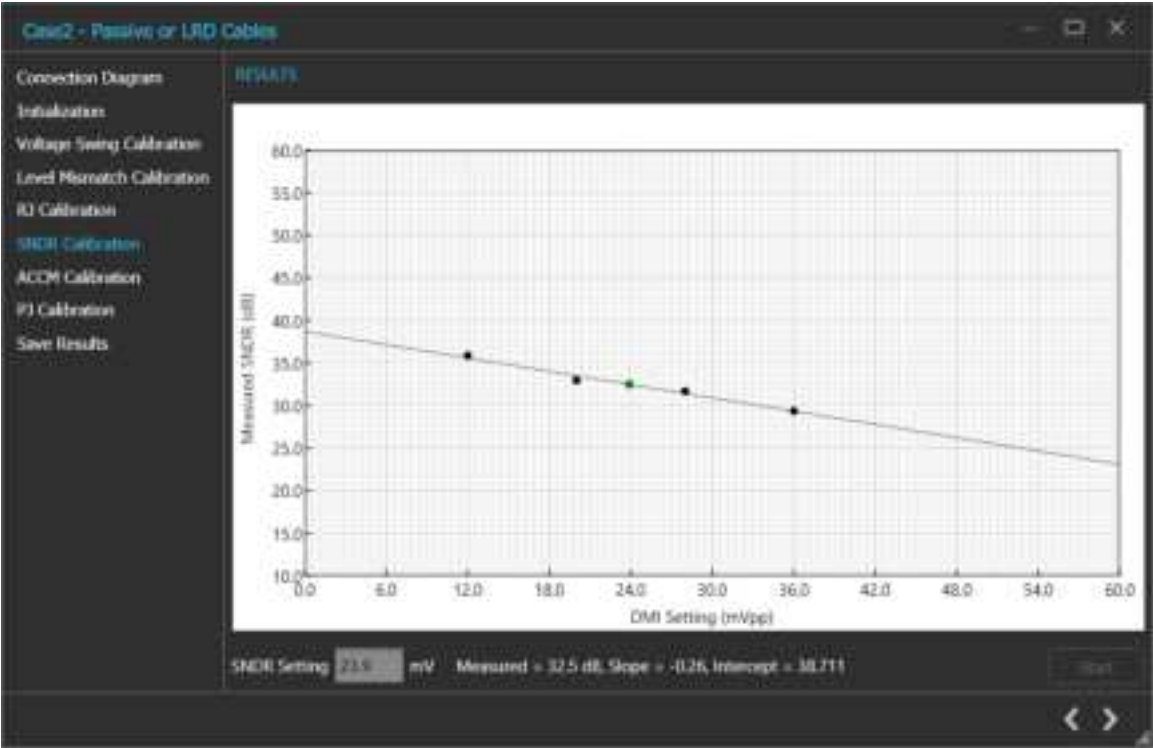


Figure 29: Case2 Calibration - SNDR Calibration

Table 21: Case2 Calibration: SNDR Calibration

Parameter	Description
SNDR Setting	Displays the calibrated SNDR value corresponding to the nominal value.
Nominal	32.5dB ± 0.15dB
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

7. **ACCM Calibration:** This page displays the graph plot for ACCM calibration.

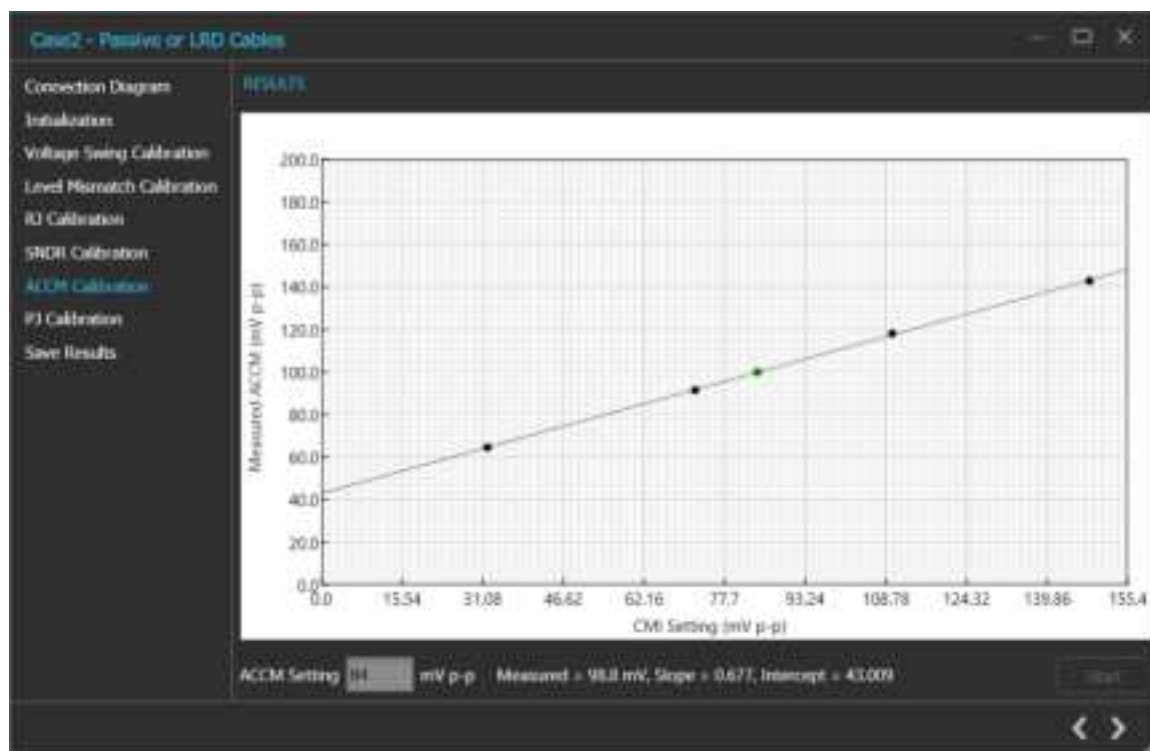


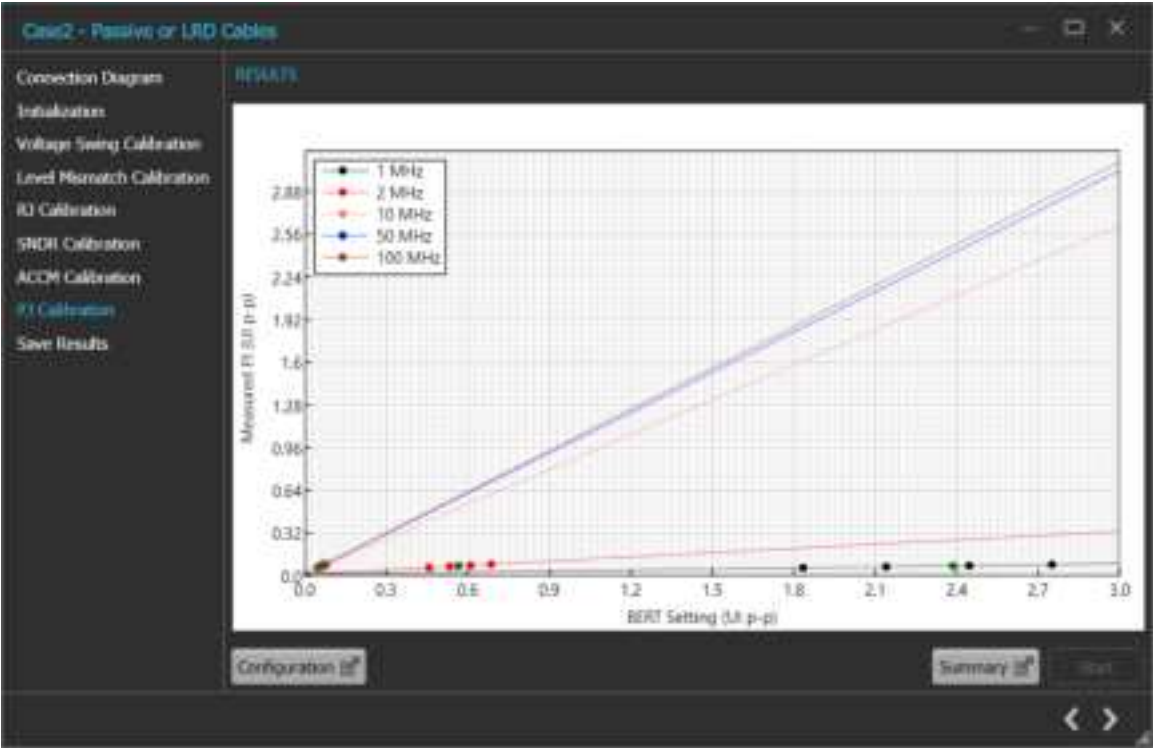
Figure 30: Case2 Calibration - ACCM Calibration

Table 22: Case2 Calibration: ACCM Calibration

Parameter	Description
ACCM Setting	Displays the calibrated ACCM value corresponding to the nominal value.
Nominal	100mV p-p $\pm$ 10mV at a frequency of 400 MHz.
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

8. **PJ Calibration:** This page displays the graph plots for PJ calibration for the frequencies of 1, 2, 10, 50 and 100 MHz.



PJ Calibration Results

No.	Frequency (MHz)	Target (UI p-p)	Setting (UI p-p)	Slope	Intercept	Measured (UI p-p)
1	1	0.075	2.424	0.026	0.012	0
2	2	0.075	0.572	0.105	0.015	0
3	10	0.075	0.07	0.887	0.013	0
4	50	0.075	0.062	1.034	0.011	0
5	100	0.075	0.06	1.037	0.013	0

OK

Figure 32: Case2 Calibration - PJ Calibration-Summary

PJ Calibration Configuration

Choose the frequencies for PJ Calibration:

☒ 1 MHz

☒ 2 MHz

☒ 10 MHz

☒ 50 MHz

☒ 100 MHz

OK

Figure 33: Case2 Calibration - PJ Calibration-Configuration

Table 23: Case2 Calibration: PJ Calibration

Parameter	Description
Summary	Displays a summary of the calibrated PJ value corresponding to the nominal value for the frequencies of 1, 2, 10, 50 and 100 MHz.
Configuration	Select the frequencies in MHz to configure all calibration and test modules.
Nominal	0.075UI p-p $\pm$ 0.002UI.
Measured	Verified value against the nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

9. **Save Results:** This page allows you to save the Case2 calibration results.

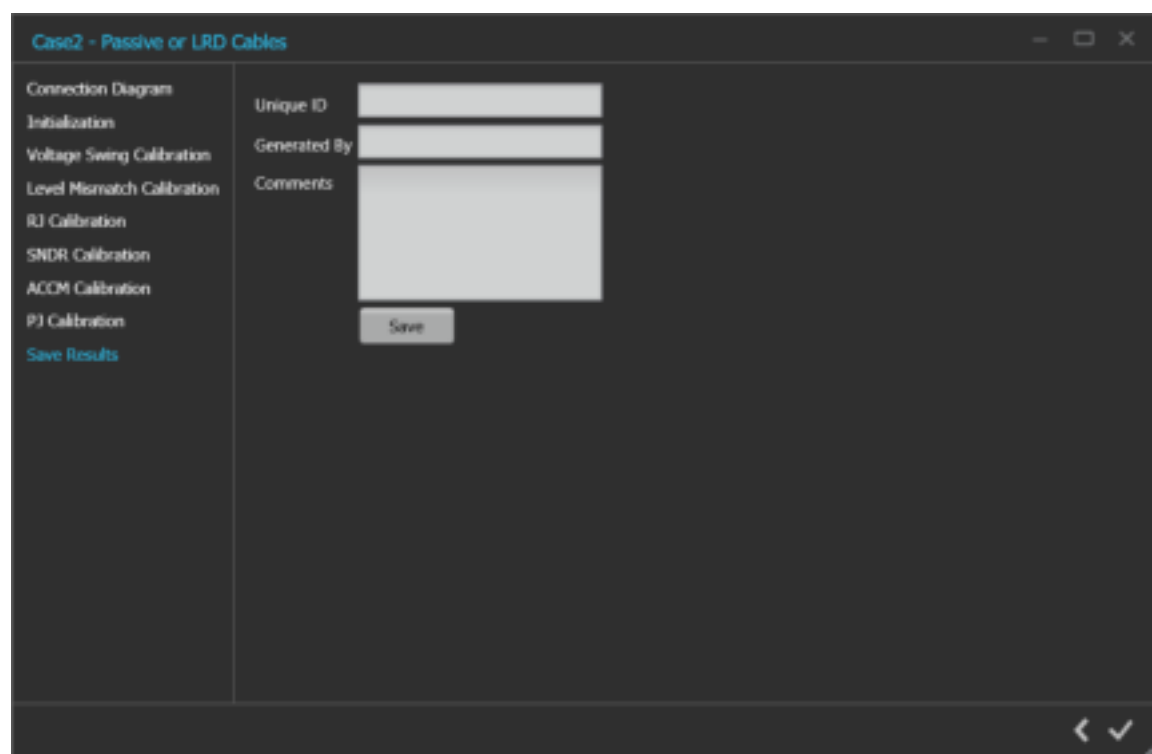


Figure 34: Case2 Calibration-Save Results

Table 24: Case2 Calibration: Save Results

Parameter	Description
Unique ID	Enter the Unique ID of the calibrated equipment in the text box.
Generated By	Enter the user name in the text box.
Comments	Enter the required comments in the comment box (Optional).
Save	Click to save the results.

Click  to complete the Case2 calibration and close the wizard.

Aggressor Calibration

The **Aggressor Calibration** panel allows you to perform Aggressor calibration for **USB4v2 Gen 4** and save the results. You must perform Aggressor calibration before you start performing the calibration for Case2.

Aggressor Calibration Procedure

Click **Aggressor** under the Calibrations tab to view the previously run calibration reports. When you click on , the Aggressor wizard will be launched for the selected generation. This wizard will guide you through the sequential procedure to perform the calibration.

Table 25: Case1 Calibration: Save Results

Parameter	Description
Unique ID	Displays the Unique ID of the calibrated equipment.
Calibration Type	Displays the Calibration Type selected to run test.
Completion Status	Displays the Completion Status of the executed test.
Generated By	Displays the name of the user who executed the test.
Date/Time	Displays the Date and Time of the executed test.
Comments	Displays the required comments in the comment box .



Figure 35: Aggressor Calibration Panel

1. **Configuration:** This tab allows you to choose the Calibration Type and BERT PPG5 DataOut(s) at which the Aggressor Calibrations should be performed.

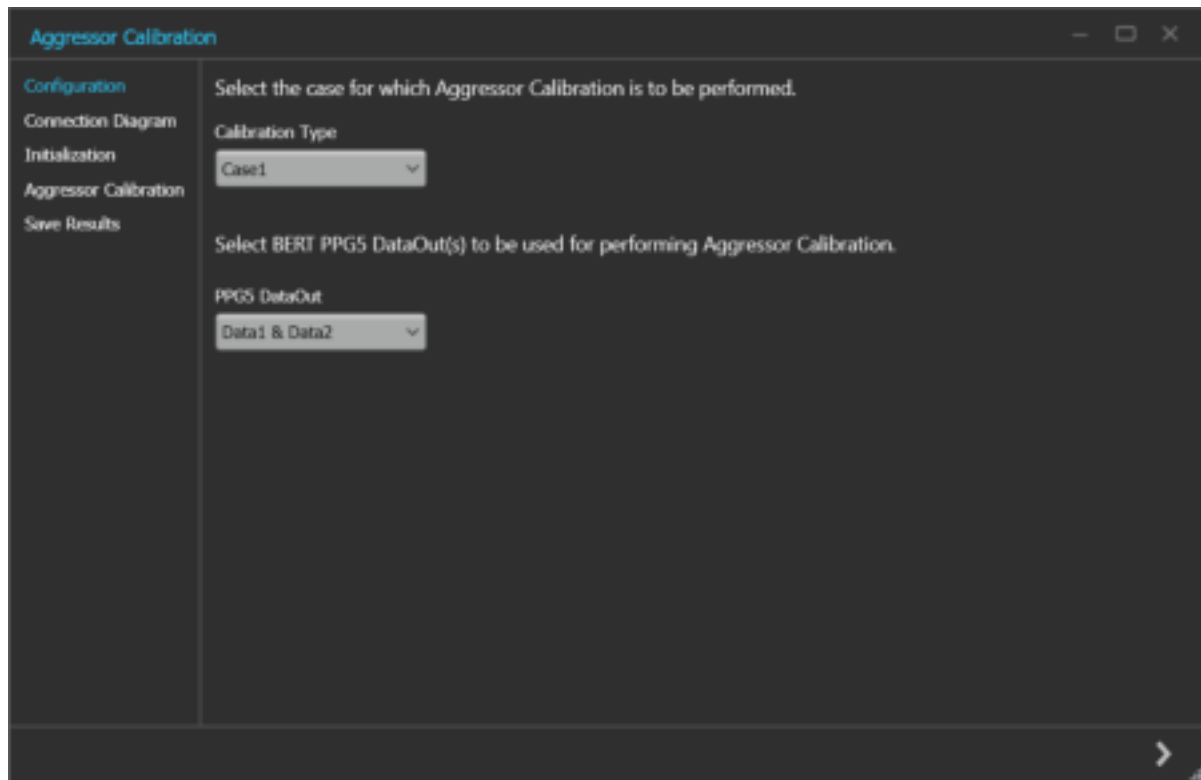


Figure 36: Aggressor Calibration - Configuration

Table 26: Aggressor Calibration - Configuration

Parameter	Description
Calibration Type	Select the calibration type from drop down to perform Aggressor Calibration.
PPG5 DataOUT	Select BERT PPG5 DataOut(s) to be used for performing Aggressor Calibration. • Use Data1 for Symmetric mode. • Use Data1 & Data2 for Asymmetric mode to calibrate Aggressor CLK signal.

Click  to move to the next step in calibration process.

- 2. Connection Diagram:** This page displays the connection diagram for the Aggressor setup.

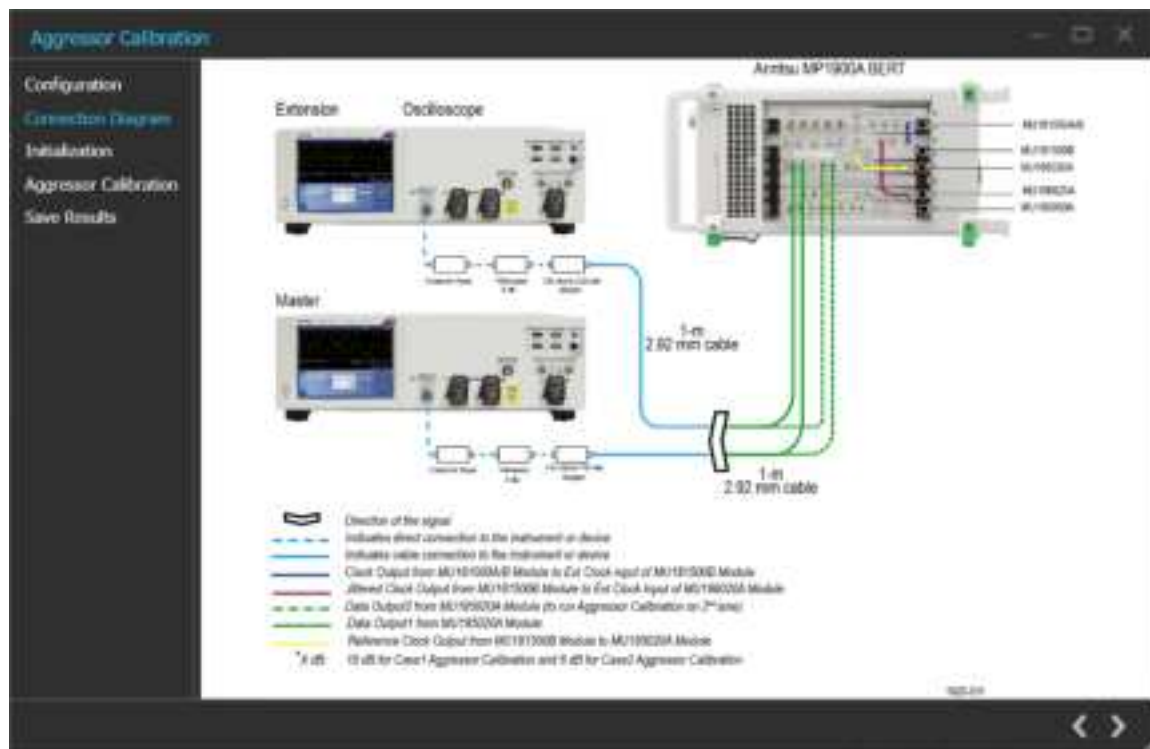


Figure 37: Aggressor Calibration-Connection Diagram

Click  to move to the next step in the calibration process.

- Initialization:** This page displays the description and allows you to initialize the equipment. Click **Initialize Equipment** to complete the initialization process.

The Amplitude of the ppg needs to be calibrated as shown below:

Table 27: Aggressor Calibration

Parameter	Description
Nominal	- Case 1: Aggressor Amplitude: 1085mv – 1095 mv - Case 2: Aggressor Amplitude 545mv – 555 mv - Pattern: ¼ rate clock i.e. Clock of 6.4 GHz

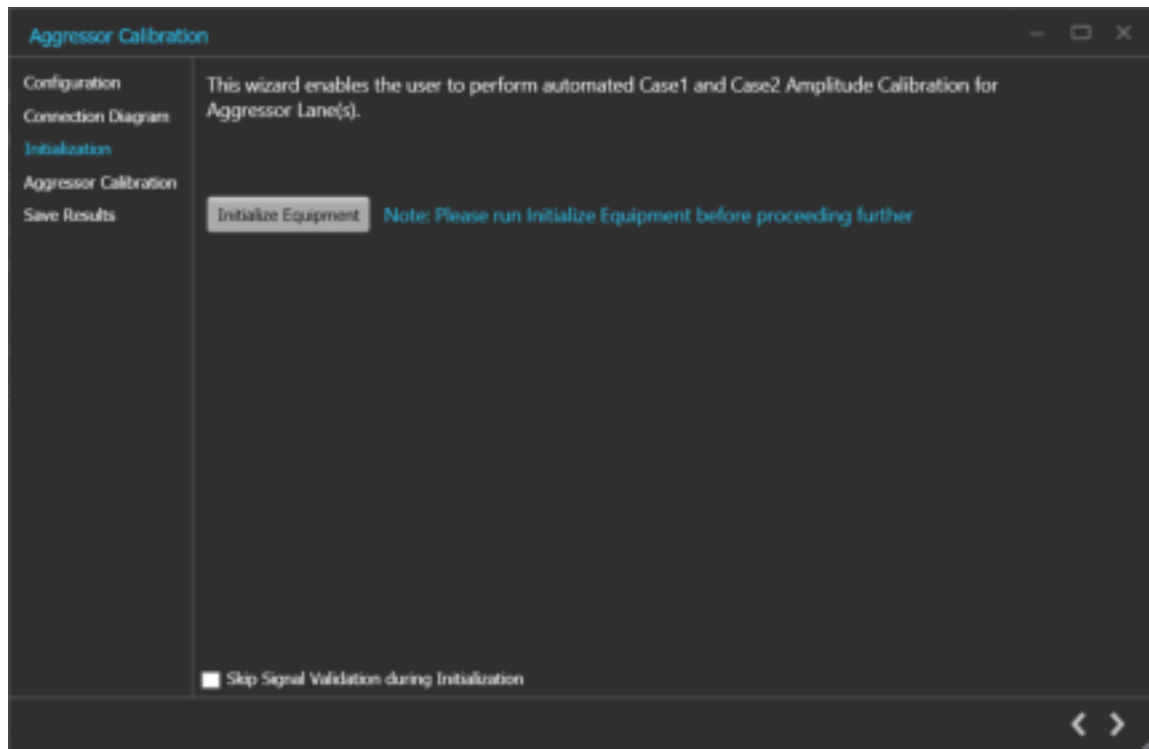


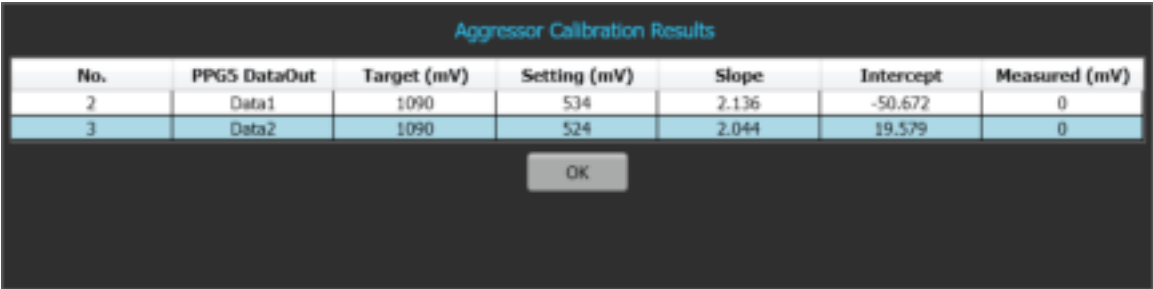
Figure 38: Aggressor Calibration - Initialization

Click  to move to the next step in calibration process.

4. **Aggressor Calibration:** This page displays the graph plot for Aggressor calibration.



Figure 39: Aggressor Calibration - Aggressor Calibration

A screenshot of a software window titled "Aggressor Calibration Results". It contains a table with 7 columns: No., PPG5 DataOut, Target (mV), Setting (mV), Slope, Intercept, and Measured (mV). There are two rows of data. Below the table is an "OK" button.

No.	PPG5 DataOut	Target (mV)	Setting (mV)	Slope	Intercept	Measured (mV)
2	Data1	1090	534	2.136	-50.672	0
3	Data2	1090	524	2.044	19.579	0

OK

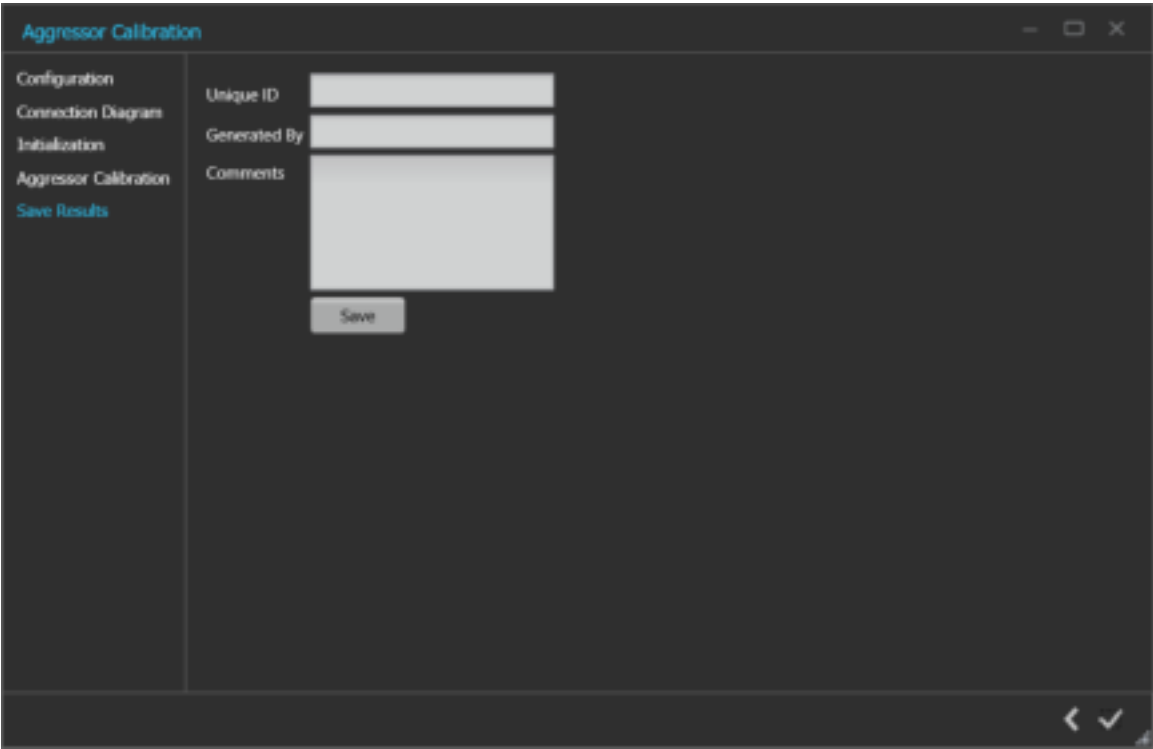
Figure 40: Case1 Calibration - Aggressor Calibration-Summary

Table 28: Aggressor Calibration: Aggressor Calibration

Parameter	Description
Summary	Displays summarized version of the settings, slope, intercept and measured nominal value.
Start	Click Start to run the measurement.

Click  to move to the next step in calibration process.

5. **Save Results:** This page allows you to save the Aggressor calibration results.

A screenshot of a software window titled "Aggressor Calibration". On the left is a sidebar with menu items: Configuration, Connection Diagram, Initialization, Aggressor Calibration, and Save Results (highlighted in blue). The main area contains form fields for "Unique ID", "Generated By", and "Comments". Below these fields is a "Save" button. At the bottom right of the window are navigation arrows (back and forward) and a checkmark icon.

Aggressor Calibration

Configuration
Connection Diagram
Initialization
Aggressor Calibration
Save Results

Unique ID
Generated By
Comments

Save

Figure 41: Aggressor Calibration-Save Results

Table 29: Aggressor Calibration: Save Results

Parameter	Description
Unique ID	Enter the Unique ID of the calibrated equipment in the text box.
Generated By	Enter the user name in the text box.
Table continued...	

Parameter	Description
Comments	Enter the required comments in the comment box (Optional).
Save	Click to save the results.

Click  to complete the Aggressor calibration and close the wizard.

Tests panel

TER Test

The **TER Test** panel allows you to perform Trit Error Rate (TER) Test for **USB4v2 Gen 4** and save the results.

TER Test Procedure

Click **TER** under the Test tab to view the measurement results. When you click on , the TER wizard will be launched for the selected generation. This wizard will guide you through the sequential procedure to perform the calibration.

Table 30: Case1 Calibration: Save Results

Parameter	Description
Unique ID	Displays the Unique ID of the calibrated equipment.
Generated By	Displays the name of the user who executed the test.
Calibration Type	Displays the Calibration type selected to run test.
Date/Time	Displays the Date and Time of the executed test.
Comments	Displays the required comments in the comment box .

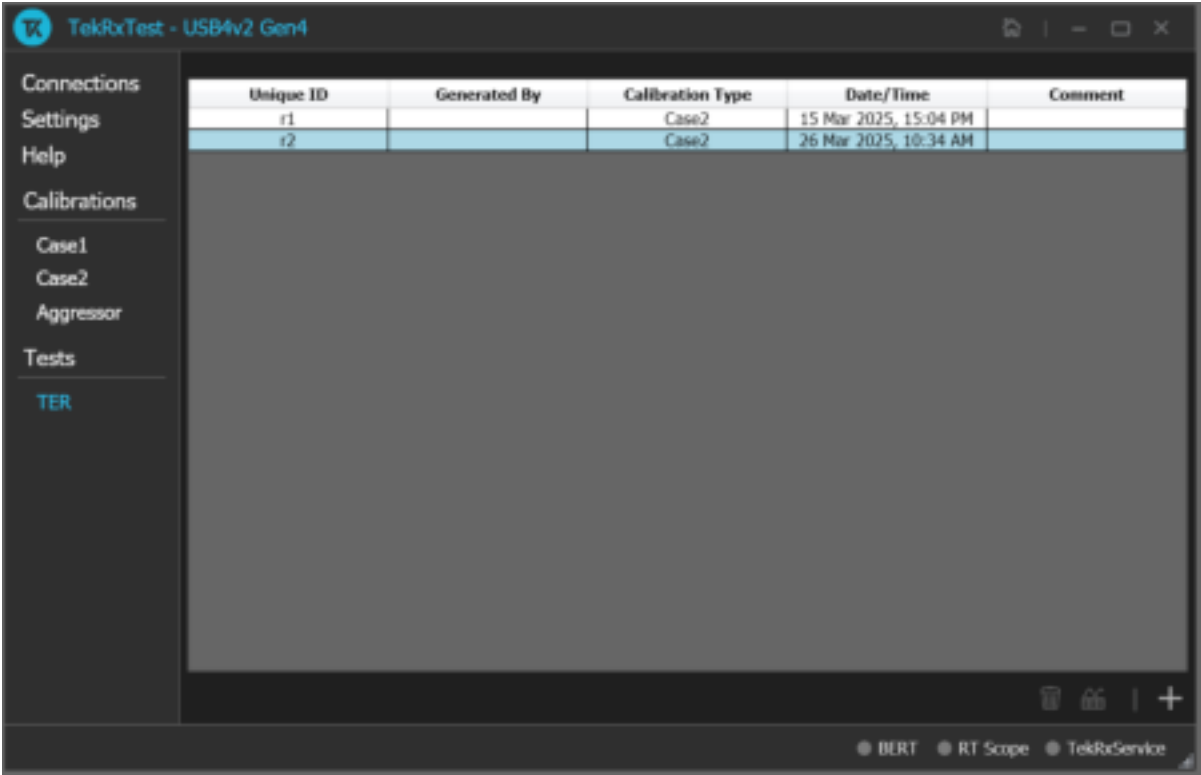


Figure 42: TER Test Panel

- 1. **Calibration Selection:** This tab allows you to select the required Case1 Calibration File and Case2 Calibration File from the drop-down list.

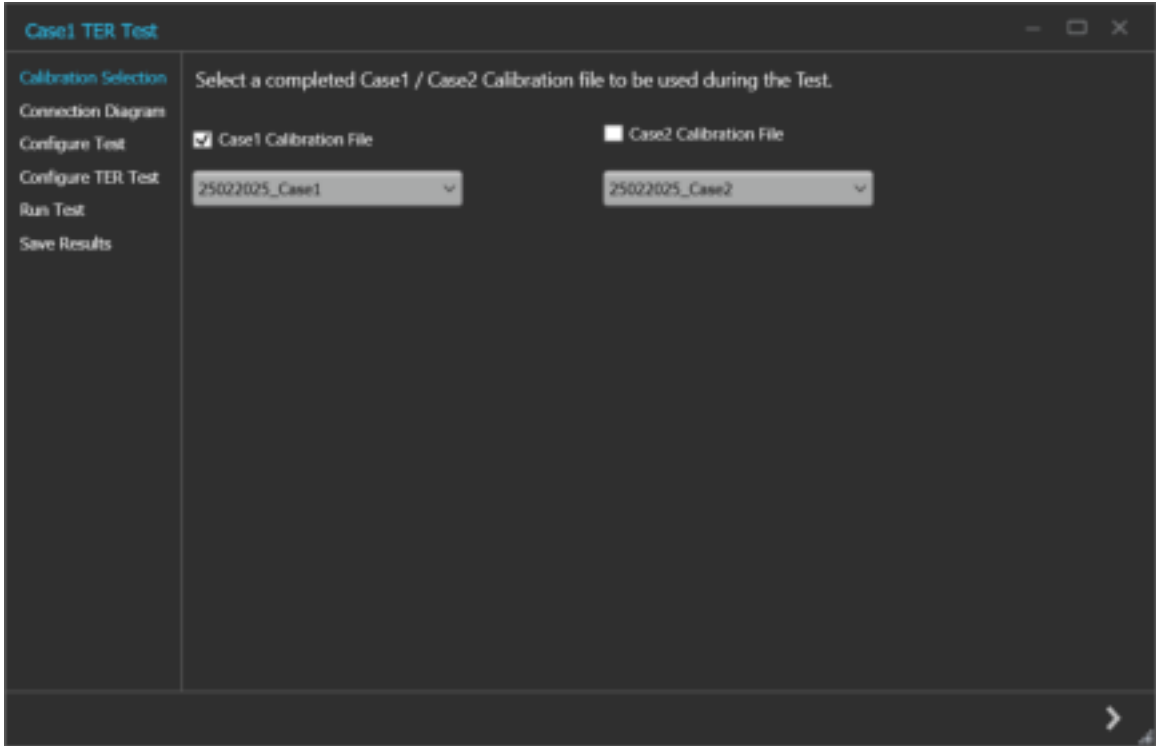


Figure 43: TER Test - Calibration Selection

Table 31: TER Test: Calibration Selection

Parameter	Description
Case1 Calibration File	Select the required Case1 calibration file.
Case2 Calibration File	Select the required Case2 calibration file.

Click  to move to the next step in calibration process.

2. **Connection Diagram:** This tab displays the connection diagram for the TER Test setup.

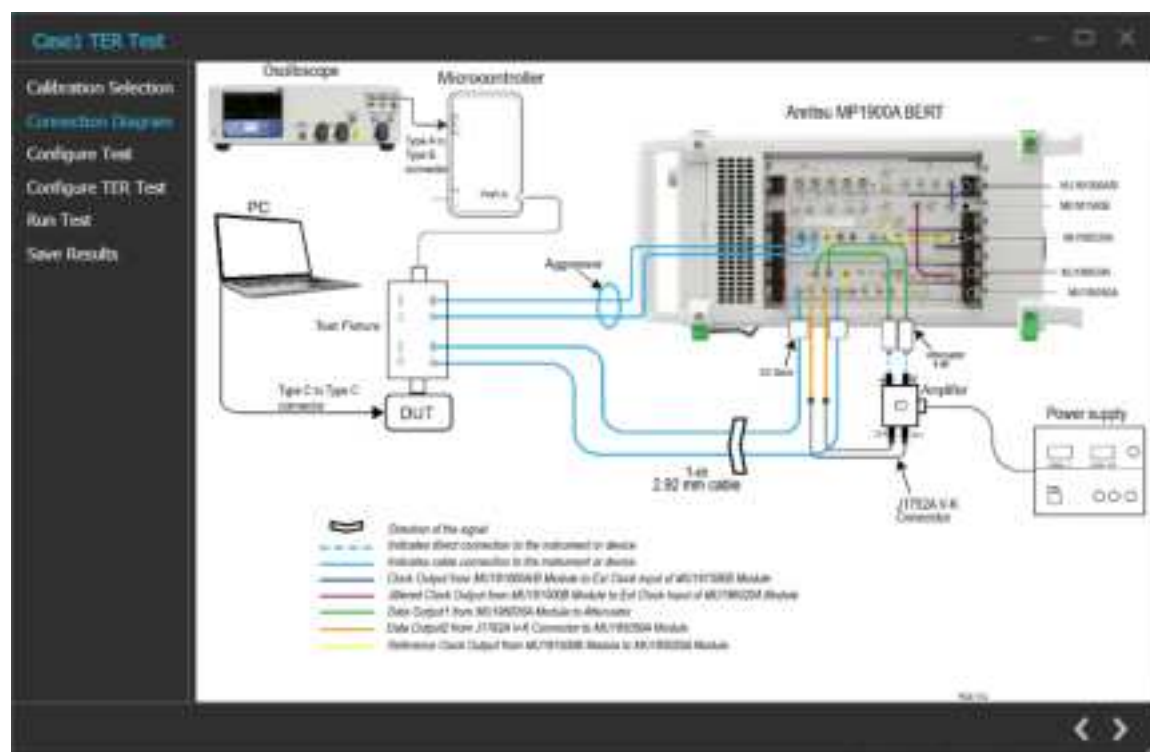


Figure 44: TER Test-Connection Diagram

Click  to move to the next step in the calibration process.

3. **Configure Test:** This tab allows you to configure the Test.

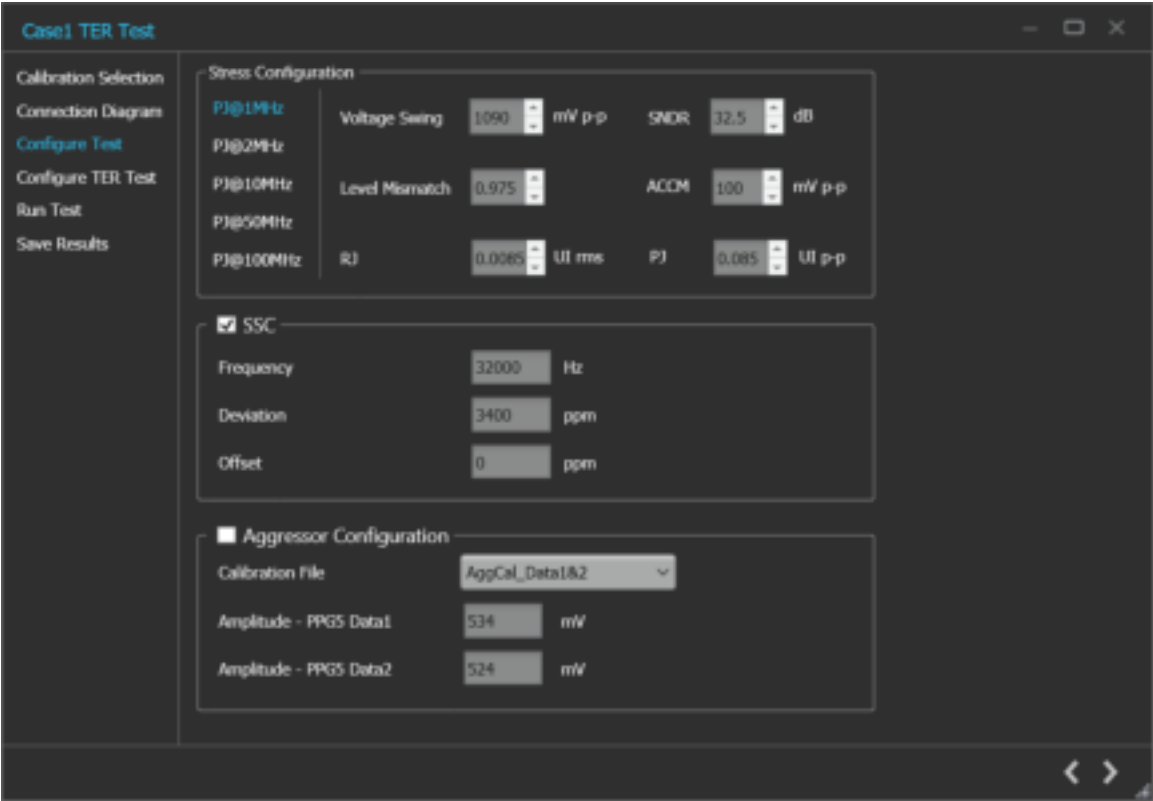


Figure 45: TER Test - Configure Test

Table 32: TER Test: Configure Test

Parameter	Description
Stress Configuration	- Voltage Swing - Displays the Nominal value for Voltage Swing in mV p-p. - SNDR - Displays the Nominal value for SNDR in dB. - Level Mismatch - Displays the Nominal value for Level Mismatch. - ACCM - Displays the Nominal value for ACCM in mV p-p. - RJ - Displays the Nominal value for RJ in UI rms. - PJ - Displays the Nominal value for PJ value in UI p-p
SSC	Select to apply SSC to configure the test.
Frequency	Enter the frequency in Hz for SSC to be used for all calibration and test modules.
Deviation	Enter the deviation in ppm for SSC to be used.
Offset	Enter the offset in ppm for SSC to be used.
Aggressor Configuration	Select to apply aggressor configuration to configure the test. - Calibration File - Select the required Calibration file. - Amplitude - PPG5 Data1 - Displays the Amplitude - PPG5 Data1 value in mV. - Amplitude - PPG5 Data2 - Displays the Amplitude - PPG5 Data2 value in mV.

Click  to move to the next step in calibration process.

4. **Configure TER Test:** This page displays the graph plot for Configure TER Test.

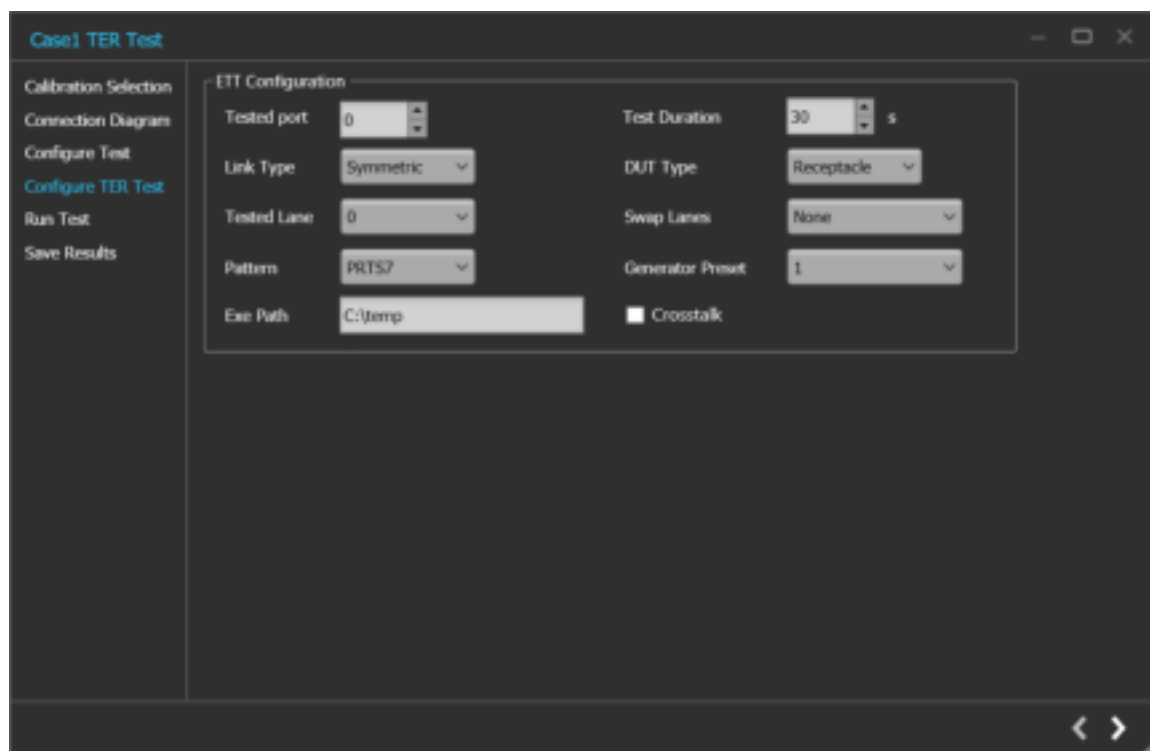


Figure 46: TER Test - Configure TER Test

Table 33: TER Test: Configure TER Test

Parameter	Description
ETT Configuration	
Tested port	Configure the port to run TER test on for the ETT tool (0 - 63).
Test Duration	Configure the test duration in seconds.
Link Type	Select the required link type for ETT tool (Symmetric or Asymmetric). Options: Symmetric, Asymmetric_3RX
DUT Type	Select the DUT type used during the test from the drop-down list. Options: Router, All, Receptable
Tested Lanes	Select the lane on which the TER test will run. Options: 0, 1
Swap Lanes	Select the required swap lane for ETT tool. Options: None, Router, Retimer#2, Router + Retimer#2
Pattern	Select the required pattern for ETT tool. Options: PRBSS11, PRTS19, PRTS7, SQ224, SQ128, STAIRS112
Generator Preset	Select the required generator preset for ETT tool. Options: 1 - 41
Exe Path	Enter the path for the ETT tool executable file in the RT Scope.
Table continued...	

Parameter	Description
Crosstalk	Enable if the DUT you are testing is a Crosstalk device.

Click  to move to the next step in calibration process.

5. **Run Test:** This page displays a tabular representation of the Run test. The table gets populated in real time as the test runs for the selected frequencies.

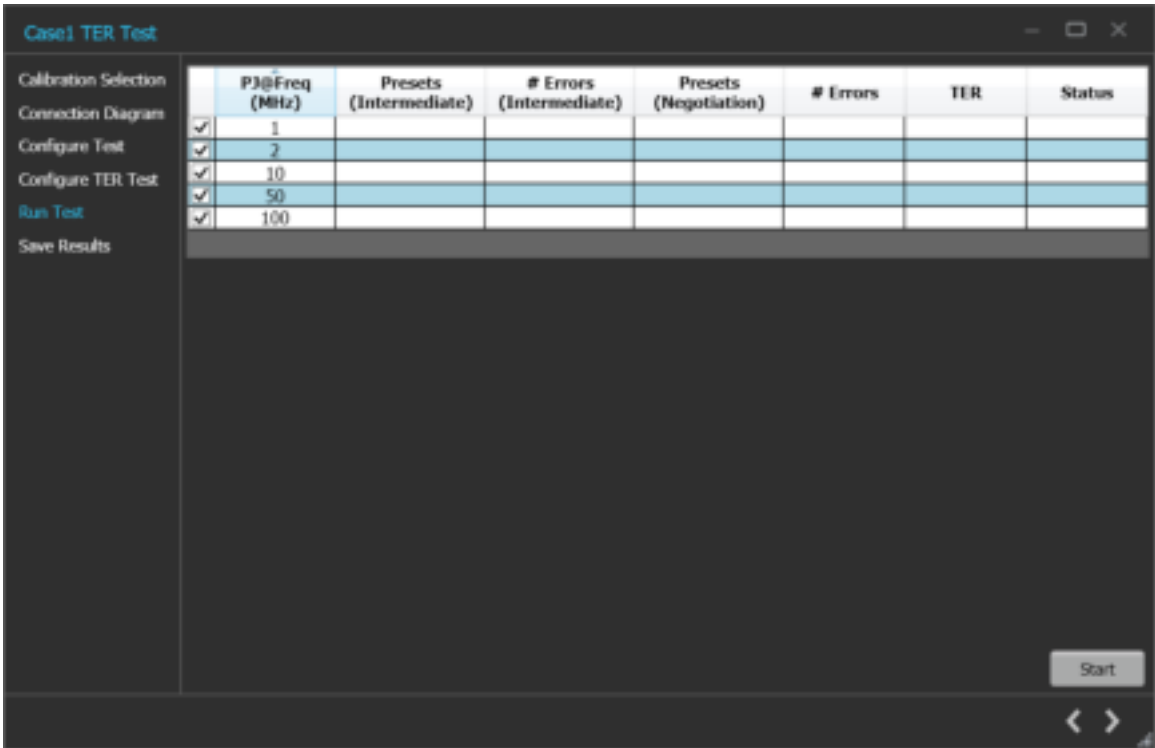


Figure 47: TER Test: Run Test

Table 34: TER Test: Run Test

Parameter	Description
Presets (Intermediate)	Updates the last preset from the preset negotiation between DUT and BERT.
#Errors (Intermediate)	Updates the errors after running TER test for 10 seconds after each preset negotiation.
Preset (Negotiation)	Updates the last preset from the preset negotiation before running the TER test.
#Errors	Updates the number of errors after the test has completed.
TER	Updates the TER value after the test has completed.
Status	Updates the Pass/Fail after test completion.
Start	Click Start to run the measurement.
Cancel	Click Cancel to stop the test.

Click  to move to the next screen.

6. **Save Results:** This page allows you to save the TER Test results.

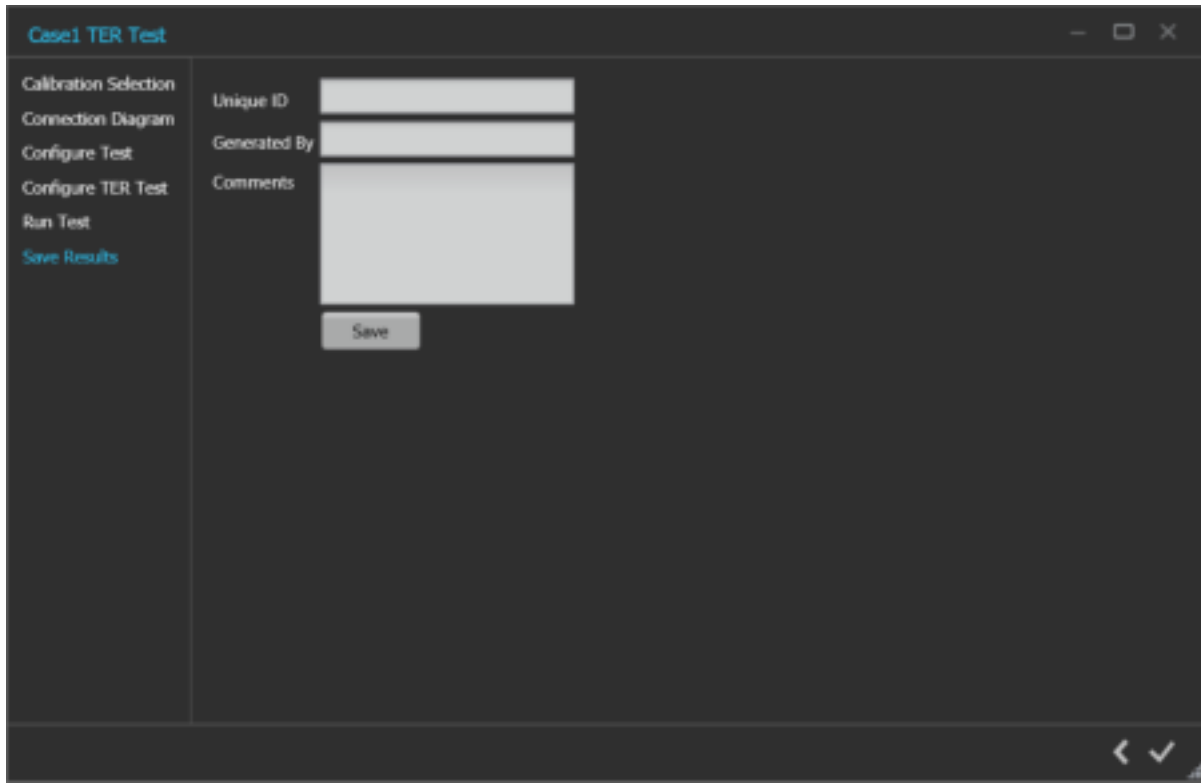


Figure 48: TER Test-Save Results

Table 35: TER Test: Save Results

Parameter	Description
Unique ID	Enter the Unique ID of the calibrated equipment in the text box.
Generated By	Enter the user name in the text box.
Comments	Enter the required comments in the comment box (Optional).
Save	Click to save the results.

Click  to complete the TER Test and close the wizard.

Programmatic interface commands

TEKRXTEST:SELECT:HOME

This command selects the home button.

Syntax

```
TEKRXTEST:SELECT:HOME
```

Inputs

NA

Outputs

NA

TEKRXTEST:SELECT:USB4V2

This command selects the USB4v2 application.

Syntax

```
TEKRXTEST:SELECT:USB4v2
```

Inputs

NA

Outputs

NA

SETTINGS:ANALYSIS:TOOL

This command selects the analysis tool.

Syntax

```
SETTINGS:ANALYSIS:TOOL <bool>
```

Inputs

<bool>

1 - SigTest

Outputs

<bool>

Returns the index of the selected analysis tool

SETTINGS:RECALL

This command recalls the settings as per the specified file.

Syntax

```
SETTINGS:RECALL <filename>
```

Inputs

<filename>

Outputs

NA

SETTINGS:RECALL:STATUS

This command queries the status of the recent recall command execution.

Syntax

```
SETTINGS:RECALL:STATUS?
```

Inputs

NA

Outputs

<string>

SETTINGS:RESTORE

This command restores the application defaults.

Syntax

```
SETTINGS:RESTORE
```

Inputs

NA

Outputs

NA

SETTINGS:RESTORE:STATUS

This command returns the status of the recent restore command execution.

Syntax

```
SETTINGS:RESTORE:STATUS?
```

Inputs

NA

Outputs

<string>

SETTINGS:RTS:NEGATIVECHANNEL

This command sets and queries real time scope setting for negative channel.

Syntax

```
SETTINGS:RTS:NEGATIVECHANNEL?
```

```
SETTINGS:RTS:NEGATIVECHANNEL <int>
```

Inputs

<int>

0 - CH1

1 - CH2

2 - CH3

3 - CH4

Outputs

<int>

SETTINGS:RTS:POSITIVECHANNEL

This command sets and queries real time scope setting for positive channel.

Syntax

```
SETTINGS:RTS:POSITIVECHANNEL?
```

```
SETTINGS:RTS:POSITIVECHANNEL <int>
```

Inputs

<int>

0 - CH1

1 - CH2

2 - CH3

3 - CH4

Outputs

<int>

SETTINGS:RTS:SAMPLERATE

This command returns sample rate of Real Time scope.

Syntax

SETTINGS:RTS:SAMPLERATE?

Inputs

NA

Outputs

<int>

Range: 50 - 200 GS/s

SETTINGS:SAVE

This command saves the settings into the specified file.

Syntax

SETTINGS:SAVE

Inputs

NA

Outputs

NA

SETTINGS:SAVE:STATUS

This command returns the status of the recent save command execution.

Syntax

SETTINGS:SAVE:STATUS?

Inputs

NA

Outputs

<string>

SETTINGS:SIGTEST:FILENAME

This command sets and queries filename of the SigTest executable.

Syntax

SETTINGS:SIGTEST:FILENAME <string>

SETTINGS:SIGTEST:FILENAME?

Inputs

<string>

Outputs

<string>

SETTINGS:SIGTEST:FILEPATH

This command sets and queries the file path for the SigTest executable.

Syntax

SETTINGS:SIGTEST:FILEPATH <string>

SETTINGS:SIGTEST:FILEPATH?

Inputs

<string>

Outputs

<string>

SETTINGS:RTS:DESKEW <NR3>

This command reads and sets deskew values in ps.

Syntax

SETTINGS:RTS:DESKEW <NR3>

Inputs`min(-1500)``max(1500)`**Outputs**

<NR3>

CASE1:OPEN

This command opens the Case1 calibration.

Syntax`CASE1:OPEN`**Inputs**

NA

Outputs

NA

CASE1:WIZARD:OPEN

This command opens the Case1 calibration.

Syntax`CASE1:WIZARD:OPEN`**Inputs**

NA

Outputs

NA

CASE1:WIZARD:CLOSE

This command closes the Case1 calibration test.

Syntax`CASE1:WIZARD:CLOSE`

Inputs

NA

Outputs

NA

CASE1:DELETE

This command deletes the selected Case1 calibration file.

Syntax

CASE1:DELETE

Inputs

NA

Outputs

NA

CASE1:REPORT

This command generates the report for the selected Case1 calibration.

Syntax

CASE1:REPORT

Inputs

NA

Outputs

NA

CASE1:EQUIP:INIT <1/0>

This command sets the equipment initialization of BERT and RT Scope.

Syntax

CASE1:EQUIP:INIT <1/0>

CASE1:EQUIP:INIT?

Inputs

<1 | 0>

1 - Start the equipment initialization run.

0 - Stop the equipment initialization run.

Outputs

NA

CASE1:EQUIP:STATUS?

This command returns the status of equipment initialization.

Syntax

```
CASE1:EQUIP:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

CASE1:EQUIP:SKIPSIGNALVALIDATION <1/0>

This allows the user to skip signal validation as a part of equipment initialization.

Syntax

```
CASE1:EQUIP:SKIPSIGNALVALIDATION <1/0>
```

```
CASE1:EQUIP:SKIPSIGNALVALIDATION?
```

Inputs

<1 | 0>

1- Skip signal validation.

0 - Perform signal validation.

Outputs

<1 | 0>

CASE1:AUTOCAL <1/0>

This command sets the Case1 automatic calibration.

Syntax

CASE1:AUTOCAL <1/0>

CASE1:AUTOCAL?

Inputs

<1 | 0>

1 - Start the Case1 automatic calibration run.

0 - Stop the Case1 automatic calibration run.

Outputs

NA

CASE1:SSC:FREQ <NR1>

This command gets or sets the SSC frequency value.

Syntax

CASE1:SSC:FREQ <NR1>

CASE1:SSC:FREQ?

Inputs

<NR1>

Output

<NR1>

CASE1:SSC:DEVIATION <NR1>

This command gets or sets the SSC deviation value.

Syntax

CASE1:SSC:DEVIATION <NR1>

Inputs

<NR1>

Output

<NR1>

CASE1:SSC:OFFSET <NR1>

This command gets or sets the SSC offset value.

Syntax

```
CASE1:SSC:OFFSET <NR1>
```

Inputs

<NR1>

Output

<NR1>

CASE1:VSWING:SETTING

This command returns the vswing setting for Case1 calibration.

Syntax

```
CASE1:VSWING:SETTING
```

Inputs

NA

Output

<int>

CASE1:VSWING:STATUS?

This command returns the status of VSWING for Case1 Calibration.

Syntax

```
CASE1:VSWING:STATUS?
```

Inputs

NA

Output

{InProgress | Done}

CASE1:VSWING:RUN <1/0>

This command sets the Run status of VSwing calibration for Case1.

Syntax

CASE1:VSWING:RUN <1/0>

CASE1:VSWING:RUN?

Inputs

<1 | 0>

1 - Start the VSWING calibration run.

0 - Stop the VSWING calibration run.

Output

<int>

CASE1:LVL MISMATCH:SETTING

This command returns the Level Mismatch setting for Case1 calibration.

Syntax

CASE1:LVL MISMATCH:SETTING

Inputs

NA

Output

<int>

CASE1:LVL MISMATCH:STATUS?

This command returns the status of Level Mismatch for Case1 Calibration.

Syntax

CASE1:LVL MISMATCH:STATUS?

Inputs

NA

Output

<int>

CASE1:LVL MISMATCH:RUN <1/0>

This command sets the Run status of Level Mismatch calibration for Case1.

Syntax

```
CASE1:LVL MISMATCH:RUN <1/0>
```

```
CASE1:LVL MISMATCH:RUN?
```

Inputs

<1 | 0>

1 - Start the level mismatch calibration run.

0 - Stop the level mismatch calibration run.

Output

<int>

CASE1:RJ:SETTING

This command returns the RJ setting for Case1 calibration.

Syntax

```
CASE1:RJ:SETTING
```

Inputs

NA

Output

<int>

CASE1:RJ:STATUS?

This command returns the status of RJ for Case1 calibration.

Syntax

```
CASE1:RJ:STATUS?
```

Inputs

NA

Output

<int>

CASE1:RJ:RUN <1/0>

This command sets the Run status of RJ calibration for Case1.

Syntax

CASE1:RJ:RUN <1/0>

CASE1:RJ:RUN?

Inputs

<1 | 0>

1 - Start the RJ calibration run.

0 - Stop the RJ calibration run.

Output

<int>

CASE1:SNDR:STATUS?

This command returns the status of SNDR for Case1 calibration..

Syntax

CASE1:SNDR:STATUS?

Inputs

NA

Output

{InProgress | Done}

CASE1:DMI:SETTING

This command returns the DMI setting for Case1 calibration.

Syntax

CASE1:DMI:SETTING

Inputs

NA

Output

<int>

CASE1:SNDR:RUN <1/0>

This command sets the Run status of SNDR calibration for Case1.

Syntax

CASE1:SNDR:RUN <1/0>

CASE1:SNDR:RUN?

Inputs

<1 | 0>

1 - Start the SNDR calibration run.

0 - Stop the SNDR calibration run.

Output

<int>

CASE1:ACCM:SETTING

This command returns the ACCM setting for Case1 calibration.

Syntax

CASE1:ACCM:SETTING

Inputs

NA

Output

<int>

CASE1:ACCM:STATUS?

This command returns the ACCM Calibration Status for Case1 calibration.

Syntax

CASE1:ACCM:STATUS?

Inputs

NA

Output

<int>

CASE1:ACCM:RUN <1/0>

This command sets the Run status of ACCM calibration for Case1.

Syntax

CASE1:ACCM:RUN <1/0>

CASE1:ACCM:RUN?

Inputs

<1 | 0>

1 - Start the ACCM calibration run.

0 - Stop the ACCM calibration run.

Output

NA

CASE1:PJ:STATUS

This command returns the status of PJ for Case1 calibration.

Syntax

CASE1:PJ:STATUS

Inputs

NA

Output

<int>

CASE1:PJ:RUN <1/0>

This command sets the Run status of PJ calibration for Case1.

Syntax

CASE1:PJ:RUN <1/0>

CASE1:PJ:RUN?

Inputs

<1 | 0>

1 - Start the PJ calibration run.

0 - Stop the PJ calibration run.

Output

<int>

CASE1:SAVE

This command saves the settings into the specified file.

Syntax

```
CASE1:SAVE
```

Inputs

NA

Outputs

NA

CASE1:SAVE:STATUS

This command returns the status of the recent save command execution.

Syntax

```
CASE1:SAVE:STATUS?
```

Inputs

NA

Outputs

<string>

CASE1:SAVE:ID <string>

This command gets and sets the Save ID for CASE1 calibration.

Syntax

```
CASE1:SAVE:ID [string]
```

Inputs

<string>

Outputs

<string>

CASE1:SAVE:GENERATEDBY <string>

This command gets and sets the Generated By field for CASE1 calibration.

Syntax

CASE1:SAVE:GeneratedBy [string]

Inputs

<string>

Outputs

<string>

CASE1:SAVE:COMMENTS <string>

This command gets and sets the comments field for CASE1 calibration.

Syntax

CASE1:SAVE:COMMENTS [string]

Inputs

<string>

Outputs

<string>

CASE2:OPEN

This command opens the Case2 calibration.

Syntax

CASE2:OPEN

Inputs

NA

Outputs

NA

CASE2:WIZARD:OPEN

This command opens the Case2 calibration test.

Syntax

CASE2:WIZARD:OPEN

Inputs

NA

Outputs

NA

CASE2:WIZARD:CLOSE

This command closes the Case2 calibration test.

Syntax`CASE2:WIZARD:CLOSE`**Inputs**

NA

Outputs

NA

CASE2:DELETE

This command deletes the selected Case2 calibration file.

Syntax`CASE2:DELETE`**Inputs**

NA

Outputs

NA

CASE2:REPORT

This command generates the report for the selected Case2 calibration.

Syntax`CASE2:REPORT`**Inputs**

NA

Outputs

NA

CASE2:EQUIP:INIT <1/0>

This command sets the equipment initialization of BERT and RT Scope.

Syntax

```
CASE2:EQUIP:INIT <1/0>
```

```
CASE2:EQUIP:INIT?
```

Inputs

<1 | 0>

1 - Start the equipment initialization run.

0 - Stop the equipment initialization run.

Outputs

NA

CASE2:EQUIP:STATUS?

This command returns the status of equipment initialization.

Syntax

```
CASE2:EQUIP:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

CASE2:EQUIP:SKIPSIGNALVALIDATION <1/0>

This allows the user to skip signal validation as a part of equipment initialization.

Syntax

```
CASE2:EQUIP:SKIPSIGNALVALIDATION <1/0>
```

```
CASE2:EQUIP:SKIPSIGNALVALIDATION?
```

Inputs

<1 | 0>

1- Skip signal validation.

0 - Perform signal validation.

Outputs

<1 | 0>

CASE2:AUTOCAL <1/0>

This command sets the Case2 automatic calibration run status

Syntax

CASE2:AUTOCAL <1/0>

CASE2:AUTOCAL?

Inputs

<1 | 0>

1 - Start the Case2 automatic calibration run.

0 - Stop the Case2 automatic calibration run.

Outputs

NA

CASE2:SSC:FREQ <NR1>

This command gets or sets the SSC frequency value.

Syntax

CASE2:SSC:FREQ <NR1>

CASE2:SSC:FREQ?

Inputs

<NR1>

Output

<NR1>

CASE2:SSC:DEVIATION <NR1>

This command gets or sets the SSC deviation value.

Syntax

```
CASE2:SSC:DEVIATION <NR1>
```

```
CASE2:SSC:DEVIATION?
```

Inputs

<NR1>

Output

<NR1>

CASE2:SSC:OFFSET <NR1>

This command gets or sets the SSC offset value.

Syntax

```
CASE2:SSC:OFFSET <NR1>
```

```
CASE2:SSC:OFFSET?
```

Inputs

<NR1>

Output

<NR1>

CASE2:VSWING:SETTING

This command returns the vswing setting for Case2 calibration.

Syntax

```
CASE2:VSWING:SETTING
```

Inputs

NA

Output

<int>

CASE2:VSWING:STATUS?

This command returns the status of VSWING for Case2 Calibration.

Syntax

```
CASE2:VSWING:STATUS?
```

Inputs

NA

Output

{InProgress | Done}

CASE2:VSWING:RUN <1/0>

This command sets the Run status of VSwing calibration for Case1.

Syntax

```
CASE2:VSWING:RUN <1/0>
```

```
CASE2:VSWING:RUN?
```

Inputs

<1 | 0>

1 - Start the VSWING calibration run.

0 - Stop the VSWING calibration run.

Output

<int>

CASE2:LVL MISMATCH:SETTING

This command returns the Level Mismatch setting for Case2 calibration.

Syntax

```
CASE2:LVL MISMATCH:SETTING
```

Inputs

NA

Output

<int>

CASE2:LVL MISMATCH:STATUS?

This command returns the Level Mismatch value for Case2 calibration.

Syntax

```
CASE2:LVL MISMATCH:STATUS?
```

Inputs

NA

Output

<int>

CASE2:LVL MISMATCH:RUN <1/0>

This command sets the Run status of Level Mismatch calibration for Case1.

Syntax

```
CASE2:LVL MISMATCH:RUN <1/0>
```

```
CASE2:LVL MISMATCH:RUN?
```

Inputs

<1 | 0>

1 - Start the Level mismatch calibration run.

0 - Stop the Level mismatch calibration run.

Output

<int>

CASE2:RJ:SETTING

This command returns the RJ setting for Case2 calibration.

Syntax

```
CASE2:RJ:SETTING
```

Inputs

NA

Output

<int>

CASE2:RJ:STATUS?

This command returns the status of the RJ value for Case2 calibration.

Syntax

```
CASE2:RJ:STATUS?
```

Inputs

NA

Output

<int>

CASE2:RJ:RUN <1/0>

This command sets the Run status of RJ calibration for Case1.

Syntax

```
CASE2:RJ:RUN <1/0>
```

```
CASE2:RJ:RUN?
```

Inputs

<1 | 0>

1 - Start the RJ calibration run.

0 - Stop the RJ calibration run.

Output

<int>

CASE2:SNDR:STATUS?

This command returns the status of the SNDR calibration.

Syntax

```
CASE2:SNDR:STATUS?
```

Inputs

NA

Output

{InProgress | Done}

CASE2:DMI:SETTING

This command returns the DMI setting for Case2 calibration.

Syntax

CASE2:DMI:SETTING

Inputs

NA

Output

<int>

CASE2:SNDR:RUN <1/0>

This command sets the SNDR calibration for the Case2 Calibration.

Syntax

CASE2:SNDR:RUN <1/0>

CASE2:SNDR:RUN?

Inputs

<1 | 0>

1 - Start the SNDR calibration run.

0 - Stop the SNDR calibration run.

Output

<int>

CASE2:ACCM:SETTING

This command returns the ACCM setting for Case2 calibration.

Syntax

CASE2:ACCM:SETTING

Inputs

NA

Output

<int>

CASE2:ACCM:STATUS?

This command returns the status of ACCM for Case2 calibration.

Syntax

```
CASE2:ACCM:STATUS?
```

Inputs

NA

Output

<int>

CASE2:ACCM:RUN <1/0>

This command sets the Run status of ACCM calibration for Case1.

Syntax

```
CASE2:ACCM:RUN <1/0>
```

```
CASE2:ACCM:RUN?
```

Inputs

<1 | 0>

1 - Start the ACCM calibration run.

0 - Stop the ACCM calibration run.

Output

<int>

CASE2:PJ:STATUS?

This command returns the status of the PJ for Case2 calibration.

Syntax

```
CASE2:PJ:STATUS?
```

Inputs

NA

Output

<int>

CASE2:PJ:RUN <1/0>

This command sets the Run status of PJ calibration for Case1.

Syntax

CASE2:PJ:RUN <1/0>

CASE2:PJ:RUN?

Inputs

<1 | 0>

1 - Start the PJ calibration run.

0 - Stop the PJ calibration run.

Output

<int>

CASE2:SAVE

This command saves the settings into the specified file.

Syntax

CASE2:SAVE

Inputs

NA

Outputs

NA

CASE2:SAVE:STATUS

This command returns the status of the recent save command execution.

Syntax

CASE2:SAVE:STATUS?

Inputs

NA

Outputs

<string>

CASE2:SAVE:ID <string>

This command gets and sets the Save ID for CASE2 calibration.

Syntax

```
CASE2:SAVE:ID <string>
```

Inputs

<string>

Outputs

<string>

CASE2:SAVE:GENERATEDBY <string>

This command gets and sets the Generated By field for CASE2 calibration.

Syntax

```
CASE2:SAVE:GeneratedBy <string>
```

Inputs

<string>

Outputs

<string>

CASE2:SAVE:COMMENTS <string>

This command gets and sets the COMMENTS field for CASE2 calibration.

Syntax

```
CASE2:SAVE:COMMENTS <string>
```

Inputs

<string>

Outputs

<string>

AGGRESSOR:OPEN

This command opens the AGGRESSOR calibration.

Syntax

AGGRESSOR:OPEN

Inputs

NA

Outputs

NA

AGGRESSOR:WIZARD:OPEN

This command opens the AGGRESSOR calibration.

Syntax

AGGRESSOR:WIZARD:OPEN

Inputs

NA

Outputs

NA

AGGRESSOR:WIZARD:CLOSE

This command closes the AGGRESSOR calibration.

Syntax

AGGRESSOR:WIZARD:CLOSE

Inputs

NA

Outputs

NA

AGGRESSOR:DELETE

This command deletes the selected AGGRESSOR calibration file.

Syntax

AGGRESSOR:DELETE

Inputs

NA

Outputs

NA

AGGRESSOR:REPORT

This command generates the report for the selected AGGRESSOR calibration.

Syntax`AGGRESSOR:REPORT`**Inputs**

NA

Outputs

NA

AGGRESSOR:CONFIG:CASE <1/0>

This command sets the AGGRESSOR configuration of BERT and RT Scope.

Syntax`AGGRESSOR:CONFIG:CASE <1/0>``AGGRESSOR:CONFIG:CASE?`**Inputs**`<1 | 0>`

1 - Start the Case1 configuration run.

0 - Stop the Case2 configuration run.

Outputs

NA

AGGRESSOR:CONFIG:PPGDATAOUT <1/0>

This command sets the AGGRESSOR configuration of PPGDataOut

Syntax`AGGRESSOR:CONFIG:PPGDATAOUT <1/0>`

AGGRESSOR:CONFIG:PPGDATAOUT?

Inputs

<1 | 0>

1 - Data1 & Data2 will get selected for PPG5 DataOUT

0 - Data1 will select for PPG5 DataOut

Outputs

NA

AGGRESSOR:EQUIP:INIT <1/0>

This command sets the equipment initialization of AGGRESSOR.

Syntax

AGGRESSOR:EQUIP:INIT <1/0>

AGGRESSOR:EQUIP:INIT?

Inputs

<1 | 0>

1 - Start the equipment initialization run.

0 - Stop the equipment initialization run.

Outputs

NA

AGGRESSOR:EQUIP:STATUS?

This command returns the Equipment initialization status for AGGRESSOR calibration.

Syntax

AGGRESSOR:EQUIP:STATUS?

Inputs

NA

Output

<int>

AGGRESSOR:EQUIP:SKIPSIGNALVALIDATION <1/0>

This allows the user to skip signal validation as a part of equipment initialization.

Syntax

AGGRESSOR:EQUIP:SKIPSIGNALVALIDATION <1/0>

AGGRESSOR:EQUIP:SKIPSIGNALVALIDATION?

Inputs

<1 | 0>

1- Skip signal validation.

0 - Perform signal validation.

Outputs

<1 | 0>

AGGRESSOR:AMPLITUDE:SETTING

This command returns the AMPLITUDE setting for Aggressor calibration.

Syntax

AGGRESSOR:AMPLITUDE:SETTING

Inputs

NA

Output

<int>

AGGRESSOR:AMPLITUDE:STATUS?

This command returns the AMPLITUDE value for aggressor calibration.

Syntax

AGGRESSOR:AMPLITUDE:STATUS?

Inputs

NA

Output

<int>

AGGRESSOR:AMPLITUDE:RUN <1/0>

This command sets Run status of Aggressor calibration.

Syntax

AGGRESSOR:AMPLITUDE:RUN <1/0>

AGGRESSOR:AMPLITUDE:RUN?

Inputs

<1 | 0>

1 - Start the Aggressor Calibration run.

0 - Stop the Aggressor Calibration run.

Output

<int>

AGGRESSOR:SAVE

This command saves the settings into the specified file.

Syntax

AGGRESSOR:SAVE

Inputs

NA

Outputs

NA

AGGRESSOR:SAVE:STATUS

This command returns the status of the recent save command execution.

Syntax

AGGRESSOR:SAVE:STATUS?

Inputs

NA

Outputs

<string>

AGGRESSOR:SAVE:ID <string>

This command gets and sets the Save ID for aggressor calibration.

Syntax

```
AGGRESSOR:SAVE:ID [string]
```

Inputs

<string>

Outputs

<string>

AGGRESSOR:SAVE:GENERATEDBY <string>

This command gets and sets the Generated By field for aggressor calibration.

Syntax

```
AGGRESSOR:SAVE:GeneratedBy [string]
```

Inputs

<string>

Outputs

<string>

AGGRESSOR:SAVE:COMMENTS <string>

This command gets and sets the comments field for aggressor calibration.

Syntax

```
AGGRESSOR:SAVE:COMMENTS [string]
```

Inputs

<string>

Outputs

<string>

TERTEST:OPEN

Opens the main TER test panel in the user interface.

Syntax

TERTEST:OPEN

Inputs

NA

Outputs

NA

TERTEST:WIZARD:OPEN

Launches the TER test wizard.

Syntax

TERTEST:WIZARD:OPEN

Inputs

NA

Outputs

NA

TERTEST:WIZARD:CLOSE

Closes the TER test wizard interface

Syntax

TERTEST:WIZARD:CLOSE

Inputs

NA

Outputs

NA

TERTEST:CALSEL:CASE1CHK

Selects or unselects Case1 for calibration.

Syntax

TERTEST:CALSEL:CASE1CHK <1 | 0>

TERTEST:CASEL:CASE1CHK?

Inputs

0 - Unselects Case1

1 - Selects Case1

Outputs

NA

TERTEST:CASEL:CASE2CHK

Selects or unselects Case2 for calibration.

Syntax

TERTEST:CASEL:CASE2CHK <1 | 0>

TERTEST:CASEL:CASE2CHK?

Inputs

0 - Unselects Case2

1 - Selects Case2

Outputs

NA

TERTEST:CASEL:CASE1

Sets or queries the file path for Case1 configuration.

Syntax

TERTEST:CASEL:CASE1 <CALNAME>

TERTEST:CASEL:CASE1?

Inputs

<CALNAME>

Outputs

<string>

TERTEST:CASEL:CASE2 <CALNAME>

Sets or queries the file path for Case2 configuration.

Syntax

TERTEST:CASEL:CASE2 <CALNAME>

TERTEST:CASEL:CASE2?

Inputs

<CALNAME>

Outputs

<CALNAME>

TERTEST:ConfigTest:PJ@FREQ <1/2/10/50/100> <1/0>

Selects or unselects the Periodic Jitter (PJ) testing at the specified frequency.

Syntax

TERTEST:ConfigTest:PJ@FREQ <1/2/10/50/100> <1 | 0>

TERTEST:ConfigTest:PJ@FREQ <1/2/10/50/100>?

Inputs

0 - Disables Periodic Jitter

1 - Enables Periodic Jitter

Outputs

<int>

TERTEST:ConfigTest:AMP <1/2/10/50/100>?

Retrieves the amplitude value where <1/2/10/50/100> show the corresponding PJ frequency.

Syntax

TERTEST:ConfigTest:AMP <FREQUENCY 1/2/10/50/100>?

Inputs

NA

Outputs

<int>

TERTEST:ConfigTest:ACCM <1/2/10/50/100>?

Queries the ACCM value <1/2/10/50/100> show the corresponding PJ frequency.

Syntax

```
TERTEST:ConfigTest:ACCM <FREQUENCY 1/2/10/50/100>?
```

Inputs

NA

Outputs

<int>

TERTEST:ConfigTest:LEVELMISMATCH<1/2/10/50/100>?

Queries the level mismatch value for the specified frequency where <1/2/10/50/100> show the corresponding PJ frequency.

Syntax

```
TERTEST:ConfigTest:LEVELMISMATCH <FREQUENCY 1/2/10/50/100>?
```

Inputs

NA

Outputs

NA

TERTEST:ConfigTest:RJ< 1/2/10/50/100>?

Queries the Random Jitter (RJ) value for <1/2/10/50/100> frequency.

Syntax

```
TERTEST:ConfigTest:RJ <1/2/10/50/100>?
```

Inputs

NA

Outputs

<int>

TERTEST:ConfigTest:SNDR < 1/2/10/50/100>?

Queries the Signal-to-Noise and Distortion Ratio (SNDR) value for the <1/2/10/50/100> frequency.

Syntax

```
TERTEST:ConfigTest:SNDR <1/2/10/50/100>?
```

Inputs

NA

Outputs

<int>

TERTEST:ConfigTest:PJ < 1/2/10/50/100>?

Queries the Periodic Jitter (PJ) value for the specified frequency. <1/2/10/50/100> shows the corresponding PJ frequency.

Syntax

```
TERTEST:ConfigTest:PJ <FREQUENCY 1/2/10/50/100>?
```

Inputs

NA

Outputs

NA

TERTEST:SSC

Enables or disables the SSC (Spread Spectrum Clocking).

Syntax

```
TERTEST:SSC <0 | 1>
```

Inputs

0 disables SSC

1 enables SSC

Outputs

NA

TERTEST:SSC:DEVIATION?

Queries the SSC deviation value, indicating the percentage or range of frequency modulation.

Syntax

```
TERTEST:SSC:DEVIATION?
```

Inputs

NA

Outputs

NA

TERTEST:SSC:FREQ?

Queries the current SSC frequency value used in the test configuration.

Syntax

```
TERTEST:SSC:FREQ?
```

Inputs

NA

Outputs

NA

TERTEST:SSC:OFFSET?

Queries the SSC offset value, representing the base frequency shift applied.

Syntax

```
TERTEST:SSC:OFFSET?
```

Inputs

NA

Outputs

NA

TERTEST:AGGRESSORCALSEL:AGGRESSOR <CALNAME>

Selects and queries Aggressor calibration file from Combobox for TER Test.

Syntax

```
TERTEST:AGGRESSORCALSEL:AGGRESSOR <CALNAME>
```

```
TERTEST:AGGRESSORCALSEL:AGGRESSOR?
```

Inputs

<CALNAME>

Outputs

<CALNAME>

TERTEST:AGGRESSORCALSEL:AGGRESSORCALCHK

Select or unselects the aggressor calibration.

Syntax

TERTEST:AGGRESSORCALSEL:AGGRESSORCALCHK <1 | 0>

TERTEST:AGGRESSORCALSEL:AGGRESSORCALCHK?

Inputs

0

1

Outputs

0

1

TERTEST:AGGRESSORAMP:DATA1

Queries the Aggressor Amplitude value of Data1.

Syntax

TERTEST:AGGRESSORAMP:DATA1?

Inputs

NA

Outputs

<int>

TERTEST:AGGRESSORAMP:DATA2

Queries the Aggressor Amplitude value of Data2.

Syntax

TERTEST:AGGRESSORAMP:DATA2?

Inputs

NA

Outputs

<int>

TERTEST:LINK

Sets or queries the link type used in the test configuration.

Syntax

```
TERTEST:LINK <int>
```

```
TERTEST:LINK?
```

Inputs

Symmetric

Asymmetric_3RX

Outputs

NA

TERTEST:DUTTYPE

Sets or queries the DUT type.

Syntax

```
TERTEST:DUTTYPE <int>
```

```
TERTEST:DUTTYPE?
```

Inputs

0: Router

1: All

2: Receptacle

Outputs

NA

TERTEST:TESTEDLANE

Selects or queries the specific lane being tested.

Syntax

TERTEST:TESTEDLANE <int>

TERTEST:TESTEDLANE?

Inputs

Lane 0

Lane 1

Outputs

NA

TERTEST:GENERATOR:PRESET

Sets or queries the preset value for the signal generator.

Syntax

TERTEST:GENERATOR:PRESET <int>

TERTEST:GENERATOR:PRESET?

Inputs

0 - 41

Outputs

NA

TERTEST:CROSSTALK:NEAREND

Enables or disables near-end crosstalk measurement.

Syntax

TERTEST:CROSSTALK:NEAREND [1 | 0]

TERTEST:CROSSTALK:NEAREND?

Inputs

0 disables near-end crosstalk measurement.

1 enables near-end crosstalk measurement.

Outputs

NA

TERTEST:PORT

Sets or queries the test port number. This identifies the physical or logical port used for testing.

Syntax

```
TERTEST:PORT <int>
```

```
TERTEST:PORT?
```

Inputs

0 – 63 ports

Outputs

NA

TERTEST:SWAPLANE

Sets or queries the lane swapping setting.

Syntax

```
TERTEST:SWAPLANE <int>
```

```
TERTEST:SWAPLANE?
```

Inputs

<CALNAME>

Outputs

NA

TERTEST:PATTERN

Sets or queries the test pattern used for signal integrity or functional testing.

Syntax

```
TERTEST:PATTERN <int>
```

```
TERTEST:PATTERN?
```

Inputs

PRTS11

PRTS19

PRTS7

SQ224

SQ128

STAIRS112

Outputs

NA

TERTEST:DURATION

Sets or queries the duration of the test in seconds.

Syntax

TERTEST:DURATION <int>

TERTEST:DURATION?

Inputs

Min: 1

Max: 1000

Outputs

<string>

TERTEST:EXEPATH

Sets or queries the file path to the executable used in the test process. This should be a valid system path.

Syntax

TERTEST:EXEPATH [string]

TERTEST:EXEPATH?

Inputs

[string]

Outputs

NA

TERTEST:RUN

Starts or cancels the TER test run.

Syntax

TERTEST:RUN [1 | 0]

Inputs

- 0 starts the TER test run
- 1 cancels the TER test run

Outputs

NA

TERTEST:RUN:STATUS?

Queries the current status of the test run.

Syntax

TERTEST:RUN:STATUS?

Inputs

NA

Outputs

NA

TERTEST:PJFREQ

Enables or disables specific Periodic Jitter (PJ) frequencies in the TER test. Frequencies supported: 1, 2, 10, 50, and 100 units (typically MHz). |

Syntax

TERTEST:PJFREQ [1 | 2 | 10 | 50 | 100] [0 | 1]

Inputs

- 0 disables Periodic Jitter (PJ) frequencies
- 1 enables Periodic Jitter (PJ) frequencies

Outputs

NA

TERTEST:SAVE:ID

Sets or queries a unique identifier used as a key when saving the test record.

Syntax

TERTEST:SAVE:ID <CALNAME>

Inputs

<CALNAME>

Outputs

NA

TERTEST:SAVE:GeneratedBy

Sets or queries the name of the user or system that generated the test record.

Syntax

TERTEST:SAVE:GeneratedBy <CALNAME>

Inputs

<CALNAME>

Outputs

NA

TERTEST:SAVE:COMMENTS

Sets or queries comments associated with the test record.

Syntax

TERTEST:SAVE:COMMENTS <CALNAME>

Inputs

<CALNAME>

Outputs

NA

TERTEST:SAVE

Saves the current TER calibration and configuration.

Syntax

TERTEST:SAVE

Inputs

NA

Outputs

NA

TERTEST:SAVE:STATUS?

Queries the status of the last save operation.

Syntax

```
TERTEST:SAVE:STATUS?
```

Inputs

NA

Outputs

NA

TERTEST:REPORT

Creates the TER Test Report associated with the specified unique name.

Syntax

```
TERTEST:REPORT [UniqueName]
```

Inputs

[UniqueName] - Test report name

Outputs

NA

TERTEST:DELETE

Deletes the TER test report associated with the specified unique name.

Syntax

```
TERTEST:DELETE [Name]
```

Inputs

[Name] - Test report name

Outputs

NA

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