

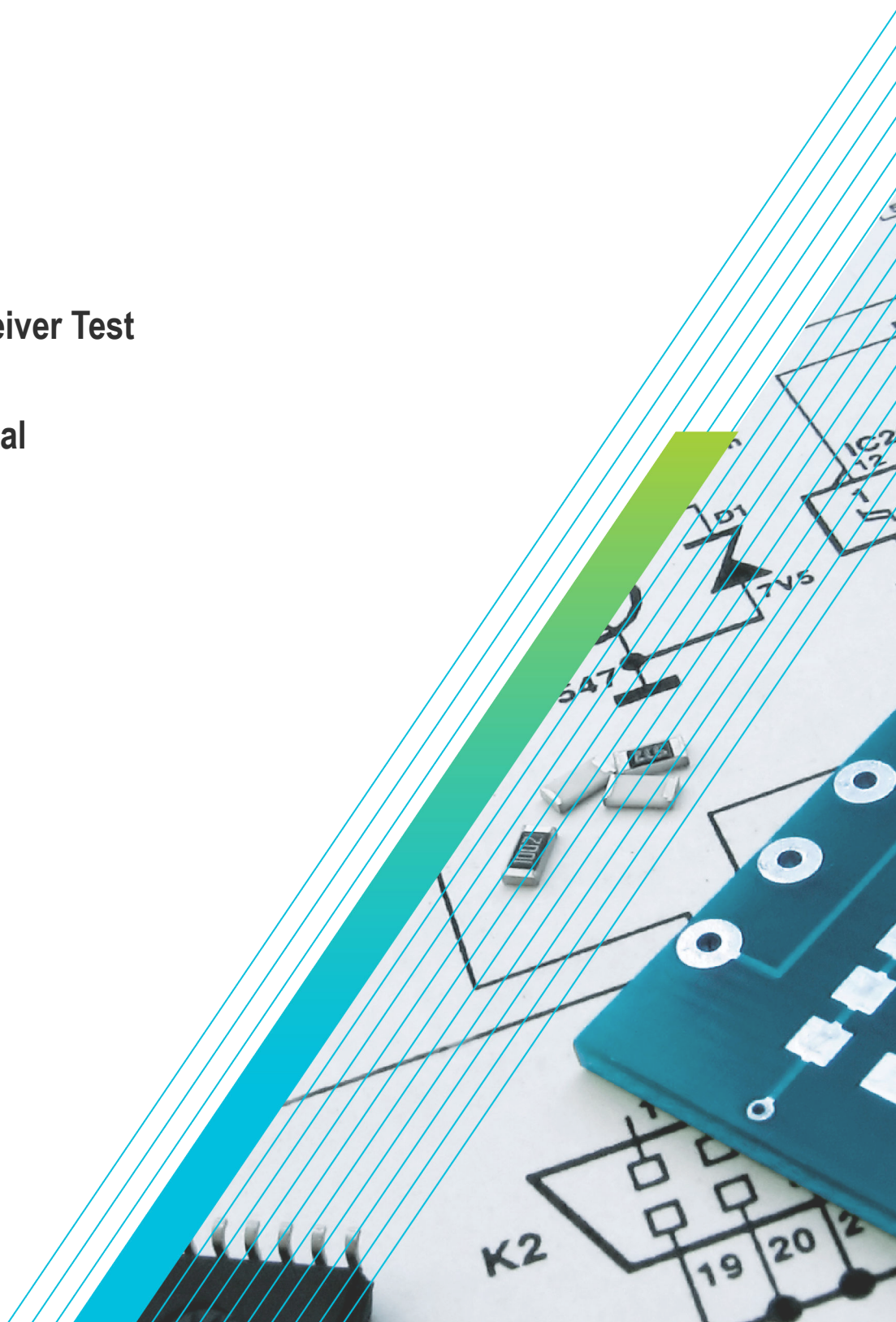


Thunderbolt Receiver Test

Application Manual



077-1739-01





Thunderbolt Receiver Test

Application Manual

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- Worldwide, visit to www.tek.com find contacts in your area.

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Welcome

The TBT3/TBT4 Rx application performs the test as per the Gen 2 / Gen 3 USB4 Electrical CTS Revision 1.02.

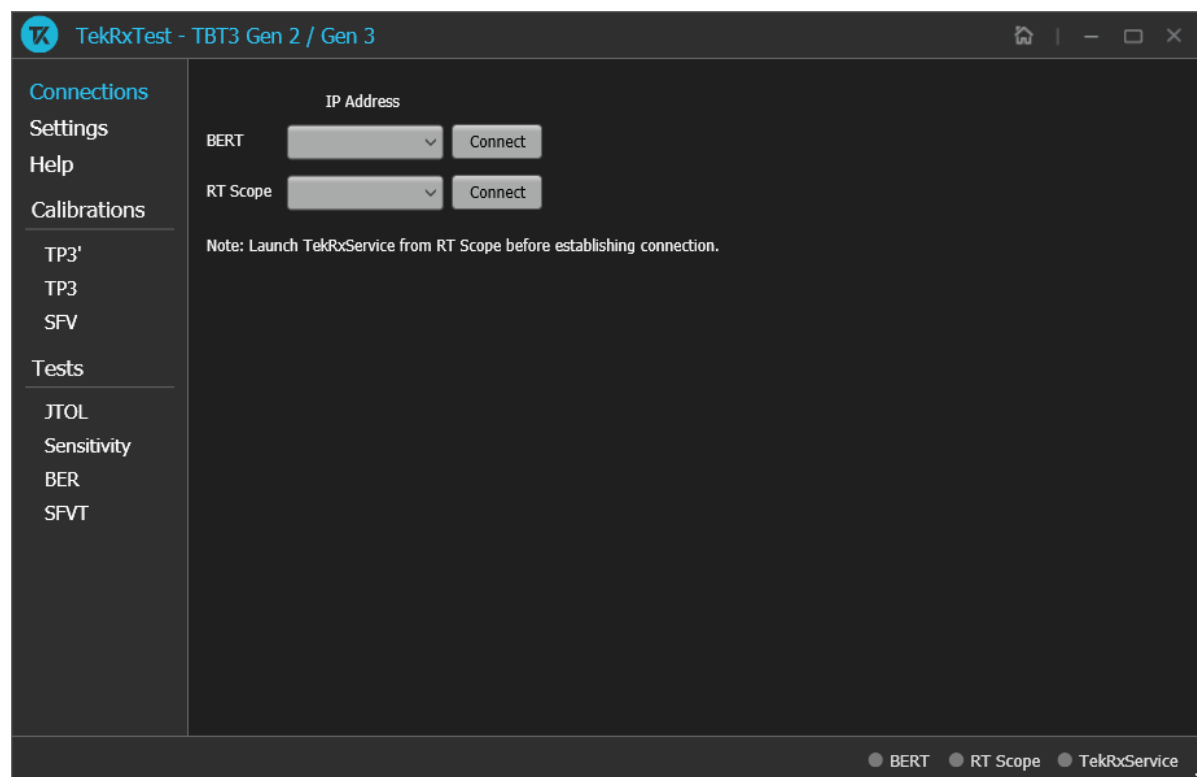


Figure 1: TekRxTest - Thunderbolt4 Gen 2 / Gen 3 Rx application

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 rerun older Calibration files.
- Receiver BER, Signal Frequency Variations Training (SFVT), Jitter Tolerance (JTOL), and Sensitivity test for the DUT using the Electrical Testing Tool (ETT) from USB-IF.
- Jointly with Anritsu BERT MP1900A series, the receiver solution provides the tools and flexibility required to visualize and control the impairments, observe real-time eye performance for Thunderbolt3/4 devices at 10, 10.3125, 20 and 20.625 Gbps.
- The solution showcases the eye diagram at TP3' and TP3 endpoints.
- Reliable and accurate results reduce the test execution time and minimize the skillset required to perform calibration and testing.
- Available tests can be run at TP3' (Case 1) and TP3 (Case 2) test points and come with crosstalk feature.
- Detailed reports are at one's disposal for all calibration and test modules.

Getting help and support

Related documentation

The following documentation is available as part of the **TBT3/4 Gen 2 / Gen 3 Rx** 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 |
| DPO72304SX or DPO72304DX or Oscilloscope of higher bandwidth | Tektronix | Equipment | Required | 1 | Tektronix Real time Oscilloscope Bandwidth $\geq 21\text{GHz}$, ≥ 2 -channel oscilloscope |
| CIO – DPOJET plugin | Tektronix | Software | Required | 1 | Pre-req option for TBT3/4 |
| DIA-DPOJET Advanced option | Tektronix | Software | Required | 1 | Pre-req option for TBT3/4 |
| SDLA64 | Tektronix | Software | Required | 1 | Pre-req option for TBT3/4 |
| PMCABLE1M | Tektronix | Accessory | Required | 3 | Precision Phase Matched Cable Pair, 1m |
| 640-0961-000 | Wilder | Equipment | Required | 1 | USB4 controller and fixture (USB4-TPA-UC-K) |
| ST2643 | Fairview Microwave | Accessory | Required | 4 | SMP terminators |
| SM8852 | Fairview Microwave | Accessory | Required | 6 | 2.92mm (female) to SMP (female) Cable or Adapter |
| PCIe Gen4 ISI Fixture | PCI-SIG | Accessory | Required | 1 | This will be replaced when an approved version is made available |
| 0.8 m and 2 m USB Type-C cables | Any USB-IF approved cable | Accessory | Required | 1 each | USB Type C Cables |
| RXSW-NLP-TBT34 or | Tektronix | Software | Required | 1 | License; Thunderbolt 3 and 4 Receiver automation software for TEK scopes and Anritsu BERT; Perpetual; Node-Locked |
| RXSW-NL1-TBT34 or | | | | | License; Thunderbolt 3 and 4 Receiver automation software for TEK scopes and Anritsu BERT; 1 year subscription; Node-Locked |
| RXSW-FLP-TBT34 or | | | | | License; Thunderbolt 3 and 4 Receiver automation software for TEK scopes and Anritsu BERT; Perpetual; Floating |
| RXSW-FL1-TBT34 | | | | | License; Thunderbolt 3 and 4 Receiver automation software for TEK scopes and Anritsu BERT; 1 year subscription; Floating |

Installing the software

Follow the below steps to download and install the latest TBT3/4 Gen 2 / Gen 3 TekRxTest application.

1. Go to www.tek.com.

2. Click **Downloads**. In the Download menu, select DOWNLOAD TYPE as Software and enter **TBT3/4 Gen 2 / Gen 3 Rx** 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.

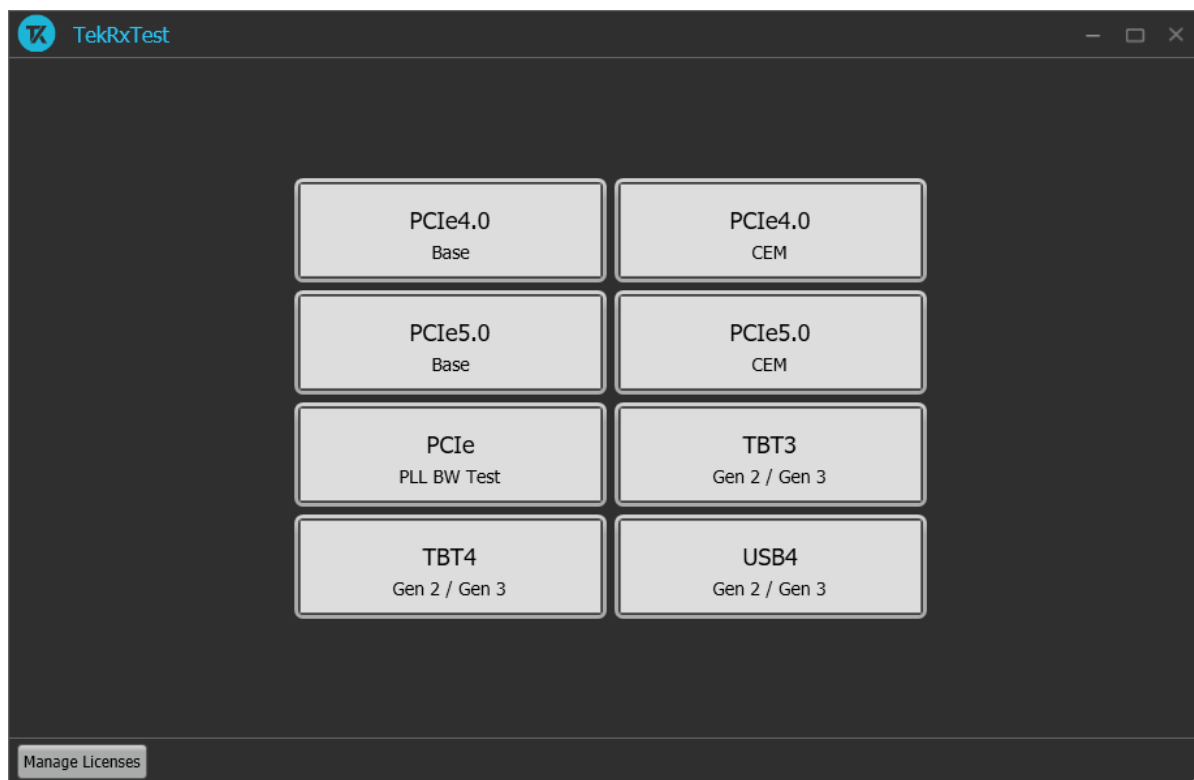
Note:

- The TBT3/4 Gen 2 / Gen 3 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.


Operating basics

Launch the application

To launch the TBT3/4 Gen 2 / Gen 3 TekRxTest application, click the shortcut icon **TekRxTest** on the desktop and select **TBT3 or TBT4 Gen 2 / Gen 3** 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.

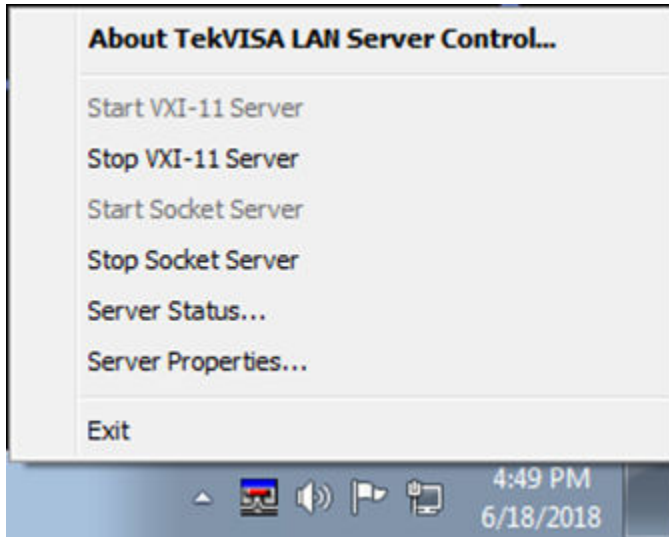


Figure 2: Launch Real-Time Oscilloscope



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 TBT3/4 Gen 2 / Gen 3 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.

Application panels

Application panels overview

The TBT3/4 Gen 2 / Gen 3 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.

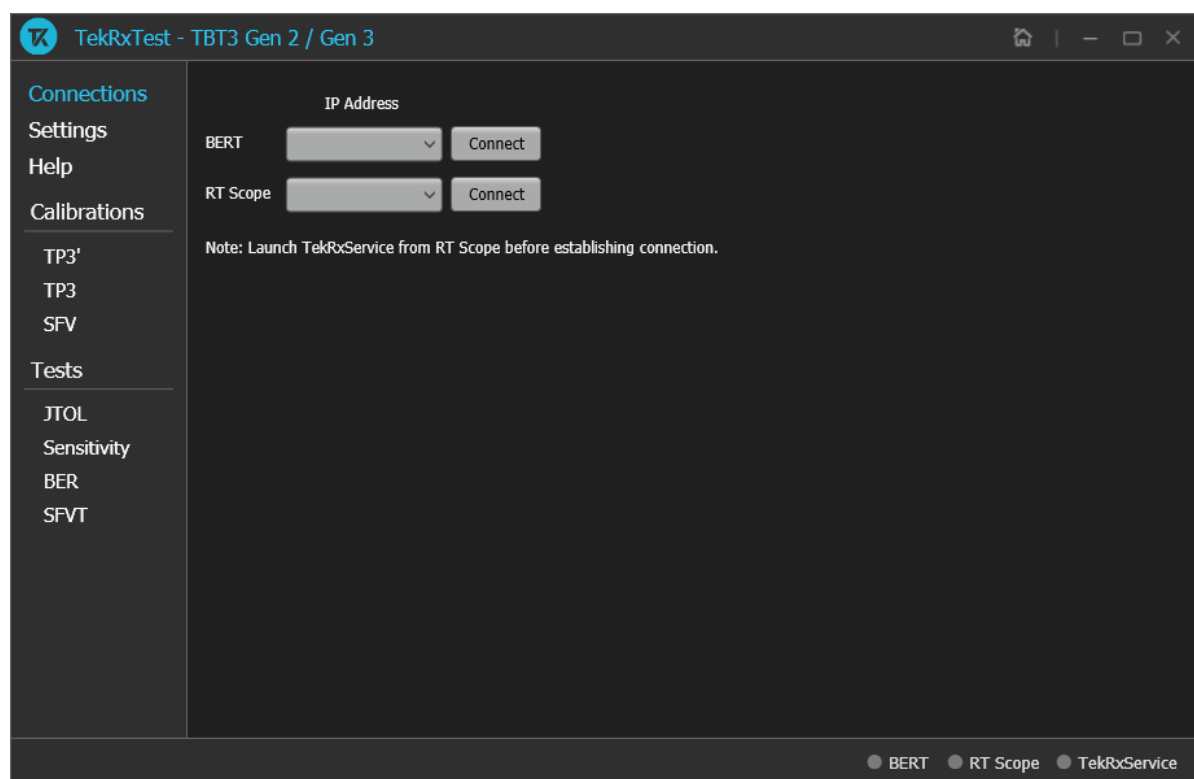


Figure 3: Application panels overview

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 TP3', TP3, and SFV and save the results. |
| Tests | This panel allows you to configure the JTOL, Sensitivity, BER, and SFVT test settings and view the results. |

Connections panel

The Connections panel allows you to connect to a real-time oscilloscope and BERT with the TBT3/4 Gen 2 / Gen 3 TekRxTest application. Enter the IP address of these instruments and click **Connect** to establish the connection.

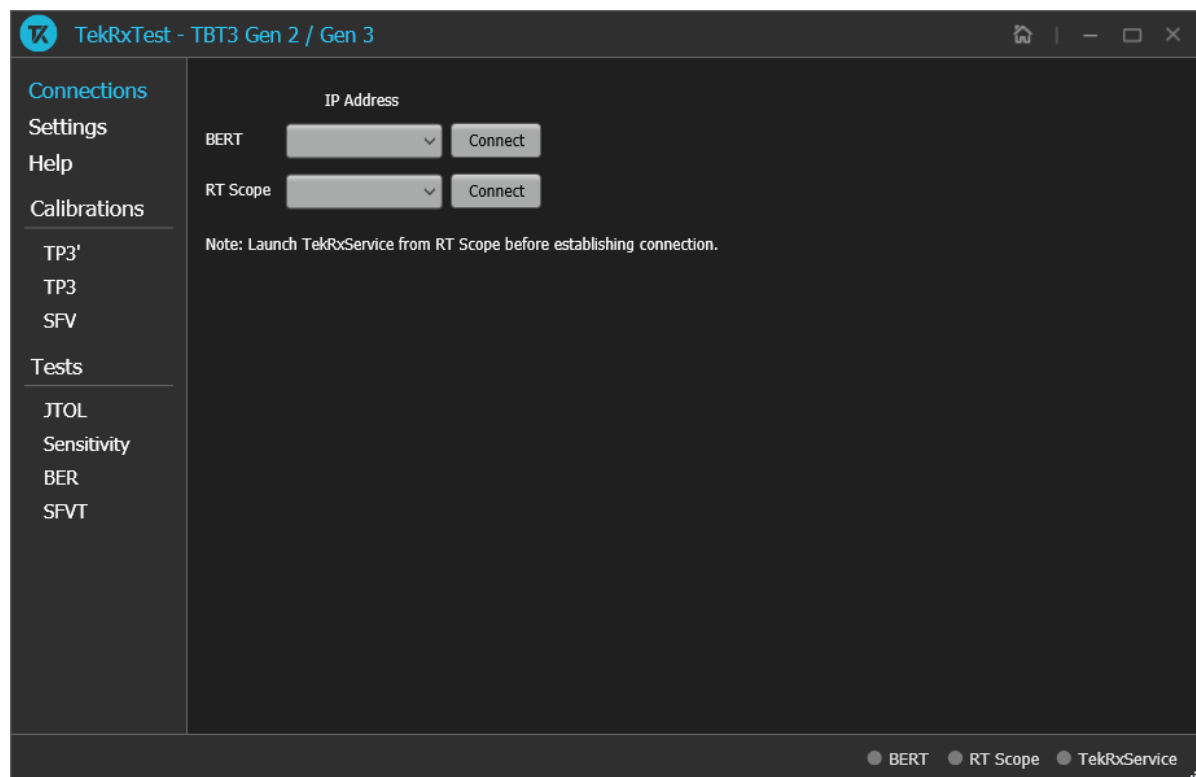




Figure 4: Connections panel

Table 4: Connections panel

| Connections | Description |
|-------------|---|
| BERT | <p>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.</p> <p> Note: It is recommended to launch the MP1900A software in the administrator mode to use the TekRxTest Application.</p> |
| RT Scope | <p>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.</p> <p> Note: Before you click Connect, you must launch the TekRxService in the real-time oscilloscope.</p> |

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.

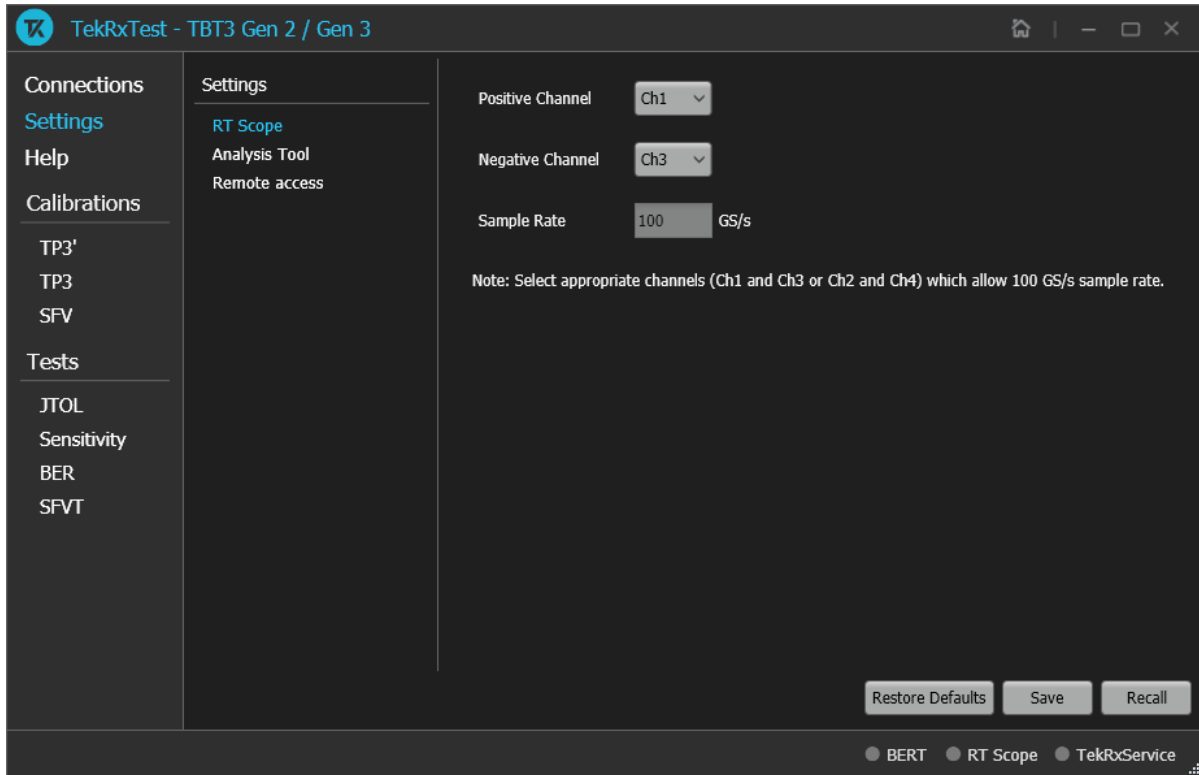


Figure 5: Settings panel

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

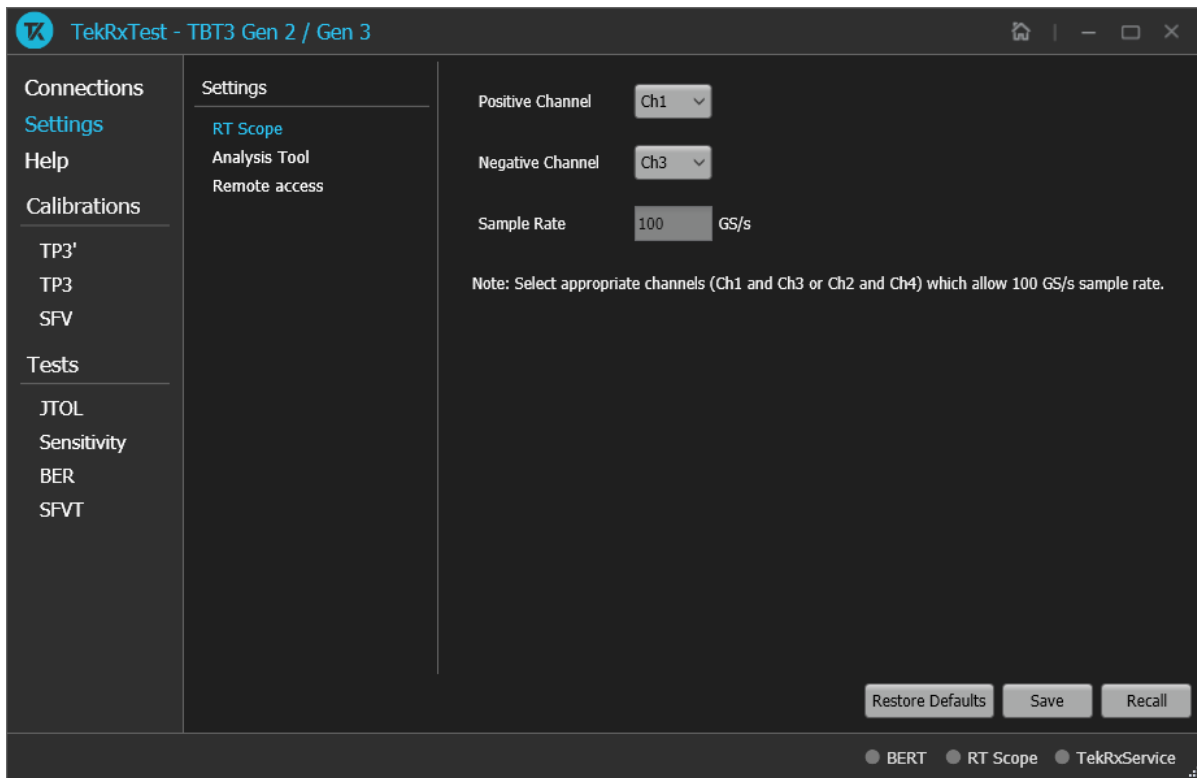


Figure 6: RT Scope

Table 6: RT Scope

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



Note: Select appropriate channels (Ch1 and Ch3 or Ch2 and Ch4) which allow 100 GS/s sample rate.

Analysis Tool

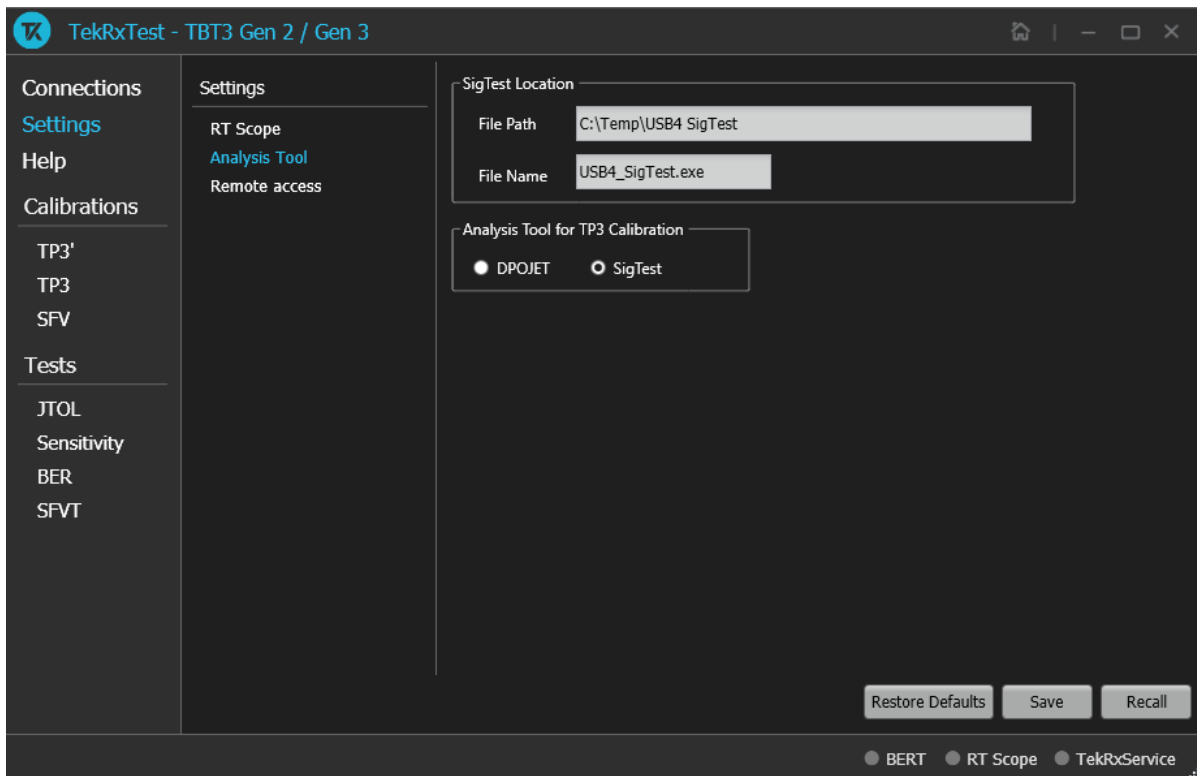



Figure 7: Analysis Tool

Table 7: Analysis Tool

| Parameter | Description |
|-----------|---|
| DPOJET | Displays the jitter and eye measurements in TP3' and TP3 calibration. |
| SigTest | <p>Displays the signal quality measurements captured using a real-time oscilloscope.</p> <p>You need to provide a valid file path for the TBT3/4 Sigtest executable in the Text box File Path and the name of the executable in the Text box File Name.</p> <p> Note: TekRxTest application supports the usage of SigTest Analysis for TP3 Calibration.</p> |

Remote access

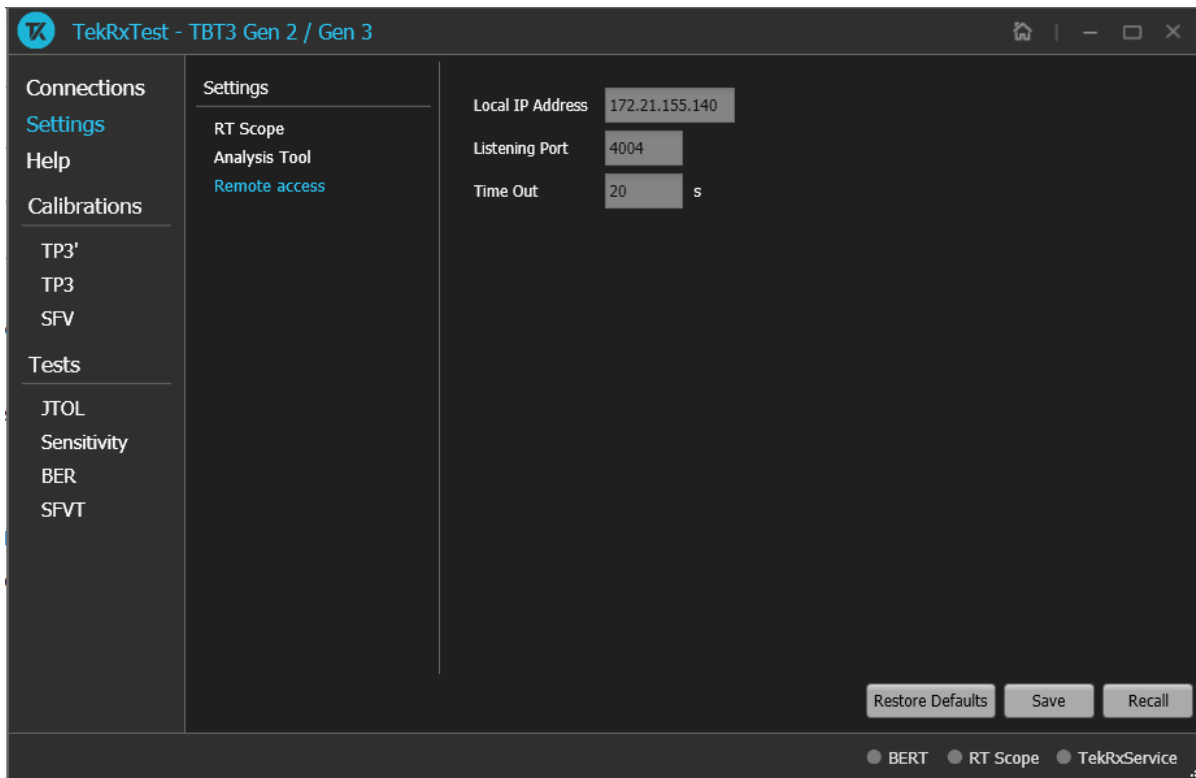


Figure 8: Remote access

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 TBT3/4 Gen 2 / Gen 3 TekRxTest application help document.

Calibrations panel

Complete TP3', TP3, and SFV calibrations before you start the DUT testing using the TBT3/4 Gen 2 / Gen 3 TekRxTest application. Follow the instructions in the calibration wizards to automate the calibration for the TP3' and TP3 calibration points. After calibrating these points, you can save the results.


TP3' Calibration

The TP3' calibration panel allows you to perform TP3' calibration for Data Rate and save the results.

You must perform TP3' calibration before you start performing the calibration for TP3.

TP3' Calibration Procedure

Click on TP3' under the Calibrations tab to view the previously run calibration reports. At this stage, you can choose the data rate (10 Gbps or 10.3125 Gbps or 20 Gbps or 20.625 Gbps), the run calibration reports for the selected data rate will be populated in the results table.

When you click on , the TP3' 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. **AC-DC Balance:** The subsequent calibration modules assume the high and low frequency portions of the waveform to be of equal amplitude which is accomplished through AC – DC Balance.
2. **Eye Height Calibration:** A nominal differential amplitude of 700 mV is calibrated to be used in other calibration modules.
3. **Preset Calibration:** The various predefined Preshoot and De-emphasis levels are required to be calibrated within a tolerance.
4. **DDJ Calibration:** The preset with the least data dependent jitter is found and used in further modules.
5. **ACCM Calibration:** The AC Common Mode Interference is required to be calibrated to 100 mVp-p at a frequency of 400 MHz.
6. **RJ Calibration:** The Random Jitter is to be calibrated to a nominal value of 0.14 UI p-p.
7. **PJ Calibration:** The periodic jitter at frequencies of 1, 2, 10, 50 and 100 MHz is calibrated to a nominal value of 0.17 UI p-p.
8. **TJ Calibration:** The Total Jitter at the predefined frequencies of 1, 2, 10, 50 and 100 MHz is calibrated to be in the range of 0.3375 – 0.3625 UI p-p (Gen 2 - 10 and 10.3125 Gbps) and 0.355 – 0.405 UI p-p (Gen 3 - 20 and 20.625 Gbps).
9. **Input Eye Diagram:** In this step of calibration, it is ensured that the signal, with all the calibrated stresses, meets the Eye Height (700 mV for both Gen2 and Gen3) and Eye Width (0.175-0.825 UI for Gen2 and 0.19-0.81 UI for Gen3) requirements for 1, 2, 10, 50 and 100 MHz with the help of a predefined mask, ensuring that there are no mask hits.



Figure 9: TP3' Calibration Panel

1. **Connection Diagram:** This page displays the connection diagram for the TP3' setup.

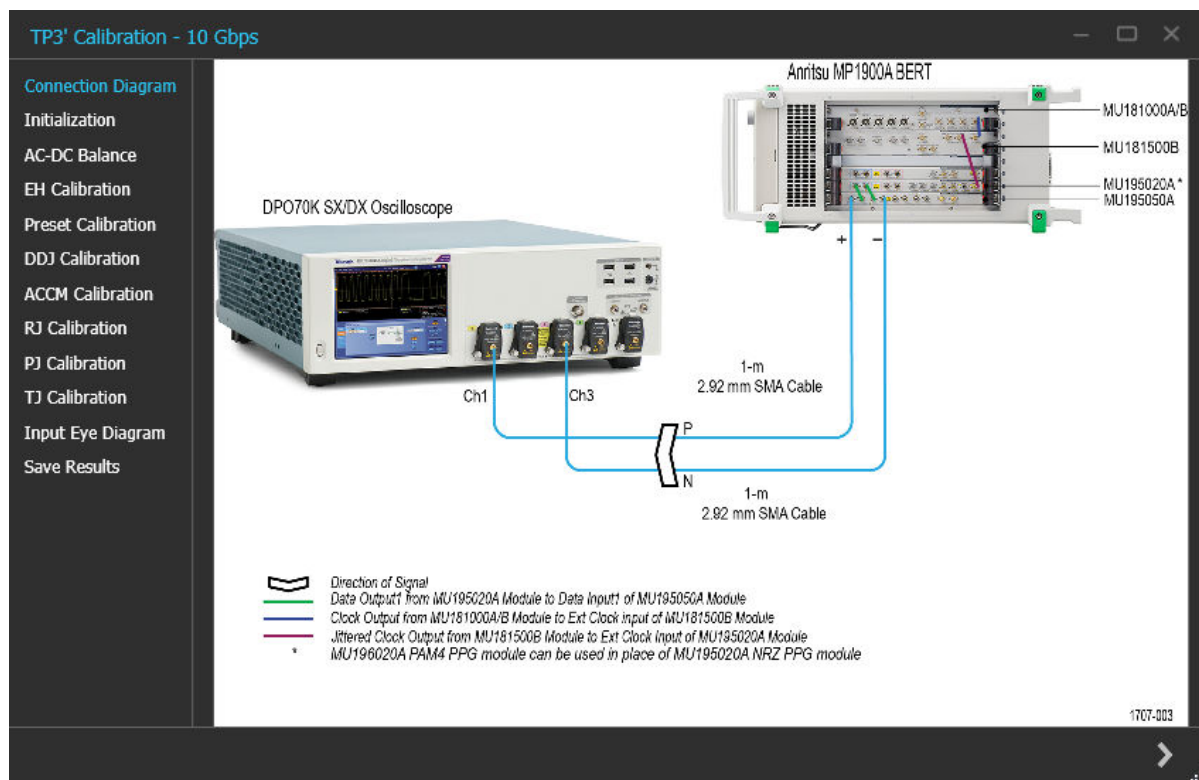



Figure 10: TP3' Calibration-Connection Diagram

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 amplitude, Tx equalization presets, ACCM, RJ, and PJ parameters without user intervention.

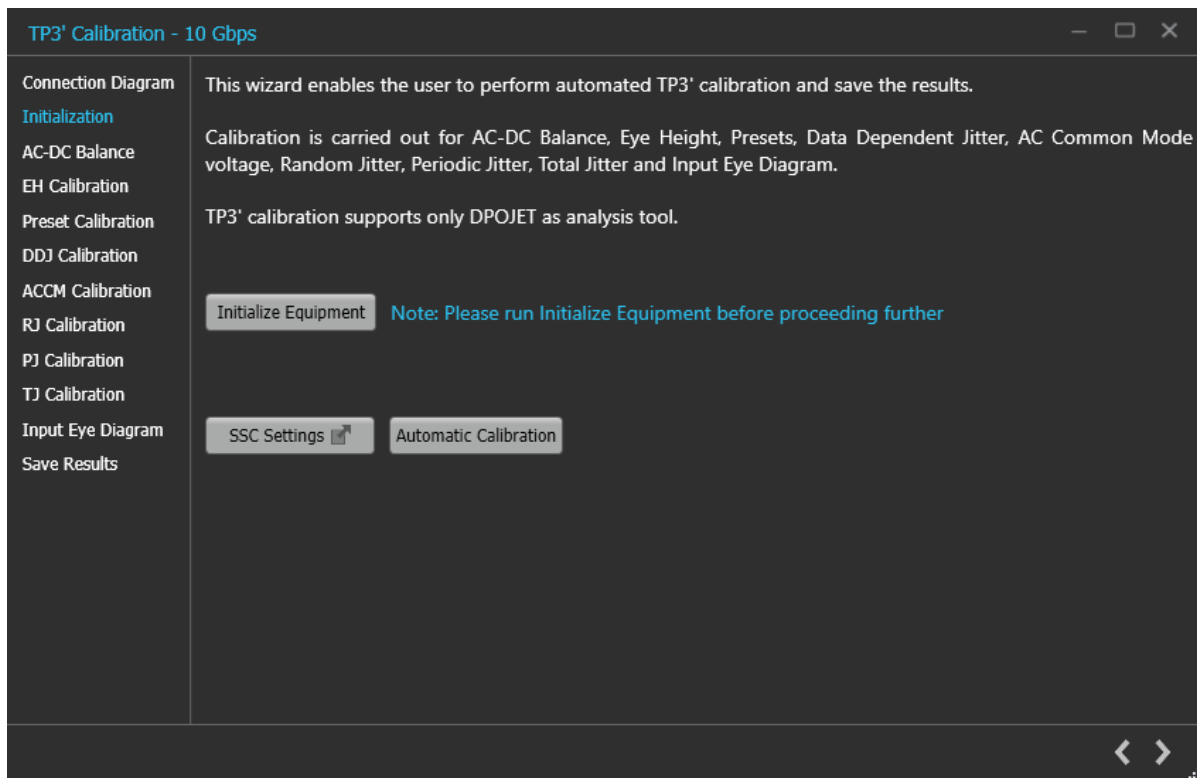


Figure 11: TP3' Calibration-Initialization

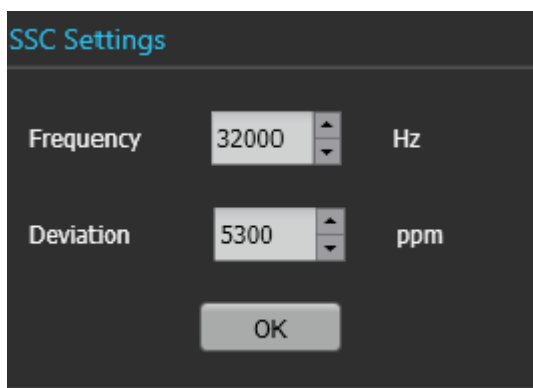


Figure 12: SSC Settings


SSC Settings: You can configure the SSC settings at the beginning of TP3' calibration.



Note: The profile of the SSC is down spread

Table 9: 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. |

Click  to move to the next step in calibration process.

3. **AC-DC Balance:** This page displays the graph plots of AC-DC balance.

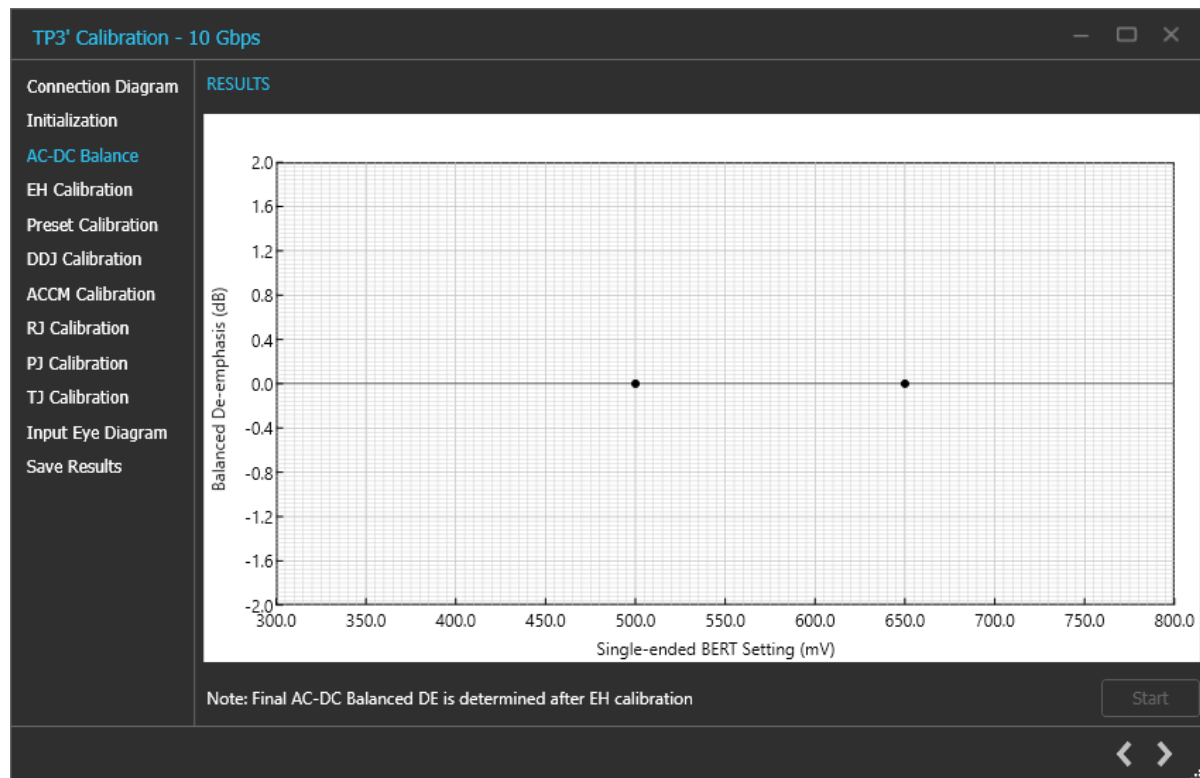



Figure 13: TP3' Calibration-AC-DC Balance

Table 10: TP3' Calibration: AC-DC Balance

| Parameter | Description |
|-----------|--|
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

4. **EH Calibration:** This page displays the graph plots of Eye Height (EH) calibration.

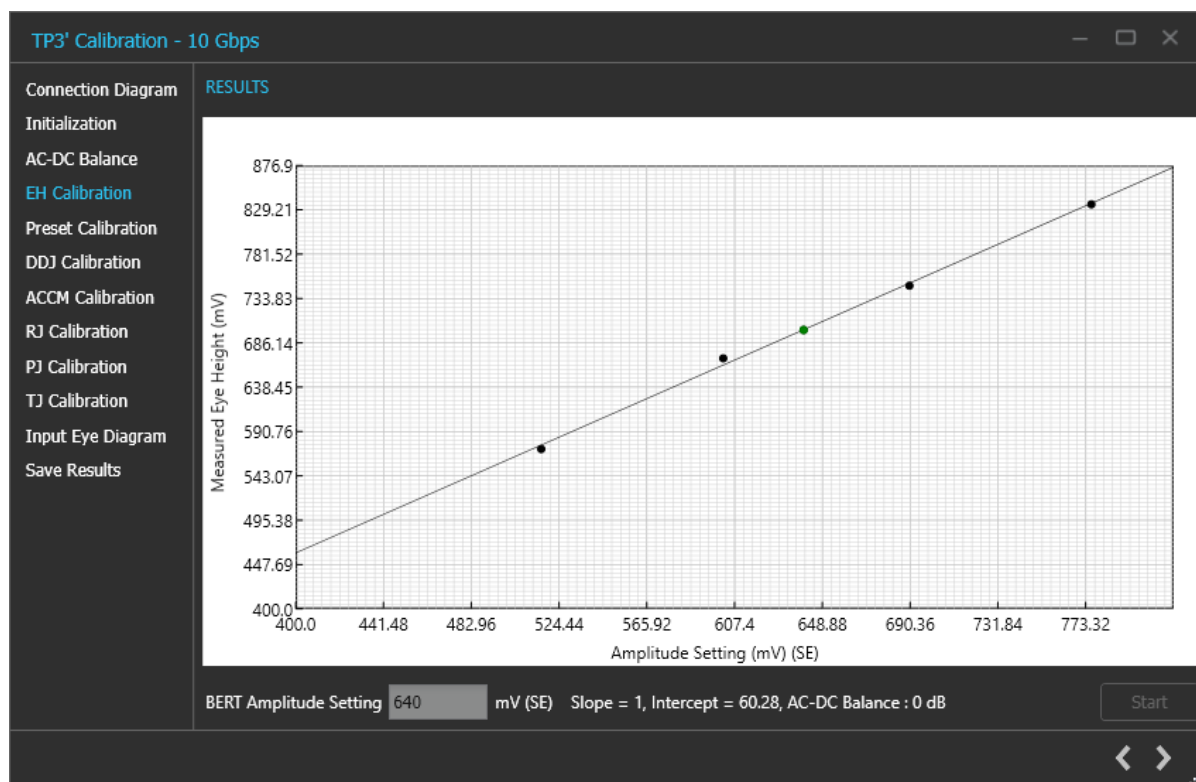



Figure 14: TP3' Calibration-EH Calibration

Table 11: TP3' Calibration: EH Calibration

| Parameter | Description |
|------------------------|--|
| BERT Amplitude Setting | Displays the calibrated amplitude corresponding to the nominal Eye Height. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

- Preset Calibration:** This page displays the graph plots of preset calibration.

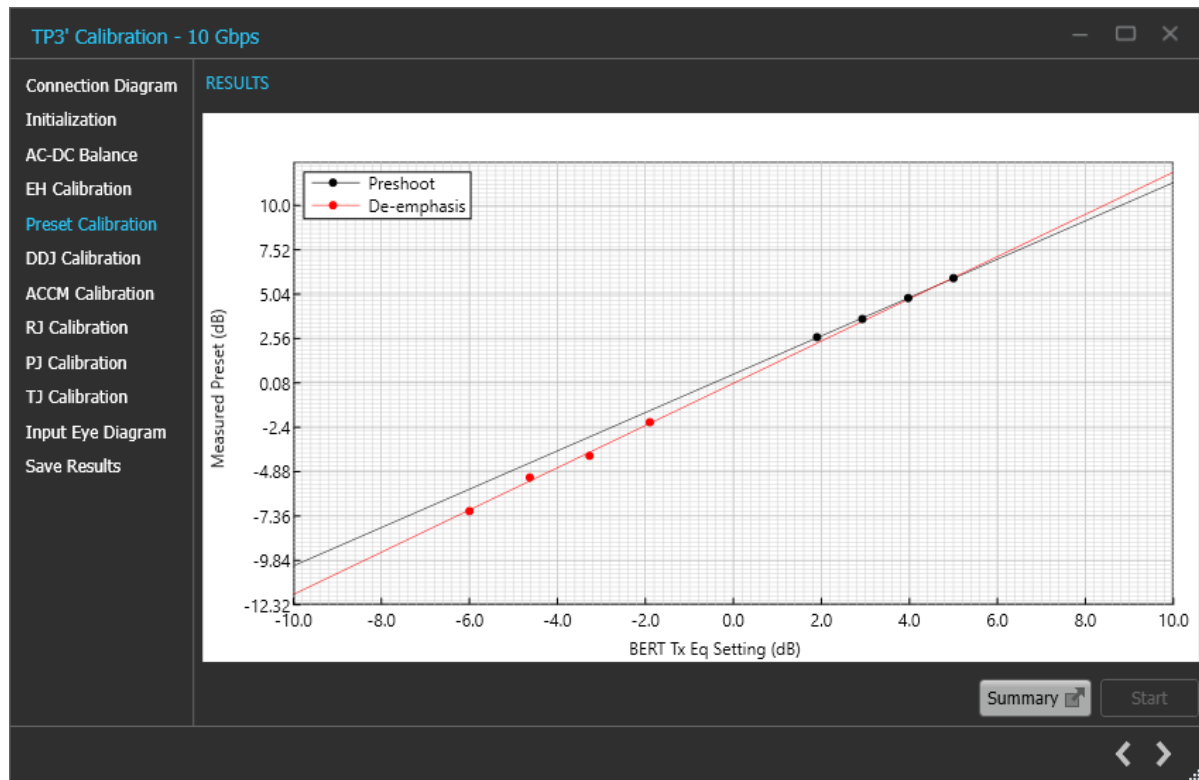


Figure 15: TP3' Calibration-Preset Calibration

Preset Table


| Preset | Preshoot (dB) | De-emphasis (dB) | Preshoot Setting (dB) | De-emphasis Setting (dB) |
|--------|---------------|------------------|-----------------------|--------------------------|
| P0 | 0 | 0 | 0 | 0 |
| P1 | 0 | -1.9 | 0 | -1.7 |
| P2 | 0 | -3.6 | 0 | -3.1 |
| P3 | 0 | -5 | 0 | -4.3 |
| P4 | 0 | -8.4 | 0 | -7.2 |
| P5 | 0.9 | 0 | 0.3 | 0 |
| P6 | 1.1 | -1.9 | 0.5 | -1.7 |
| P7 | 1.4 | -3.8 | 0.8 | -3.3 |
| P8 | 1.7 | -5.8 | 1.1 | -5 |
| P9 | 2.1 | -8 | 1.4 | -6.8 |
| P10 | 1.7 | 0 | 1.1 | 0 |
| P11 | 2.2 | -2.2 | 1.5 | -1.9 |
| P12 | 2.5 | -3.6 | 1.8 | -3.1 |
| P13 | 3.4 | -6.7 | 2.6 | -5.7 |
| P14 | 3.8 | -3.8 | 3 | -3.3 |
| P15 | 1.7 | -1.7 | 1.1 | -1.5 |

OK

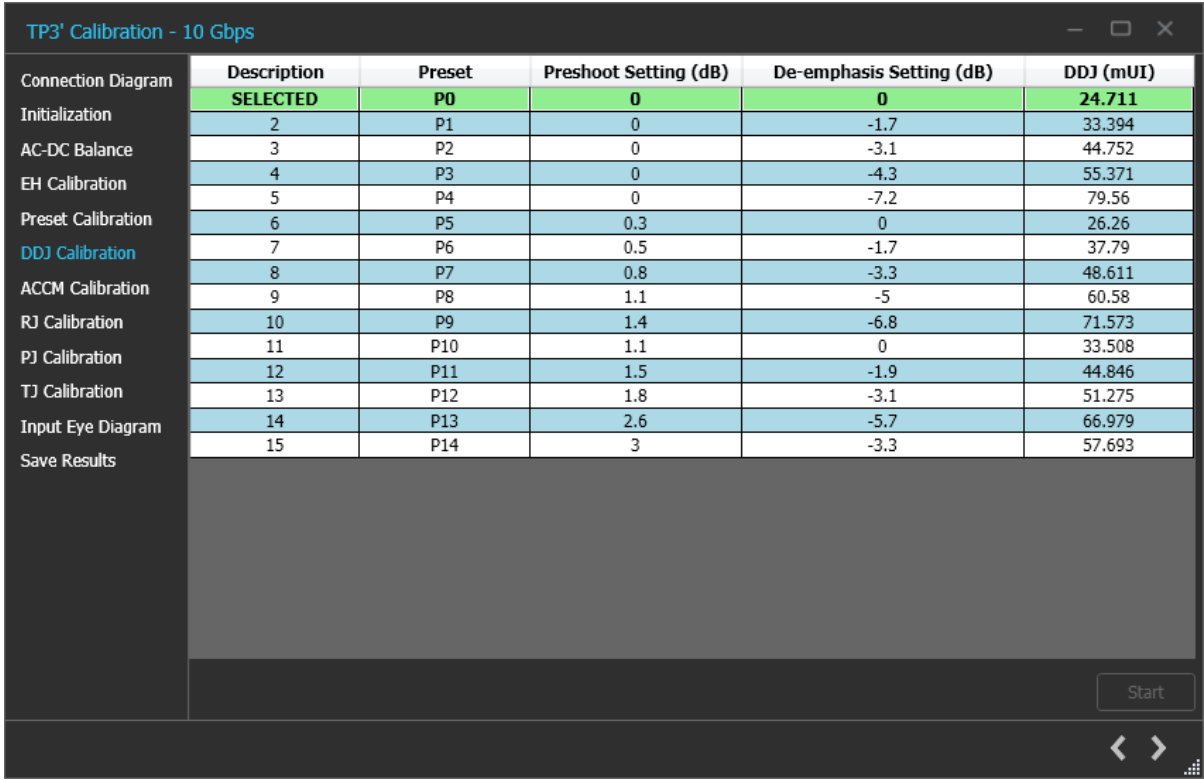
Figure 16: TP3' Calibration-Preset Calibration-Table

Table 12: TP3' Calibration: Preset Calibration

| Parameter | Description |
|-----------|--|
| Summary | Displays the summarized results for Preshoot and De-emphasis setting on the BERT for the predefined preset levels. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.


6. **DDJ Calibration:** This page displays a summarized table for the data dependent jitter calculated for the calibrated preshoot and de-emphasis values set on the BERT.



| | Description | Preset | Preshoot Setting (dB) | De-emphasis Setting (dB) | DDJ (mUI) |
|------------------------|-----------------|-----------|-----------------------|--------------------------|---------------|
| Connection Diagram | SELECTED | P0 | 0 | 0 | 24.711 |
| Initialization | 2 | P1 | 0 | -1.7 | 33.394 |
| AC-DC Balance | 3 | P2 | 0 | -3.1 | 44.752 |
| EH Calibration | 4 | P3 | 0 | -4.3 | 55.371 |
| | 5 | P4 | 0 | -7.2 | 79.56 |
| Preset Calibration | 6 | P5 | 0.3 | 0 | 26.26 |
| DDJ Calibration | 7 | P6 | 0.5 | -1.7 | 37.79 |
| | 8 | P7 | 0.8 | -3.3 | 48.611 |
| ACCM Calibration | 9 | P8 | 1.1 | -5 | 60.58 |
| RJ Calibration | 10 | P9 | 1.4 | -6.8 | 71.573 |
| PJ Calibration | 11 | P10 | 1.1 | 0 | 33.508 |
| | 12 | P11 | 1.5 | -1.9 | 44.846 |
| TJ Calibration | 13 | P12 | 1.8 | -3.1 | 51.275 |
| Input Eye Diagram | 14 | P13 | 2.6 | -5.7 | 66.979 |
| Save Results | 15 | P14 | 3 | -3.3 | 57.693 |

*Figure 17: TP3' Calibration-DDJ Calibration***Table 13: TP3' Calibration: DDJ Calibration**

| Parameter | Description |
|-----------|--|
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

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

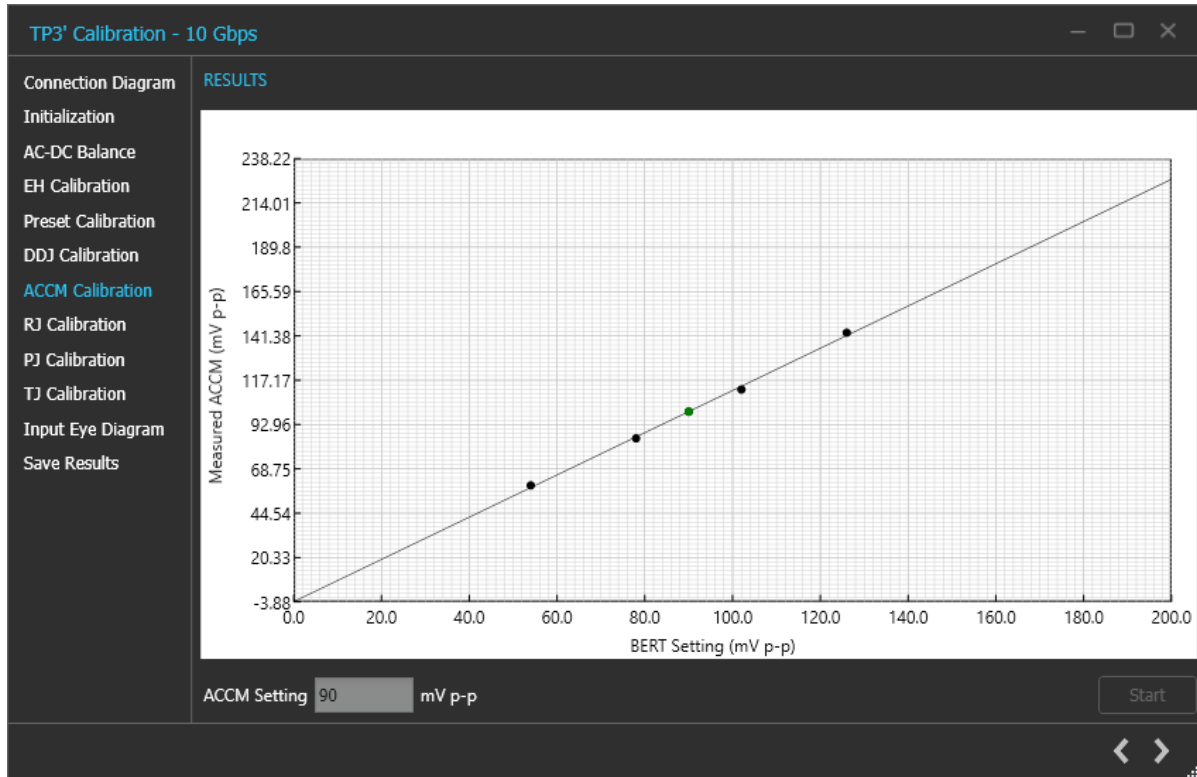



Figure 18: TP3' Calibration-ACCM Calibration

Table 14: TP3' Calibration: ACCM Calibration

| Parameter | Description |
|--------------|--|
| ACCM Setting | Displays the calibrated ACCM value corresponding to the nominal value. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

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

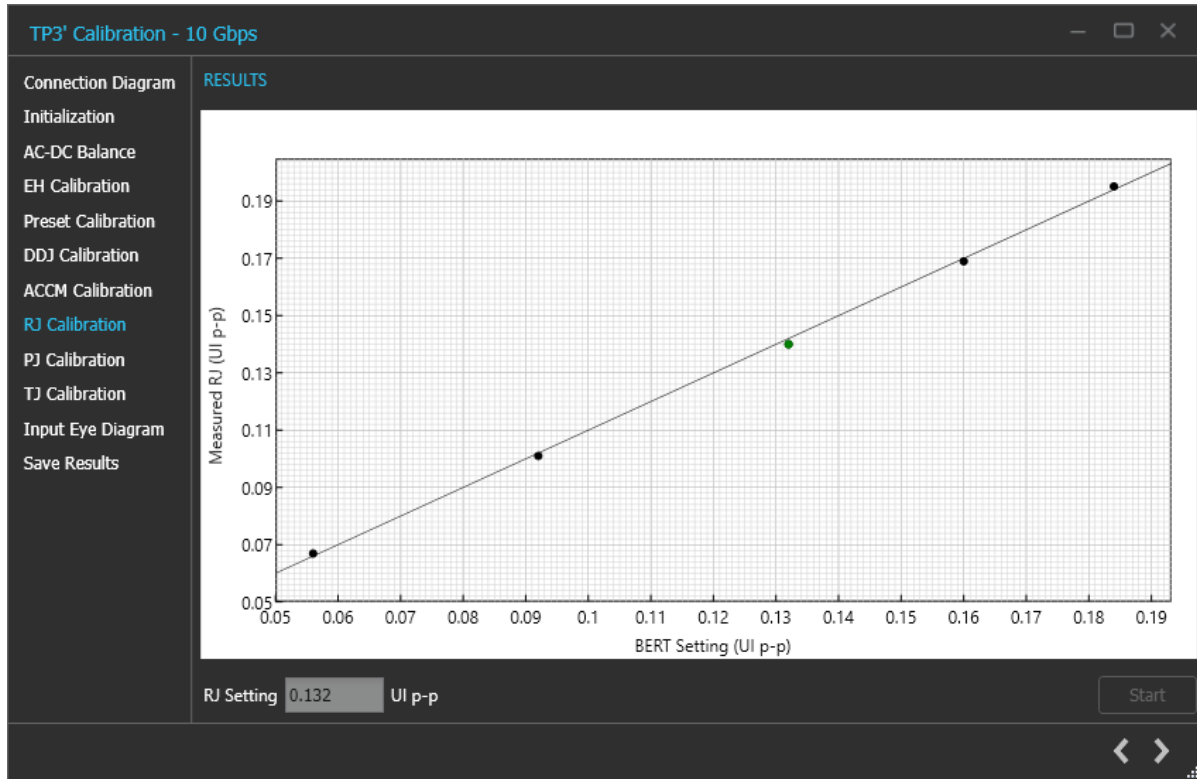



Figure 19: TP3' Calibration-RJ Calibration

Table 15: TP3' Calibration: RJ Calibration

| Parameter | Description |
|------------|--|
| RJ Setting | Displays the calibrated RJ value corresponding to the nominal value. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

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

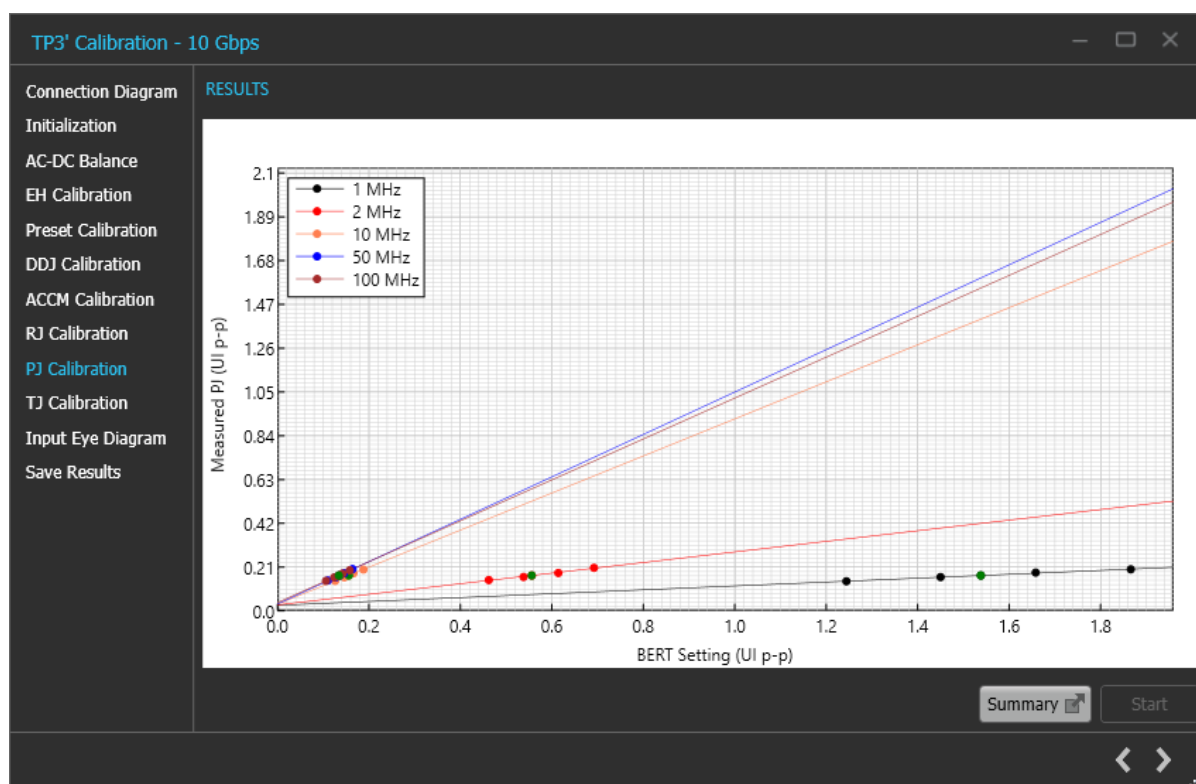


Figure 20: TP3' Calibration-PJ Calibration


| PJ Calibration Results | | | | | |
|------------------------|-----------------|-----------------|------------------|-------|-----------|
| No. | Frequency (MHz) | Target (UI p-p) | Setting (UI p-p) | Slope | Intercept |
| 1 | 1 | 0.17 | 1.538 | 0.093 | 0.027 |
| 2 | 2 | 0.17 | 0.556 | 0.254 | 0.029 |
| 3 | 10 | 0.17 | 0.156 | 0.889 | 0.032 |
| 4 | 50 | 0.17 | 0.136 | 1.017 | 0.033 |
| 5 | 100 | 0.17 | 0.134 | 0.981 | 0.04 |

OK

Figure 21: TP3' Calibration-PJ Calibration-Summary

Table 16: TP3' 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. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

10. **TJ Calibration:** This page displays a table for the RJ and PJ value set on the BERT for the random and periodic jitter and the total jitter corresponding to that combination for the frequencies of 1, 2, 10, 50 and 100 MHz.

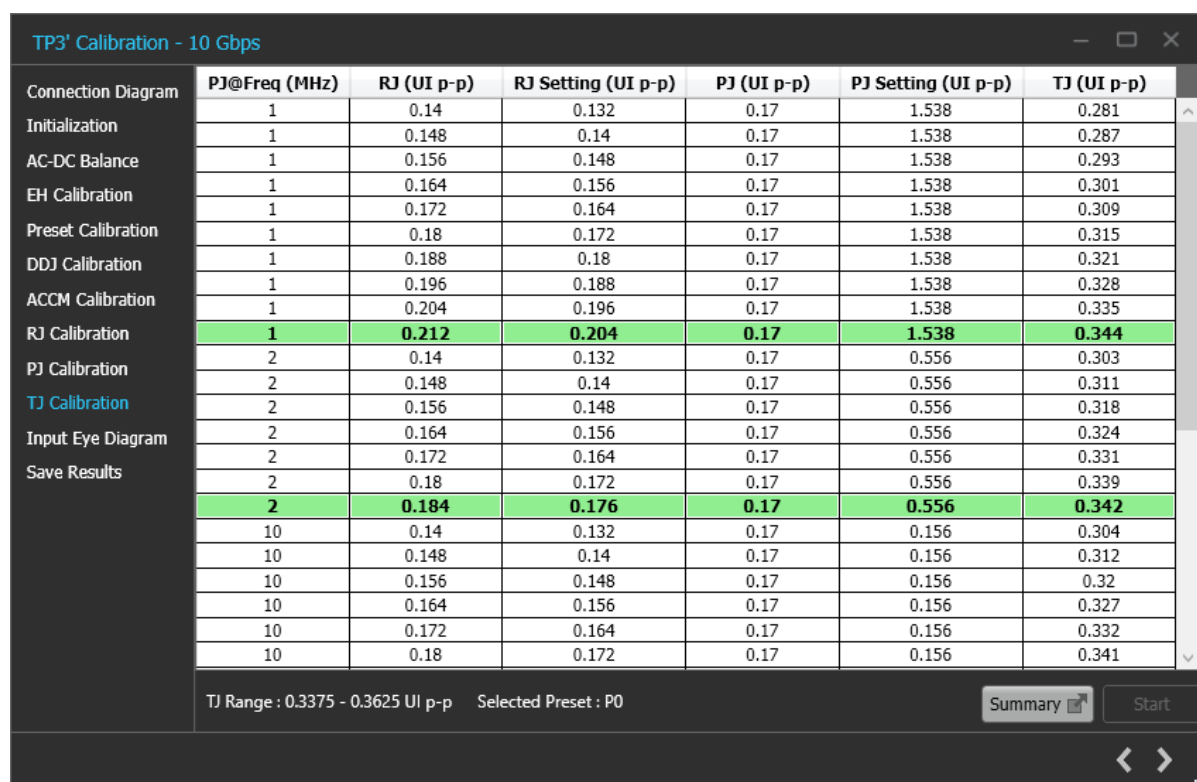


Figure 22: TP3' Calibration-TJ Calibration


TJ Result Summary


| PJ@Freq (MHz) | RJ (UI p-p) | RJ Setting (UI p-p) | PJ (UI p-p) | PJ Setting (UI p-p) | TJ (UI p-p) |
|---------------|-------------|---------------------|-------------|---------------------|-------------|
| 1 | 0.212 | 0.204 | 0.17 | 1.538 | 0.344 |
| 2 | 0.184 | 0.176 | 0.17 | 0.556 | 0.342 |
| 10 | 0.184 | 0.176 | 0.17 | 0.156 | 0.344 |
| 50 | 0.192 | 0.184 | 0.17 | 0.136 | 0.342 |
| 100 | 0.14 | 0.132 | 0.218 | 0.182 | 0.349 |

OK

Figure 23: TP3' Calibration-TJ Calibration-Summary

Table 17: TP3' Calibration: TJ Calibration

| Parameter | Description |
|-----------------|---|
| TJ Range | Displays the TJ range in UI p-p.  Note: TJ range for Gen 2: 0.3375 - 0.3625 UI p-p. TJ range for Gen 3: 0.355 - 0.405 UI p-p. |
| Selected Preset | Displays the preset with the lowest DDJ used to calibrate TJ. |
| Summary | Displays a summarized table for the combination of RJ and PJ where the TJ is in range for a given frequency. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

11. **Input Eye Diagram:** This page displays the combination of stresses and amplitude and the measured Eye Height, Eye Width and the Mask Hit Status in a tabular format.

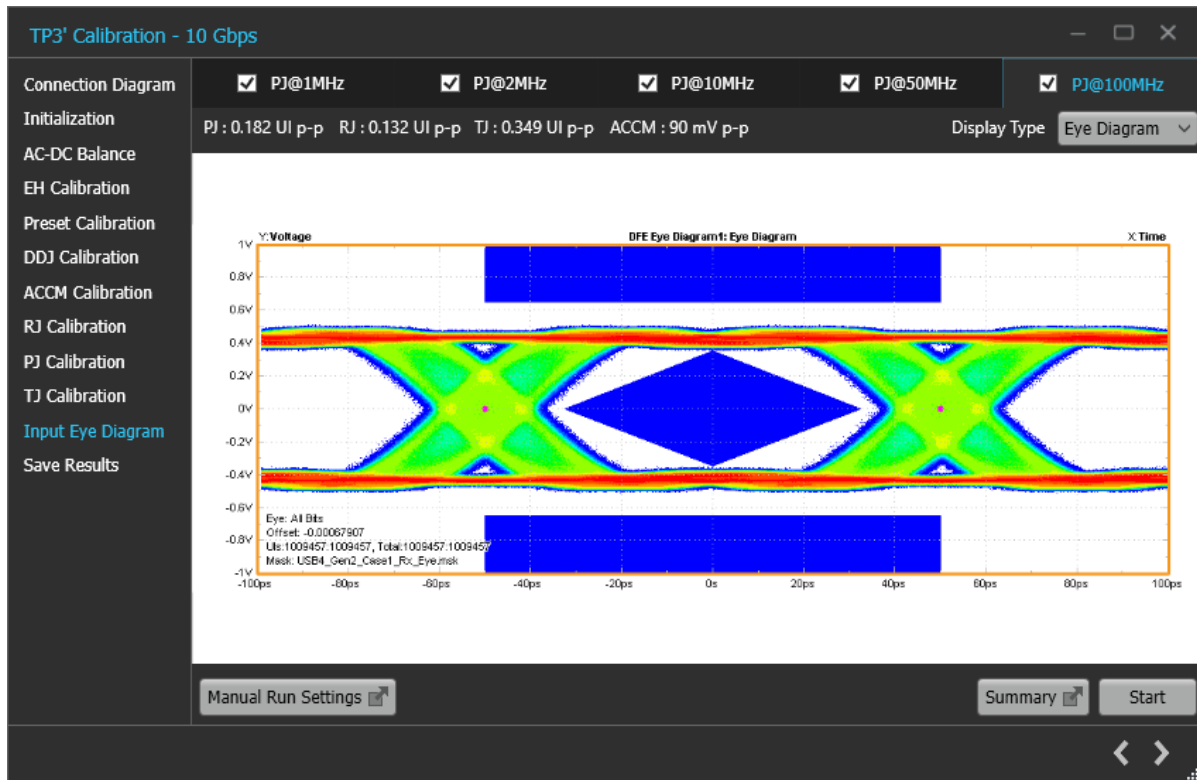


Figure 24: TP3' Calibration-Input Eye Diagram-Eye Diagram

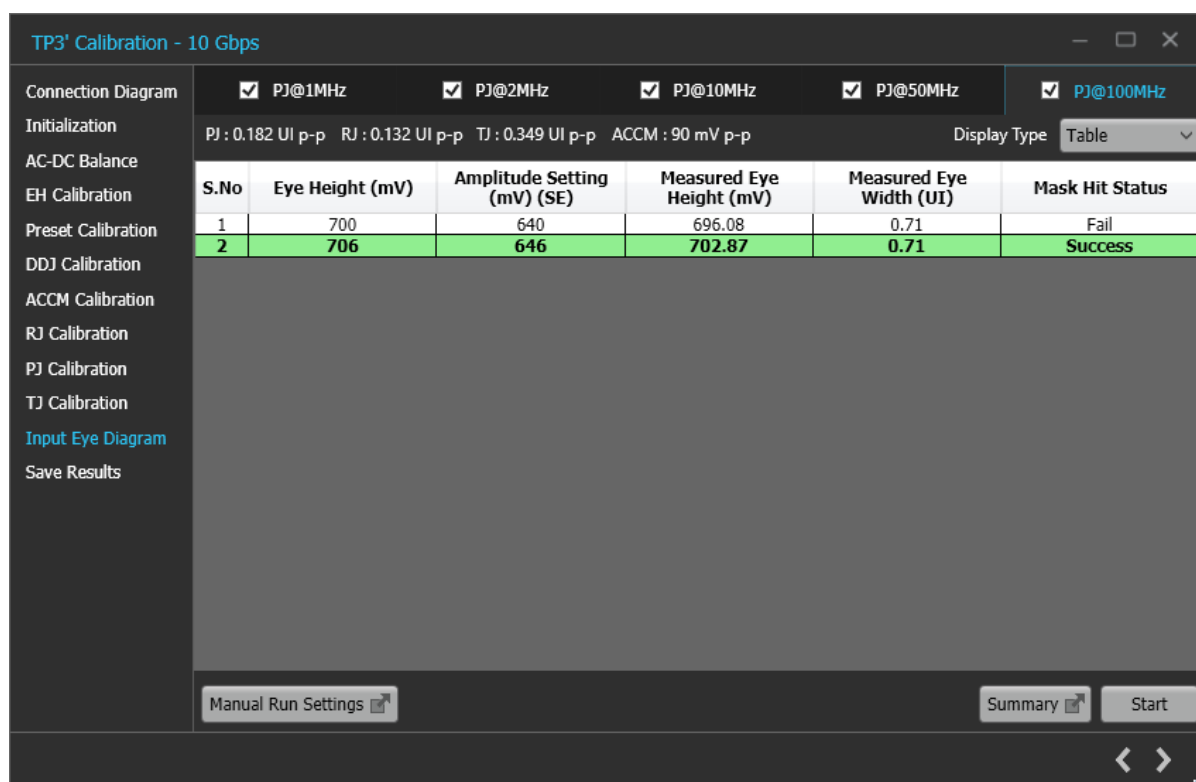


Figure 25: TP3' Calibration-Input Eye Diagram-Table

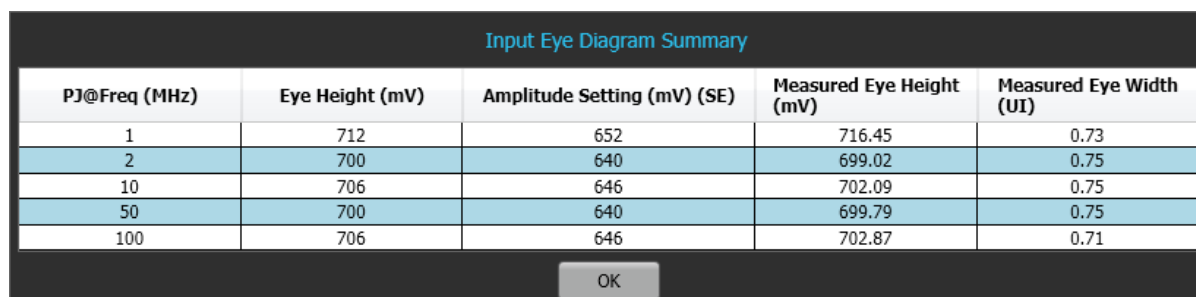



Figure 26: TP3' Calibration-Input Eye Diagram-Summary

Table 18: TP3' Calibration: Input Eye Diagram

| Parameter | Description |
|--------------------|---|
| Display Type | Select the required display type form the drop down list. Table: Showcases the amplitude and stresses set on the BERT and the corresponding Eye Height, Eye Width and the Mask Hit Status with respect to a predefined mask. Eye Diagram: Shows the real time eye measurements against the predefined mask. |
| Summary | Displays a summarized table for the Eye Height, Amplitude Setting, Measured Eye Height, and Measured Eye Width for which a successful mask hit status has been achieved for the run frequencies. |
| Start | Click Start to run the measurement. |
| Table continued... | |

| Parameter | Description |
|----------------------------|---|
| Cancel | Click Cancel to stop the calibration. |
| Manual Run Settings | |
| Eye Height | Displays the Eye Height value for the selected PJ frequency. |
| Start | Click Start to initiate the manual run with the given the Eye Height |

Click  to move to the next step in calibration process.

12. **Save Results:** This page allows you to save the TP3' calibration results.

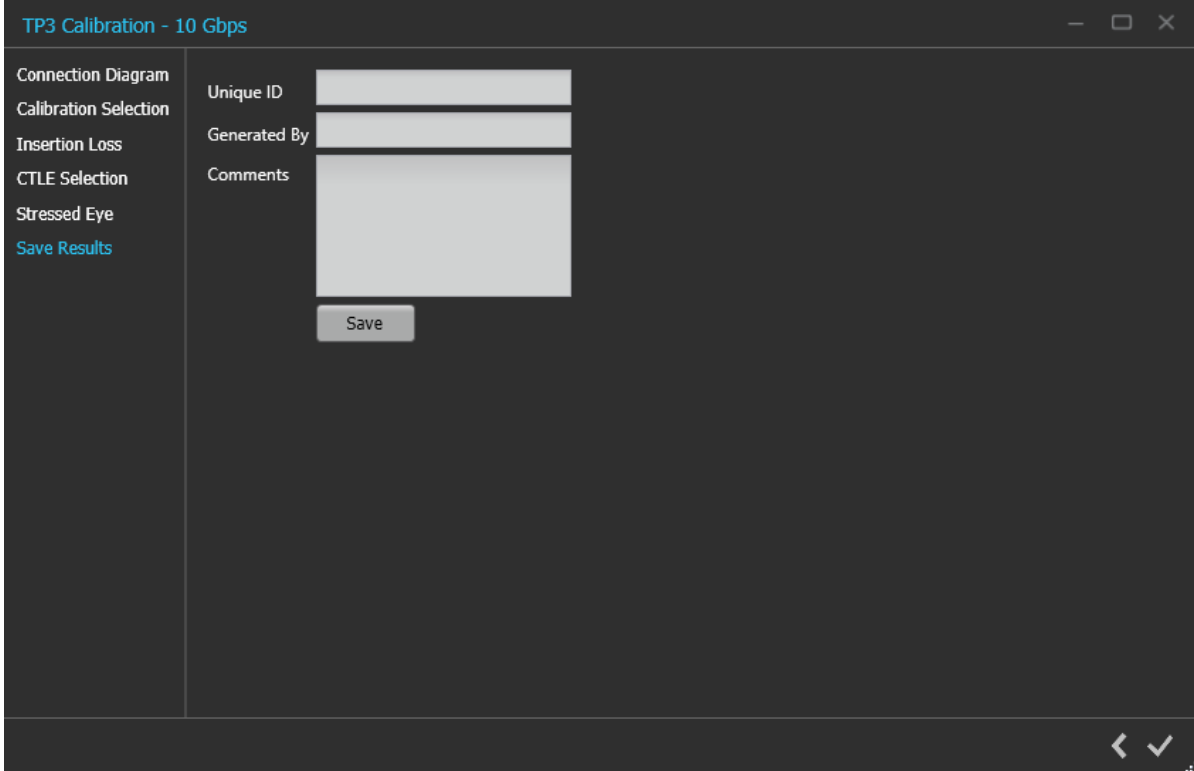



Figure 27: TP3' Calibration-Save Results

Table 19: TP3' 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 TP3' calibration and close the wizard.




Note: Upon completion of the TP3' calibration process or in the event of cancellation of the process, the BERT data generator will be turned off automatically by the TBT3/4 Gen 2 / Gen 3 TekRxTest application.

TP3 Calibration

The TP3 Calibration panel allows you to perform calibration at the TP3 endpoint for Data Rate and save the results.

TP3 Calibration Procedure

Click on TP3 under the Calibrations tab to view the previously run calibration reports. At this stage, you can choose the data rate (10 Gbps or 10.3125 Gbps or 20 Gbps or 20.625 Gbps), the run calibration reports for the selected data rate will be populated in the results table.

When you click on , the TP3 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. Insertion Loss:** In this step, the channel loss between the BERT and Receptacle Fixture-2 is computed to be within the range of 18-19 dB (Gen 2) and 16-17 dB (Gen 3). The right ISI pair needs to be connected along with de-embedding the loss incurred for the phase matched cables to get the loss in the specified range.
- 2. CTLE Selection:** The process is carried out for the frequencies of 1, 2, 10, 50 and 100 MHz where the user can choose between the CTLE indices (CTLE 0-9) and preset to be used. The optimum CTLE is chosen to give the maximum eye area. The user needs to take note that the choice of CTLE indices and number of acquisitions is only available when the configured Analysis Tool is DPOJET.
- 3. Stressed Eye:** In the case where CTLE selection provides the eye parameters to be in range, this step can be skipped. As a part of this method, the jitter (Random Jitter for frequencies of 1, 2, 10 and 50 MHz and Periodic Jitter for 100 MHz), and amplitude are swept to attain the Eye Width of 0.555-0.605 UI (Gen 2 - Rounded and Legacy) or 0.49-0.59 UI (Gen 3 - Rounded and Legacy) and an Eye Height of 110-130 mV (Gen 2 - Rounded and Legacy) or 88-108 mV (Gen 3 - Rounded and Legacy).

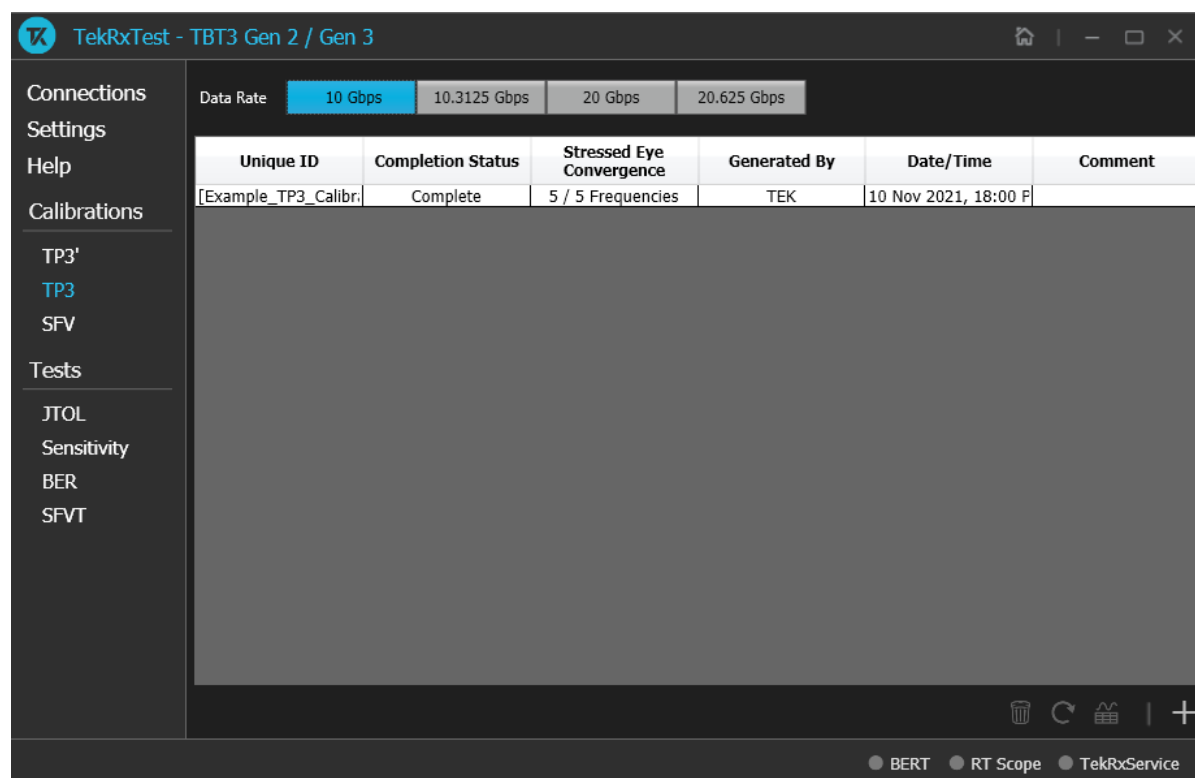


Figure 28: TP3 Calibration Panel

- 1. Connection Diagram:** This page displays the connection diagram for the TP3 setup.

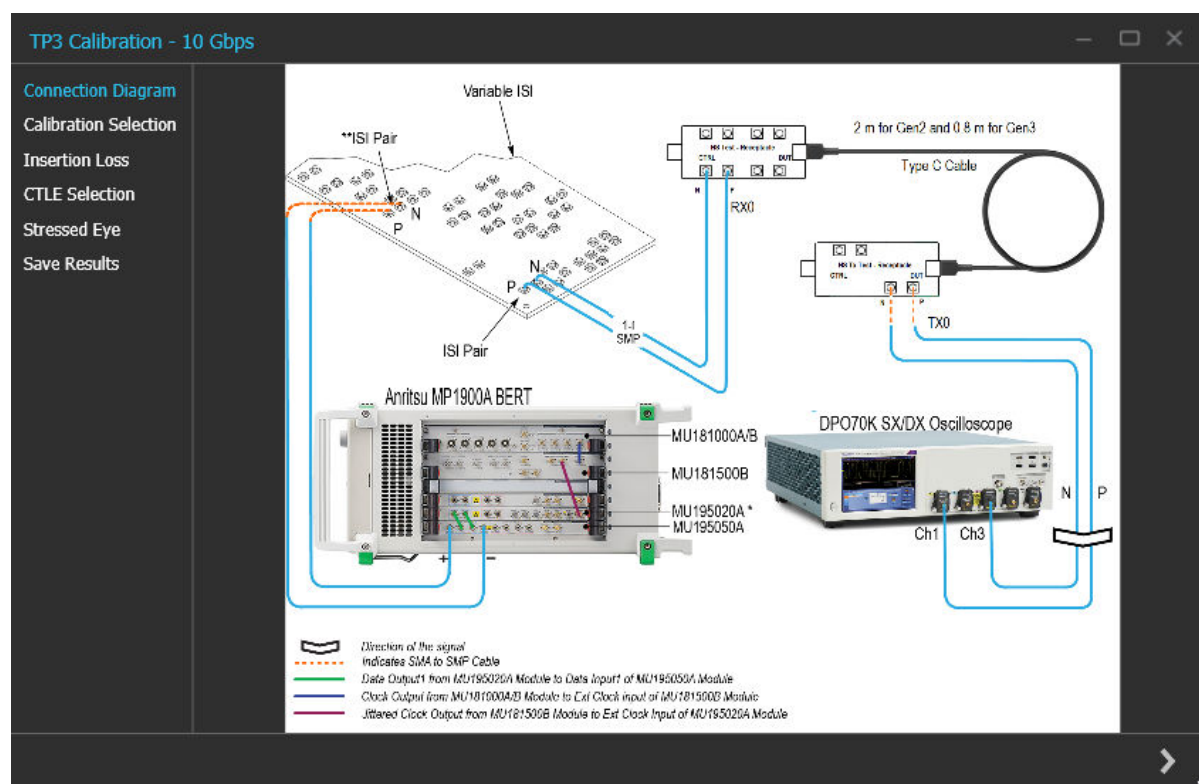



Figure 29: TP3 Calibration-Connection Diagram

Click  to move to the next step in calibration process.

2. **Calibration Selection:** This page allows you to select a completed TP3 Calibration file from the drop-down list. Click **Initialize Equipment** to complete the initialization process.

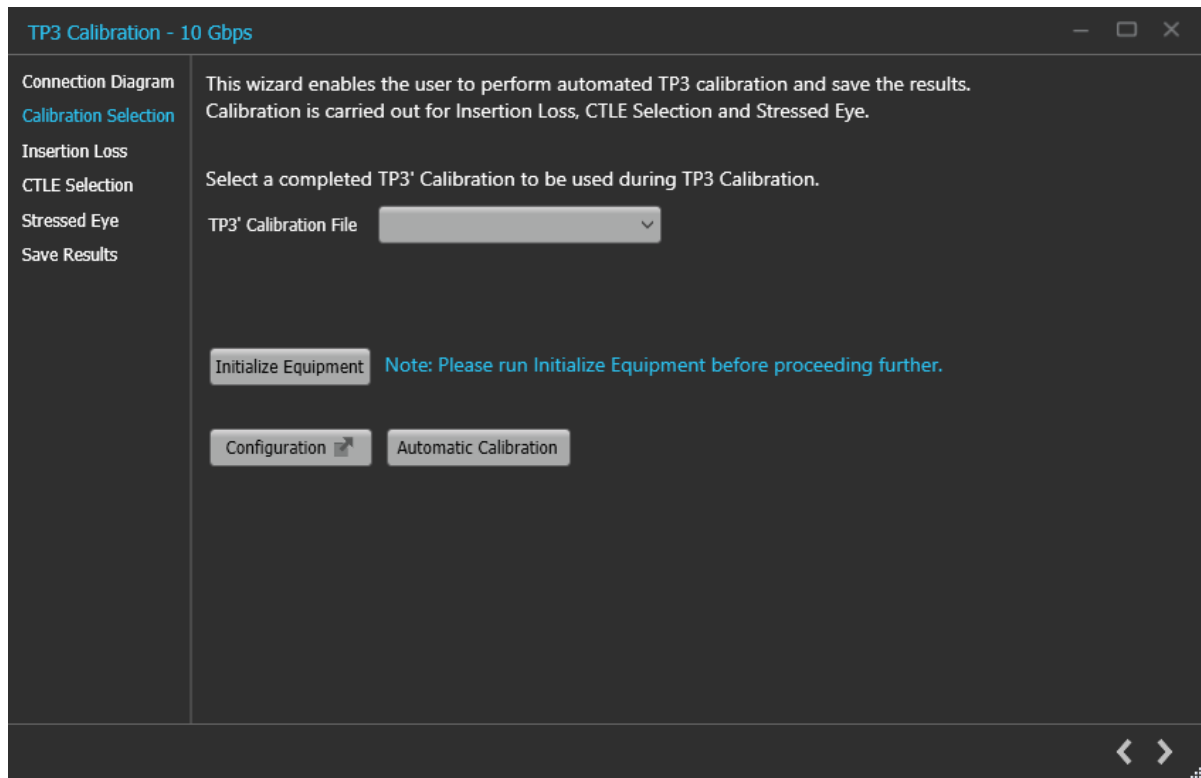


Figure 30: TP3 Calibration-Calibration Selection

You can click **Automatic Calibration** to perform the automatic calibration with the default settings without user intervention.

Click on **Configuration** to add de-embedding filter files for positive and negative channels. You can enter the manual loss, if already known.

Configuration Settings

Cable De-Embedding Filter File

☐ Include Positive Channel De-Embedding file

Positive Channel De-Embedding filter file ...

☐ Include Negative Channel De-Embedding filter file

Negative Channel De-Embedding filter file ...


Note: Only *.flt filter files are supported

☐ Manual Insertion Loss

18.5 dB

OK

Figure 31: TP3 Calibration-Configuration Settings

Click  to move to the next step in calibration process.

- 3. Insertion Loss:** This page displays the automated procedure to compute the channel loss from the BERT to receptacle fixture-2. The user can also enter the loss value in the Manual Loss section if the loss in the channel is already known, skipping this step altogether.

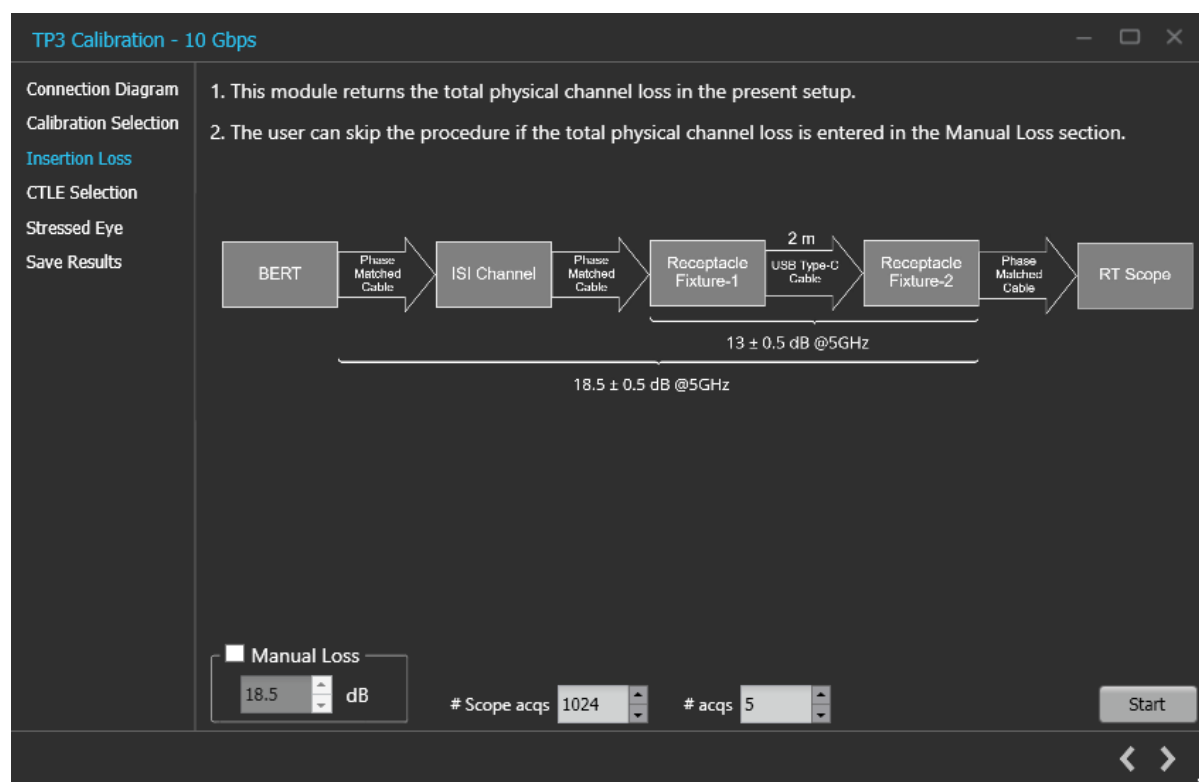



Figure 32: TP3 Calibration-Insertion Loss

Table 20: TP3 Calibration: Insertion Loss

| Parameter | Description |
|--------------|---|
| Manual Loss | Allows user to enter the manual loss if already known. This field updates with the loss value once the loss in the given setup is computed. |
| # Scope acqs | Allows user to enter the number of acquisitions in a single waveform. |
| # Acqs | Allows user to enter the number of waveforms acquired for averaging before passing for analysis. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click  to move to the next step in calibration process.

4. **CTLE Selection:** This page displays the CTLE selection for each PJ frequency.

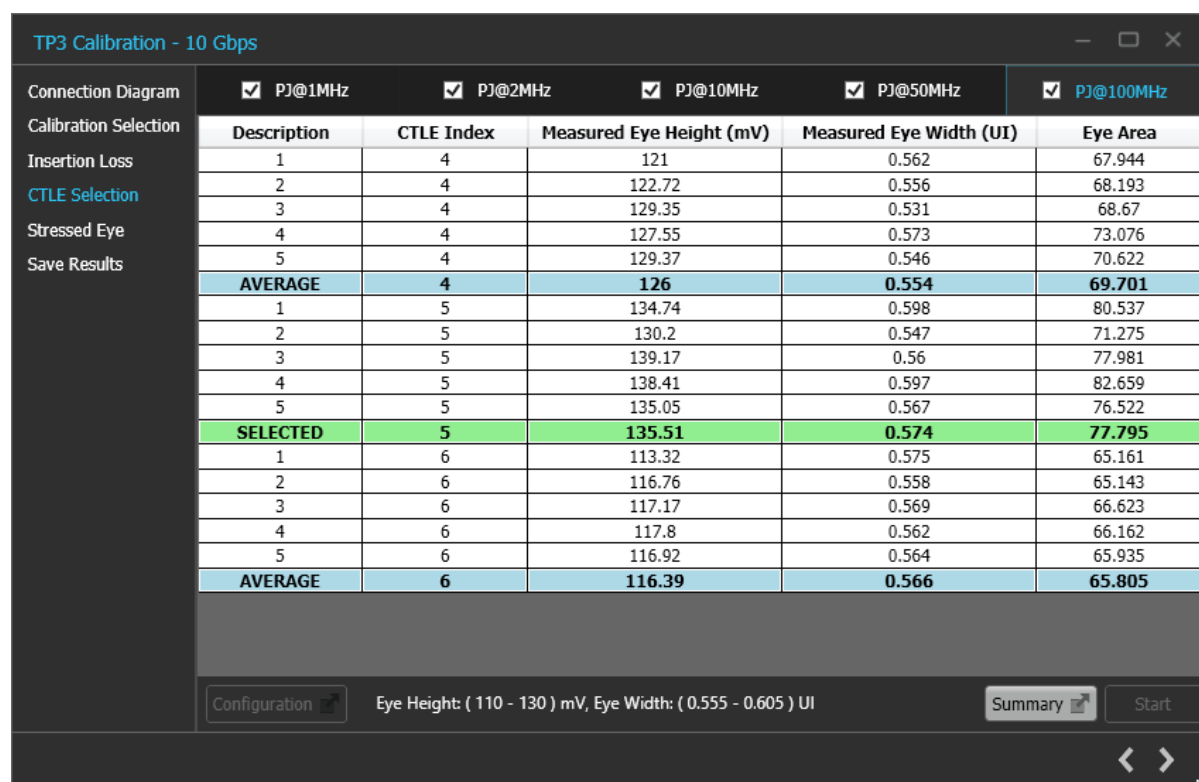


Figure 33: TP3 Calibration-CTLE Selection

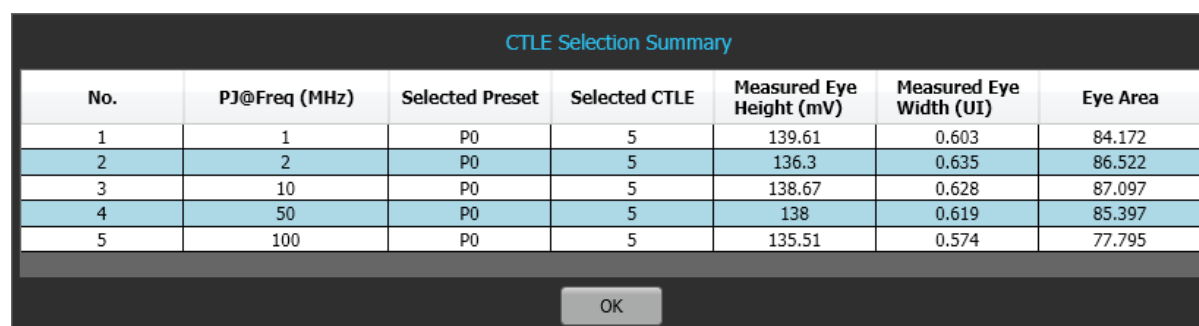


Figure 34: CTLE Selection-Summary

Table 21: TP3 Calibration: CTLE Selection

| Parameter | Description |
|---------------|---|
| Configuration | Allows the user to select the (For DPOJET) and Preset (For SigTest) to be used during the procedure. |
| Summary | Displays a summarized table of the Selected Preset, Selected CTLE, Measured Eye Height, Measured Eye Width, and Eye Area. |
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the calibration. |

Click to move to the next step in calibration process.

5. **Stressed Eye:** This page displays the stresses, amplitude, CTLE index and preset applied on the BERT to get the measured Eye Height and Eye Width for the PJ frequencies of 1,2, 10, 50 and 100 MHz.

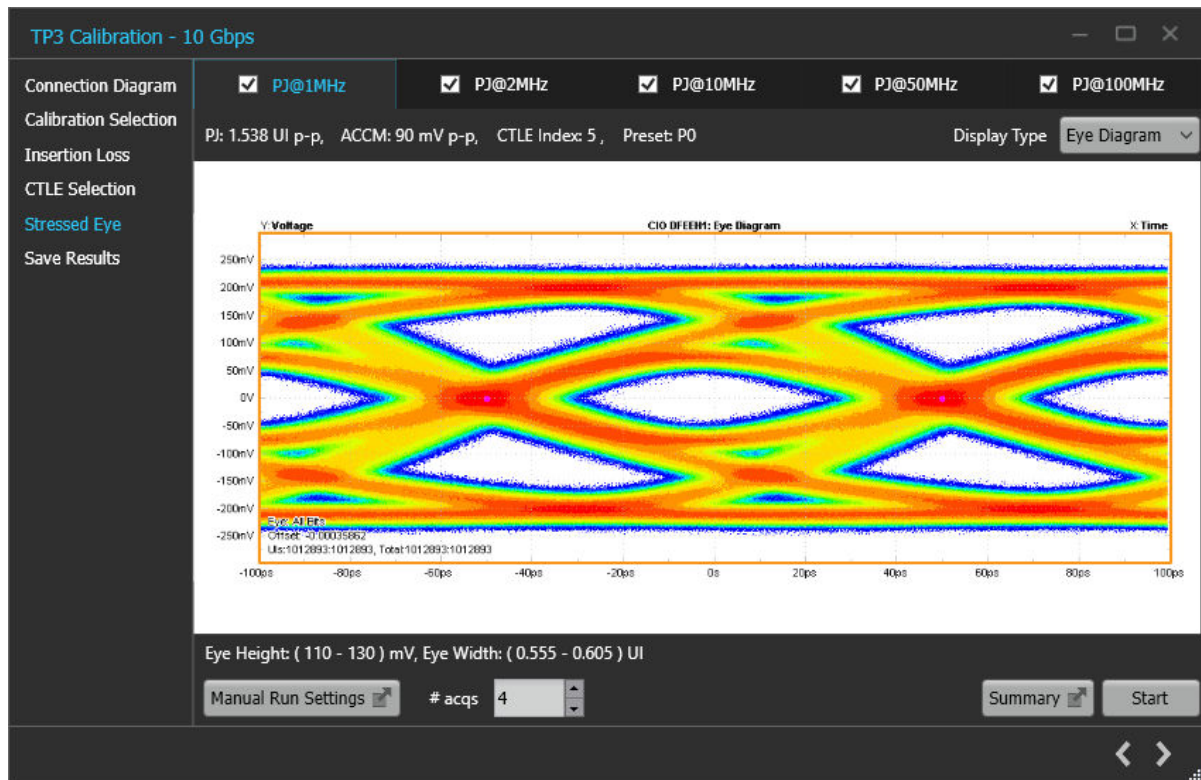


Figure 35: TP3 Calibration-Stressed Eye-Eye Diagram

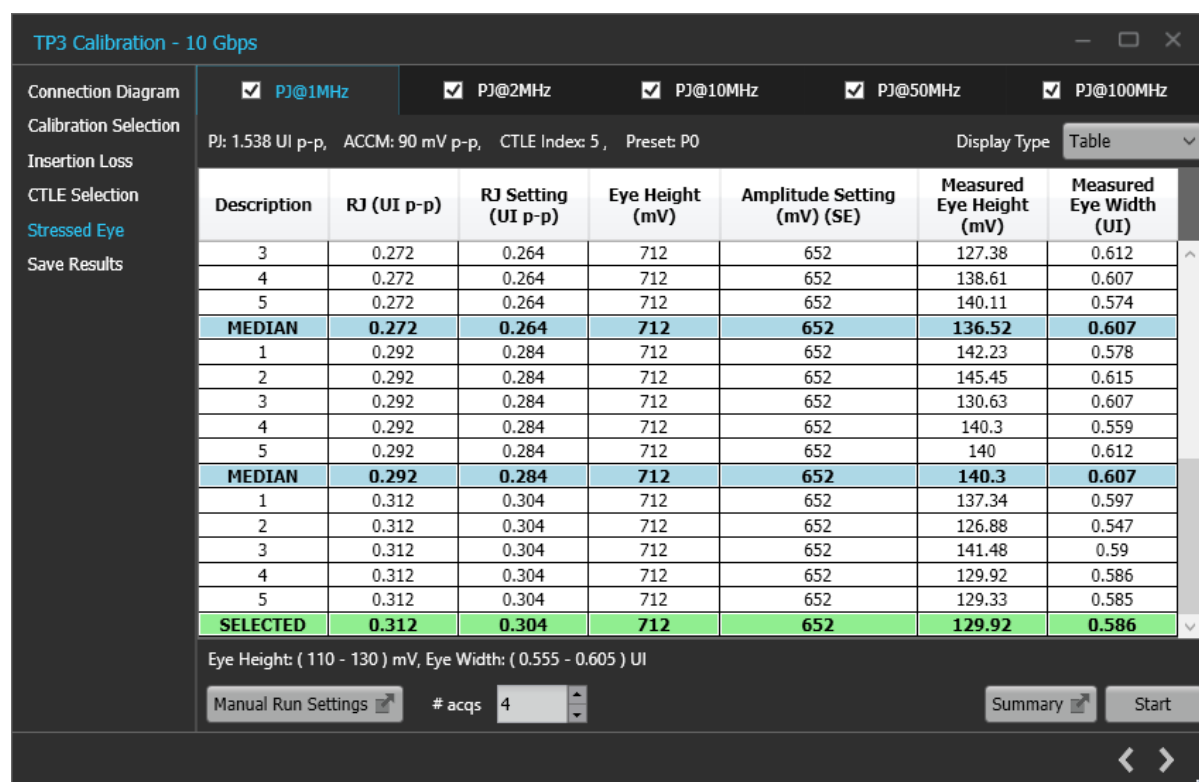


Figure 36: TP3 Calibration-Stressed Eye-Table

| Stressed Eye Calibration Summary | | | | | | | | | |
|----------------------------------|---------------|-------------|---------------------|-------------|---------------------|-----------------|-----------------------------|--------------------------|-------------------------|
| No. | PJ@Freq (MHz) | RJ (UI p-p) | RJ Setting (UI p-p) | PJ (UI p-p) | PJ Setting (UI p-p) | Eye Height (mV) | Amplitude Setting (mV) (SE) | Measured Eye Height (mV) | Measured Eye Width (UI) |
| 1 | 1 | 0.312 | 0.304 | 0.17 | 1.538 | 712 | 652 | 129.92 | 0.586 |
| 2 | 2 | 0.264 | 0.256 | 0.17 | 0.556 | 660 | 600 | 123.18 | 0.593 |
| 3 | 10 | 0.304 | 0.296 | 0.17 | 0.156 | 686 | 626 | 127.57 | 0.575 |
| 4 | 50 | 0.272 | 0.264 | 0.17 | 0.136 | 680 | 620 | 125.24 | 0.591 |
| 5 | 100 | 0.14 | 0.132 | 0.218 | 0.182 | 686 | 626 | 129.36 | 0.584 |

OK


Figure 37: TP3 Calibration-Stressed Eye-Calibration Summary

Table 22: TP3 Calibration: Stressed Eye

| Parameter | Description |
|--------------|---|
| Display Type | Select the required display type form the drop down list. Table: Showcases the amplitude and stresses set on the BERT and the corresponding Eye Height, Eye Width. Eye Diagram: Shows the real time eye diagram for the set stresses and amplitude. |
| Summary | Displays a summarized version of the stresses, amplitude, measured Eye Height and Measured Eye Width for the run frequencies. |
| Start | Click Start to run the measurement. |

Table continued...

| Parameter | Description |
|----------------------------|--|
| Manual Run Settings | |
| Eye Height | Allows the user to configure the eye height for the selected PJ frequency. |
| RJ/PJ | Allows you to configure the RJ value for PJ frequencies of 1,2,10 and 50 MHz and PJ value for PJ frequency of 100 MHz. |
| Start | Click Start to run an instance with the configured manual settings. |

Click  to move to the next step in calibration process.

6. **Save Results:** This page allows you to save the TP3 calibration results.

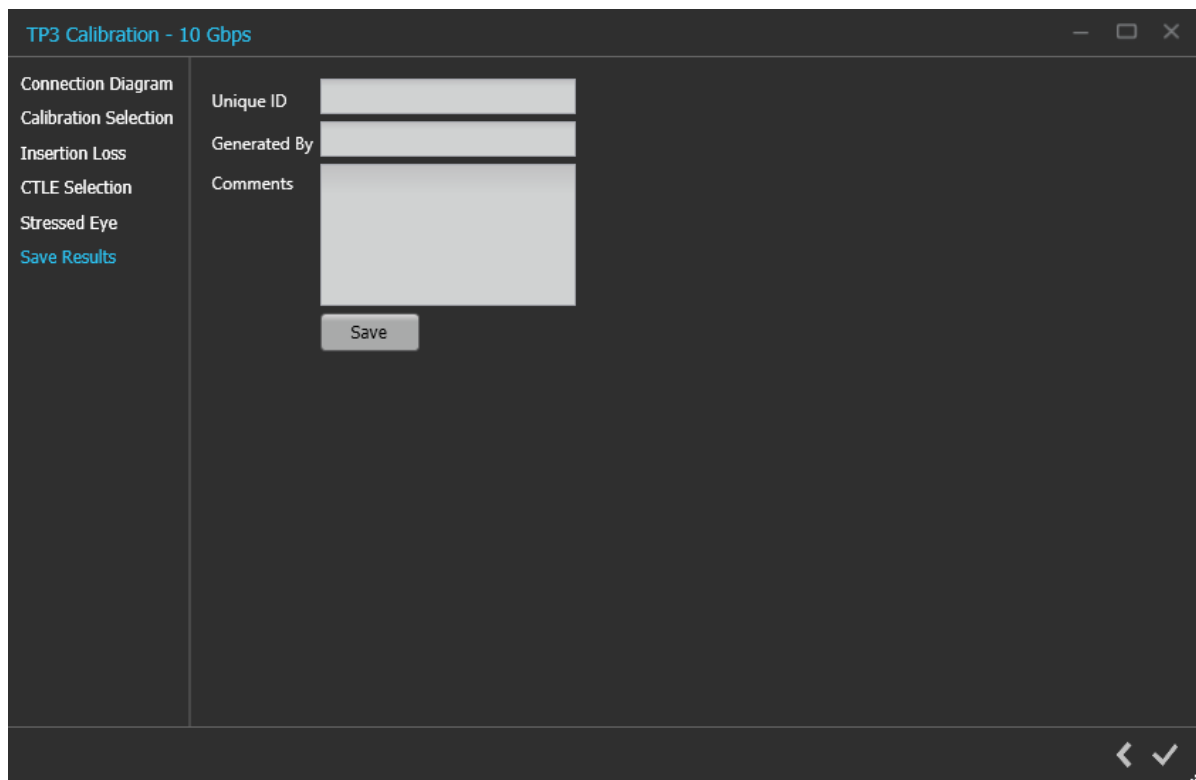



Figure 38: TP3 Calibration-Save Results

Table 23: TP3 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 TP3 calibration and close the wizard.



Note: Upon completion of the TP3 calibration process or in the event of cancellation of the process, the BERT data generator will be turned off automatically by the TBT3/4 Gen 2 / Gen 3 TekRxTest application.


SFV Calibration

The SFV Calibration Panel allows you to perform Signal Frequency Variations Calibration at the calibration points of TP3' and TP3 for Gen2 and Gen3 and save the results.

You must perform calibration for the chosen calibration point before performing the SFV calibration.

SFV Calibration Procedure

Click on SFV under the Calibrations tab to view the previously run calibration reports. At this stage, you can select the generation (10, 10.3125, 20, and 20.625 Gbps) and then run the calibration reports for the chosen generation, which then appear in the results table.

When you click on , the SFV wizard opens for the selected data rate. This wizard guides you through the sequential procedure to perform the calibration.

During this process, the TekRx Test application calibrates the SSC parameters of Initial Frequency, Frequency Overshoot, Delta Frequency 200ns, and Delta Frequency 1000ns.

1. **Calibration Selection:** This page allows you to choose the calibration point at which the Signal Frequency Variations should be performed. All the completed calibration files for the selected calibration point can be found by clicking on the drop-down menu.

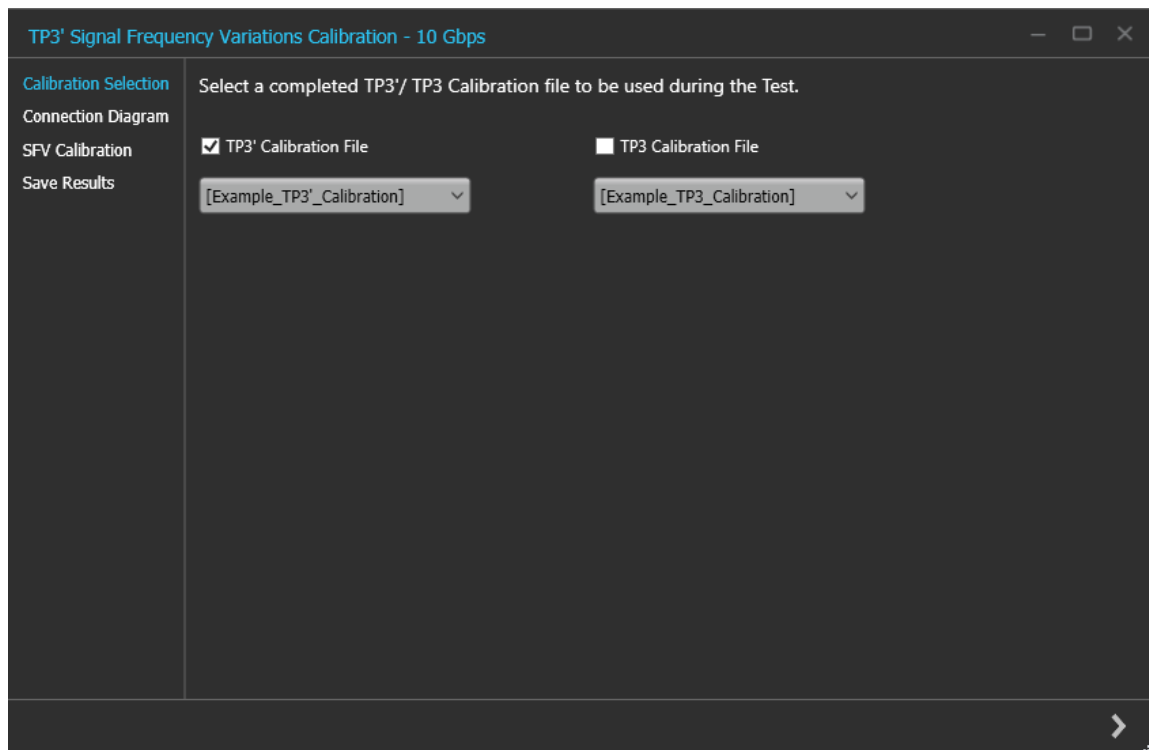



Figure 39: SFV Calibration-Calibration Selection

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

2. **Connection Diagram:** This page displays the connection diagram for the SFV calibration based on the selection made on the previous page.

3. **SVF Calibration:** This page displays tabular data for the SSC parameters set on the BERT and their respective measured values for the PJ@100MHz. Once the parameters are in the range, as indicated in the lower section, the calibration is complete and the row is highlighted.


TP3' Signal Frequency Variations Calibration - 10 Gbps

| Calibration Selection | Initial Freq Setting (ppm) | Measured Initial Freq (ppm) | Freq Overshoot Setting (ppm) | Measured Freq Overshoot (ppm) | Delta Freq 200ns Setting (ppm) | Measured Delta Freq 200ns (ppm) | Delta Freq 1000ns Setting (ppm) | Measured Delta Freq 1000ns (ppm) |
|---|----------------------------|-----------------------------|------------------------------|-------------------------------|--------------------------------|---------------------------------|---------------------------------|----------------------------------|
| Connection Diagram SFV Calibration Save Results | | | | | | | | |

Initial Freq: 280-300 ppm; Freq Overshoot: 1380-1400 ppm
Delta Freq 200ns: 1380-1400 ppm; Delta Freq 1000ns: 2180-2200 ppm

Start

Figure 41: SFV Calibration

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

- Save Results:** This page allows you to save the SFV calibration results.

TP3' Signal Frequency Variations Calibration - 10 Gbps

| | | |
|-----------------------|-------------------------------------|----------------------|
| Calibration Selection | Unique ID | <input type="text"/> |
| Connection Diagram | Generated By | <input type="text"/> |
| SFV Calibration | Comments | <input type="text"/> |
| Save Results | <input type="button" value="Save"/> | |

Figure 42: SFV Calibration-Save Results

Table 24: SFV 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 SFV and close the wizard.



Note: Upon completion or cancellation of the SFV calibration process, the BERT data generator is automatically turned off by the TBT3/4 Gen 2 / Gen 3 (Legacy and Rounded) TekRxTest application.


Tests panel

JTOL Test

To test the DUT error tolerance for PJ at frequencies of 1, 2, 10, 50 and 100 MHz, you can choose either TP3' (Case 1) or TP3 (Case 2) as test points. You can sweep the PJ amplitude for the frequencies and find the threshold point of the DUT.

The stresses used are loaded from the chosen calibration file (TP3' or TP3). If the selected frequency was not calibrated for, then the nearest calibrated frequency data will be used for running the JTOL test.

JTOL Test procedure

Click on **JTOL** under the Tests tab to view the previously completed results. At this stage, you can choose the data rate for which the DUT tolerance needs to be performed. Upon clicking a data rate, all the previously completed results for that data rate get populated in the results table. Click on  at the right end corner of the application to launch the JTOL test wizard. The wizard will guide you through the sequential procedure to perform the test.

- 1. Calibration Selection:** This page allows to select the test point at which the tolerance test needs to be performed. You can find all the completed calibration files for the selected test point by clicking on the drop-down.

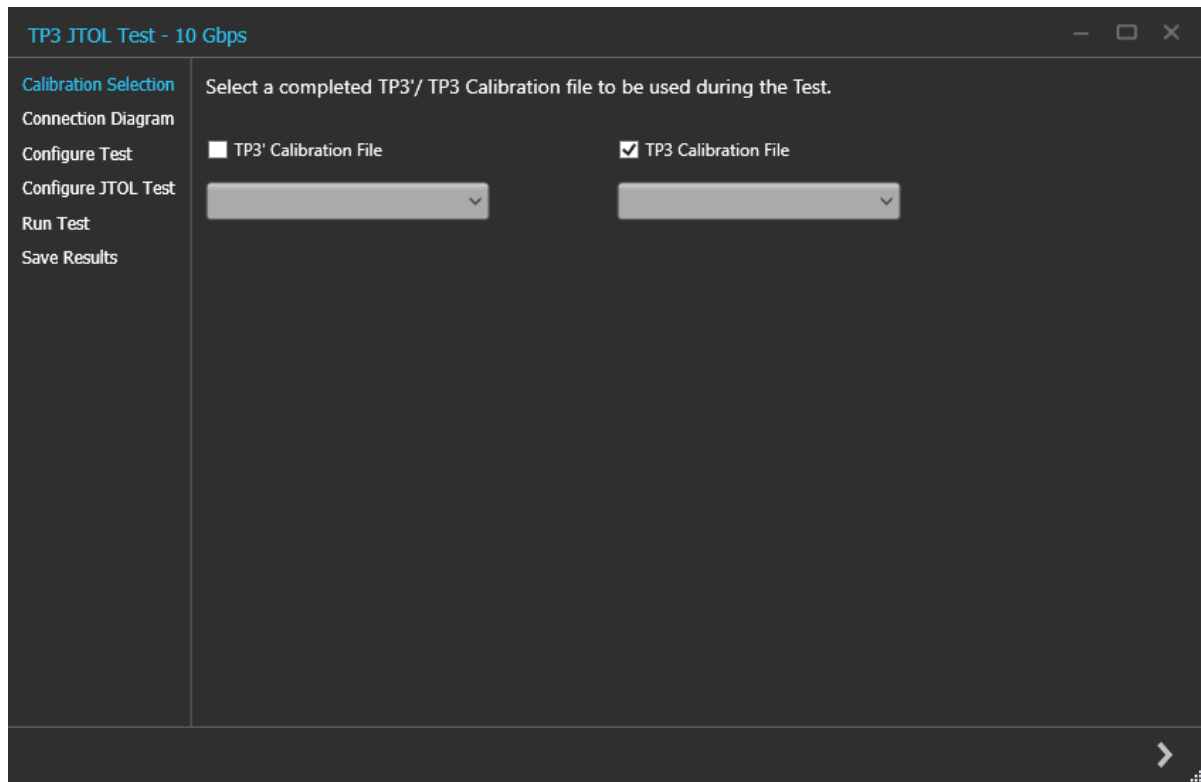



Figure 43: JTOL Test-Calibration Selection

Click  to move to the next step in test process.

2. **Connection Diagram:** This page displays the connection diagram for the JTOL test for the selected test point in the previous page.

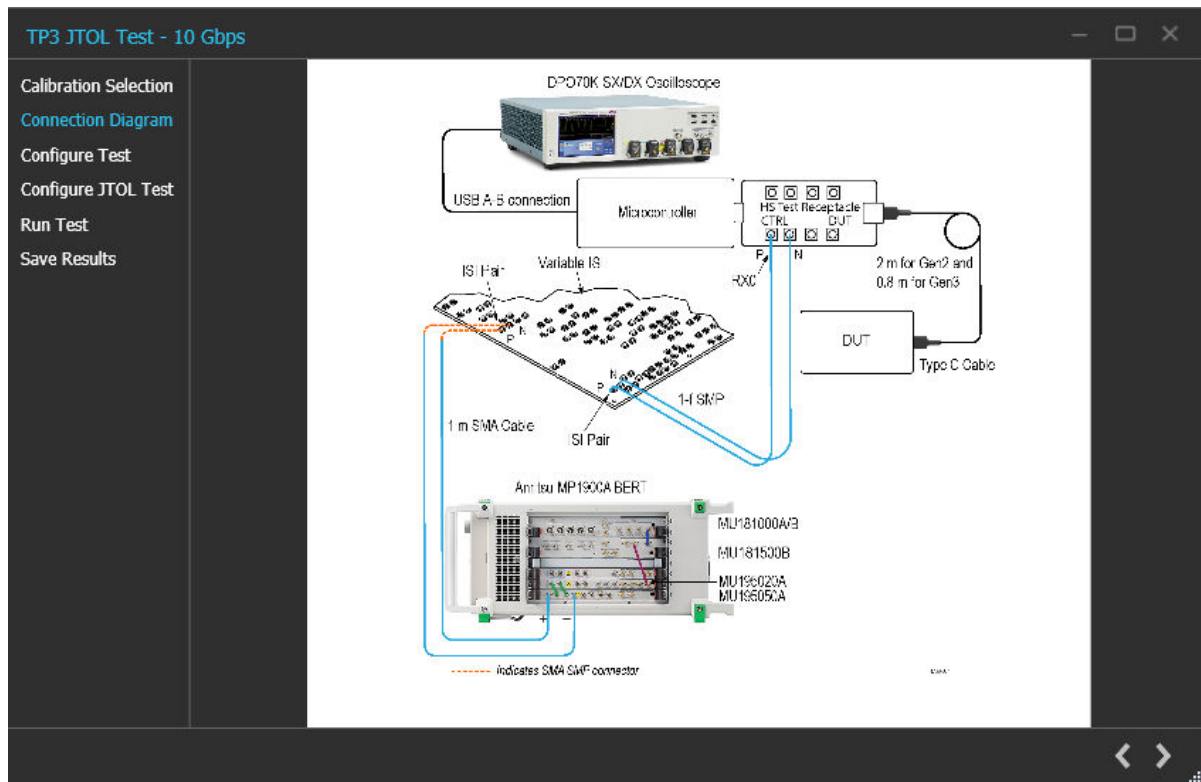



Figure 44: JTOL Test-Connection Diagram

Click  to move to the next step in test process.

- 3. Configure Test:** This page allows you to configure the test settings.

TP3 JTOL Test - 10 Gbps

Calibration Selection
 Connection Diagram
 Configure Test
 Configure JTOL Test
 Run Test
 Save Results

Stress Configuration

PJ@1MHz **Calibrated** Customized Un-Calibrated

PJ@2MHz ACCM 100 mV RJ 0.14 UI p-p

PJ@10MHz Eye Height 700 mV PJ 0.17 UI p-p

PJ@50MHz

PJ@100MHz

☒ SSC

Frequency 32000 Hz

Deviation 5300 ppm

BER Measurement Pattern PRBS31

Logic NEG

BERT Preset Selection

Initial Preset P0

Preshoot 0

De-emphasis 0

Crosstalk

☐ Near-end

☐ Far-end


☒ Data2 ☐ Other Sources

Amplitude 800 mV (SE)

Note: Connect Data2 output as per connection diagram.
 In case Data2 output is not available, choose "Other Sources".

Figure 45: JTOL Test-Configure Test

Table 25: JTOL Test: Configure Test

| Parameter | Description |
|------------------------------|--|
| Stress Configuration | <p>Displays the calibrated stress parameters for the frequencies 1, 2, 10, 50 and 100 MHz.</p> <p>You can configure the stress parameters for each frequency using the following options:</p> <ul style="list-style-type: none"> • Calibrated • Customized • Un-Calibrated <p> Note: If a particular frequency was not calibrated for in the chosen calibration file, the stress parameters showcased are that of the nearest calibrated frequency.</p> |
| ACCM | Displays the calibrated ACCM value in mVp-p / For Un-Calibrated and Customized selections, enter the desired ACCM value to be used in the test. |
| RJ | Displays the calibrated RJ value in Ulp-p / For Un-Calibrated and Customized selections, enter the desired RJ value to be used in the test. |
| Amplitude | For Un-Calibrated amplitude value in mV(SE), enter the desired amplitude value to be used in the test. |
| Eye Height | Displays the calibrated Eye Height in mV. |
| PJ | Displays the calibrated PJ value in Ulp-p. |
| SSC | Click the check box to enable SSC during the test. |
| Frequency | Displays the SSC frequency configured during calibration. |
| Deviation | Displays the SSC deviation configured during calibration. |
| BER Measurement Pattern | Select the required BER measurement pattern from the drop-down list. |
| Logic | Select the polarity or logic for the selected BER Measurement pattern from the drop-down list. |
| BERT Preset Selection | |
| Initial Preset | Select the preset to be set on the BERT PPG right before Preset Negotiation from the drop-down list. |
| Preshoot | Displays the Preshoot corresponding to the selected Initial Preset. |
| De-emphasis | Displays the De-emphasis corresponding to the selected Initial Preset. |
| Crosstalk | |
| Near-end | If checked, the DUT produces crosstalk internally while running the test. |
| Far-end | <p>If checked, you can select the source of the far-end crosstalk.</p> <p>Data2: The BERT Data2 acts as a source of far-end crosstalk, you can configure the amplitude of the aggressor signal in this case.</p> <p>Other Sources: You can use any other external device to provide far-end crosstalk.</p> |

Click  to move to the next step in test process.


4. Configure JTOL Test: This page allows you to configure the JTOL test settings.




Figure 46: JTOL Test-Configure JTOL Test

Table 26: JTOL Test: Configure JTOL Test

| Parameter | Description |
|---------------------------------|---|
| Frequency Settings | |
| PJ@Freq (MHz) | Displays the list of frequencies in MHz for which JTOL test is to be performed. |
| Lower Amplitude Limit (UI p-p) | Enter the lower amplitude limit of PJ at which JTOL test will start for the corresponding frequency. |
| Higher Amplitude Limit (UI p-p) | Enter the higher amplitude limit of PJ at which JTOL test will end for the corresponding frequency. |
| Default | Click to view the table populated with default amplitude limits for the frequencies 1, 2, 10, 50 and 100 MHz. |
| Custom Mask | |
| PJ@Freq (MHz) | Displays the table of frequencies for the mask. |
| Amplitude (UI p-p) | Enter the amplitude of PJ at each frequency. |
| Upward Search | Select the required search algorithm from the drop-down for JTOL test. |
| # Points | Enter the number of points between the lower and higher amp limit in case of Linear and Log search. |
| ETT Configuration | |
| Tested Port | Configure the port to run JTOL test on for the ETT tool (0 - 63). |
| Table continued... | |

| Parameter | Description |
|---------------|--|
| Test Duration | Configure the test duration in seconds.  Note: The default test duration for Gen 2 (Rounded and Legacy) and Gen 3 (Rounded and Legacy) is 400s and 200s respectively. |
| Link | Select the required link for ETT tool (Single Lane or Dual Lane). |
| DUT Type | Select the DUT type used during the test from the drop-down list. |
| Tested Lane | Select the lane on which the JTOL test will run. |
| Swap Lane | Select the required swap lane for ETT tool. |
| Exe Path | Enter the path for the ETT tool executable file in the RT Scope. |
| TigerLake | Enable if the DUT you are testing is a TigerLake device. |

Click  to move to the next step in test process.

- Run Test:** This page displays a graphical representation of JTOL test result. It includes the result table tab which displays the JTOL test results in a tabular form.

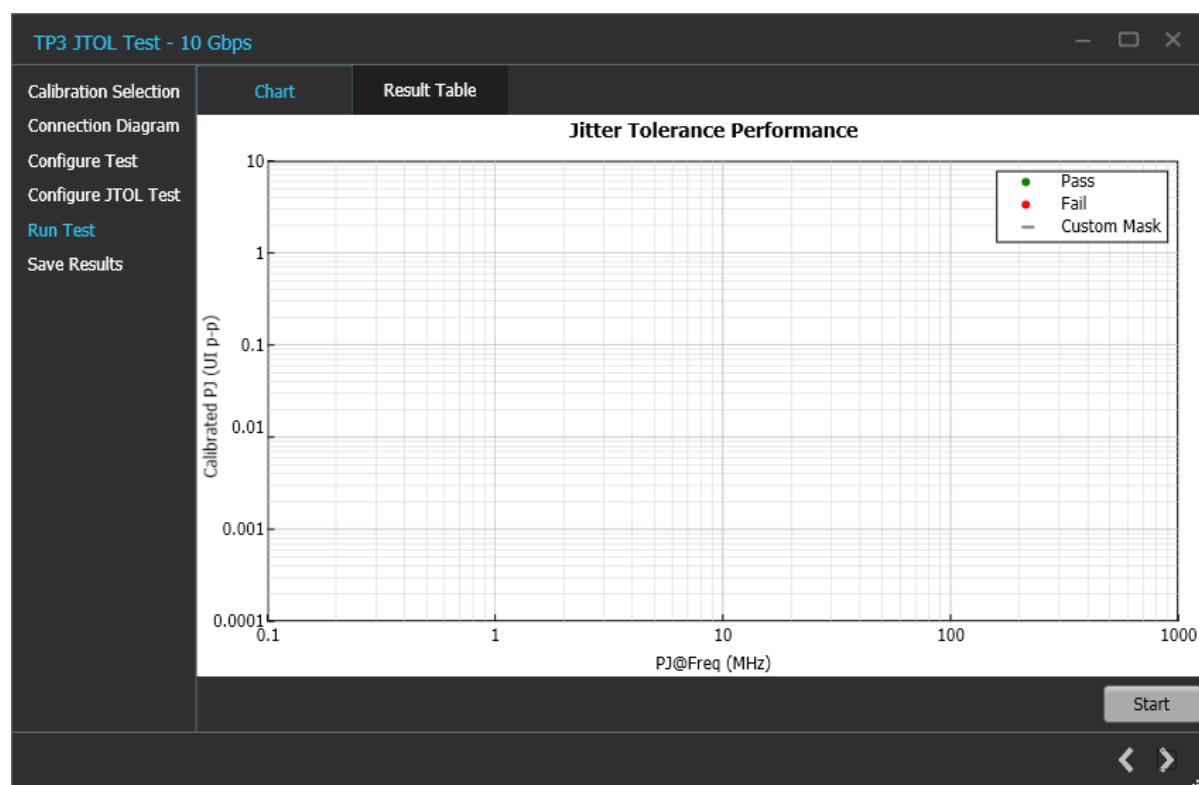



Figure 47: JTOL Test-Run Test

Table 27: JTOL Test: Run Test

| Parameter | Description |
|-----------|--|
| Start | Click Start to initiate the test. |
| Cancel | Click Cancel to stop the test. |

Click  to move to the next step in test process.

6. **Save Results:** This page allows you to save the JTOL test results.

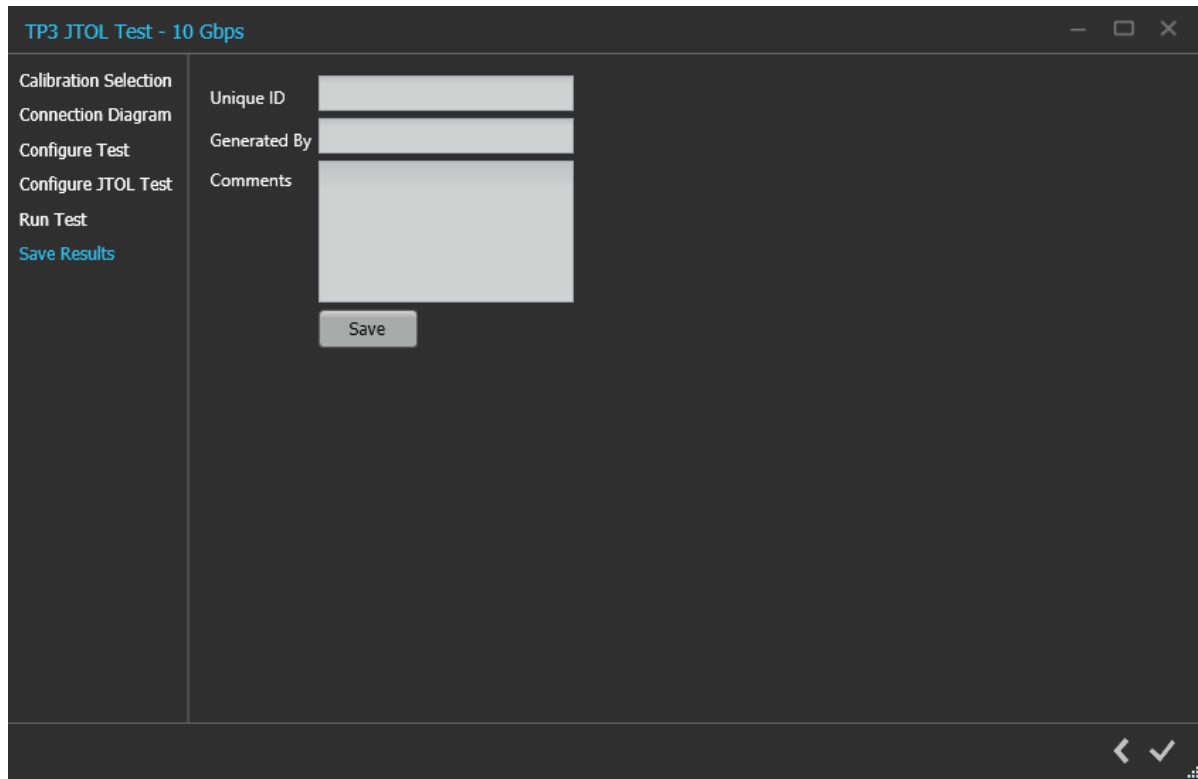


Figure 48: JTOL Test-Save Results

Table 28: JTOL 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 JTOL Test and close the wizard.


Sensitivity Test

To test the DUT error tolerance for Eye Height at frequencies of 1, 2, 10, 50 and 100 MHz, you can choose either TP3' (Case 1) or TP3 (Case 2) as test points. You can sweep the amplitude for the given frequencies and find the tolerance of the DUT.

The stresses used are loaded from the chosen calibration file (TP3' or TP3). If the selected frequency was not calibrated for, then the nearest calibrated frequency data will be used for running the Sensitivity test.

Sensitivity Test procedure

Click on **Sensitivity** under the Tests tab to view the previously completed results. At this stage, you can choose the data rate for which the DUT tolerance test needs to be performed. Upon clicking a data rate, all the previously completed results for that data rate get populated

in the results table. Click on  at the right end corner of the application to launch the Sensitivity test wizard. The wizard will guide you through the sequential procedure to perform the test.

1. **Calibration Selection:** This page allows to select the test point at which the tolerance test needs to be performed. You can find all the completed calibration files for the selected test point by clicking on the drop-down.

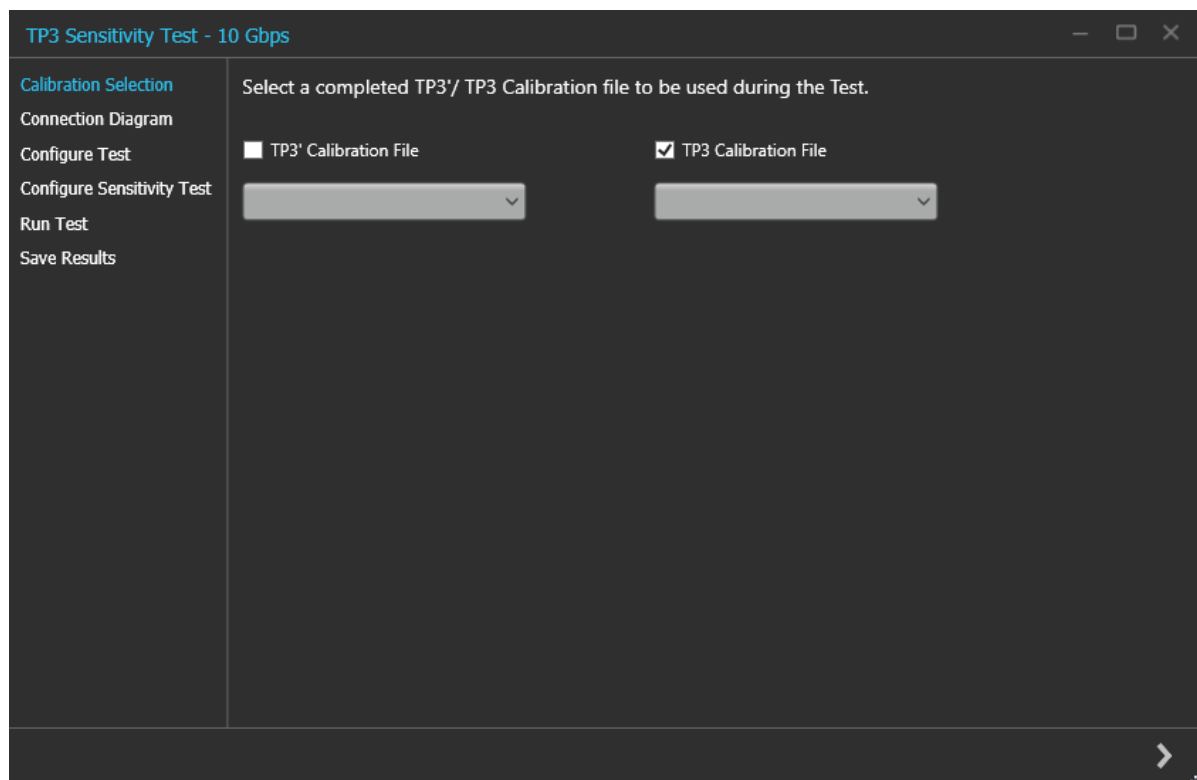



Figure 49: Sensitivity Test-Calibration Selection

Click  to move to the next step in test process.

2. **Connection Diagram:** This page displays the connection diagram for the Sensitivity test for the chosen test point in the previous page.

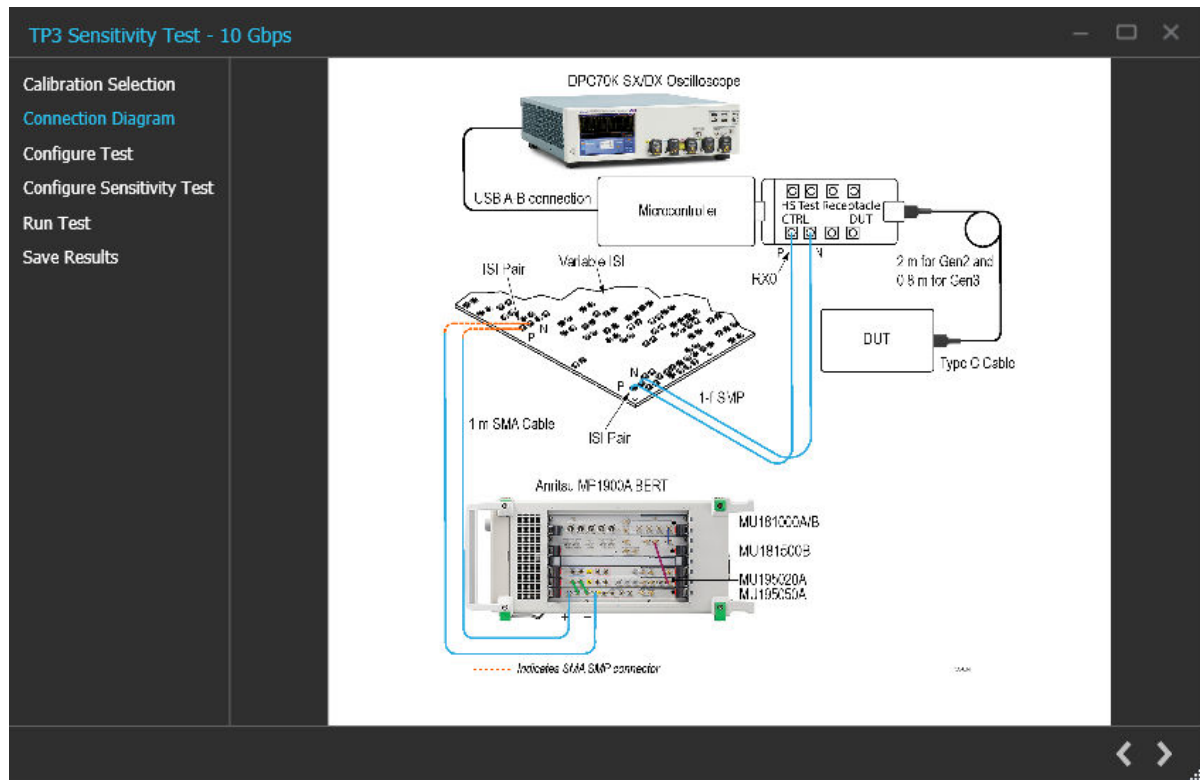



Figure 50: Sensitivity Test-Connection Diagram

Click  to move to the next step in test process.

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

TP3 Sensitivity Test - 10 Gbps

Calibration Selection
 Connection Diagram
 Configure Test
 Configure Sensitivity Test
 Run Test
 Save Results

Stress Configuration

PJ@1MHz **Calibrated** Customized Un-Calibrated

PJ@2MHz ACCM 100 mV RJ 0.14 UI p-p

PJ@10MHz

PJ@50MHz Eye Height 700 mV PJ 0.17 UI p-p

PJ@100MHz

☒ SSC

Frequency 32000 Hz

Deviation 5300 ppm

BER Measurement Pattern PRBS31

Logic NEG

BERT Preset Selection

Initial Preset P0

Preshoot 0

De-emphasis 0

Crosstalk

☐ Near-end

☐ Far-end


☒ Data2 ☐ Other Sources

Amplitude 800 mV (SE)

Note: Connect Data2 output as per connection diagram.
 In case Data2 output is not available, choose "Other Sources".

Figure 51: Sensitivity Test-Configure Test

Table 29: Sensitivity Test: Configure Test

| Parameter | Description |
|------------------------------|--|
| Stress Configuration | <p>Displays the calibrated stress parameters for the frequencies 1, 2, 10, 50 and 100 MHz.</p> <p>You can configure the stress parameters for each frequency using the following options:</p> <ul style="list-style-type: none"> • Calibrated • Customized • Un-Calibrated <p> Note: If a particular frequency was not calibrated for in the chosen calibration file, the stress parameters showcased are that of the nearest calibrated frequency.</p> |
| ACCM | Displays the calibrated ACCM value in mVp-p / For Un-Calibrated and Customized selections, enter the desired ACCM value to be used in the test. |
| RJ | Displays the calibrated RJ value in Ulp-p / For Un-Calibrated and Customized selections, enter the desired RJ value to be used in the test. |
| Amplitude | For Un-Calibrated amplitude value in mV(SE), enter the desired amplitude value to be used in the test. |
| Eye Height | Displays the calibrated Eye Height in mV. |
| PJ | Displays the calibrated PJ value in Ulp-p. |
| SSC | Click the check box to enable SSC during the test. |
| Frequency | Displays the SSC frequency configured during calibration. |
| Deviation | Displays the SSC deviation configured during calibration. |
| BER Measurement Pattern | Select the required BER measurement pattern from the drop-down list. |
| Logic | Select the polarity or logic for the selected BER Measurement pattern from the drop-down list. |
| BERT Preset Selection | |
| Initial Preset | Select the preset to be set on the BERT PPG right before Preset Negotiation from the drop-down list. |
| Preshoot | Displays the Preshoot corresponding to the selected Initial Preset. |
| De-emphasis | Displays the De-emphasis corresponding to the selected Initial Preset. |
| Crosstalk | |
| Near-end | If checked, the DUT produces crosstalk internally while running the test. |
| Far-end | <p>If checked, you can select the source of the far-end crosstalk.</p> <p>Data2: The BERT Data2 acts as a source of far-end crosstalk, you can configure the amplitude of the aggressor signal in this case.</p> <p>Other Sources: You can use any other external device to provide far-end crosstalk.</p> |

Click  to move to the next step in test process.

4. Configure Sensitivity Test: This page allows you to configure the sensitivity test settings.

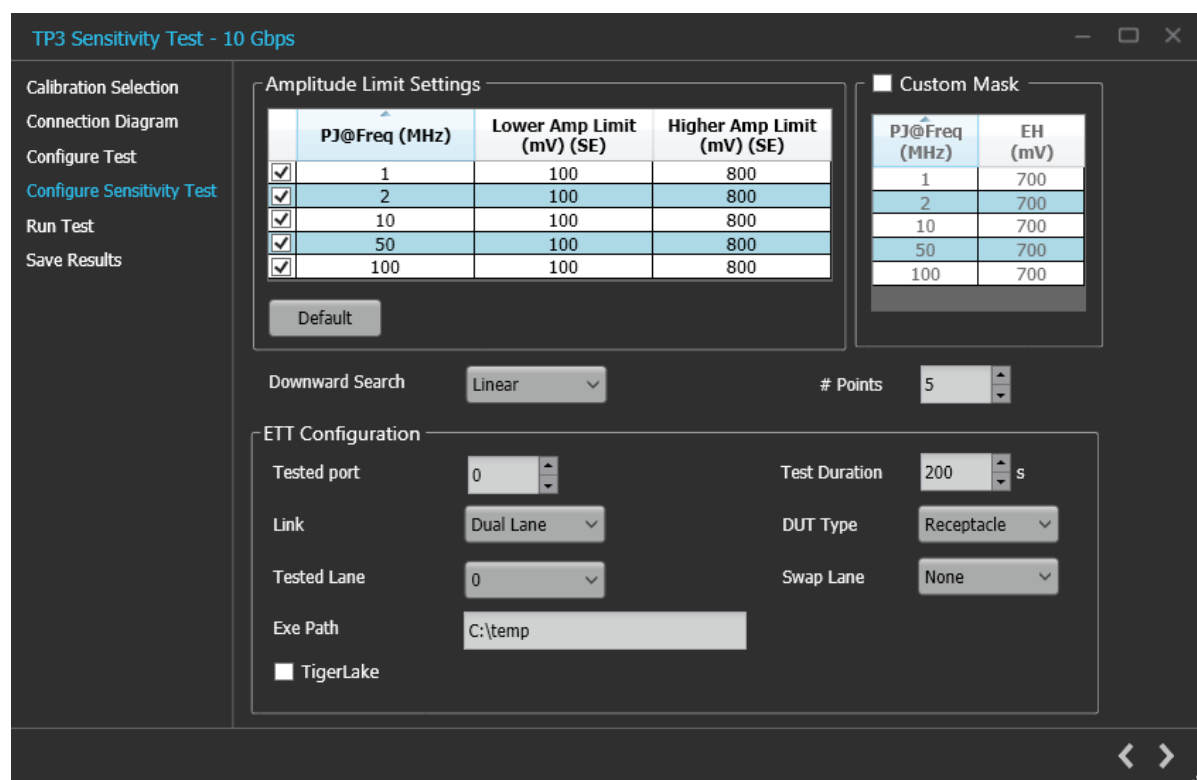




Figure 52: Sensitivity Test-Configure Sensitivity Test

Table 30: Sensitivity Test: Configure Sensitivity Test

| Parameter | Description |
|---------------------------------|---|
| Amplitude Limit Settings | |
| PJ@Freq (MHz) | Displays the list of frequencies in MHz for which Sensitivity test is to be performed. |
| Lower Amplitude Limit (UI p-p) | Enter the lower amplitude limit of PJ at which Sensitivity test will end for the corresponding frequency. |
| Higher Amplitude Limit (UI p-p) | Enter the higher amplitude limit of PJ at which Sensitivity test will start for the corresponding frequency. |
| Default | Click to view the table populated with default amplitude limits for the frequencies 1, 2, 10, 50 and 100 MHz. |
| Custom Mask | |
| PJ@Freq (MHz) | Displays the table of frequencies for the mask. |
| Eye Height | Enter the amplitude of PJ at each frequency. |
| Downward Search | Select the required search algorithm from the drop-down for JTOL test. |
| # Points | Enter the number of points between the lower and higher amp limit in case of Linear and Log search. |
| ETT Configuration | |
| Tested Port | Configure the port to run Sensitivity test on for the ETT tool (0 - 63). |

Table continued...

| Parameter | Description |
|---------------|--|
| Test Duration | Configure the test duration in seconds.  Note: The default test duration for Gen 2 and Gen 3 is 400s and 200s respectively. |
| Link | Select the required link for ETT tool (Single Lane or Dual Lane). |
| DUT Type | Select the DUT type used during the test from the drop-down list. |
| Tested Lane | Select the lane on which the Sensitivity test will run. |
| Swap Lane | Select the required swap lane for ETT tool. |
| Exe Path | Enter the path for the ETT tool executable file in the RT Scope. |
| TigerLake | Enable if the DUT you are testing is a TigerLake device. |

Click  to move to the next step in test process.

- Run Test:** This page displays a graphical representation of the Sensitivity Test result. It includes the result table tab which displays the sensitivity test results in a tabular form.

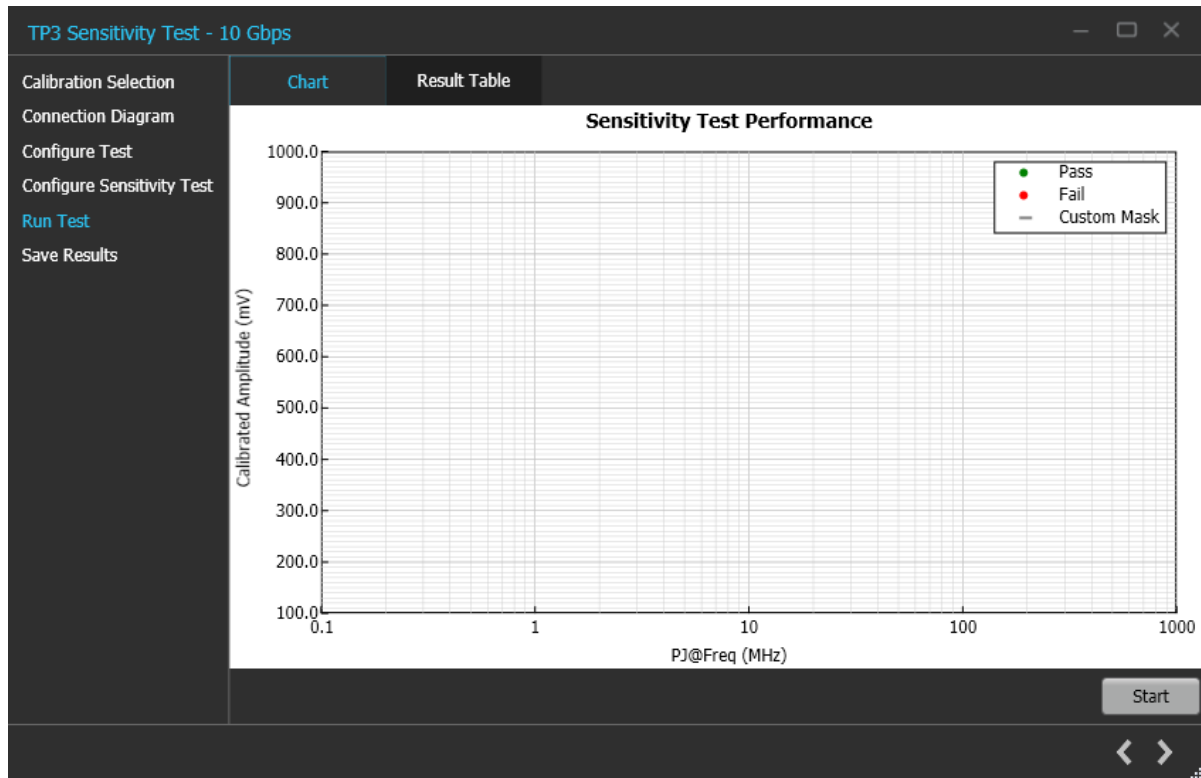



Figure 53: Sensitivity Test-Run Test

Table 31: Sensitivity Test: Run Test

| Parameter | Description |
|-----------|--|
| Start | Click Start to initiate the test. |
| Cancel | Click Cancel to stop the test |

Click  to move to the next step in test process.

6. **Save Results:** This page allows you to save the sensitivity test results.

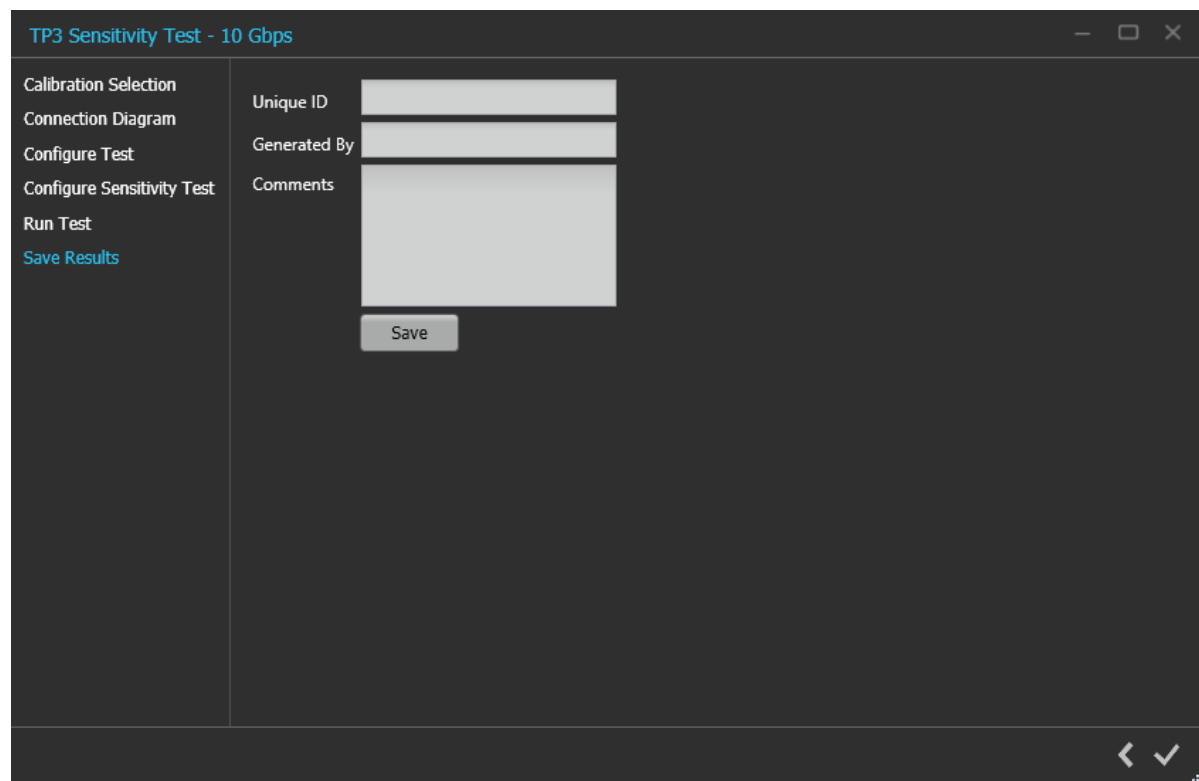


Figure 54: Sensitivity Test-Save Results

Table 32: Sensitivity 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 Sensitivity Test and close the wizard.

BER Test

To find the DUT Bit Error Rate for the defined duration (400 sec in Gen 2 and 200 sec in Gen 3) using the stress conditions calibrated during TP3' (Case 1) or TP3 (Case 2).

BER Test procedure

Click on **BER** under the Tests tab to view the measurement results. At this stage, you can choose the data rate for which the DUT BER test needs to be performed. Upon clicking a data rate, all the measurement results for that data rate get populated in the results table. Click on  at the right end corner of the application to launch the BER test wizard. The wizard will guide you through the sequential procedure to perform the test.

1. **Calibration Selection:** This page allows to select the test point at which the BER test needs to be performed. You can find all the completed calibration files for the selected test point by clicking on the drop-down.

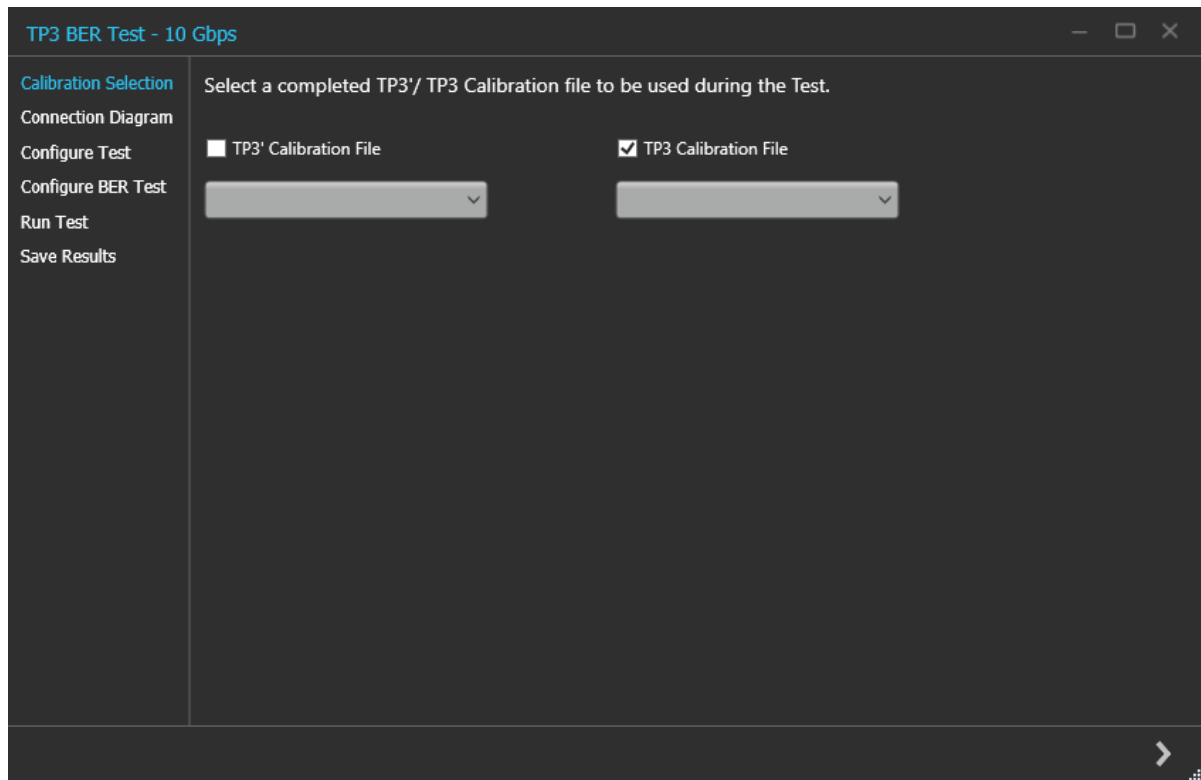



Figure 55: BER Test-Calibration Selection

Click  to move to the next step in test process.

2. **Connection Diagram:** This page displays the connection diagram for BER test for the selected test point in the previous page.

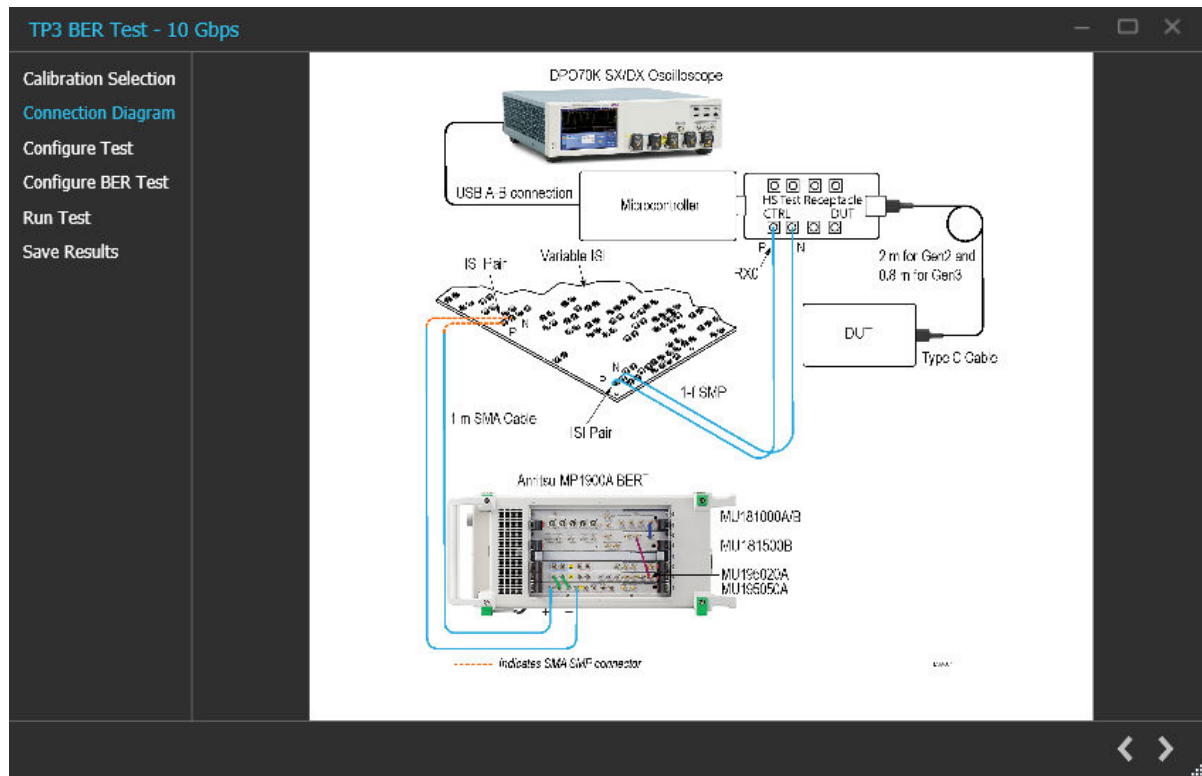



Figure 56: BER Test-Connection Diagram

Click  to move to the next step in test process.

- 3. Configure Test:** This page allows you to configure the test settings.

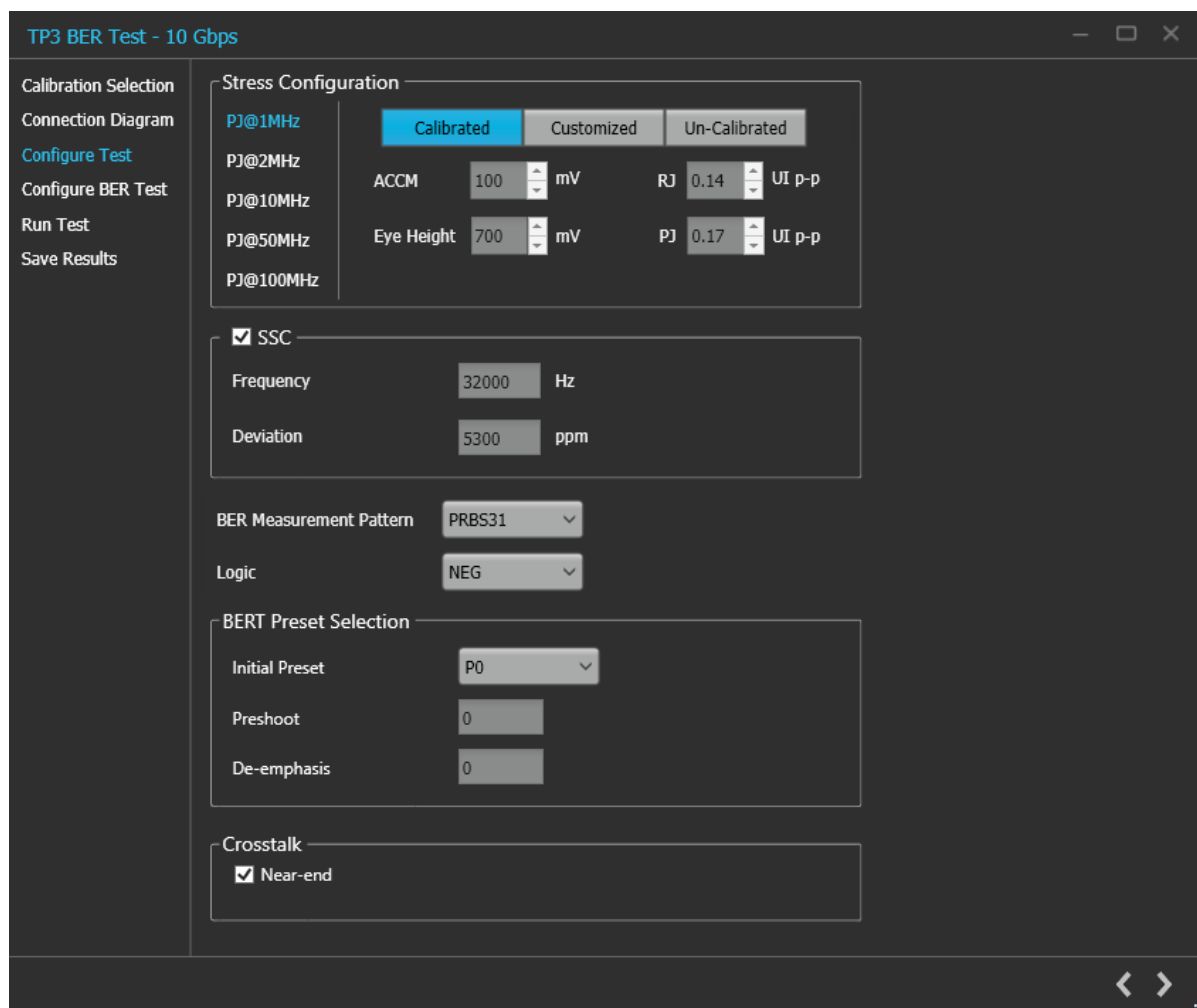


Figure 57: BER Test-Configure Test

Table 33: BER Test: Configure Test



| Parameter | Description |
|----------------------|--|
| Stress Configuration | <p>Displays the calibrated stress parameters for the frequencies 1, 2, 10, 50 and 100 MHz.</p> <p>You can configure the stress parameters for each frequency using the following options:</p> <ul style="list-style-type: none"> • Calibrated • Customized • Un-Calibrated <p> Note: If a particular frequency was not calibrated for in the chosen calibration file, the stress parameters showcased are that of the nearest calibrated frequency.</p> |
| ACCM | Displays the calibrated ACCM value in mVp-p / For Un-Calibrated and Customized selections, enter the desired ACCM value to be used in the test. |

Table continued...

| Parameter | Description |
|------------------------------|---|
| RJ | Displays the calibrated RJ value in Ulp-p / For Un-Calibrated and Customized selections, enter the desired RJ value to be used in the test. |
| Amplitude | For Un-Calibrated amplitude value in mV(SE), enter the desired amplitude value to be used in the test. |
| Eye Height | Displays the calibrated Eye Height in mV. |
| PJ | Displays the calibrated PJ value in Ulp-p. |
| SSC | Click the check box to enable SSC during the test. |
| Frequency | Displays the SSC frequency configured during calibration. |
| Deviation | Displays the SSC deviation configured during calibration. |
| BER Measurement Pattern | Select the required BER measurement pattern from the drop-down list. |
| Logic | Select the polarity or logic for the selected BER Measurement pattern from the drop-down list. |
| BERT Preset Selection | |
| Initial Preset | Select the preset to be set on the BERT PPG right before Preset Negotiation from the drop-down list. |
| Preshoot | Displays the Preshoot corresponding to the selected Initial Preset. |
| De-emphasis | Displays the De-emphasis corresponding to the selected Initial Preset. |
| Crosstalk | |
| Near-end | If checked, the DUT produces crosstalk internally while running the test. |

Click  to move to the next step in test process.

- 4. Configure BER Test:** This page allows you to configure the BER test settings.


The screenshot shows the 'TP3 BER Test - 10 Gbps' application window. On the left is a sidebar with navigation options: 'Calibration Selection', 'Connection Diagram', 'Configure Test', 'Configure BER Test' (highlighted in blue), 'Run Test', and 'Save Results'. The main area is titled 'ETT Configuration' and contains the following settings:


- Tested port:** A numeric input field set to '0'.
- Link:** A dropdown menu set to 'Dual Lane'.
- Tested Lane:** A dropdown menu set to '0'.
- Exe Path:** A text input field containing 'C:\temp'.
- TigerLake:** A checkbox that is currently unchecked.
- Test Duration:** A numeric input field set to '200' with a unit dropdown set to 's'.
- DUT Type:** A dropdown menu set to 'Receptacle'.
- Swap Lane:** A dropdown menu set to 'None'.

At the bottom right of the window, there are navigation arrows (left and right) and a small grid icon.

Figure 58: BER Test-Configure BER Test

Table 34: BER Test: Configure BER Test

| Parameter | Description |
|--------------------------|--|
| ETT Configuration | |
| Tested Port | Configure the port to run BER test on for the ETT tool (0 - 63). |
| Test Duration | Configure the test duration in seconds.  Note: The default test duration for Gen 2 and Gen 3 is 400s and 200s respectively. |
| Link | Select the required link for ETT tool (Single Lane or Dual Lane). |
| DUT Type | Select the DUT type used during the test from the drop-down list. |
| Tested Lane | Select the lane on which the BER test will run. |
| Swap Lane | Select the required swap lane for ETT tool. |
| Exe Path | Enter the path for the ETT tool executable file in the RT Scope. |
| TigerLake | Enable if the DUT you are testing is a TigerLake device. |

Click  to move to the next step in test process.

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

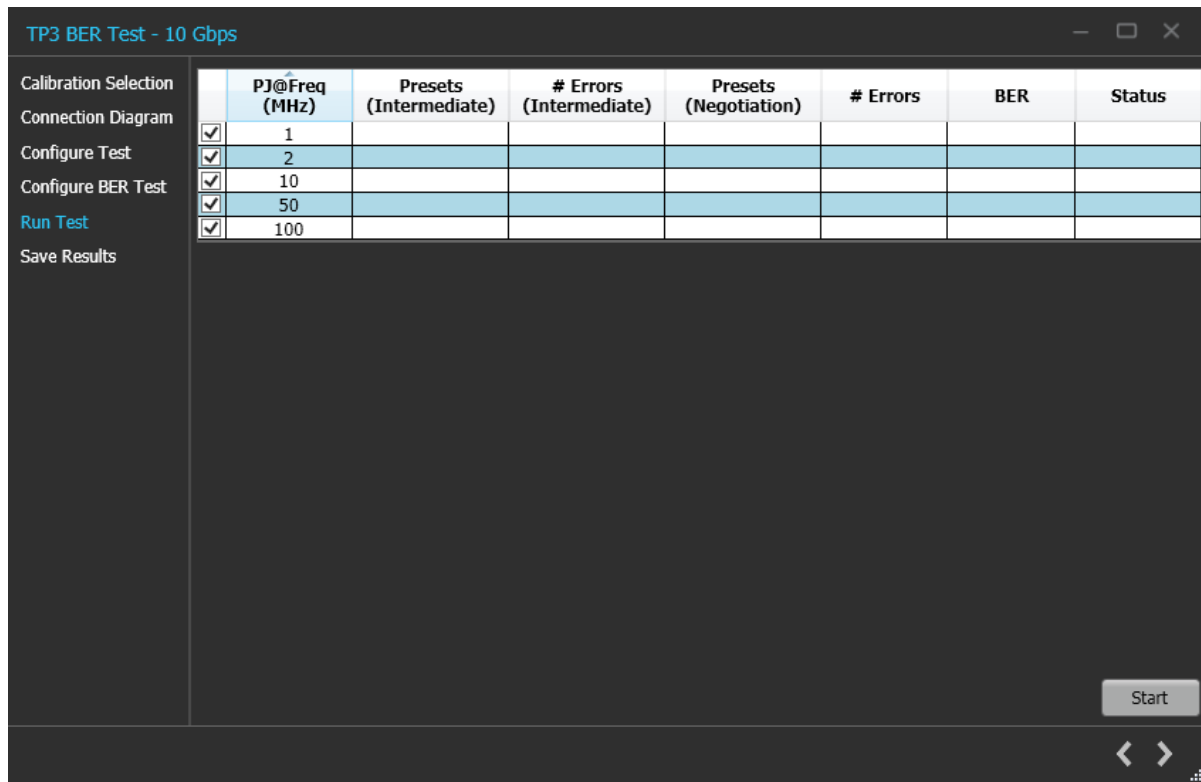



Figure 59: BER Test-Run Test

Table 35: BER 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 BER test for 10 seconds after each preset negotiation. |
| Preset (Negotiation) | Updates the last preset from the preset negotiation before running the BER test for 200s (Gen 3) or 400s (Gen 2). |
| #Errors | Updates the number of errors after the test has completed. |
| BER | Updates the BER 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 step in test process.

- Save Results:** This page allows you to save the BER test results.

Figure 60: BER Test-Save Results

Table 36: BER 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 BER Test and close the wizard.

SFVT Test

To test the DUT error tolerance upon frequency variation at PJ@100MHz. You can perform the test at the TP3' (Case1) or TP3 (Case 2) test point at which the SFV calibration has already been performed. The stresses calibrated for PJ@100MHz in the chosen calibration file are used while performing the SFVT test.

SFVT Test procedure

Click on SFVT under the Tests tab to view the test results. At this stage, you can choose the generation for which the DUT tolerance test needs to be performed. Upon clicking a generation, all the test results for that generation get populated in the results table. Click on the right end corner of the application to launch the SFVT test wizard. The wizard guides you through the sequential procedure to perform the test.

- 1. Calibration Selection:** This page allows you to select the completed SFV calibration file which can be used while performing the SFVT test at the TP3' or TP3 test point. You can select the calibration file from the drop-down list.

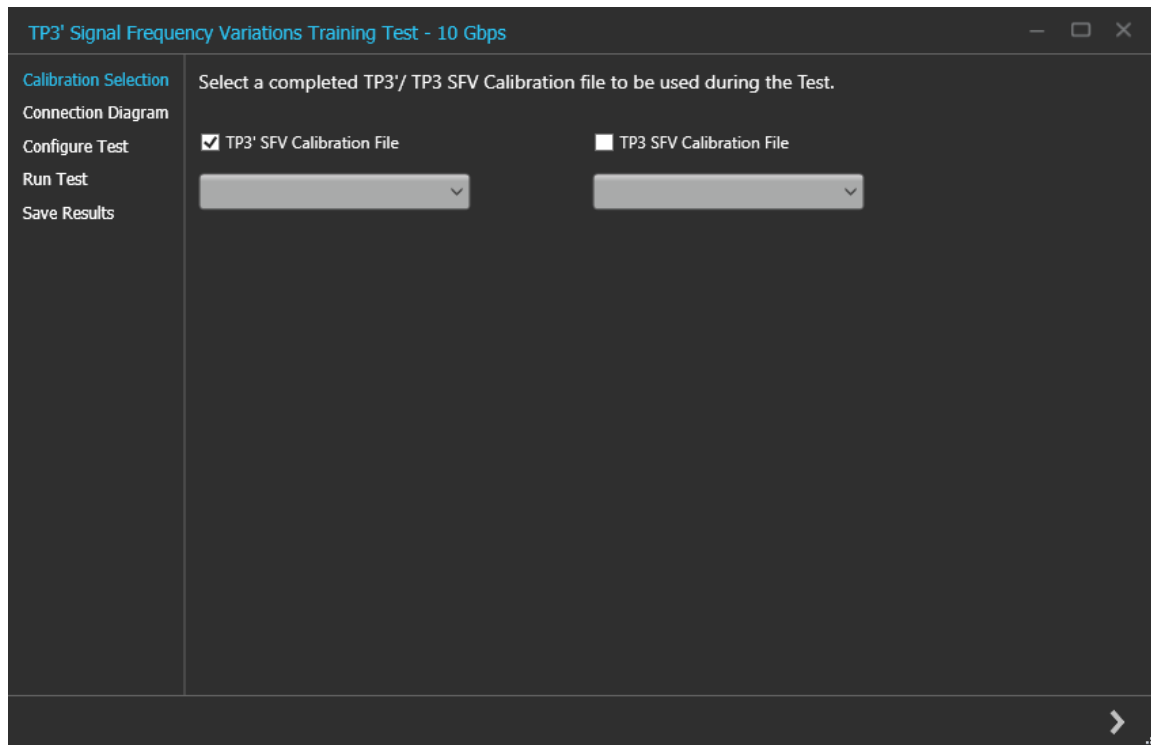



Figure 61: SFVT Test-Calibration Selection

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

2. **Connection Diagram:** This page displays the connection diagram for the SFVT test based on the selection made on the previous page.

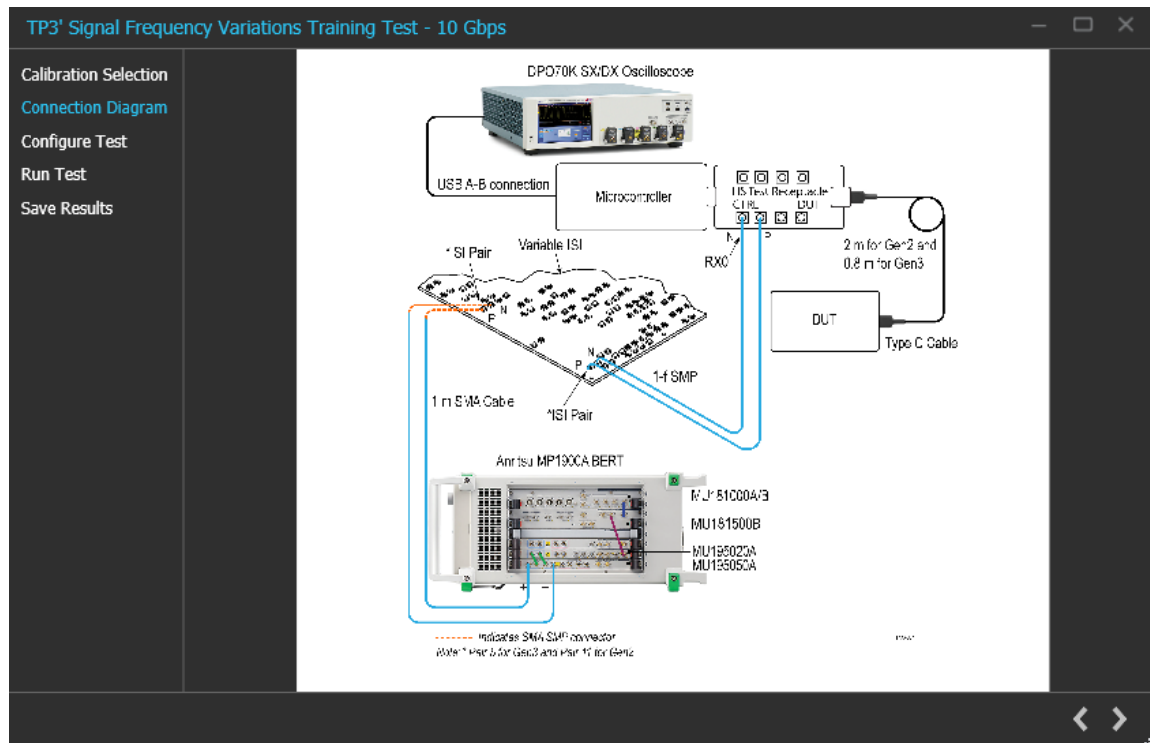



Figure 62: SFVT Test-Connection Diagram

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

3. **Configure Test:** This page allows you to configure the test settings.

Figure 63: SFVT Test-Run Test

Table 37: SFVT Test: Configure Test

| Parameter | Description |
|--------------------------|---|
| ETT Configuration | |
| Tested Port | Configure the port to run SFVT test on for the ETT tool (0 - 63). |
| Test Duration | Configure the test duration in seconds.  Note: The default test duration for Gen2/3 is 400s and 200s respectively. |
| Link | Select the required link for ETT tool (Single Lane or Dual Lane). |
| DUT Type | Select the DUT type used during the test from the drop-down list. |
| Tested Lane | Select the lane on which the SFVT test can run. |
| Swap Lane | Select the required swap lane for ETT tool. |
| Exe Path | Enter the path for the ETT tool executable file in the RT Scope. |
| TigerLake | Enable if the DUT you are testing is a TigerLake device. |

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

4. **Run Test** This page displays a tabular representation of the SFVT test result.

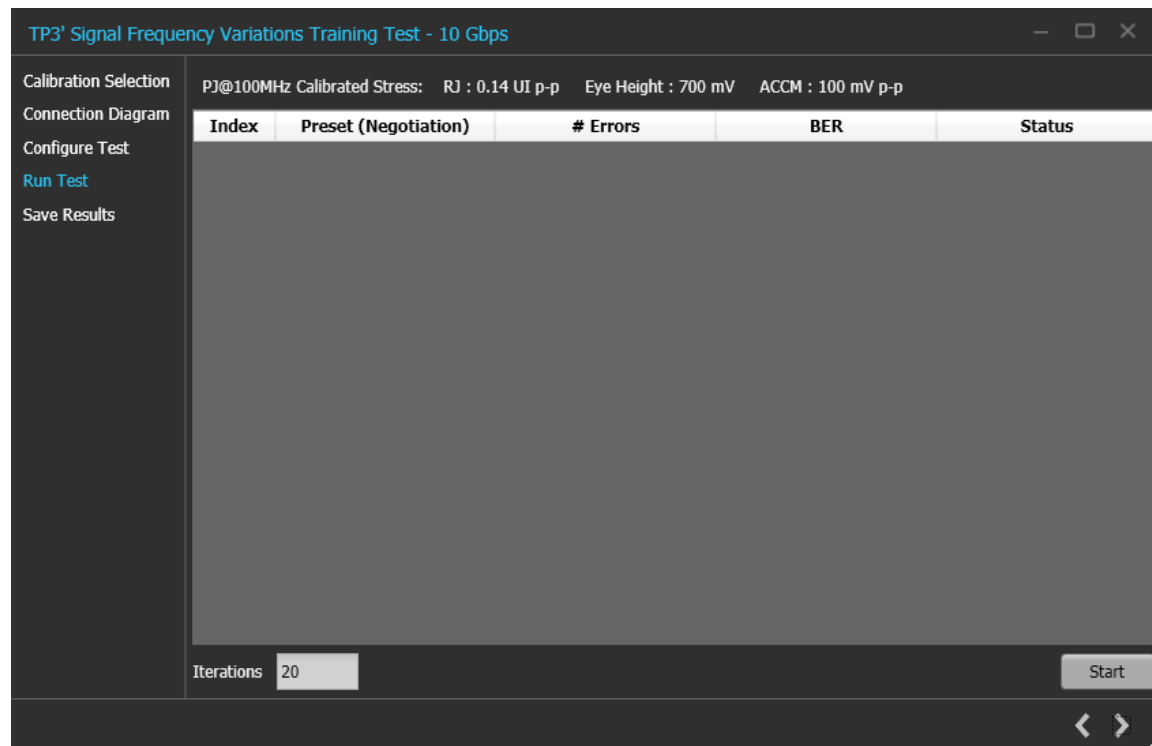




Figure 64: SFVT Test-Run Test

Table 38: SFVT Test: Run Test

| Parameter | Description |
|--------------------|--|
| Start | Click Start to run the measurement. |
| Cancel | Click Cancel to stop the test. |
| Table continued... | |

| Parameter | Description |
|------------|---|
| Iterations | Select the number of times the SFVT test needs to be run for.  Note: You can go up to 20 iterations. |

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

5. **Save Results:** This page allows you to save the SFVT test results.

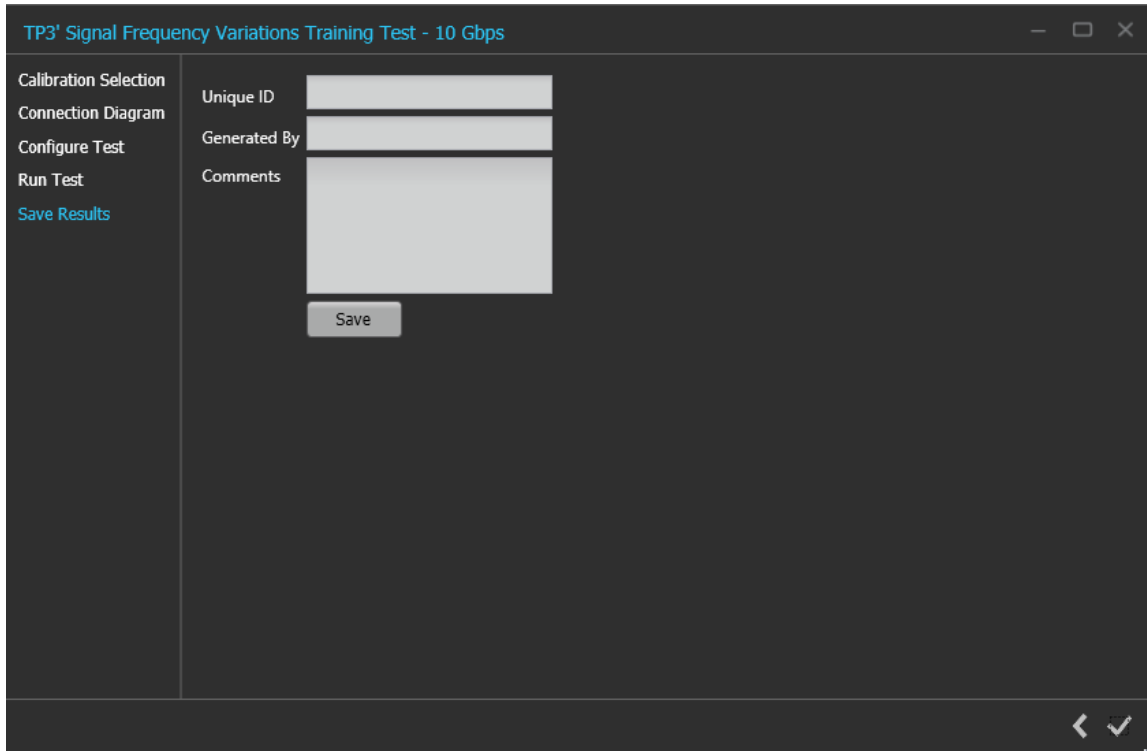


Figure 65: SFVT Test-Save Results

Table 39: SFVT 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 SFVT Test and close the wizard.

Programmatic interface commands

SETTINGS:ANALYSIS:TOOL

This command selects the analysis tool.

Syntax

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

```
SETTINGS:ANALYSIS:TOOL?
```

Inputs

<bool>

0 - DPOJET

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 <filename>

Inputs

<filename>

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>

TP3PRIME:ACCM:RUN

This command sets the ACCM calibration run status.

Syntax

```
TP3PRIME:ACCM:RUN <1|0>
```

Inputs

<1|0>

1 - Start the ACCM calibration run.

0 - Stop the ACCM calibration run.

Outputs

NA

TP3PRIME:ACCM:SETTING

This command returns the ACCM calibrated value in mV p-p.

Syntax

TP3PRIME:ACCM:SETTING?

Inputs

NA

Outputs

<double>

TP3PRIME:ACCM:STATUS

This command returns the ACCM calibration status.

Syntax

TP3PRIME:ACCM:STATUS?

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:DDJ:STATUS

This command returns the DDJ calibration status.

Syntax

TP3PRIME:DDJ:STATUS?

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:DDJ:RUN

This command sets the DDJ calibration run status.

Syntax

```
TP3PRIME:DDJ:RUN <1|0>
```

Inputs

<1|0>

1 - Start the DDJ calibration run.

0 - Stop the DDJ calibration run.

Outputs

NA

TP3PRIME:EYEDIAGRAM:PJ@FREQ

This command enables and disables the check box for each frequencies.

Syntax

```
TP3PRIME:EYEDIAGRAM:PJ@FREQ <FREQ 1/2/10/50/100> <1|0>
```

```
TP3PRIME:EYEDIAGRAM:PJ@FREQ <FREQ 1/2/10/50/100>?
```

Inputs

<int> for frequency

<1|0>

Outputs

<1|0>

TP3PRIME:EYEDIAGRAM:RUN

This command sets the Eye Diagram calibration run status.

Syntax

```
TP3PRIME:EYEDIAGRAM:RUN <1/0>
```

Inputs

<1|0>

1 - Start the Input Eye Diagram run

0 - Stop the Input Eye Diagram run

Outputs

NA

TP3PRIME:EYEDIAGRAM:STATUS

This command returns the Eye Diagram calibration status.

Syntax

TP3PRIME:EYEDIAGRAM:STATUS?

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:EYEDIAGRAM:TYPE

This command sets and returns display type.

Syntax

TP3PRIME:EYEDIAGRAM:TYPE <0|1>

TP3PRIME:EYEDIAGRAM:TYPE?

Inputs

<0|1>

0 indicates Table

1 indicates Eye Diagram

Outputs

<0|1>

TP3PRIME:PJ:RUN

This command sets the PJ calibration run status.

Syntax

TP3PRIME:PJ:RUN <1|0>

Inputs

<1|0>

1 - Start the PJ calibration run.

0 - Stop the PJ calibration run.

Outputs

NA

TP3PRIME:PJ:STATUS

This command returns the PJ calibration status.

Syntax

TP3PRIME:PJ:STATUS?

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:RJ:RUN

This command sets the RJ calibration run status.

Syntax

```
TP3PRIME:RJ:RUN <1|0>
```

Inputs

<1|0>

1 - Start the RJ calibration run.

0 - Stop the RJ calibration run.

Outputs

NA

TP3PRIME:RJ:SETTING

This command returns the RJ calibrated value.

Syntax

```
TP3PRIME:RJ:SETTING?
```

Inputs

NA

Outputs

<double>

TP3PRIME:RJ:STATUS

This command returns the RJ calibration status.

Syntax

```
TP3PRIME:RJ:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:TJ:RUN

This command sets the TJ calibration run status.

Syntax

```
TP3PRIME:TJ:RUN <1|0>
```

Inputs

<1|0>

1 - Start the TJ calibration run.

0 - Stop the TJ calibration run.

Outputs

NA

TP3PRIME:TJ:STATUS

This command returns the TJ calibration status.

Syntax

```
TP3PRIME:TJ:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:EH:STATUS

This command returns the EH calibration status.

Syntax

```
TP3PRIME:EH:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:ACDC:RUN

This command sets the AC-DC balance calibration run status.

Syntax

```
TP3PRIME:ACDC:RUN <1|0>
```

Inputs

<1 | 0>

1 - Start the AC-DC Balance calibration run.

0 - Stop the AC-DC Balance calibration run.

Outputs

NA

TP3PRIME:ACDC:STATUS

This command returns the AC-DC balance calibration status.

Syntax

TP3PRIME:ACDC:STATUS?

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:AUTOCAL

This command sets the TP3' automatic calibration run status.

Syntax

TP3PRIME:AUTOCAL <1 | 0>

Inputs

<1 | 0>

1 - Start the TP3' automatic calibration run.

0 - Stop the TP3' automatic calibration run.

Outputs

NA

TP3PRIME:DELETE

This command deletes the selected TP3' calibration file.

Syntax

TP3PRIME:DELETE

Inputs

NA

Outputs

NA

TP3PRIME:EQUIP:STATUS

This command returns the status of equipment initialization.

Syntax

```
TP3PRIME:EQUIP:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:EQUIP:INIT

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

Syntax

```
TP3PRIME:EQUIP:INIT <1|0>
```

Inputs

<1|0>

1 - Start the equipment initialization run.

0 - Stop the equipment initialization run.

Outputs

NA

TP3PRIME:EH:RUN

This command sets the Input EH calibration run status.

Syntax

```
TP3PRIME:EH:RUN <1/0>
```

Inputs

<1|0>

1 - Start the EH calibration run.

0 - Stop the EH calibration run.

Outputs

NA

TP3PRIME:EH:SETTING

This command returns the EH calibrated value.

Syntax

```
TP3PRIME:EH:SETTING?
```

Inputs

NA

Outputs

<double>

TP3PRIME:OPEN

This command opens the TP3' calibration panel.

Syntax

```
TP3PRIME:OPEN
```

Inputs

NA

Outputs

NA

TP3PRIME:PRESET:RUN

This command sets the Preset calibration run status.

Syntax

```
TP3PRIME:PRESET:RUN <1|0>
```

Inputs

<1|0>

1 - Start the Preset calibration run.

0 - Stop the Preset calibration run.

Outputs

NA

TP3PRIME:PRESET:STATUS

This command returns the Preset calibration status.

Syntax

```
TP3PRIME:PRESET:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3PRIME:REPORT

This command generates the report for the selected TP3' calibration.

Syntax`TP3PRIME:REPORT`**Inputs**

NA

Outputs

NA

TP3PRIME:SAVE:COMMENTS

This command sets or returns the comments given to save the report in database for TP3' calibration.

Syntax`TP3PRIME:SAVE:COMMENTS <string>``TP3PRIME:SAVE:COMMENTS?`**Inputs**

<string>

Outputs

<string>

TP3PRIME:SAVE:GENERATEDBY

This command sets or returns the name of the person who generated the report in database for TP3' calibration.

Syntax`TP3PRIME:SAVE:GENERATEDBY <string>``TP3PRIME:SAVE:GENERATEDBY?`**Inputs**

<string>

Outputs

<string>

TP3PRIME:SAVE:ID

This command sets or returns the unique identifier used as key to save the report in database for TP3' calibration.

Syntax

```
TP3PRIME:SAVE:ID <string>
```

```
TP3PRIME:SAVE:ID?
```

Inputs

<string>

Outputs

<string>

TP3PRIME:WIZARD:CLOSE

This command closes the TP3' calibration wizard.

Syntax

```
TP3PRIME:WIZARD:CLOSE
```

Inputs

NA

Outputs

NA

TP3PRIME:WIZARD:OPEN

This command opens the TP3' calibration wizard.

Syntax

```
TP3PRIME:WIZARD:OPEN
```

Inputs

NA

Outputs

NA

TBT:GEN

This command gets and sets generation in TBT3/4.

Syntax

```
TBT:GEN <0 | 1 | 2 | 3>
```

```
TBT:GEN?
```

Inputs

<0|1|2|3>

0 - 10 Gbps

1 - 10.3125 Gbps

2 - 20 Gbps

3 - 20.625 Gbps

Outputs

<0 | 1 | 2 | 3>

TP3CAL:AUTOCL

This command sets the TP3 automatic calibration run status.

Syntax

TP3CAL:AUTOCL <1|0>

Inputs

<1|0>

1 - Start the TP3 automatic calibration run.

0 - Stop the TP3 automatic calibration run.

Outputs

NA

TP3CAL:CHKMANUALIL

This command enables and disables the Manual Loss check box.

Syntax

TP3CAL:CHKMANUALIL <1|0>

TP3CAL:CHKMANUALIL?

Inputs

<1|0>

1 enables the check box

0 disables the check box

Outputs

<1|0>

TP3CAL:CTLE:ACQS

This command sets and number of acquisition.

Syntax

```
TP3CAL:CTLE:ACQS <int>
```

```
TP3CAL:CTLE:ACQS?
```

Inputs

<int>

Range: 1-5

Outputs

<int>

TP3CAL:CTLE:CHKCTLE

This command enables and disables the check box for each CTLE selection.

Syntax

```
TP3CAL:CTLE:CHKCTLE <0-9> <1|0>
```

```
TP3CAL:CTLE:CHKCTLE <0-9>?
```

Inputs

<0-9> indicates the CTLE index you want to r/w.

<1/0>, 1 for enable and 0 for disable

Outputs

<1|0>

TP3CAL:CTLE:PJ@FREQ

This command enables and disables the check box for each frequency.

Syntax

```
TP3CAL:CTLE:PJ@FREQ <FREQ 1/2/10/50/100> <1|0>
```

```
TP3CAL:CTLE:PJ@FREQ <FREQ 1/2/10/50/100>?
```

Inputs

<FREQ> indicates the frequency

<1/0>, 1 for enable and 0 for disable

Outputs

<1|0>

TP3CAL:CTLE:PRESET

This command sets and returns Preset index.

Syntax

```
TP3CAL:CTLE:PRESET <int>
```

```
TP3CAL:CTLE:PRESET?
```

Inputs

<int>

0 for P0 to 15 for P15

Outputs

<int>

TP3CAL:CTLE:RUN

This command sets the CTLE calibration run status.

Syntax

```
TP3CAL:CTLE:RUN <1 | 0>
```

Inputs

<1 | 0>

1 - Start the CTLE calibration run.

0 - Stop the CTLE calibration run.

Outputs

NA

TP3CAL:CTLE:STATUS

This command returns the CTLE calibration status.

Syntax

```
TP3CAL:CTLE:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3CAL:DELETE

This command deletes the selected TP3 calibration file.

Syntax

```
TP3CAL:DELETE
```

Inputs

NA

Outputs

NA

TP3CAL:ENABLENEGDEEMBED

This enables or disables de-embedding on the negative channel.

Syntax

```
TP3CAL:ENABLENEGDEEMBED <1|0>
```

```
TP3CAL:ENABLENEGDEEMBED?
```

Inputs

<1|0>

1 enables the check box

0 disables the check box

Outputs

<1|0>

TP3CAL:ENABLEPOSDEEMBED

This enables or disables de-embedding on the positive channel

Syntax

```
TP3CAL:ENABLEPOSDEEMBED <1|0>
```

```
TP3CAL:ENABLEPOSDEEMBED?
```

Inputs

<1|0>

1 enables the check box

0 disables the check box

Outputs

<1|0>

TP3CAL:EQUIP:STATUS

This command returns the status of equipment initialization.

Syntax

```
TP3CAL:EQUIP:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3CAL:EQUIP:INIT

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

Syntax

```
TP3CAL:EQUIP:INIT <1|0>
```

Inputs

<1|0>

1 - Start the equipment initialization run.

0 - Stop the equipment initialization run.

Outputs

NA

TP3CAL:IL:ACQS

This command sets and returns # acqs.

Syntax

```
TP3CAL:IL:ACQS <int>
```

```
TP3CAL:IL:ACQS?
```

Inputs

<int>

Range: 1 - 10

Outputs

<int>

TP3CAL:IL:RUN

This command sets the IL calibration run status.

Syntax

```
TP3CAL:IL:RUN <1|0>
```

Inputs

<1|0>

1 - Start the IL calibration run.

0 - Stop the IL calibration run.

Outputs

NA

TP3CAL:IL:SCOPEACQS

This command sets and returns # scope acqs.

Syntax

```
TP3CAL:IL:SCOPEACQS <int>
```

```
TP3CAL:IL:SCOPEACQS?
```

Inputs

<int>

Outputs

<int>

TP3CAL:IL:STATUS

This command returns the IL calibration status.

Syntax

```
TP3CAL:IL:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3CAL:MANUALIL

This command sets and returns manual IL value.

Syntax

```
TP3CAL:MANUALIL <double>
```

```
TP3CAL:MANUALIL?
```

Inputs

<double>

Outputs

<double>

TP3CAL:NEGDEEMBEDFILE

This command gets and sets negative de-embed file.

Syntax

```
TP3CAL:NEGDEEMBEDFILE <string>
```

```
TP3CAL:NEGDEEMBEDFILE?
```

Inputs

<string>

Outputs

<string>

TP3CAL:OPEN

This command opens the TP3 calibration panel.

Syntax

```
TP3CAL:OPEN
```

Inputs

NA

Outputs

NA

TP3CAL:POSDEEMBEDFILE

This command gets and sets positive de-embed file.

Syntax

```
TP3CAL:POSDEEMBEDFILE <string>
```

```
TP3CAL:POSDEEMBEDFILE?
```

Inputs

<string>

Outputs

<string>

TP3CAL:REPORT

This command generates the report for the selected TP3 calibration.

Syntax

```
TP3CAL:REPORT
```

Inputs

NA

Outputs

NA

TP3CAL:SAVE

This command saves the current TP3 Calibration file to the database.

Syntax

```
TP3CAL:SAVE
```

Inputs

NA

Outputs

NA

TP3CAL:SAVE:COMMENTS

This command sets or returns the comments given to save the report in database for TP3 calibration.

Syntax

```
TP3CAL:SAVE:COMMENTS <string>
```

```
TP3CAL:SAVE:COMMENTS?
```

Inputs

<string>

Outputs

<string>

TP3CAL:SAVE:GENERATEDBY

This command sets or returns the name of the person who generated the report in database for TP3 calibration.

Syntax

```
TP3CAL:SAVE:GENERATEDBY <string>
```

```
TP3CAL:SAVE:GENERATEDBY?
```

Inputs

<string>

Outputs

<string>

TP3CAL:SAVE:ID

This command sets or returns the unique identifier used as key to save the report in database for TP3 calibration.

Syntax

```
TP3CAL:SAVE:ID <string>
```

```
TP3CAL:SAVE:ID?
```

Inputs

<string>

Outputs

<string>

TP3CAL:SELECT:TP3PRIME

This command sets or returns the TP3' file used.

Syntax

```
TP3CAL:SELECT:TP3PRIME <String>
```

```
TP3CAL:SELECT:TP3PRIME?
```

Inputs

<string>

Outputs

<string>

TP3CAL:STRESSEDEYE:ACQS

This command sets and returns stressed eye acquisition value.

Syntax

```
TP3CAL:STRESSEDEYE:ACQS <int>
```

```
TP3CAL:STRESSEDEYE:ACQS?
```

Inputs

<int>

Range: 1 - 5

Outputs

<int>

TP3CAL:STRESSEDEYE:FREQ

This command returns information for the particular frequency.

Syntax

```
TP3CAL:STRESSEDEYE:FREQ <FREQ 1/2/10/50/100>?
```

Inputs

<FREQ> indicates the frequency

Outputs

<string>

TP3CAL:STRESSEDEYE:PJ@FREQ

This command enables and disables the check box for each frequencies.

Syntax

```
TP3CAL:STRESSEDEYE:PJ@FREQ <FREQ 1/2/10/50/100> <1|0>
```

```
TP3CAL:STRESSEDEYE:PJ@FREQ <FREQ 1/2/10/50/100>?
```

Inputs

<FREQ> indicates the frequency

<1/0>, 1 for enable and 0 for disable

Outputs

<1|0>

TP3CAL:STRESSEDEYE:RUN

This command sets the Stressed Eye calibration run status.

Syntax

```
TP3CAL:STRESSEDEYE:RUN <1|0>
```

Inputs

<1|0>

1 - Start the Stressed Eye calibration run.

0 - Stop the Stressed Eye calibration run.

Outputs

NA

TP3CAL:STRESSEDEYE:STATUS

This command returns the Stressed Eye calibration status.

Syntax

```
TP3CAL:STRESSEDEYE:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

TP3CAL:STRESSEDEYE:TYPE

This command sets and returns the display type.

Syntax`TP3CAL:STRESSEDEYE:TYPE <1|0>``TP3CAL:STRESSEDEYE:TYPE?`**Inputs**

<1 | 0>

1 for Table

0 for Eye Diagram

Outputs

<1 | 0>

TP3CAL:WIZARD:CLOSE

This command closes the TP3 calibration wizard.

Syntax`TP3CAL:WIZARD:CLOSE`**Inputs**

NA

Outputs

NA

TP3CAL:WIZARD:OPEN

This command opens the TP3 calibration wizard.

Syntax`TP3CAL:WIZARD:OPEN`**Inputs**

NA

Outputs

NA

JTOLTEST:AMP:HIGH

This command reads and edits the higher amplitude for different frequencies.

Syntax

```
JTOLTEST:AMP:HIGH <FrequencyIndex 0|1|2|3|4> <double>
```

```
JTOLTEST:AMP:HIGH <FrequencyIndex 0|1|2|3|4>?
```

Inputs

<FrequencyIndex 0|1|2|3|4> corresponds to the index of the frequency in frequency settings grid.

<double> corresponds to higher amplitude value for corresponding frequency.

Outputs

<double>

JTOLTEST:AMP:LOW

This command reads and edits the lower amplitude for different frequencies.

Syntax

```
JTOLTEST:AMP:LOW <FrequencyIndex 0|1|2|3|4> <double>
```

```
JTOLTEST:AMP:LOW <FrequencyIndex 0|1|2|3|4>?
```

Inputs

<FrequencyIndex 0|1|2|3|4> corresponds to the index of the frequency in frequency settings grid.

<double> corresponds to lower amplitude value for corresponding frequency.

Outputs

<double>

JTOLTEST:CUSTOM:MASK

This command sets or returns the enable or disable status of configuring user-defined mask for the JTOL test.

Syntax

```
JTOLTEST:CUSTOM:MASK <0|1>
```

```
JTOLTEST:CUSTOM:MASK?
```

Inputs

<0|1>

0 - Indicates that custom mask is disabled.

1 - Indicates that custom mask is enabled.

Outputs

<0|1>

JTOLTEST:DELETE

This command deletes the JTOL test report for unique name mentioned.

Syntax

```
JTOLTEST:DELETE <UniqueName>
```

Inputs

<UniqueName>

Outputs

NA

JTOLTEST:DUTTYPE

This command sets and returns the DUT Type in ETT configuration.

Syntax

```
JTOLTEST:DUTTYPE <int>
```

```
JTOLTEST:DUTTYPE?
```

Inputs

<int>

0 - Router

1 - All

2 - Receptacle

Outputs

<int>

JTOLTEST:FREQ:DEFAULT

This command sets all frequencies settings to default values.

Syntax

```
JTOLTEST:FREQ:DEFAULT
```

Inputs

NA

Outputs

NA

JTOLTEST:FREQCHK

This command sets to select and unselect different frequencies in the frequency settings table.

Syntax

```
JTOLTEST:FREQCHK <FrequencyIndex 0|1|2|3|4> <0|1>
```

```
JTOLTEST:FREQCHK <FrequencyIndex 0|1|2|3|4>?
```

Inputs

<0|1>

<FrequencyIndex> corresponds to the index of the frequency in frequency settings grid.

1 - Selects the frequency

0 - Unselects the frequency

Outputs

<0|1>

JTOLTEST:LINK

This command sets and gets the link in ETT Configuration.

Syntax

```
JTOLTEST:LINK <int>
```

```
JTOLTEST:LINK?
```

Inputs

<int>

0 - Dual Lane

1 - Single Lane

Outputs

<int>

JTOLTEST:MASK:AMP

This command reads and edits the amplitude values for different frequencies.

Syntax

```
JTOLTEST:MASK:AMP <FrequencyIndex 0|1|2|3|4> <double>
```

```
JTOLTEST:MASK:AMP <FrequencyIndex 0|1|2|3|4>?
```

Inputs

<FrequencyIndex> corresponds to the index of the frequency in frequency settings grid.

<double> corresponds to amplitude value for corresponding frequency.

Outputs

<double>

JTOLTEST:OPEN

This command opens the JTOL test panel.

Syntax

```
JTOLTEST:OPEN
```

Inputs

NA

Outputs

NA

JTOLTEST:REPORT

This command generates the report for unique name mentioned.

Syntax

```
JTOLTEST:REPORT <UniqueName>
```

Inputs

<UniqueName>

Outputs

NA

JTOLTEST:RESULT

This command gets the JTOL test run results.

Syntax

```
JTOLTEST:RESULT <FREQ 1/2/10/50/100>?
```

Inputs

<FREQ 1/2/10/50/100>

Outputs

String

JTOLTEST:RESULT:DISPLAYTYPE

This command sets the chart or table view for the result.

Syntax

```
JTOLTEST:RESULT:DISPLAYTYPE <0|1>
```

Inputs

<0|1>

1 - indicates the table

0 - indicates the chart

Outputs

NA

JTOLTEST:RUN

This commands runs or cancels the JTOL test.

Syntax

```
JTOLTEST:RUN <0 | 1>
```

Inputs

<1 | 0>

0 - Stop the JTOL test run.

1 - Start the JTOL test run.

Outputs

NA

JTOLTEST:RUN:STATUS

This command returns the JTOL test run status.

Syntax

```
JTOLTEST:RUN:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

JTOLTEST:SAVE

This command saves the JTOL test report.

Syntax

```
JTOLTEST:SAVE
```

Inputs

NA

Outputs

NA

JTOLTEST:SAVE:COMMENTS

This command sets or returns the comments given to save the JTOL test report in database.

Syntax

```
JTOLTEST:SAVE:COMMENTS <string>
```

```
JTOLTEST:SAVE:COMMENTS?
```

Inputs

<string>

Outputs

<string>

JTOLTEST:SAVE:GENERATEDBY

This command sets or returns the name of the person who generated the JTOL test report in database.

Syntax

```
JTOLTEST:SAVE:GENERATEDBY <string>
```

```
JTOLTEST:SAVE:GENERATEDBY?
```

Inputs

<string>

Outputs

<string>

JTOLTEST:SAVE:ID

This command sets or returns the unique identifier used as key to save the JTOL test report in database.

Syntax

```
JTOLTEST:SAVE:ID <string>
```

```
JTOLTEST:SAVE:ID?
```

Inputs

<string>

Outputs

<string>

JTOLTEST:SWAPLANE

This command sets or gets the required swap lane for ETT tool.

Syntax

```
JTOLTEST:SWAPLANE <int>
```

JTOLTEST:SWAPLANE?

Inputs

<int>

Outputs

<int>

JTOLTEST:TESTEDLANE

This command sets or gets the lane on which the JTOL test will run in the ETT Configuration.

Syntax

JTOLTEST:TESTEDLANE <int>

JTOLTEST:TESTEDLANE?

Inputs

<int>

Outputs

<int>

JTOLTEST:WIZARD:OPEN

This command opens the JTOL test wizard.

Syntax

JTOLTEST:WIZARD:OPEN

Inputs

NA

Outputs

NA

SENSITIVITY:AMP:HIG

This command reads and edits the higher amplitude for different frequencies.

Syntax

SENSITIVITY:AMP:HIG <FrequencyIndex 0|1|2|3|4> <double>

SENSITIVITY:AMP:HIG <FrequencyIndex 0|1|2|3|4>?

Inputs

<FrequencyIndex> corresponds to the index of the frequency in frequency settings grid.

<int> corresponds to higher amplitude value for corresponding frequency.

Outputs

<double>

SENSITIVITY:AMP:LOW

This command reads and edits the lower amplitude for different frequencies.

Syntax

```
SENSITIVITY:AMP:LOW <FrequencyIndex 0|1|2|3|4> <double>
```

```
SENSITIVITY:AMP:LOW <FrequencyIndex 0|1|2|3|4>?
```

Inputs

<FrequencyIndex> corresponds to the index of the frequency in frequency settings grid.

<int> corresponds to lower amplitude value for corresponding frequency.

Outputs

<double>

SENSITIVITY:CUSTOM:MASK

This command sets or returns the enable or disable status of configuring user-defined mask for the Sensitivity test.

Syntax

```
SENSITIVITY:CUSTOM:MASK <0|1>
```

```
SENSITIVITY:CUSTOM:MASK?
```

Inputs

<0|1>

0 - Indicates that custom mask is disabled.

1 - Indicates that custom mask is enabled.

Outputs

<0|1>

SENSITIVITY:DELETE

This command deletes the Sensitivity test report for unique name mentioned.

Syntax

```
SENSITIVITY:DELETE <UniqueName>
```

Inputs

<string>

Outputs

NA

SENSITIVITY:DUTTYPE

This command sets and returns DUT Type in ETT Configuration.

Syntax

```
SENSITIVITY:DUTTYPE <int>
```

```
SENSITIVITY:DUTTYPE?
```

Inputs

<int>

Outputs

<int>

SENSITIVITY:FREQ:DEFAULT

This command sets all frequencies settings to default values.

Syntax

```
SENSITIVITY:FREQ:DEFAULT
```

Inputs

NA

Outputs

NA

SENSITIVITY:FREQCHK

This command sets to select and unselect different frequencies in the frequency settings table.

Syntax

```
SENSITIVITY:FREQCHK <FrequencyIndex 0|1|2|3|4> <0|1>
```

```
SENSITIVITY:FREQCHK <FrequencyIndex 0|1|2|3|4>?
```

Inputs

<FrequencyIndex> corresponds to the index of the frequency in frequency settings grid.

<double>

Outputs

<0|1>

SENSITIVITY:LINK

This command sets and gets the link in ETT configuration.

Syntax

```
SENSITIVITY:LINK <int>
```

SENSITIVITY:LINK?

Inputs

<int>

Outputs

<int>

SENSITIVITY:MASK:AMP

This command reads and edits the amplitude values for different frequencies.

Syntax

SENSITIVITY:MASK:AMP <FrequencyIndex 0|1|2|3|4> <double>

SENSITIVITY:MASK:AMP <FrequencyIndex 0|1|2|3|4>?

Inputs

<FrequencyIndex> corresponds to the index of the frequency in custom mask grid

<double> corresponds to amplitude value for corresponding frequency.

Outputs

<int>

SENSITIVITY:OPEN

This command opens the Sensitivity test panel.

Syntax

SENSITIVITY:OPEN

Inputs

NA

Outputs

NA

SENSITIVITY:REPORT

This command generates the report for Sensitivity test for unique name mentioned.

Syntax

SENSITIVITY:REPORT <UniqueName>

Inputs

<String>

Outputs

NA

SENSITIVITY:RESULT

This command queries the sensitivity results of a particular frequency.

Syntax

```
SENSITIVITY:RESULT <FREQ 1/2/10/50/100>?
```

Inputs

<int> Frequency

Outputs

<string>

SENSITIVITY:RESULT:DISPLAYTYPE

This command sets the chart or table view for the result.

Syntax

```
SENSITIVITY:RESULT:DISPLAYTYPE <0|1>
```

Inputs

<0|1>

1 - indicates the table

0 - indicates the chart

Outputs

<0|1>

SENSITIVITY:RUN

This commands sets the runs or cancels the Sensitivity test..

Syntax

```
SENSITIVITY:RUN <0|1>
```

Inputs

<0|1>

1 - Start the Sensitivity test run.

0 - Stop the Sensitivity test run.

Outputs

NA

SENSITIVITY:RUN:STATUS

This command returns the Sensitivity test status.

Syntax

```
SENSITIVITY:RUN:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

SENSITIVITY:SAVE

This command saves the Sensitivity test report.

Syntax

```
SENSITIVITY:SAVE
```

Inputs

NA

Outputs

NA

SENSITIVITY:SAVE:COMMENTS

This command sets or returns the comments given to save the Sensitivity test report in database.

Syntax

```
SENSITIVITY:SAVE:COMMENTS <string>
```

```
SENSITIVITY:SAVE:COMMENTS?
```

Inputs

<string>

Outputs

<string>

SENSITIVITY:SAVE:GENERATEDBY

This command sets or returns the name of the person who generated the Sensitivity test report in database.

Syntax

```
SENSITIVITY:SAVE:GENERATEDBY <string>
```

```
SENSITIVITY:SAVE:GENERATEDBY?
```

Inputs

<string>

Outputs

<string>

SENSITIVITY:SAVE:ID

This command sets or returns the unique identifier used as key to save the Sensitivity test report in database.

Syntax

```
SENSITIVITY:SAVE:ID <string>
```

```
SENSITIVITY:SAVE:ID?
```

Inputs

<string>

Outputs

<string>

SENSITIVITY:SWAPLANE

This command sets or returns the required swap lane for ETT tool.

Syntax

```
SENSITIVITY:SWAPLANE <int>
```

```
SENSITIVITY:SWAPLANE?
```

Inputs

<int>

Outputs

<int>

SENSITIVITY:TESTEDLANE

This command sets or returns the lane on which the Sensitivity test will run.

Syntax

```
SENSITIVITY:TESTEDLANE <int>
```

```
SENSITIVITY:TESTEDLANE?
```

Inputs

<int>

Outputs

<int>

SENSITIVITY:WIZARD:OPEN

This command opens the Sensitivity test wizard.

Syntax

```
SENSITIVITY:WIZARD:OPEN
```

Inputs

NA

Outputs

NA

BERTEST:DELETE

This command deletes the BER test report.

Syntax

```
BERTEST:DELETE <UniqueName>
```

Inputs

<UniqueName>

Outputs

NA

BERTEST:DUTTYPE

This command sets and returns the DUT Type in ETT Configuration.

Syntax

```
BERTEST:DUTTYPE <int>
```

```
BERTEST:DUTTYPE?
```

Inputs

<int>

Outputs

<int>

BERTEST:LINK

This command sets or returns the DUT Type in ETT Configuration.

Syntax

```
BERTEST:LINK <int>
```

```
BERTEST:LINK?
```

Inputs

<int>

Outputs

<int>

BERTEST:OPEN

This command opens the BER test panel.

Syntax

```
BERTEST:OPEN
```

Inputs

NA

Outputs

NA

BERTEST:PJ@FREQ

This command enables and disables the check box for each frequencies.

Syntax

```
BERTEST:PJ@FREQ <FREQ 1/2/10/50/100> <1|0>
```

```
BERTEST:PJ@FREQ <FREQ 1/2/10/50/100>?
```

Inputs

<FREQ> indicates the frequency

<1|0>, 1 for enable and 0 for disable

Outputs

<1|0>

BERTEST:REPORT

This command generates the report for BER test.

Syntax

```
BERTEST:REPORT <UniqueName>
```

Inputs

<UniqueName>

Outputs

NA

BERTEST:RUN

This commands sets the run status of BER test.

Syntax

```
BERTEST:RUN <1|0>
```

Inputs

<1|0>

1 - Start the BER test run.

0 - Stop the BER test run.

Outputs

<1|0>

BERTEST:SAVE:COMMENTS

This command sets or returns the comments given to save the BER test report in database.

Syntax

```
BERTEST:SAVE:COMMENTS <string>
```

```
BERTEST:SAVE:COMMENTS?
```

Inputs

<string>

Outputs

<string>

BERTEST:SAVE:GENERATEDBY

This command sets or returns the name of the person who generated the BER test report in database.

Syntax

```
BERTEST:SAVE:GENERATEDBY <string>
```

```
BERTEST:SAVE:GENERATEDBY?
```

Inputs

<string>

Outputs

<string>

BERTEST:SAVE:ID

This command sets or returns the unique identifier used as key to save the BER test report in database.

Syntax

```
BERTEST:SAVE:ID <string>
```

```
BERTEST:SAVE:ID?
```

Inputs

<string>

Outputs

<string>

BERTEST:SWAPLANE

This command sets or returns the required swap lane for ETT tool.

Syntax

```
BERTEST:SWAPLANE <int>
```

```
BERTEST:SWAPLANE?
```

Inputs

<int>

Outputs

<int>

BERTEST:TESTEDLANE

This command sets or returns the lane on which the BER test will run.

Syntax

```
BERTEST:TESTEDLANE <int>
```

```
BERTEST:TESTEDLANE?
```

Inputs

<int>

Outputs

<int>

BERTEST:WIZARD:OPEN

This command opens the BER test wizard.

Syntax

```
BERTEST:WIZARD:OPEN
```

Inputs

NA

Outputs

NA

RXTEST:BERT:DEEMPHASIS

This command gets the BERT De-emphasis for the chosen Initial Preset.

Syntax

```
RXTEST:BERT:DEEMPHASIS?
```

Inputs

NA

Outputs

Returns the de-emphasis set on the BERT for the selected preset in double.

RXTEST:BERT:PRESET

This command sets or gets the BER initial preset.

Syntax

```
RXTEST:BERT:PRESET <INDEX>
```

```
RXTEST:BERT:PRESET?
```

Inputs

<int> preset index

Outputs

<int>

RXTEST:BERT:PRESHOOT

This command gets the BERT Preshoot for the chosen Initial Preset.

Syntax

```
RXTEST:BERT:PRESHOOT?
```

Inputs

NA

Outputs

Returns the preshoot set on the BERT for the selected preset in double.

RXTEST:CALSEL:TP3

This command selects the TP3 calibration file from combobox to be used during the test.

Syntax

```
RXTEST:CALSEL:TP3 <CALNAME>
```

```
RXTEST:CALSEL:TP3?
```

Inputs

<string> Unique ID of the cal file

Outputs

<string>

RXTEST:CALSEL:TP3CALCHECK

This command selects or unselects TP3 as a test point for the receiver test.

Syntax

```
RXTEST:CALSEL:TP3CALCHECK <1|0>
```

```
RXTEST:CALSEL:TP3CALCHECK?
```

Inputs

<1|0>

1 selects the file

0 unselects the file

Outputs

<1|0>

RXTEST:CALSEL:TP3PRIME

This command selects the TP3' calibration file from combobox to be used during the test.

Syntax

```
RXTEST:CALSEL:TP3PRIME <CALNAME>
```

```
RXTEST:CALSEL:TP3PRIME?
```

Inputs

<string> Unique ID of the cal file

Outputs

<string>

RXTEST:CALSEL:TP3PRIMECALCHECK

This command selects or unselects TP3' as a test point for the receiver test.

Syntax

```
RXTEST:CALSEL:TP3PRIMECALCHECK <1|0>
```

RXTEST:CALSEL:TP3PRIMECALCHECK?

Inputs

<1 | 0>

1 selects the file

0 unselects the file

Outputs

<1 | 0>

RXTEST:CONFIGTEST:ACCM

This command gets or sets the ACCM value for particular frequency.

Syntax

RXTEST:CONFIGTEST:ACCM <FREQUENCY 1/2/10/50/100> <ACCM>

RXTEST:CONFIGTEST:ACCM <FREQUENCY 1/2/10/50/100>?

Inputs

<int> for frequency

<int> for ACCM value

Outputs

<int>

RXTEST:CONFIGTEST:AMP

This command gets or sets the amplitude value for particular frequency.

Syntax

RXTEST:CONFIGTEST:AMP <FREQUENCY 1/2/10/50/100> <AMPLITUDE>

RXTEST:CONFIGTEST:AMP <FREQUENCY 1/2/10/50/100>?

Inputs

<int> for frequency

<int> for amplitude value

Outputs

<int>

RXTEST:CONFIGTEST:PJ

This command gets or sets the PJ value for particular frequency.

Syntax

RXTEST:CONFIGTEST:PJ <FREQUENCY 1/2/10/50/100> <PJ>

RXTEST:CONFIGTEST:PJ <FREQUENCY 1/2/10/50/100>?

Inputs

<int> for frequency

<double> for PJ value

Outputs

<double>

RXTEST:CONFIGTEST:PJ@FREQ

This command selects the PJ with different frequencies.

Syntax

```
RXTEST:CONFIGTEST:PJ@FREQ <1/2/10/50/100> <1|0>
```

```
RXTEST:CONFIGTEST:PJ@FREQ <1/2/10/50/100>?
```

Inputs

<int> for frequency

<1|0> to enable/disable the selected frequency

Outputs

<1|0>

RXTEST:CONFIGTEST:RJ

This command gets or sets the RJ value for particular frequency.

Syntax

```
RXTEST:CONFIGTEST:RJ <FREQUENCY 1/2/10/50/100> <RJ>
```

```
RXTEST:CONFIGTEST:RJ <FREQUENCY 1/2/10/50/100>?
```

Inputs

<int> for frequency

<double> for RJ value

Outputs

<double>

RXTEST:CONFIGTEST:STRESSCONFIG

This command selects the particular stress configuration.

Syntax

```
RXTEST:CONFIGTEST:STRESSCONFIG <FREQUENCY 1/2/10/50/100> <0/1/2>
```

```
RXTEST:CONFIGTEST:STRESSCONFIG <FREQUENCY 1/2/10/50/100>?
```

Inputs

<int> for frequency

0 for Calibrated, 1 for Customized and 2 for Un-Calibrated

Outputs

<0|1|2>

RXTEST:CROSSTALK:AMP

This command sets or gets the crosstalk amplitude value.

Syntax

RXTEST:CROSSTALK:AMP <int>

RXTEST:CROSSTALK:AMP?

Inputs

<int> for amp, when far-end crosstalk is enabled and the source is Data 2.

Outputs

Returns int value of the amp set.

RXTEST:CROSSTALK:SOURCE

This command configures the source of far-end crosstalk.

Syntax

RXTEST:CROSSTALK:SOURCE <0/1>

RXTEST:CROSSTALK:SOURCE?

Inputs

<0 | 1>

0 checks other sources

1 checks Data 2

Outputs

<0 | 1>

RXTEST:CROSSTALK:FAREND

This command checks or unchecks the crosstalk far-end.

Syntax

RXTEST:CROSSTALK:FAREND <0 | 1>

RXTEST:CROSSTALK:FAREND?

Inputs

<0 | 1>

0 unchecks far-end

1 checks far-end

Outputs

<0 | 1>

RXTEST:CROSSTALK:NEAREND

This command checks or unchecks the crosstalk near-end.

Syntax

RXTEST:CROSSTALK:NEAREND <0 | 1>

RXTEST:CROSSTALK:NEAREND?

Inputs

<0 | 1>

0 unchecks near-end

1 checks near-end

Outputs

<0 | 1>

RXTEST:DURATION

This command gets and sets the test duration.

Syntax

RXTEST:DURATION <int>

RXTEST:DURATION?

Inputs

Range: 1 to 1000 seconds

Outputs

<int>

RXTEST:EXEPATH

This command gets or sets the directory path for the ETT executable.

Syntax

RXTEST:EXEPATH <string>

RXTEST:EXEPATH?

Inputs

<string>

Outputs

<string>

RXTEST:LOGIC

This command gets or sets the logic for the chosen BERT Measurement Pattern.

Syntax

```
RXTEST:LOGIC <INDEX>
```

```
RXTEST:LOGIC?
```

Inputs

<int>

Outputs

<int>

RXTEST:PATTERN

This command sets or gets the BER measurement pattern.

Syntax

```
RXTEST:PATTERN <INDEX>
```

```
RXTEST:PATTERN?
```

Inputs

Index of the pattern from the drop-down list in <int>.

Outputs

Index of the pattern from the drop-down list in <int>.

RXTEST:PORT

This command gets or sets the test port.

Syntax

```
RXTEST:PORT <int>
```

```
RXTEST:PORT?
```

Inputs

<int>

Outputs

<int>

RXTEST:SSC

This command checks and unchecks the SSC check box.

Syntax

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

```
RXTEST:SSC?
```

Inputs

<0|1>

0 - unchecks the SSC check box

1 - unchecks the SSC check box

Outputs

<0|1>

RXTEST:SSC:DEVIATION

This command gets the SSC configured during calibration.

Syntax

```
RXTEST:SSC:DEVIATION?
```

Inputs

NA

Outputs

<int>

RXTEST:SSC:FREQUENCY

This command sets or gets the SSC configured during calibration.

Syntax

```
RXTEST:SSC:FREQUENCY?
```

Inputs

NA

Outputs

<int>

RXTEST:TIGERLAKE

This command checks or unchecks the Tigerlake.

Syntax

```
RXTEST:TIGERLAKE <0|1>
```

`RXTEST:TIGERLAKE?`

Inputs

<0|1>

1 - checks the Tigerlake

0 - Unchecks the Tigerlake

Outputs

<0|1>

RXTEST:WIZARD:CLOSE

This command closes the Rx test wizard (common for all tests).

Syntax

`RXTEST:WIZARD:CLOSE`

Inputs

NA

Outputs

NA

SFVTTEST:CROSSTALK

This commands enables or disables near-end crosstalk.

Syntax

`SFVTTEST:CROSSTALK <1|0>`

Inputs

<1|0>

1- Enables the crosstalk.

0 - Disables the crosstalk.

Outputs

NA

SFVTTEST:DELETE

This command deletes the SFVT test report for unique name mentioned.

Syntax

`SFVTTEST:DELETE <UniqueName>`

Inputs

<UniqueName>

Outputs

NA

SFVTTEST:DUTTYPE

This command sets and returns the DUT type in ETT configuration.

Syntax

```
SFVTTEST:DUTTYPE <int>
```

```
SFVTTEST:DUTTYPE?
```

Inputs

<int>

Outputs

<int>

SFVTTEST:ITERATIONS

This commands sets or gets for which the test has to be done.

Syntax

```
SFVTTEST:ITERATIONS <int>
```

```
SFVTTEST:ITERATIONS?
```

Inputs

<int>

Outputs

<int>

SFVTTEST:LINK

This command sets and gets the link number in ETT Configuration.

Syntax

```
SFVTTEST:LINK <int>
```

```
SFVTTEST:LINK?
```

Inputs

<int>

Outputs

<int>

SFVTTEST:OPEN

This command opens the SFVT test panel.

Syntax

```
SFVTTEST:OPEN
```

Inputs

NA

Outputs

NA

SFVTTEST:REPORT

This command generates the report for unique name mentioned.

Syntax

```
SFVTTEST:REPORT <UniqueName>
```

Inputs

<UniqueName>

Outputs

NA

SFVTTEST:RUN

This commands runs or cancels the SFVT test.

Syntax

```
SFVTTEST:RUN <0 | 1>
```

Inputs

<1 | 0>

0 - Stop the SFVT test run.

1 - Start the SFVT test run.

Outputs

NA

SFVTTEST:RUN:STATUS

This command returns the SFVT test run status.

Syntax

```
SFVTTEST:RUN:STATUS?
```

Inputs

NA

Outputs

{InProgress | Done}

SFVTTEST:SAVE

This command saves the SFVT test report.

Syntax`SFVTTEST:SAVE`**Inputs**

NA

Outputs

NA

SFVTTEST:SAVE:COMMENTS

This command sets or returns the comments given to save the SFVT test report in database.

Syntax`SFVTTEST:SAVE:COMMENTS <string>``SFVTTEST:SAVE:COMMENTS?`**Inputs**

<string>

Outputs

<string>

SFVTTEST:SAVE:GENERATEDBY

This command sets or returns the name of the person who generated the SFVT test report in database.

Syntax`SFVTTEST:SAVE:GENERATEDBY <string>``SFVTTEST:SAVE:GENERATEDBY?`**Inputs**

<string>

Outputs

<string>

SFVTTEST:SAVE:ID

This command sets or returns the unique identifier used as key to save the SFVT test report in database.

Syntax

```
SFVTTEST:SAVE:ID <string>
```

```
SFVTTEST:SAVE:ID?
```

Inputs

<string>

Outputs

<string>

SFVTTEST:SWAPLANE

This command sets or gets the required swap lane for ETT tool.

Syntax

```
SFVTTEST:SWAPLANE <int>
```

```
SFVTTEST:SWAPLANE?
```

Inputs

<int>

Outputs

<int>

SFVTTEST:TESTEDLANE

This command sets or gets the lane on which the SFVT test will run.

Syntax

```
TEST:TESTEDLANE <int>
```

```
TEST:TESTEDLANE?
```

Inputs

<int>

Outputs

<int>

SFVTTEST:WIZARD:OPEN

This command opens the SFVT test wizard.

Syntax

```
SFVTTEST:WIZARD:OPEN
```

Inputs

NA

Outputs

NA

SFV:CALSEL:TP3 <CALNAME>

This command selects the TP3 calibration file from Combobox.

Syntax

```
SFV:CALSEL:TP3 <CALNAME>
```

Inputs

<string>

Outputs

<string>

SFV:CALSEL:TP3CALCHECK <0/1>

This command selects TP3 calibration file for the SFVC.

Syntax

```
SFV:CALSEL:TP3CALCHECK <0/1>
```

Inputs

<string>

Outputs

<string>

SFV:CALSEL:TP3PRIME <CALNAME>

This command selects the TP3' calibration file from Combobox.

Syntax

```
SFV:CALSEL:TP3PRIME <CALNAME>
```

Inputs

<string>

Outputs

<string>

SFV:CALSEL:TP3PRIMECALCHECK <0/1>

This command selects TP3' calibration file for the SFVC.

Syntax

```
SFV:CALSEL:TP3PRIMECALCHECK <0/1>
```

Inputs

<string>

Outputs

<string>

SFV:OPEN

This command opens the SFV Test panel.

Syntax

```
SFV:OPEN
```

Inputs

NA

Outputs

NA

SFV:REPORT

This command opens the SFVC Report.

Syntax

```
SFV:REPORT
```

Inputs

NA

Outputs

NA

SFV:RUN <1/0>

This command Runs/Cancel the SFV Calibration based on the input.

Syntax

```
SFV:RUN <1/0>
```

Inputs

<string>

Outputs

<string>

SFV:RUN:STATUS

This command gets the SFV calibration run status.

Syntax

```
SFV:RUN:STATUS
```

Inputs

<string>

Outputs

<string>

SFV:SAVE:COMMENTS [string]

This command Gets/Sets the COMMENTS field for SFVC.

Syntax

```
SFV:SAVE:COMMENTS [string]
```

Inputs

<string>

Outputs

<string>

SFV:SAVE:GeneratedBy [string]

This command Gets/Sets the Generated By field for SFVC.

Syntax

```
SFV:SAVE:GeneratedBy [string]
```

Inputs

<string>

Outputs

<string>

SFV:SAVE:ID [string]

This command Gets/Sets the Save ID for SFVC.

Syntax

```
SFV:SAVE:ID [string]
```

Inputs

<string>

Outputs

<string>

SFV:Save:Status

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

Syntax

SFV:Save:Status

Inputs

NA

Outputs

<string>

SFV:WIZARD:CLOSE

This command closes the SFV calibration Wizard.

Syntax

SFV:WIZARD:CLOSE

Inputs

NA

Outputs

NA

TBT_SFV:DELETE

This command delete the selected SFV Calibration for TBT.

Syntax

TBT_SFV:DELETE

Inputs

NA

Outputs

NA

TBT_SFV:SAVE

This command saves the SFV Calibration for TBT.

Syntax

TBT_SFV:SAVE

Inputs

<string>

Outputs

<string>

TBT_SFV:WIZARD:OPEN

This command opens the SFV calibration Wizard for TBT.

Syntax`TBT_SFV:WIZARD:OPEN`**Inputs**

NA

Outputs

NA

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