

# PCIe6.0 (Base) Receiver Test Application Help

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Worldwide, visit [www.tek.com](https://www.tek.com) to find contacts in your area.

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# Contents

|                                        |           |
|----------------------------------------|-----------|
| <b>Welcome</b>                         | <b>8</b>  |
| <b>Getting help and support</b>        | <b>10</b> |
| Related documentation                  | 10        |
| Technical support                      | 10        |
| <b>Getting started</b>                 | <b>11</b> |
| Required equipment and accessories     | 11        |
| Installing the software                | 12        |
| <b>Operating basics</b>                | <b>14</b> |
| Launch the application                 | 14        |
| Close the application                  | 14        |
| Launch Real-Time Oscilloscope          | 15        |
| Launch TekRxService                    | 15        |
| Application panels                     | 16        |
| Application panels overview            | 16        |
| Connections panel                      | 17        |
| Settings panel                         | 18        |
| Help panel                             | 31        |
| Calibrations panel                     | 31        |
| Tests panel                            | 54        |
| <b>Programmatic interface commands</b> | <b>68</b> |
| TEKRXTEST:SELECT:HOME                  | 68        |
| TEKRXTEST:SELECT:PCle6Base             | 68        |
| PREF:BERT:IP                           | 68        |
| PREF:RTS:IP                            | 69        |
| CONN:BERT                              | 69        |
| CONN:RTS                               | 69        |
| SETTINGS:TEKRXSERVICE:ANALYSISTIMEOUT  | 70        |
| SETTINGS:SIGTEST:VERSION               | 70        |
| SETTINGS:MULTITONESJCAL:ENABLE         | 70        |
| SETTINGS:SOCKETSERVER:IP               | 70        |
| SETTINGS:SOCKETSERVER:LISTENINGPORT    | 71        |
| SETTINGS:SOCKETSERVER:TIMEOUT          | 71        |
| SETTINGS:MULTITONESJCAL:FREQUENCYCOUNT | 71        |
| SETTINGS:MULTITONESJCAL:MAXFREQUENCY   | 72        |
| SETTINGS:MULTITONESJCAL:MINFREQUENCY   | 72        |
| SETTINGS:MULTITONESJCAL:POINTS         | 72        |
| SETTINGS:EYE:ACQUISITIONS              | 72        |
| SETTINGS:TP1:CH1DEEMBEDFILE            | 73        |

|                                             |    |
|---------------------------------------------|----|
| SETTINGS:TP1:CH2DEEMBEDFILE. ....           | 73 |
| SETTINGS:TP1:ENABLECH1DEEMBED. ....         | 73 |
| SETTINGS:TP1:ENABLECH2DEEMBED. ....         | 74 |
| SETTINGS:TP2:CH1DEEMBEDFILE. ....           | 74 |
| SETTINGS:TP2:CH2DEEMBEDFILE. ....           | 74 |
| SETTINGS:TP2:ENABLECH1DEEMBED. ....         | 75 |
| SETTINGS:TP2:ENABLECH2DEEMBED. ....         | 75 |
| SETTINGS:MULTITONESJCAL:DEFAULT. ....       | 75 |
| SETTINGS:MULTITONESJCAL:GENERATE. ....      | 76 |
| SETTINGS:TP1:CH1:EXTERNALATTEN. ....        | 76 |
| SETTINGS:TP1:CH2:EXTERNALATTEN. ....        | 76 |
| SETTINGS:TP2:CH1:EXTERNALATTEN. ....        | 76 |
| SETTINGS:TP2:CH2:EXTERNALATTEN. ....        | 77 |
| SETTINGS:TP2:ENBLEREPLICACHDEMBED. ....     | 77 |
| SETTINGS:TP2:REPLICACHDEEMBEDDIFF. ....     | 77 |
| SETTINGS:TP2:REPLICACHDEEMBEDCH1. ....      | 78 |
| SETTINGS:TP2:REPLICACHDEEMBEDCH2. ....      | 78 |
| SETTINGS:TP2:REPLICACHDEEMBEDFILETYPE. .... | 78 |
| SETTINGS:RESTORE. ....                      | 79 |
| SETTINGS:RECALL. ....                       | 79 |
| SETTINGS:SAVE. ....                         | 79 |
| SETTINGS:RECALL:STATUS. ....                | 79 |
| SETTINGS:RESTORE:STATUS. ....               | 80 |
| SETTINGS:SAVE:STATUS. ....                  | 80 |
| TP1CAL:OPEN. ....                           | 80 |
| TP1CAL:WIZARD:OPEN. ....                    | 81 |
| TP1CAL:WIZARD:CLOSE. ....                   | 81 |
| TP1CAL:DELETE. ....                         | 81 |
| TP1CAL:REPORT. ....                         | 81 |
| TP1CAL:SAVE. ....                           | 82 |
| TP1CAL:EQUIP:INIT. ....                     | 82 |
| TP1CAL:EQUIP:SKIPSIGNALVALIDATION. ....     | 82 |
| TP1CAL:AUTOCAL. ....                        | 83 |
| TP1CAL:AMPLITUDE:RUN. ....                  | 83 |
| TP1CAL:PRESET:RUN. ....                     | 83 |
| TP1CAL:RJ:RUN. ....                         | 84 |
| TP1CAL:SJ:RUN. ....                         | 84 |
| TP1CAL:MULTITONESJCAL:STATUS. ....          | 84 |
| TP1CAL:PWJCAL:MODE. ....                    | 85 |
| TP1CAL:PWJCAL:DJ. ....                      | 85 |
| TP1CAL:PWJCAL:RJ. ....                      | 85 |
| TP1CAL:PWJCAL:STATUS. ....                  | 85 |
| TP1CAL:PWJCAL:START. ....                   | 86 |
| TP1CAL:EQUIP:STATUS. ....                   | 86 |
| TP1CAL:AMPLITUDE:STATUS. ....               | 86 |
| TP1CAL:PRESET:STATUS. ....                  | 87 |

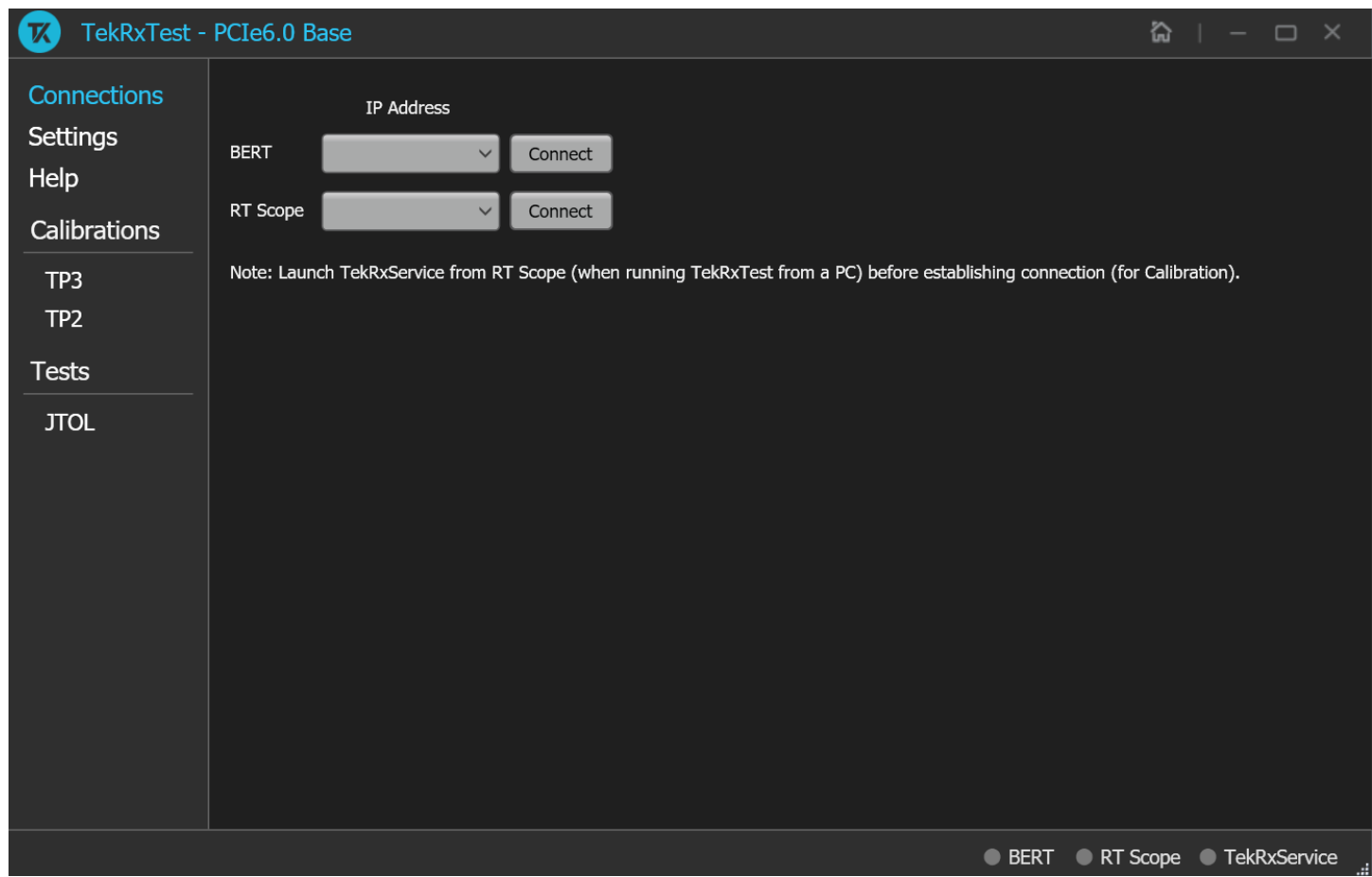
|                                            |     |
|--------------------------------------------|-----|
| TP1CAL:RJ:STATUS. . . . .                  | 87  |
| TP1CAL:SJ:STATUS. . . . .                  | 87  |
| TP1CAL:MULTITONESJCAL:RUN. . . . .         | 87  |
| TP1CAL:AMPLITUDE:SETTING. . . . .          | 88  |
| TP1CAL:SEASIMACQ:MODE. . . . .             | 88  |
| TP1CAL:RJ:SETTING. . . . .                 | 88  |
| TP1CAL:SJ:SETTING. . . . .                 | 89  |
| TP1CAL:SAVE:ID. . . . .                    | 89  |
| TP1CAL:SAVE:GENERATEDBY. . . . .           | 89  |
| TP1CAL:SAVE:COMMENTS. . . . .              | 89  |
| TP1CAL:ACDC:RUN. . . . .                   | 90  |
| TP1CAL:ACDC:STATUS. . . . .                | 90  |
| TP1CAL:ACDC:SETTING. . . . .               | 90  |
| TP1CAL:SJ@210MHZ:RUN. . . . .              | 91  |
| TP1CAL:SJ@210MHZ:STATUS. . . . .           | 91  |
| TP1CAL:IL:MODE. . . . .                    | 91  |
| TP1CAL:MANUAL:IL. . . . .                  | 92  |
| TP1CAL:IL:SCOPEACQS. . . . .               | 92  |
| TP1CAL:IL:AVGS. . . . .                    | 92  |
| TP1CAL:SCOPENOISE. . . . .                 | 92  |
| TP1CAL:MEASURELOSS:START. . . . .          | 93  |
| TP1CAL:MEASURELOSS:STATUS. . . . .         | 93  |
| TP2CAL:OPEN. . . . .                       | 93  |
| TP2CAL:WIZARD:OPEN. . . . .                | 94  |
| TP2CAL:WIZARD:CLOSE. . . . .               | 94  |
| TP2CAL:DUT:TYPE. . . . .                   | 94  |
| TP2CAL:SELECT:TP1. . . . .                 | 94  |
| TP2CAL:DELETE. . . . .                     | 95  |
| TP2CAL:REPORT. . . . .                     | 95  |
| TP2CAL:SAVE. . . . .                       | 95  |
| TP2CAL:SEASIMACQ:MODE. . . . .             | 96  |
| TP2CAL:EQUIP:INIT. . . . .                 | 96  |
| TP2CAL:EQUIP:SKIPSIGNALVALIDATION. . . . . | 96  |
| TP2CAL:CMI:RUN. . . . .                    | 97  |
| TP2CAL:ILMEAS:RUN. . . . .                 | 97  |
| TP2CAL:CTLEANDPRESET:RUN. . . . .          | 97  |
| TP2CAL:STRESSEDEYE:RUN. . . . .            | 98  |
| TP2CAL:EQUIP:STATUS. . . . .               | 98  |
| TP2CAL:CMI:STATUS. . . . .                 | 98  |
| TP2CAL:ILMEAS:STATUS. . . . .              | 98  |
| TP2CAL:CTLEANDPRESET:STATUS. . . . .       | 99  |
| TP2CAL:STRESSEDEYE:STATUS. . . . .         | 99  |
| TP2CAL:DMI:SETTING. . . . .                | 99  |
| TP2CAL:CMI:SETTING. . . . .                | 100 |
| TP2CAL:SAVE:ID. . . . .                    | 100 |
| TP2CAL:SAVE:GENERATEDBY. . . . .           | 100 |

|                                             |     |
|---------------------------------------------|-----|
| TP2CAL:SAVE:COMMENTS. . . . .               | 100 |
| TP2CAL:ILMEASFORDMI:RUN. . . . .            | 101 |
| TP2CAL:ILMEASFORDMI:STATUS. . . . .         | 101 |
| TP2CAL:STRESSEDEYE:ACQUISITIONS. . . . .    | 101 |
| TP2CAL:DMI:RUN. . . . .                     | 102 |
| TP2CAL:DMI:STATUS. . . . .                  | 102 |
| TP2CAL:CTLEANDPRESET:ACQUISITIONS. . . . .  | 102 |
| TP2CAL:CTLE:ESTIMATOR. . . . .              | 103 |
| TP2CAL:SEASIMCTLE:GEN6. . . . .             | 103 |
| TP2CAL:STRESSEDEYE:. . . . .                | 103 |
| TP2CAL:STRESSEDEYE:DMI. . . . .             | 103 |
| TP2CAL:STRESSEDEYE:AMPLITUDE. . . . .       | 104 |
| TP2CAL:STRESSEDEYE:MANUALCALRUN. . . . .    | 104 |
| TP2CAL:IL:MODE. . . . .                     | 104 |
| TP2CAL:MANUAL:IL. . . . .                   | 105 |
| TP2CAL:IL:SCOPEACQS. . . . .                | 105 |
| TP2CAL:IL:AVGS. . . . .                     | 105 |
| TP2CAL:CTLEANDPRESET:SNDR. . . . .          | 106 |
| TP2CAL:CTLEANDPRESET:CHKPRESET. . . . .     | 106 |
| TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP. . . . . | 106 |
| TP2CAL:STRESSEDEYE:LINEARSWEEP. . . . .     | 107 |
| TP2CAL:STRESSEDEYE:EXHAUSTIVE. . . . .      | 107 |
| TP2CAL:STRESSEDEYE:STEPSize. . . . .        | 108 |
| LOOPBACK:SELECT:PRESETSPRESHOOT. . . . .    | 108 |
| LOOPBACK:SELECT:PRESETSDEEMPHASIS. . . . .  | 109 |
| LOOPBACK:SELECT:BERTCTLEMODE. . . . .       | 109 |
| LOOPBACK:SELECT:BERTCTLETYPE. . . . .       | 109 |
| LOOPBACK:SELECT:AUTOSEARCHMODE. . . . .     | 110 |
| LOOPBACK:SELECT:BERTCTLEVALUE. . . . .      | 110 |
| TEST:SELECT:TESTDURATION. . . . .           | 110 |
| TEST:SELECT:STRESSCONFIGTYPE. . . . .       | 111 |
| TEST:SELECT:DMI. . . . .                    | 111 |
| TEST:SELECT:CMI. . . . .                    | 111 |
| TEST:SELECT:RJ. . . . .                     | 112 |
| TEST:SELECT:SJ. . . . .                     | 112 |
| TEST:SELECT:BER. . . . .                    | 112 |
| TEST:SELECT:ERRORLIMIT. . . . .             | 112 |
| JTOLTEST:OPEN. . . . .                      | 113 |
| JTOLTEST:WIZARD:OPEN. . . . .               | 113 |
| JTOLTEST:WIZARD:CLOSE. . . . .              | 113 |
| JTOLTEST:SELECT:TP2FILE. . . . .            | 114 |
| JTOLTEST:SELECT:CUSTOM:MASK. . . . .        | 114 |
| JTOLTEST:LOADSTRESS. . . . .                | 114 |
| JTOLTEST:MIN:FREQ. . . . .                  | 115 |
| JTOLTEST:MAX:FREQ. . . . .                  | 115 |
| JTOLTEST:FREQ:POINTS. . . . .               | 115 |

|                                       |     |
|---------------------------------------|-----|
| JTOLTEST:FREQ:GENERATE. ....          | 115 |
| JTOLTEST:FREQ:DEFAULT. ....           | 116 |
| JTOLTEST:SELECT:RELAXATION. ....      | 116 |
| JTOLTEST:SEARCH:ALGO. ....            | 116 |
| JTOLTEST:RUN. ....                    | 117 |
| JTOL:REPORT. ....                     | 117 |
| JTOLTEST:SAVE:ID. ....                | 117 |
| JTOLTEST:SAVE:GENERATEDBY. ....       | 118 |
| JTOLTEST:SAVE:COMMENTS. ....          | 118 |
| JTOLTEST:SAVE. ....                   | 118 |
| JTOLTEST:RUNSTATUS. ....              | 118 |
| JTOLTEST:FREQ. ....                   | 119 |
| JTOLTEST:PLOT:POINTS. ....            | 119 |
| JTOLTEST:SELECT:SJAMPUNITS. ....      | 119 |
| JTOLTEST:SELECT:CLOCKTYPE. ....       | 120 |
| JTOLTEST:PLOT. ....                   | 120 |
| JTOLTEST:TABLE. ....                  | 120 |
| JTOLTEST:SELECT:DUTTYPE. ....         | 120 |
| JTOLTEST:JITTERSTEP:HIGHFREQ. ....    | 121 |
| JTOLTEST:JITTERSTEP:LOWFREQ. ....     | 121 |
| JTOLTEST:JITTERSTEP:MIDDLEFREQ. ....  | 121 |
| JTOLTEST:JITTERSTEP:VERYLOWFREQ. .... | 122 |
| LOOPBACK:SELECT:PATTERN TYPE. ....    | 122 |
| LOOPBACK:SELECT:AUTOSEARCH. ....      | 123 |
| LOOPBACK:SELECT:AUTOSEARCHMODE. ....  | 123 |
| LOOPBACK:AUTOSEARCH:TYPE. ....        | 123 |
| LOOPBACK:AAS:DELAYSEARCHTYPE. ....    | 124 |
| LOOPBACK:AAS:EYETHRESHOLDTYPE. ....   | 124 |
| LOOPBACK:SELECT:DFE. ....             | 124 |
| LOOPBACK:SELECT:DFEVALUE. ....        | 125 |
| LOOPBACK:SELECT:LFE. ....             | 125 |
| LOOPBACK:SELECT:LFEVALUE. ....        | 126 |
| LOOPBACK:SELECT:LFEDFEMODE. ....      | 126 |
| LOOPBACK:SELECT:GEN6PRESETNAME. ....  | 126 |
| LOOPBACK:SELECT:PRESHOOT2. ....       | 127 |
| LOOPBACK:SELECT:PRESHOOT1. ....       | 127 |
| LOOPBACK:SELECT:DEEMPHASIS. ....      | 127 |

# Welcome

Welcome to the PCIe6.0 (Base) TekRxTest application. This application performs the test as per the PCI Express Base Specification Revision 6.2.



Connections panel



## Key features and benefits

- Automated Calibration, Link Training, and Compliance Testing.
- Receiver JTOL test for AIC / System DUT.
- 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 PCIe Gen6.0 devices.
- Reliable and accurate results reduce the test execution time and minimize the skill-set required to perform calibration and testing.

---

# Getting help and support

## Related documentation

The following documentation is available as part of the PCIe6.0 (Base) test application.

### Product documentation

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

### See also

[Technical support](#) (on page 10)

## 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 on page 0 at the front of this document for contact information.

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

| Item                       | Vendor    | Type                            | R/O      | Qty | Description                                                         | Notes                                                     |
|----------------------------|-----------|---------------------------------|----------|-----|---------------------------------------------------------------------|-----------------------------------------------------------|
| DPS75004SX                 | Tektronix | Equipment                       | Required | 1   | Dual-Stack 50 GHz Sx oscilloscope                                   | 50 GHz or better                                          |
| DPO7RFK2                   | Tektronix | Tek accessory                   | Required | 2   | Attenuator kit                                                      | Attenuator kit + DC blocks                                |
| 103047400                  | Tektronix | Tek accessory                   | Required | 2   | Connector savers (1.85 mm)                                          | 1.85 mm oscilloscope channel input connection             |
| Anritsu MP1900A*           | Anritsu   | 3 <sup>rd</sup> party equipment | Required | 1   | Bit Error Rate Tester (BERT)                                        | Configuration provided by 3 <sup>rd</sup> party           |
| DJA                        | Tektronix | Equipment SW option             | Required | 1   | DPOJET advanced option                                              | DPOJET advanced Jitter, Eye and Timing Analysis SW option |
| PAMJET-E                   | Tektronix | Equipment SW option             | Required | 1   | PAM4 tool                                                           | PCIe Gen6 PAM4 measurement                                |
| PAMJET PCIe Option         | Tektronix | Equipment SW option             | Required | 1   | PAMJET PCIe Option                                                  |                                                           |
| PMCABLE1M                  | Tektronix | Tek accessory                   | Required | 2   | Cable pair; 2.92-to-2.92 mm, Straight, 1.5 ps phase-matched, 40 GHz | Equipment connections to fixtures and DUT                 |
| 174-6659-01                | Tektronix | Tek accessory                   | Required | 1   | Cable pair; SMA - SMP cable pair                                    | Refclk connection between DUT and BERT                    |
| C7035                      | CentricRF | 3 <sup>rd</sup> party           | Optional | 4   | Right Angle Male-Female 2.92 mm adapter                             | Cable management                                          |
| Gen6 Base Test Fixture Set | PCI-SIG   | Test fixtures                   | Required | 1   | Gen 6 Base Rev3 Test Fixtures**                                     | Rev3 is Meg6 material with MMPX connectors***             |

| Item             | Vendor    | Type      | R/O      | Qty | Description                 | Notes                                                                                                         |
|------------------|-----------|-----------|----------|-----|-----------------------------|---------------------------------------------------------------------------------------------------------------|
| RXSW-FL1-PCIE6   | Tektronix | SW option | Required | 1   | PCIe Gen6 Receiver Software | PCI Gen 6 Rx BASE automation software for TEK oscilloscopes and Anritsu BERT; Floating 1-Year Subscription OR |
| RXSW-FLP-PCIE6BC |           |           |          |     |                             | PCI Gen 6 Rx BASE and CEM automation software - Floating; Permanent                                           |
| RXSW-NL1-PCIE6   |           |           |          |     |                             | Node-Locked 1-Year Subscription OR                                                                            |
| RXSW-NLP-PCIE6BC |           |           |          |     |                             | PCI Gen 6 Rx BASE and CEM automation software - Node-Locked; Permanent                                        |

- \*

Configuration for BERT provided by third party vendor
- \*\*

Gen5 BaseTest Fixtures are not backward compatible for Gen3 & Gen4 Base Rx
- \*\*\*

It is assumed MMPX cables and MMPX to SMA adaptor cables for test fixture connections are included with the fixture kit

## Installing the software

Complete the following steps to download and install the latest PCIe6.0 (Base) TekRx test application.

1. Go to [www.tek.com](http://www.tek.com).
2. Click **Support**. In the Support menu, select Software Downloads and enter **PCIe6.0 (Base) Rx** in the MODEL OR KEYWORD field and click **SEARCH**.

## Datasheets, Manuals, and Software Downloads

While we're happy to "talk tech" with you all day long, we know you're in a hurry.

So we've made it easy for you to download product manuals, datasheets and downloadable software which includes firmware, drivers, etc. for all our current products, and many discontinued products as well. Just tell us which product you're using, and we'll provide you with list of latest documents and resources that you can download.

Enter Model:

PCIe6.0 (Base) Rx

Search by Product Category (optional)

SEARCH

3. Select the latest version of the software and follow the instructions to download.
4. Copy the executable file into the instrument you wish to install the software (Real-time oscilloscope or PC).
5. Follow the installation instruction that is available in the website. The software is installed at `C:\Program Files\Tektronix\BERTScope\RxTest60`
6. Double click the shortcut icon on the desktop to launch the application.
  - The PCIe6.0 (Base) TekRx test application can be installed on a Tektronix real-time oscilloscope or a PC (optional).
  - You must install the TekRxService and SigTest application in the real-time oscilloscope to successfully connect the application with the real-time oscilloscope.

# Operating basics

## Launch the application

To launch the test application, double click the shortcut icon **TekRxTest** on the desktop and select PCIe6.0 (Base) in the application window.



TekRxTest 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.

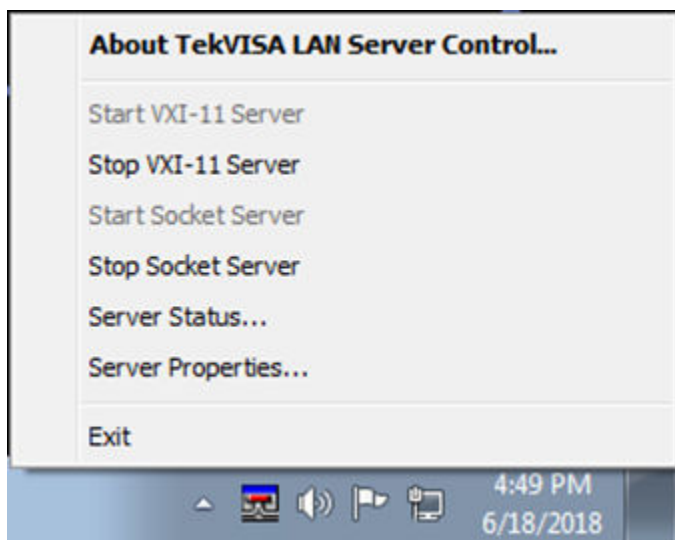
---

**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.

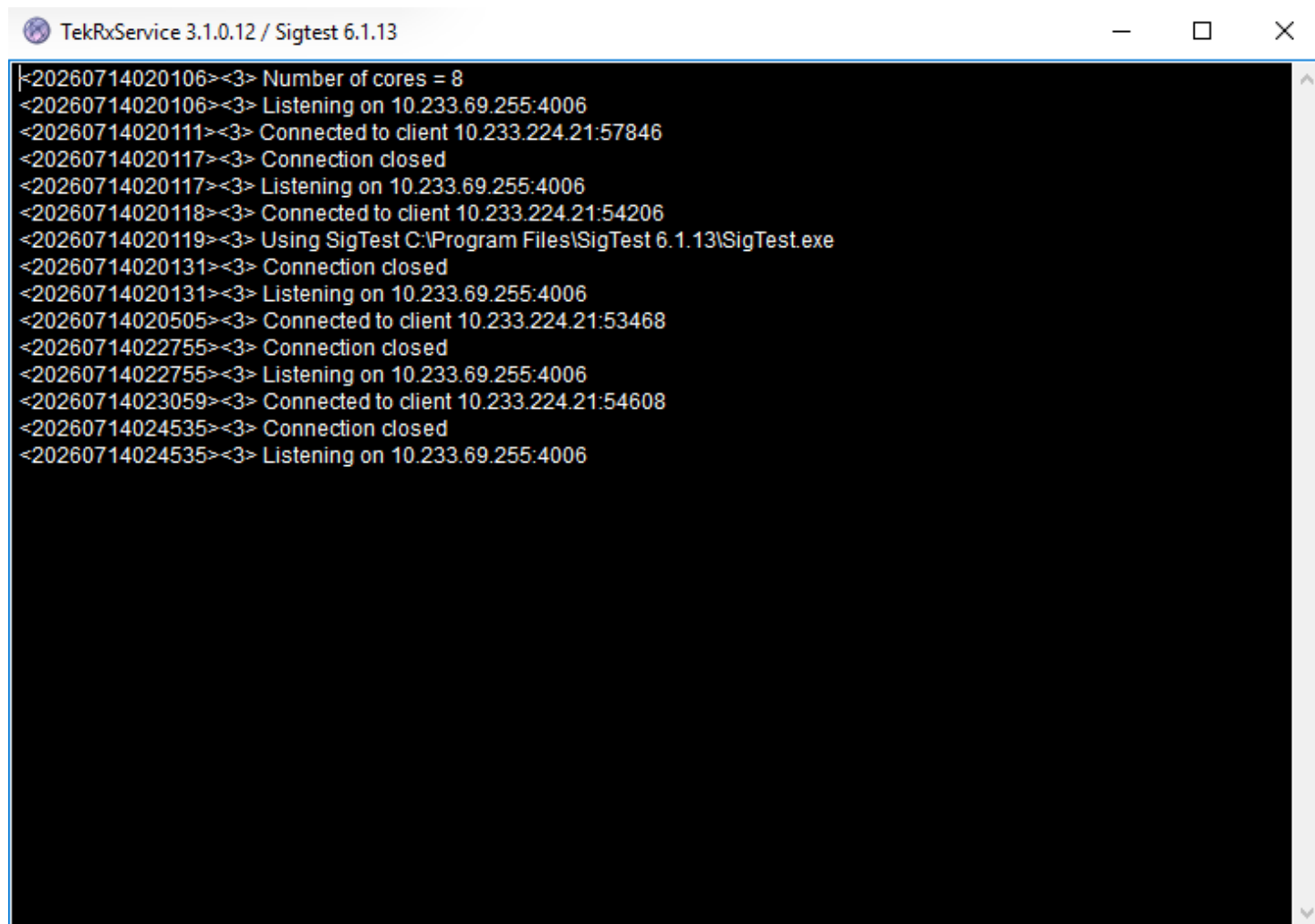


Launch Real-Time Oscilloscope

**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 PCIe6.0 (Base) TekRxTest application interfaces with the oscilloscope for data acquisition, analysis and data retrieval utilizing TekRxService application. This software module should be launched at the time of initiating the TekRxTest application.



TekRxService application window

**NOTE:** TekRxService has to be launched if the application is being run on an external PC. To launch the application, double click the TekRxService batch file shortcut icon in the desktop of the real-time oscilloscope.

# Application panels

## Application panels overview

The PCIe6.0 (Base) TekRxTest 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.

### Application panels overview

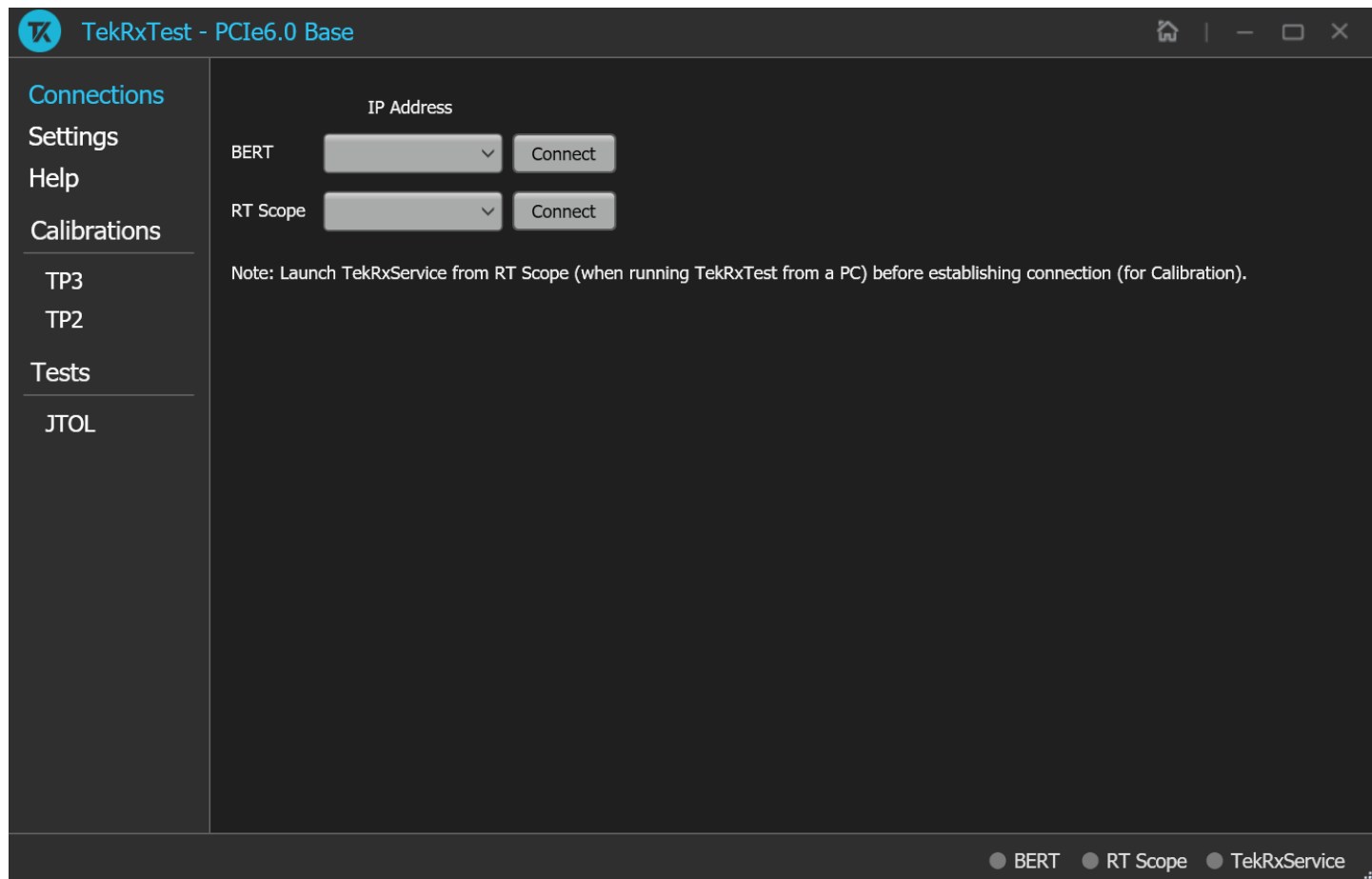
| Parameter   | Description                                                                                                                                                                      |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Connections | This panel displays the real-time oscilloscope and 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 Components, TP3 and TP2 Calibration.                                                                                      |
| Help        | This panel displays the application help.                                                                                                                                        |



| Parameter    | Description                                                                                     |
|--------------|-------------------------------------------------------------------------------------------------|
| Calibrations | This panel allows you to configure the calibration parameters for TP3/TP2 and save the results. |
| Tests        | This panel allows you to configure the test settings and view the results.                      |

## Connections panel

The connections panel allows you to connect to a real-time oscilloscope and BERT with the PCIe6.0 (Base) TekRxTest application. Enter the IP address of the instruments and click **Connect** to establish the connection.



Connections panel

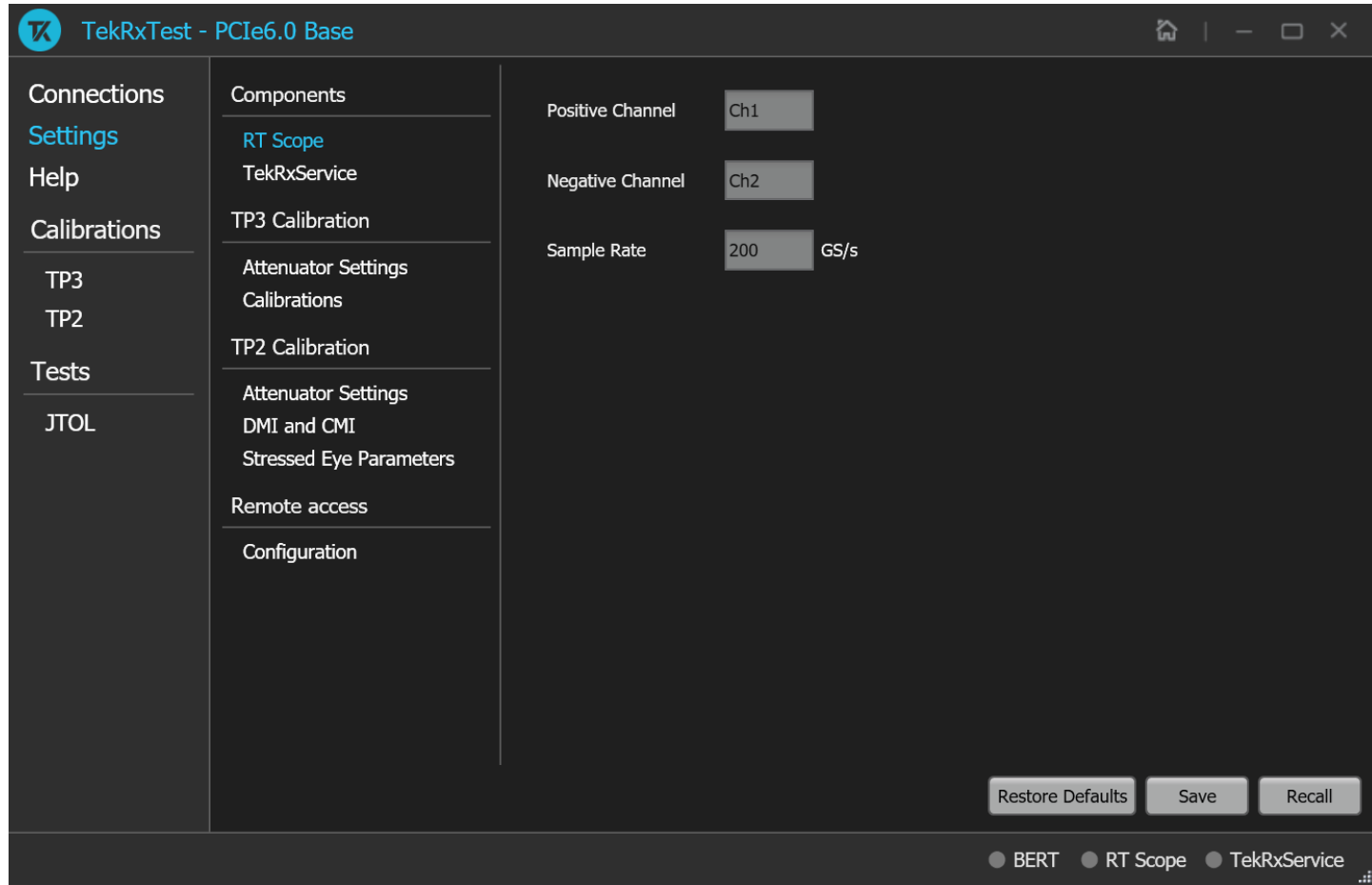
### Connections panel

| Connections | Description                                                                                                                                                                            |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BERT        | Enter the BERT IP address in the address field and click <b>Connect</b> . When the BERT is connected successfully, the circle next to <b>BERT</b> in the right end corner turns green. |

| Connections | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RT Scope    | <p>Enter the RT Scope IP address in the address field and click <b>Connect</b>. When the RT Scope is connected successfully, the circle next to <b>RT Scope</b> and TekRxService in the right end corner turns green.</p> <p>Once the RT Scope connection is established, the application automatically identifies oscilloscope model. Consequently, the 'Connection Diagram' wizard will display setup figure with DPO70000SX/DX Oscilloscope or with DPO714AX Oscilloscope for TP1/TP2/LEQ Tx tests.</p> <hr/> <p><b>NOTE:</b> Before you click Connect, if the TekRxTest application is running on an external PC, make sure to launch the TekRxService in the real-time oscilloscope.</p> |

## Settings panel

This panel allows you to configure the settings for instruments, calibrations, and remote access. Click any tab to configure the associated settings.



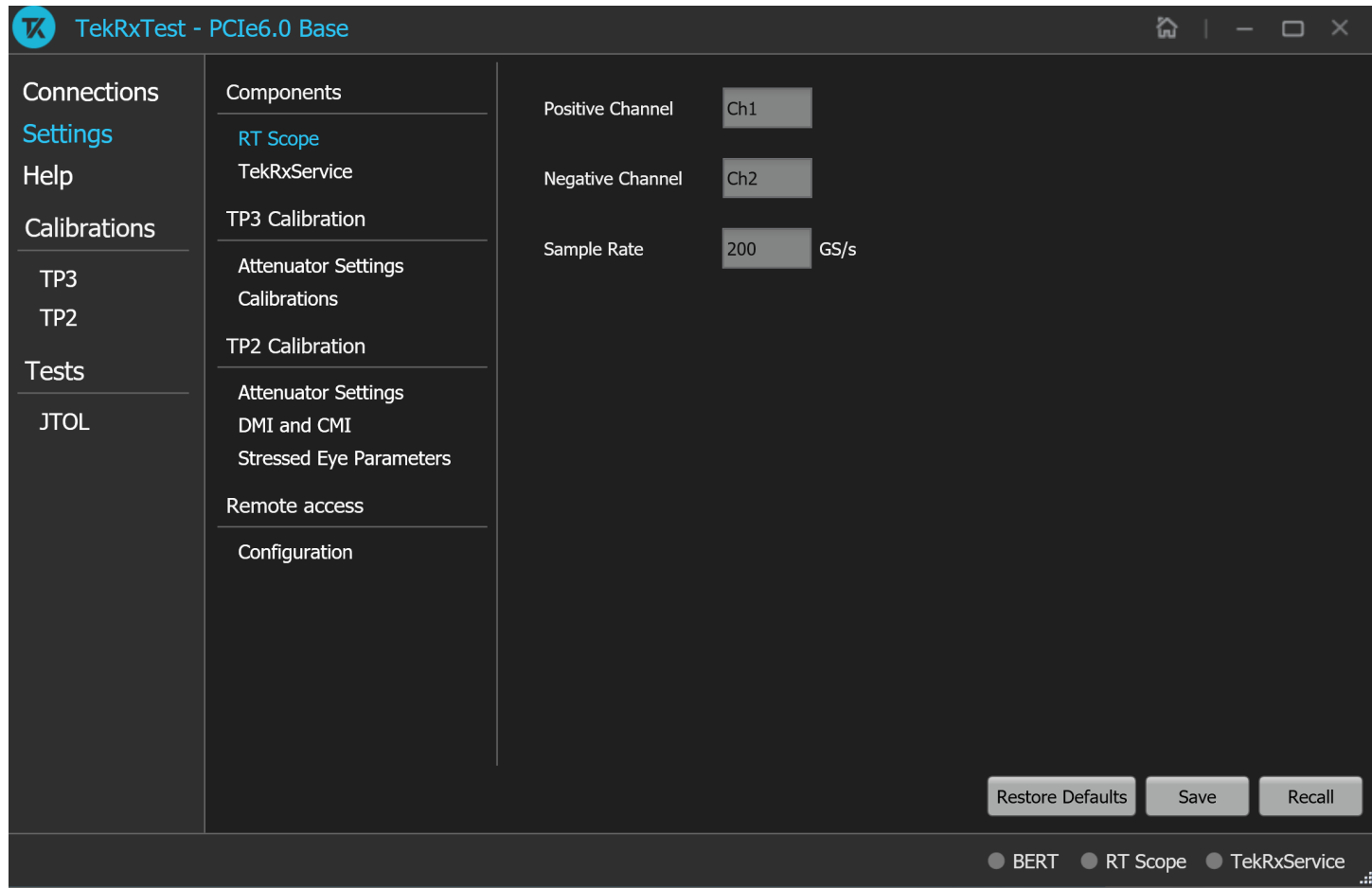
Settings Panel

### Settings panel configurations

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

## Components settings

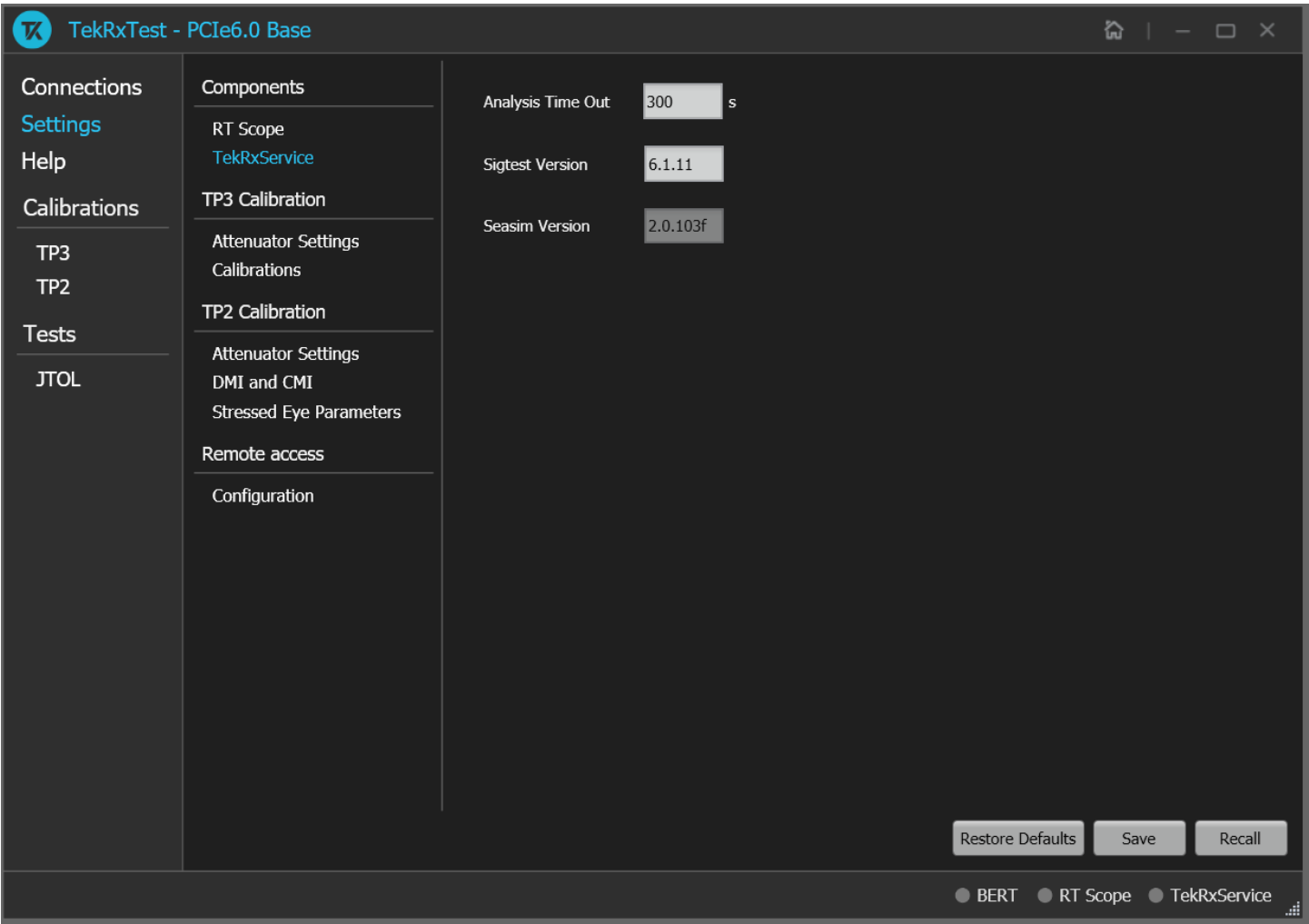
The components settings display the parameters for RT Scope and TekRxService.



### Components RT Scope

#### Components: RT Scope

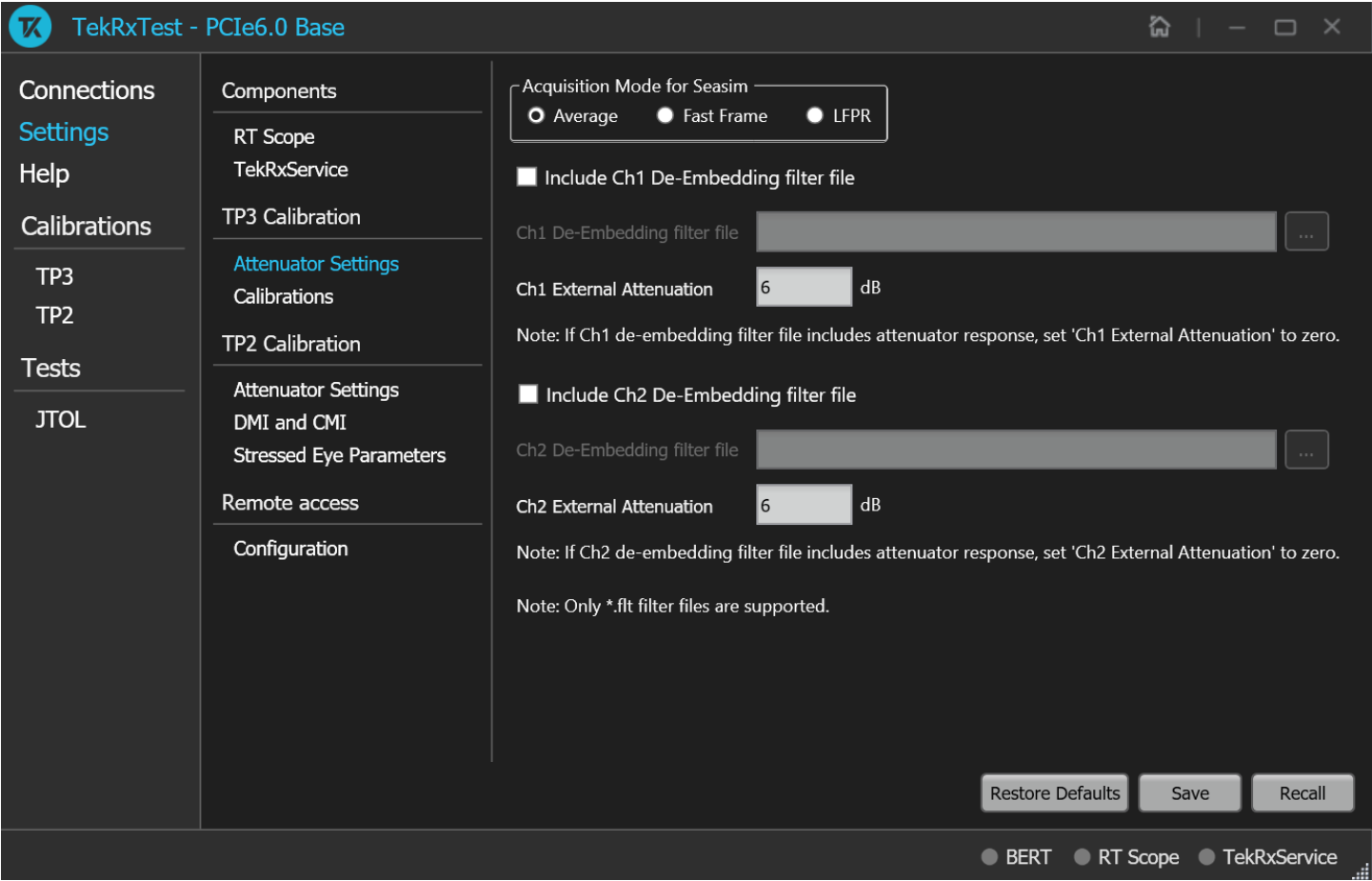
| Parameter        | Description                                                                              |
|------------------|------------------------------------------------------------------------------------------|
| Positive Channel | Select the generator data positive channel from BERT.                                    |
| Negative Channel | Select the generator data negative channel from BERT.                                    |
| Sample Rate      | Displays the RT Scope sample rate in GS/s.<br>The Sample Rate automatically updates to . |



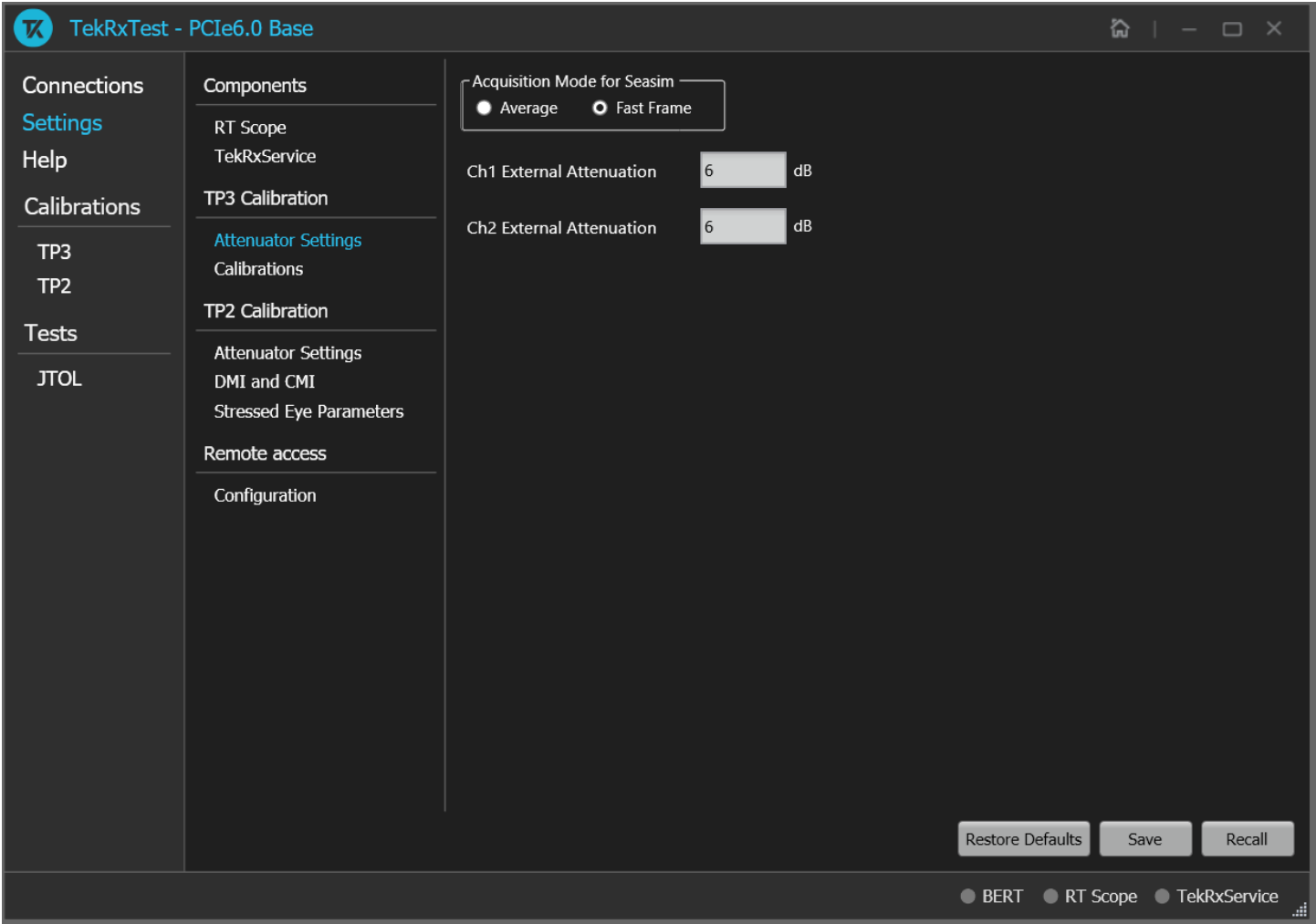
Components: TekRxService

## TP3 Calibration

The TP3 calibration tab allows you to configure the channel settings including the attenuators and component de-embedding, and multi-tone calibration.

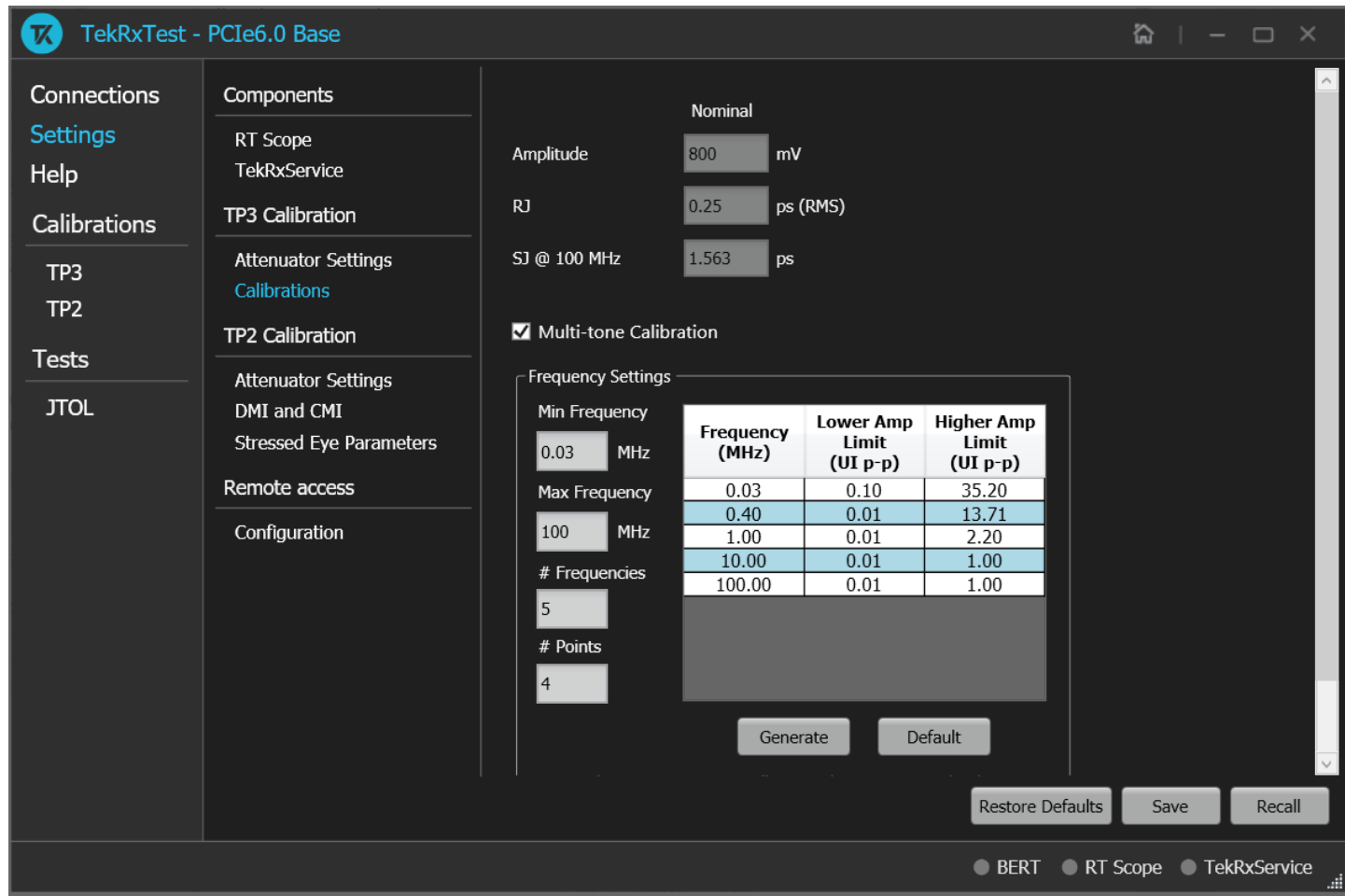


TP3 Calibration: Attenuator Settings(Average)



TP3 Calibration: Attenuator Settings (Fast Frame)

| Parameter                            | Description                                                                                                                  |
|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Acquisition Mode for Seasmim         | Select the required acquisition mode for seasmim. <ul style="list-style-type: none"><li>Average</li><li>Fast Frame</li></ul> |
| Include Ch1 De-Embedding filter file | Enable to apply Ch1 de-embedding filter file.                                                                                |
| Ch1 De-Embedding filter file         | Click to browse and navigate to the path and select the required Ch1 de-embedding filter file.                               |
| Ch1 External Attenuation             | Enter the Ch1 external attenuation value in dB.                                                                              |
| Include Ch2 De-Embedding filter file | Enable to apply Ch2 de-embedding filter file.                                                                                |
| Ch2 De-Embedding filter file         | Click to browse and navigate to the path and select the required Ch2 de-embedding filter file.                               |
| Ch2 External Attenuation             | Enter the Ch2 external attenuation vaue in dB.                                                                               |



TP3 Calibration: Calibrations

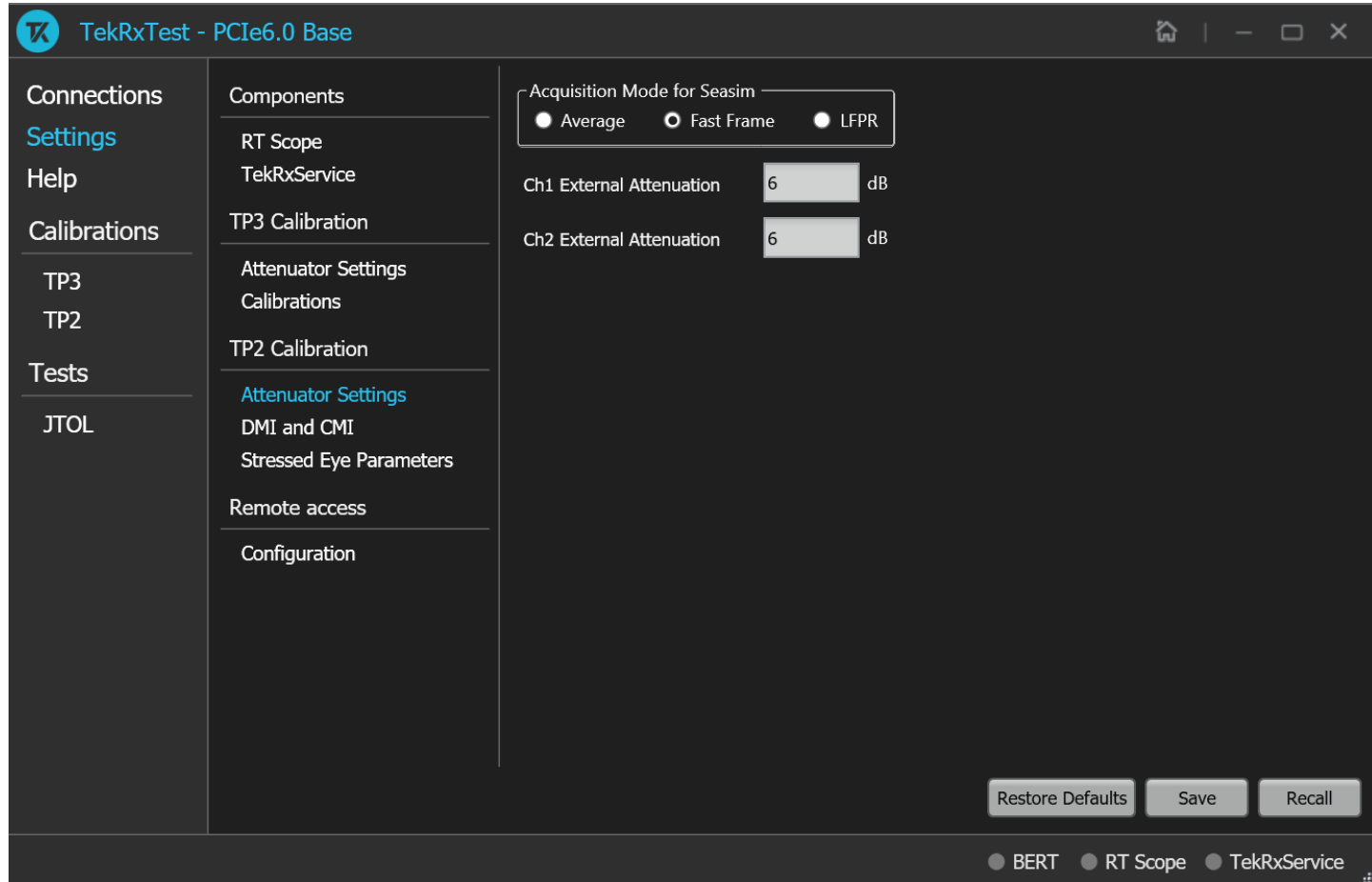
TP3 Calibration: Calibrations

| Parameter                       | Description                                                                                           |
|---------------------------------|-------------------------------------------------------------------------------------------------------|
| Amplitude                       | Displays the calibration target for generator amplitude source.                                       |
| RJ                              | Displays the calibration target for random jitter source.                                             |
| SJ @ 100 MHz                    | Displays the calibration target for sinusoidal jitter source @ 100 MHz.                               |
| Multi-tone Calibration          | Select to enable the multi-tone calibration. It displays the calibration settings for multiple tones. |
| Frequency Settings:             | Frequencies at which the SJ calibration needs to be performed for JTOL Test.                          |
| Frequency (MHz)                 | Displays the table of frequencies in MHz for which Multi-tone calibration is to be performed.         |
| Lower Amplitude Limit (UI p-p)  | Displays the table of lower amplitude limit values at which SJ calibration starts for that frequency. |
| Higher Amplitude Limit (UI p-p) | Displays the table of higher amplitude limit values at which SJ calibration ends for that frequency.  |

| Parameter     | Description                                                         |
|---------------|---------------------------------------------------------------------|
| Min Frequency | Enter the minimum frequency value.                                  |
| Max Frequency | Enter the maximum frequency value.                                  |
| # Frequencies | Enter the desired number of frequencies within the specified range. |
| # Points      | Enter the desired number of points used for calibration.            |
| Generate      | Click to view the table populated with the frequencies.             |
| Default       | Click to view the table populated with default list of frequencies. |

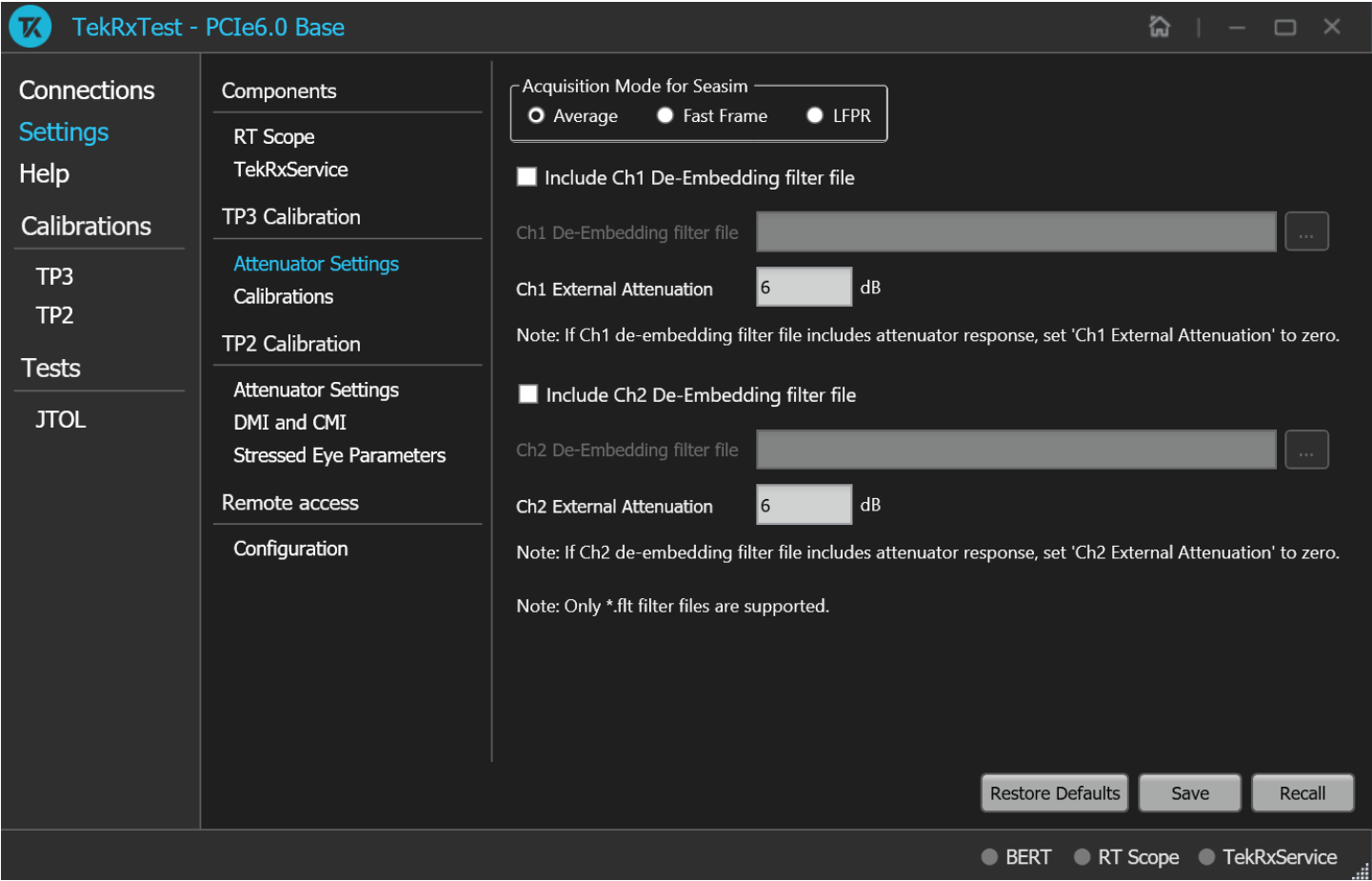
## TP2 Calibration

The TP2 calibration tab allows you to configure the Attenuator Settings, DMI and CMI calibration, and Stressed Eye Parameters.



TP2 Calibration Attenuator Settings(Fast Frame)





TP2 Calibration Attenuator Settings

**TP2 Calibration: Attenuator Settings**

| Parameter                                      | Description                                                                                                                                       |
|------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Acquisition Mode for Seasm                     | Select the required acquisition mode for seasm. <ul style="list-style-type: none"> <li>▪ Average</li> <li>▪ Fast Frame</li> </ul>                 |
| Include Ch1 De-Embedding filter file           | Enable to apply Ch1 de-embedding filter file.                                                                                                     |
| Ch1 De-Embedding filter file                   | Click to browse and navigate to the path and select the required Ch1 de-embedding filter file.                                                    |
| Ch1 External Attenuation                       | Enter the Ch1 external attenuation value in dB.                                                                                                   |
| Include Ch2 De-Embedding filter file           | Enable to apply Ch2 de-embedding filter file.                                                                                                     |
| Ch2 De-Embedding filter file                   | Click to browse and navigate to the path and select the required Ch2 de-embedding filter file.                                                    |
| Ch2 External Attenuation                       | Enter the Ch2 external attenuation vaue in dB.                                                                                                    |
| Replica Channel Embedding / Cable De-Embedding | Select to enable the replica channel embedding or the cable de-embedding.                                                                         |
| Filter File Type                               | Select the required filter type.                                                                                                                  |
| Differential Filter File                       | Browse and navigate to the path and select the required differential filter file. Enabled only when filter file type is selected as Differential. |
| Ch1 Filter File                                | Click to browse and navigate to the path and select the required Ch1 filter file. Enabled only when filter file type is selected as Single ended. |
| Ch2 Filter File                                | Click to browse and navigate to the path and select the required Ch2 filter file. Enabled only when filter file type is selected as Single ended. |

TP2 Calibration: DMI and CMI

TkTekRxTest - PCIe6.0 Base

Connections

Settings

Help

Calibrations

TP3

TP2

Tests

JTOL

Components

RT Scope

TekRxService

TP3 Calibration

Attenuator Settings

Calibrations

TP2 Calibration

Attenuator Settings

DMI and CMI

Stressed Eye Parameters

Remote access

Configuration

Nominal

DMI15mV

CMI75mV

Restore Defaults

Save

Recall

BERT

RT Scope

TekRxService

TP2 Calibration: DMI and CMI

TP2 Calibration: DMI and CMI

| Parameter | Description                           |
|-----------|---------------------------------------|
| DMI       | Displays the nominal DMI value in mV. |
| CMI       | Displays the nominal CMI value in mV. |

Tk

TekRxTest - PCIe6.0 Base

Home

Close

Maximize

Fullscreen

Connections

Settings

Help

Calibrations

TP3

TP2

Tests

JTOL

Components

RT Scope

TekRxService

TP3 Calibration

Attenuator Settings

Calibrations

TP2 Calibration

Attenuator Settings

DMI and CMI

Stressed Eye Parameters

Remote access

Configuration

# acqs for stressed eye

5

Non-Root Complex

Eye Target

Width

3.125

ps

Height

6

mV

DMI Sweep

Min

5

mV

Max

25

mV

SJ Sweep

Min

1

ps

Max

3

ps

Amplitude Sweep

Min

720

mV

Max

800

mV

Root Complex

Eye Target

Width

3.125

ps

Height

6

mV

DMI Sweep

Min

5

mV

Max

25

mV

SJ Sweep

Min

1

ps

Max

3

ps

Amplitude Sweep

Min

720

mV

Max

800

mV

Restore Defaults

Save

Recall

BERT

RT Scope

TekRxService

TP2 Calibration Stressed Eye Parameters

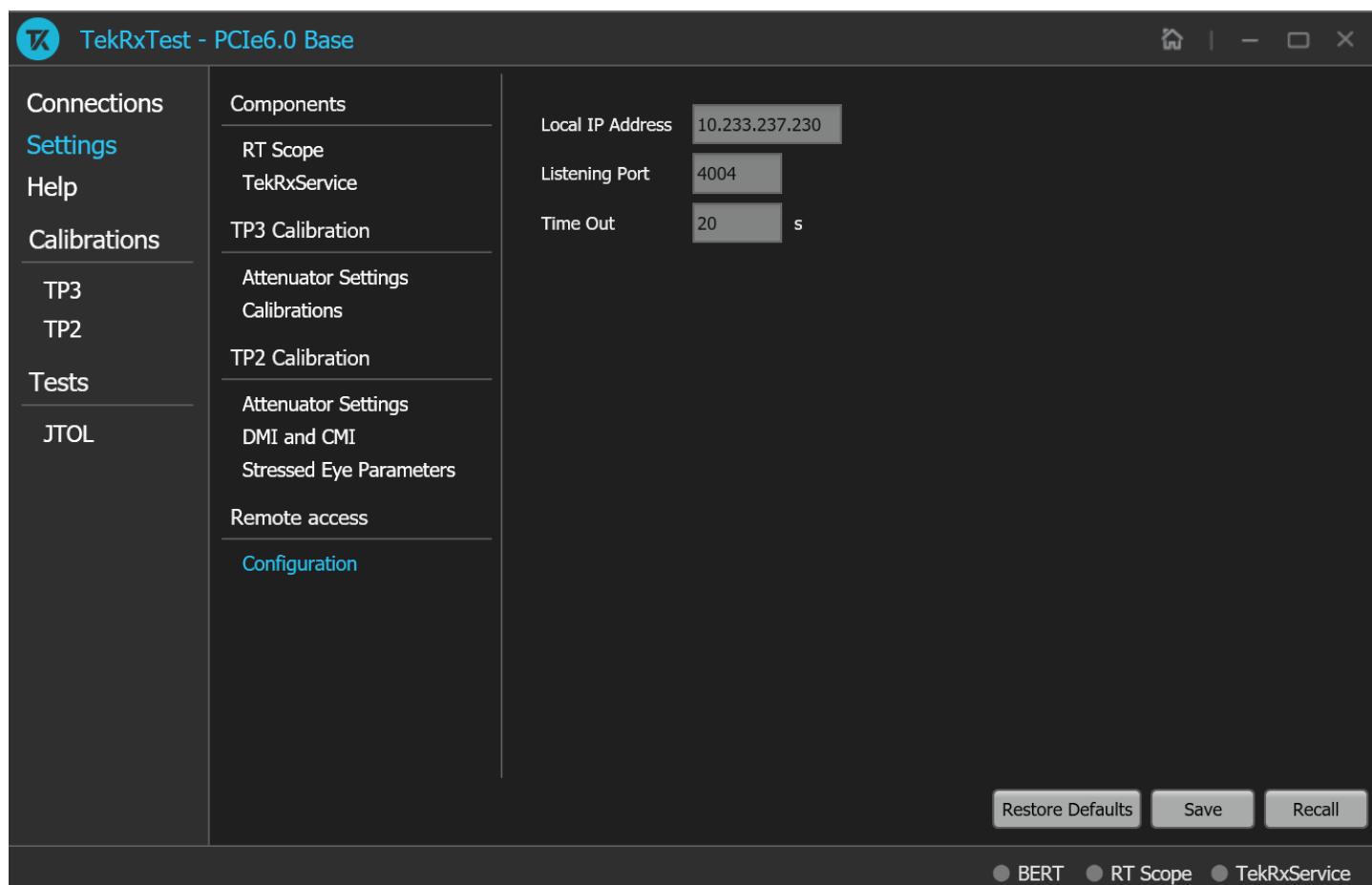
TP2 Calibration: Stressed Eye Parameters

| Parameter                    | Description                                                              |
|------------------------------|--------------------------------------------------------------------------|
| No. of acqs for stressed eye | Displays the number of acquisitions value for stressed eye.              |
| Eye Target                   |                                                                          |
| Width                        | Displays the target eye width value as per PCIe specification.           |
| Height                       | Displays the target eye height value as per PCIe specification.          |
| DMI Sweep                    |                                                                          |
| Min                          | Displays the minimum value of DMI sweep during stressed eye calibration. |

| Parameter              | Description                                                                    |
|------------------------|--------------------------------------------------------------------------------|
| Max                    | Displays the maximum value of DMI sweep during stressed eye calibration.       |
| <b>SJ Sweep</b>        |                                                                                |
| Min                    | Displays the minimum value of SJ sweep during stressed eye calibration.        |
| Max                    | Displays the maximum value of SJ sweep during stressed eye calibration.        |
| <b>Amplitude Sweep</b> |                                                                                |
| Min                    | Displays the minimum value of amplitude sweep during stressed eye calibration. |
| Max                    | Displays the maximum value of amplitude sweep during stressed eye calibration. |

## Remote access: Configuration

The remote access tab allows you to configure the remote setting parameters to access the equipment remotely.



### Remote access: Configuration

**Remote access: Configuration**

| 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.<br><b>Default Value: 4004</b> |
| Time Out         | Displays the timeout value used when communicating with the socket server.<br><b>Default Value: 20 Seconds</b> |

## Help panel

The help panel launches the PCIe6.0 (Base) TekRxTest application help document.

## Calibrations panel

Complete TP3 and TP2 calibrations before you start the DUT testing using the PCIe6.0 (Base) test application. Follow the instructions in the calibration wizards to automate the calibration for the test points. After calibrating the test points, you can save the results.

### TP3 Calibration

The TP3 calibration panel allows you to perform calibration for TP3 and save the results. You can perform calibration for Signal Amplitude, Preset, Random Jitter (RJ), Sinusoidal Jitter (SJ), and. Additionally, there is a provision to perform PWJ Calibration, AC-DC Balancing, , and multi-tone calibration for the TP3 channel.

The PCIe6.0 (Base) TekRxTest application calibrates the following at TP3:

1. Amplitude - The differential voltage swing is required to be within 720 - 800 mV. This is done only after the transition and non-transition bit levels are made equal using de-emphasis.
2. Tx Equalization Presets - The various levels of de-emphasis, preshoot 1, and preshoot 2 are required to be calibrated within the tolerance as specified.
3. RJ - It is calibrated to be 0.25 ps (RMS value).
4. SJ - The SJ is calibrated over the desired range of 1-3 ps (pk-pk) including the nominal SJ specification of 0.05 UI at 100 MHz frequency).
5. SJ @ 210 MHz - If the stressed eye calibration requires sinusoidal jitter levels greater than 0.05 (1.563 ps) UI
6. Multi-tone - It is calibrated over a specific range for multiple user-defined frequencies.

**TekRxTest - PCIe6.0 Base**

Connections  
Settings  
Help  
Calibrations  
TP3  
TP2  
Tests  
JTOL

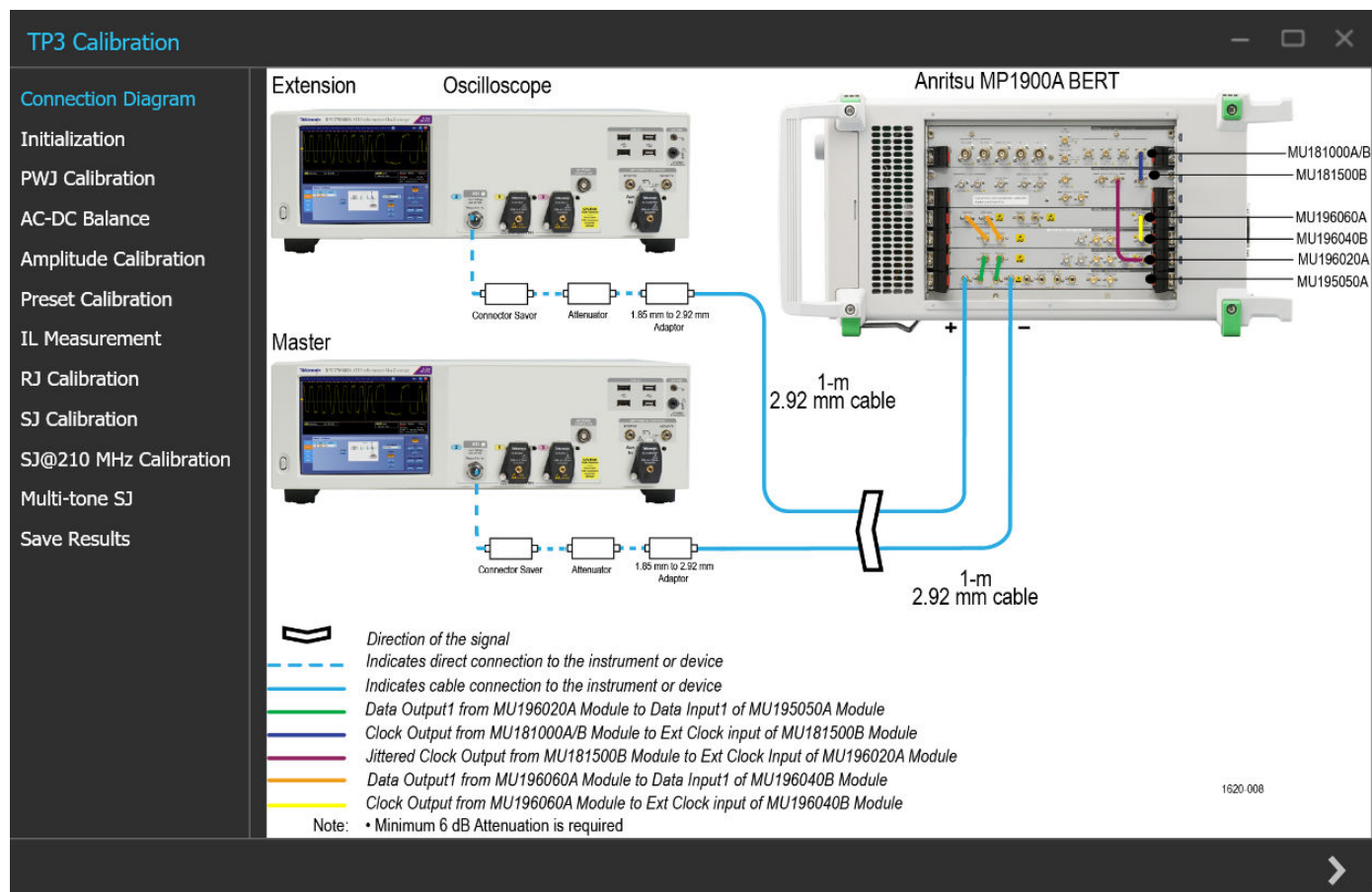
| Unique ID               | Completion Status | Generated By | Date/Time             | Comment |
|-------------------------|-------------------|--------------|-----------------------|---------|
| Example_TP3_Calibration | Complete          | TEK          | 06 Jul 2022, 05:57 AM |         |

● BERT ● RT Scope ● TekRxService

Click TP3 under the calibration tab to view the calibration results. Click  at the right end corner of the application to launch the TP1 calibration wizard. This wizard will guide you through the sequential procedure to perform the calibration.

- Application Help





TP3 Calibration : Connection diagram

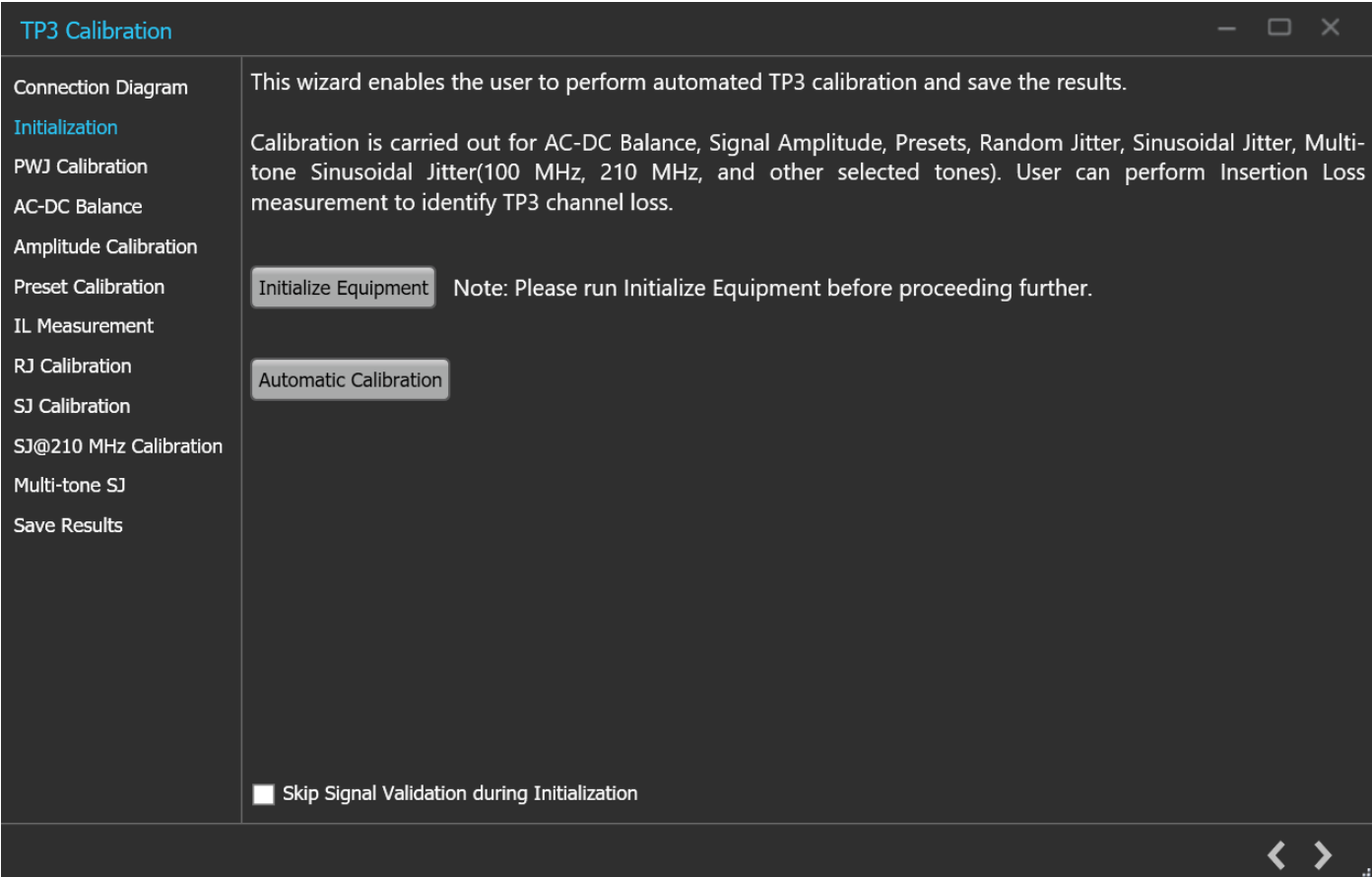


Click to move to the next screen.

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

You can click **Automatic Calibration** to perform the automatic calibration with the default settings for amplitude, Tx Equalization Presets, RJ, and SJ parameters without user intervention.

To skip the signal validation during initialization, enable the **Skip Signal Validation** check box.



TP3 Calibration : Initialization



Click to move to the next screen.

3. **PWJ Calibration:** This tab displays the description and allows you to perform PWJ Calibration.

TP3 Calibration: PWJ Calibration

TP3 Calibration

Connection Diagram

Initialization

PWJ Calibration

AC-DC Balance

Amplitude Calibration

Preset Calibration

IL Measurement

RJ Calibration

SJ Calibration

SJ@210 MHz Calibration

Multi-tone SJ

Save Results

Pulse width jitter is required for Seasim based TP2 calibration.

Procedure Type: ☒ Manual Entry ☐ Measure Jitter

PWJ RJ  (RMS) ps      PWJ DJ  ps

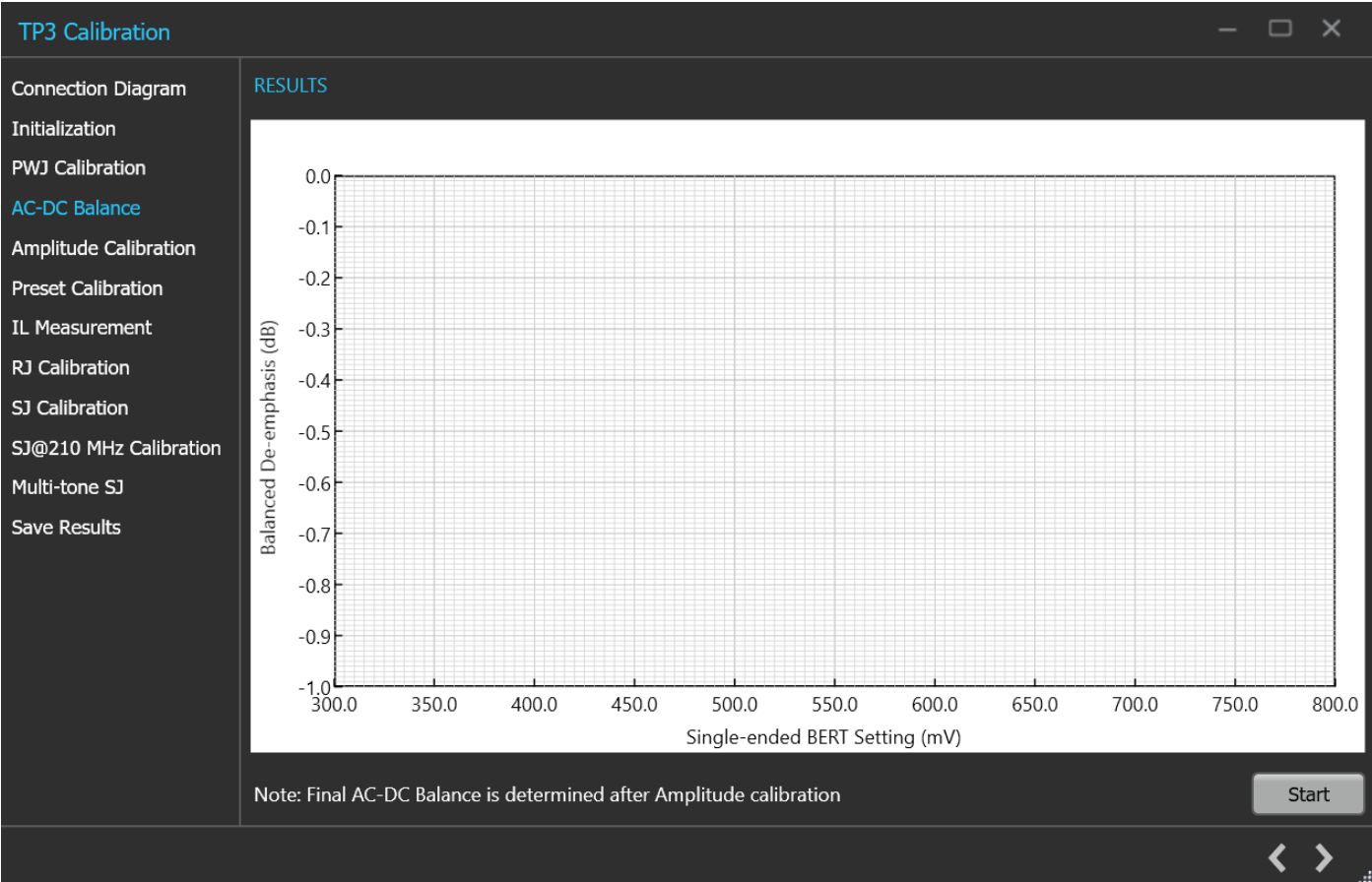
Start

TP3 Calibration : PWJ Calibration

TP3 Calibration: PWJ Calibration

| Parameter       | Description                                                                                                                    |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------|
| Procedure Type  | Select the required procedure type.<br>Manual entry<br>Measure Jitter                                                          |
| Manual Entry    | Select the manual entry and enter the calibration values in PWJ RJ value in (RMS) ps and PWJ DJ value in ps.                   |
| Measure Jitter  | Select the measure jitter option, and the PWJ RJ and PWJ DJ will be calculated by software, and the results will be displayed. |
| PWJ RJ / PWJ DJ | Displays the PWJ/RJ and PWJ/DJ values.                                                                                         |
| Start           | Click on <b>Start</b> to start the calibration.                                                                                |

4. **AC-DC Balance:** This tab displays the graph plots of AC-DC balance.



TP3 Calibration: AC-DC balance

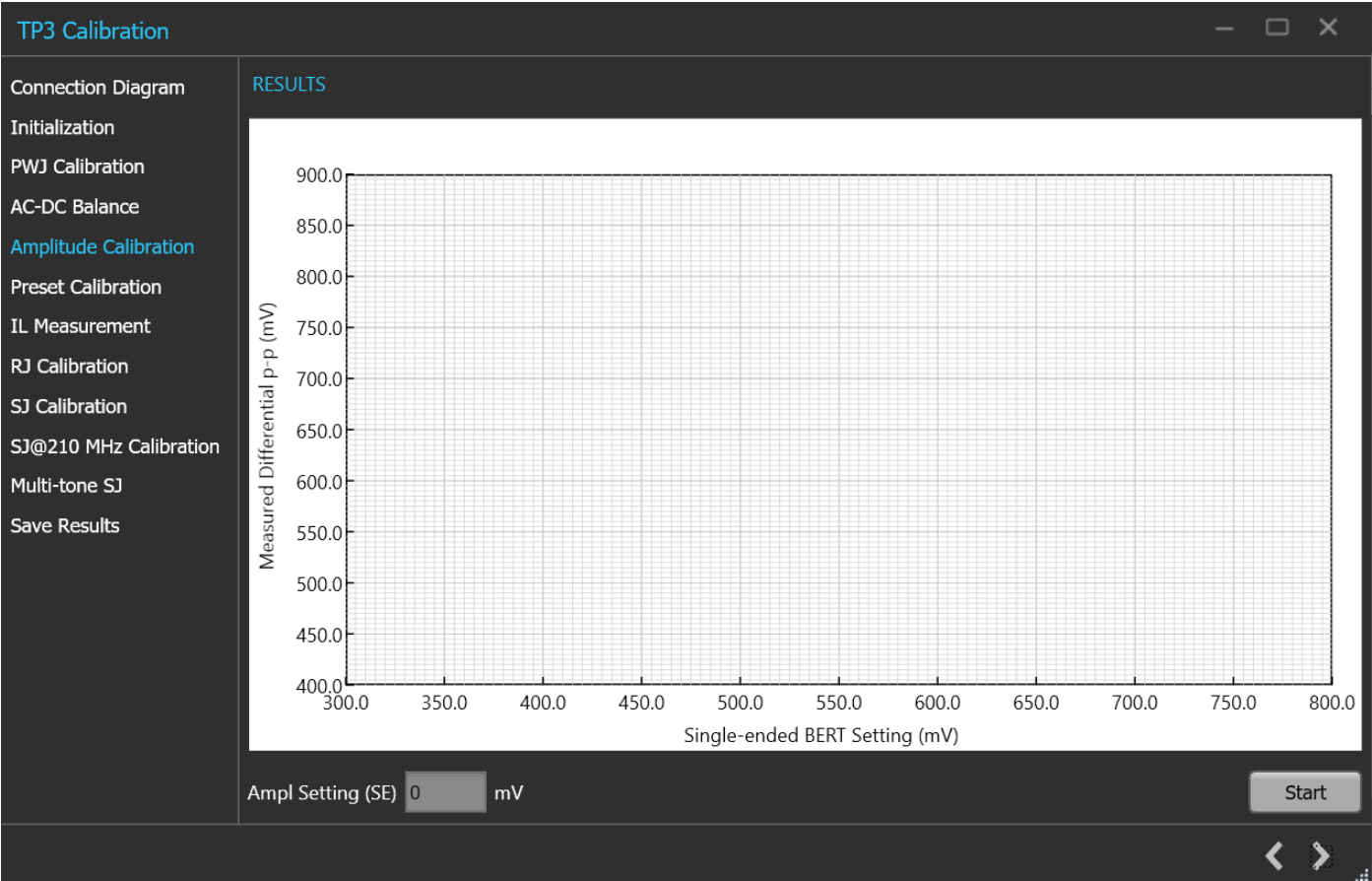
TP3 Calibration: AC-DC Balance

| Parameter | Description                                 |
|-----------|---------------------------------------------|
| Start     | Click <b>Start</b> to run the measurements. |



Click to move to the next screen.

5. **Amplitude Calibration:** This tab displays the graph plots of amplitude calibration.



TP3 Calibration : Amplitude Calibration

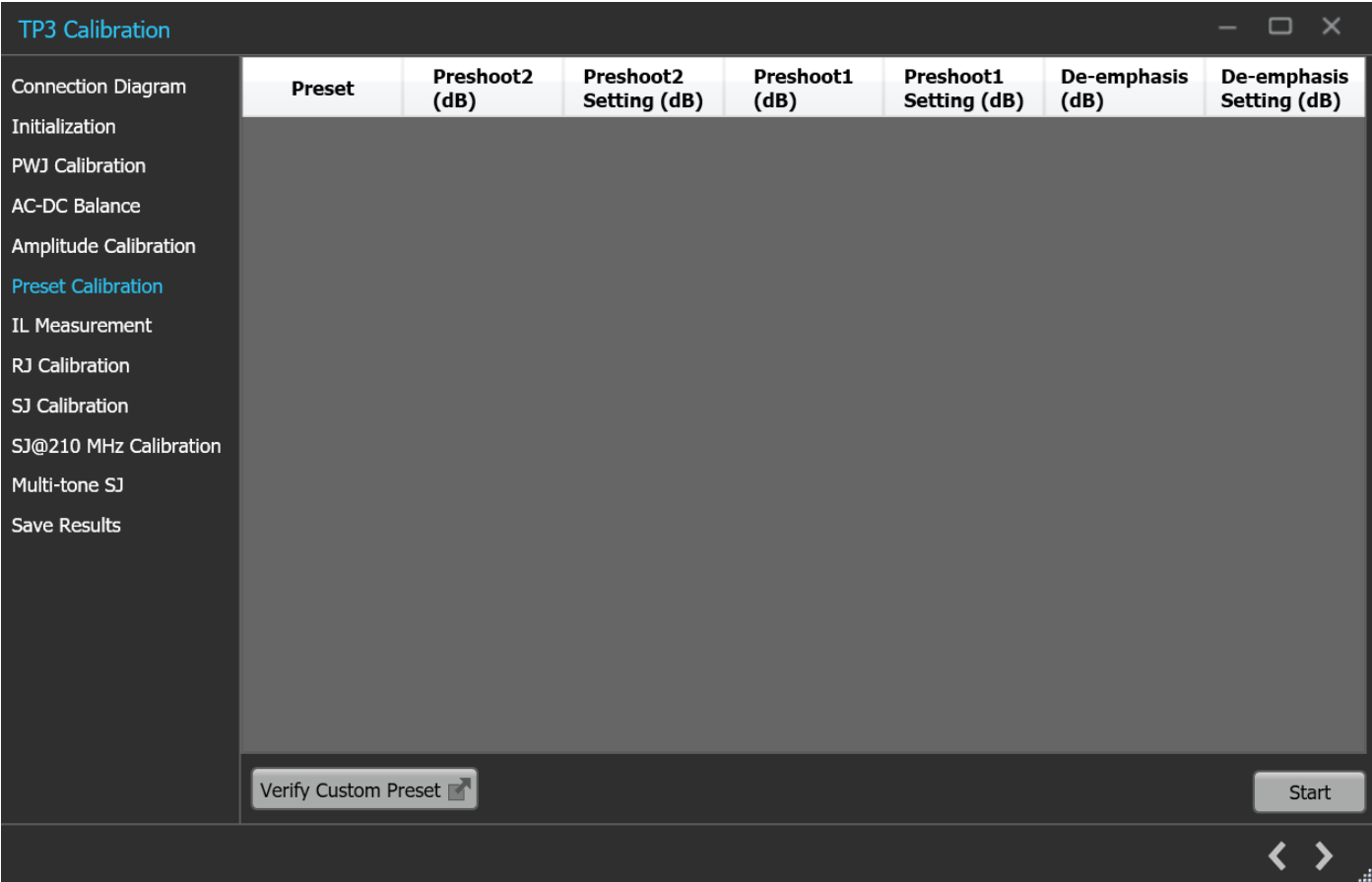
TP3 Calibration: Amplitude Calibration

| Parameter         | Description                                                                                |
|-------------------|--------------------------------------------------------------------------------------------|
| Ampl Setting (SE) | Displays the single-ended calibrated amplitude value corresponding to 800 mV differential. |
| Start             | Click <b>Start</b> to run the measurements.                                                |



Click to move to the next screen.

6. **Preset Calibration:** This tab displays the tabular data for preset calibration.



TP3 Calibration: Preset Calibration

TP3 Calibration: Preset Calibration

| Parameter | Description                                 |
|-----------|---------------------------------------------|
| Start     | Click <b>Start</b> to run the measurements. |



Click to move to the next screen.

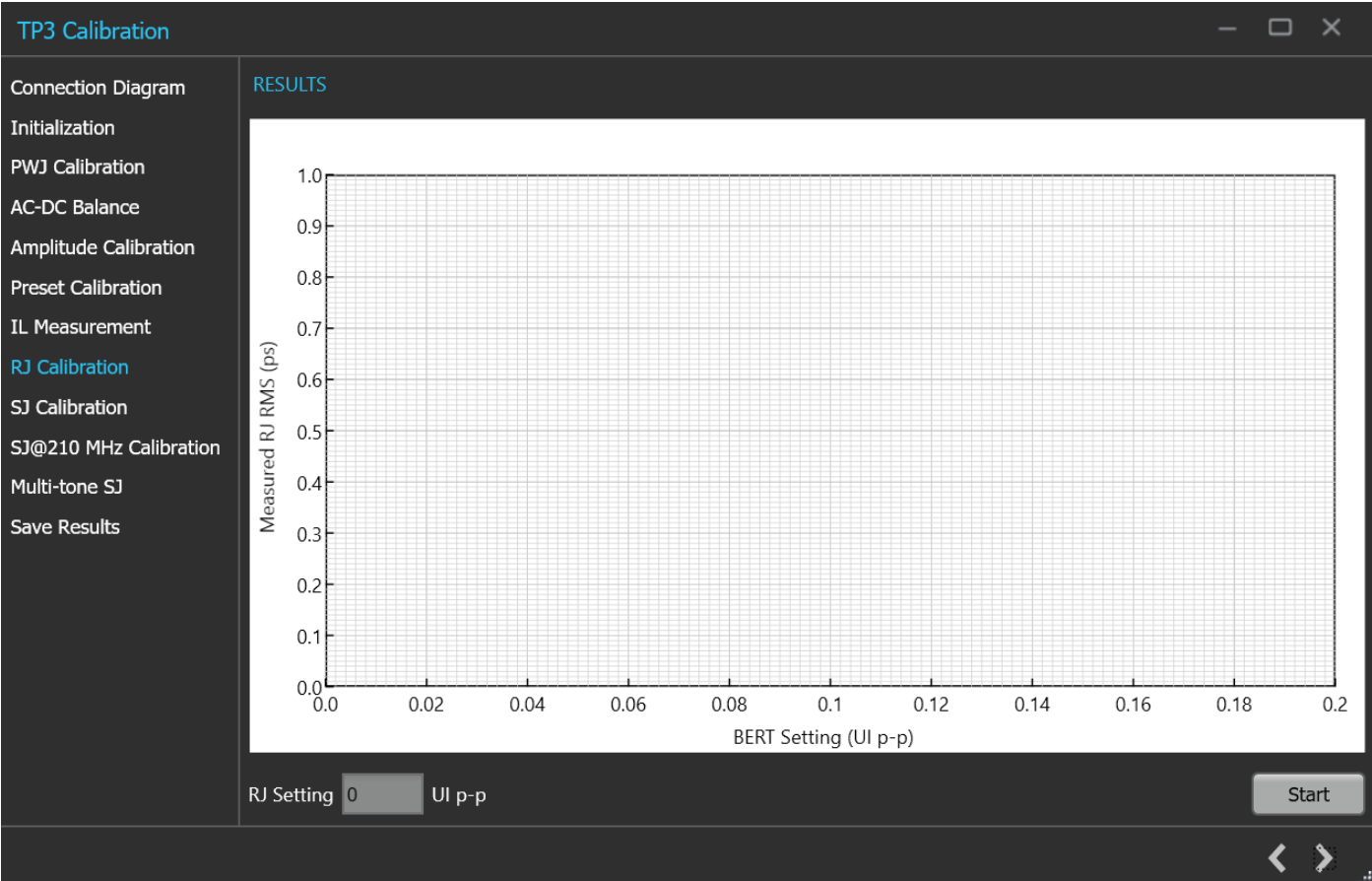
7. **IL Measurement:** This tab displays the description and allows you to perform IL Measurement.

#### TP3 Calibration: IL Measurement

#### TP3 Calibration: IL Measurement

| Parameter    | Description                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manual Entry | Select the manual entry option and enter the loss value in dB.                                                                                                                                                                                                                                                                                                                                   |
| Measure Loss | Select the measure loss option for the TekRxTest application to initiate measure loss.                                                                                                                                                                                                                                                                                                           |
| Settings     |                                                                                                                                                                                                                                                                                                                                                                                                  |
| #Scope acqs  | The number of scope acquisitions that allows the algorithm to make multiple insertion loss measurements and report the mean insertion loss. This way, any error in a particular acquisition will get averaged out. The mean of scope noise is usually zero. If we have a large number of samples and we average out those samples, then the noise component in the averaged sample will be zero. |
| # avgs       | The number of averages that will run the insertion loss measurement multiple times and calculate the average value. This way, any error in a particular acquisition will get averaged out.                                                                                                                                                                                                       |
| Loss Value   | Displays the Final Loss value after computing.                                                                                                                                                                                                                                                                                                                                                   |
| Start        | Click <b>Start</b> to run the measurements.                                                                                                                                                                                                                                                                                                                                                      |

8. **RJ Calibration:** This tab displays the graph plots of RJ calibration.



TP3 Calibration: RJ Calibration

TP3 Calibration: RJ Calibration

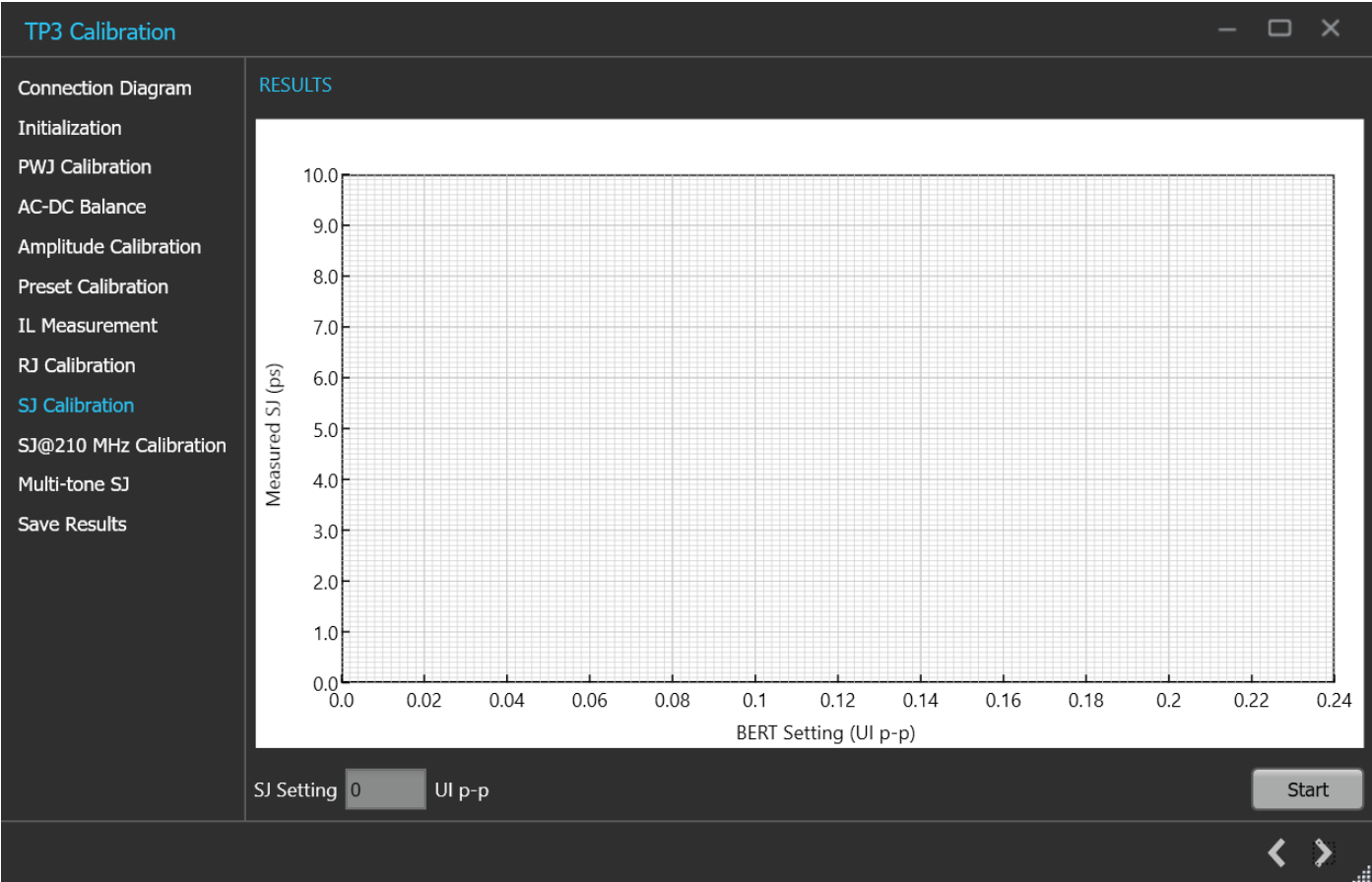
| Parameter   | Description                                                                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scope Noise | Displays the automatically calculated scope noise value. The measurement is susceptible to scope noise as the calibrated values are required to be in ps or fs. Hence, it is important to compensate for scope noise before we run a measurement on the signal. |
| RJ Setting  | Displays the calibrated RJ setting corresponding to the nominal value.                                                                                                                                                                                          |
| Start       | Click <b>Start</b> to run the measurements.                                                                                                                                                                                                                     |



Click to move to the next screen.

9. **SJ Calibration:** This tab displays the graph plots of SJ calibration.





TP3 Calibration: SJ Calibration

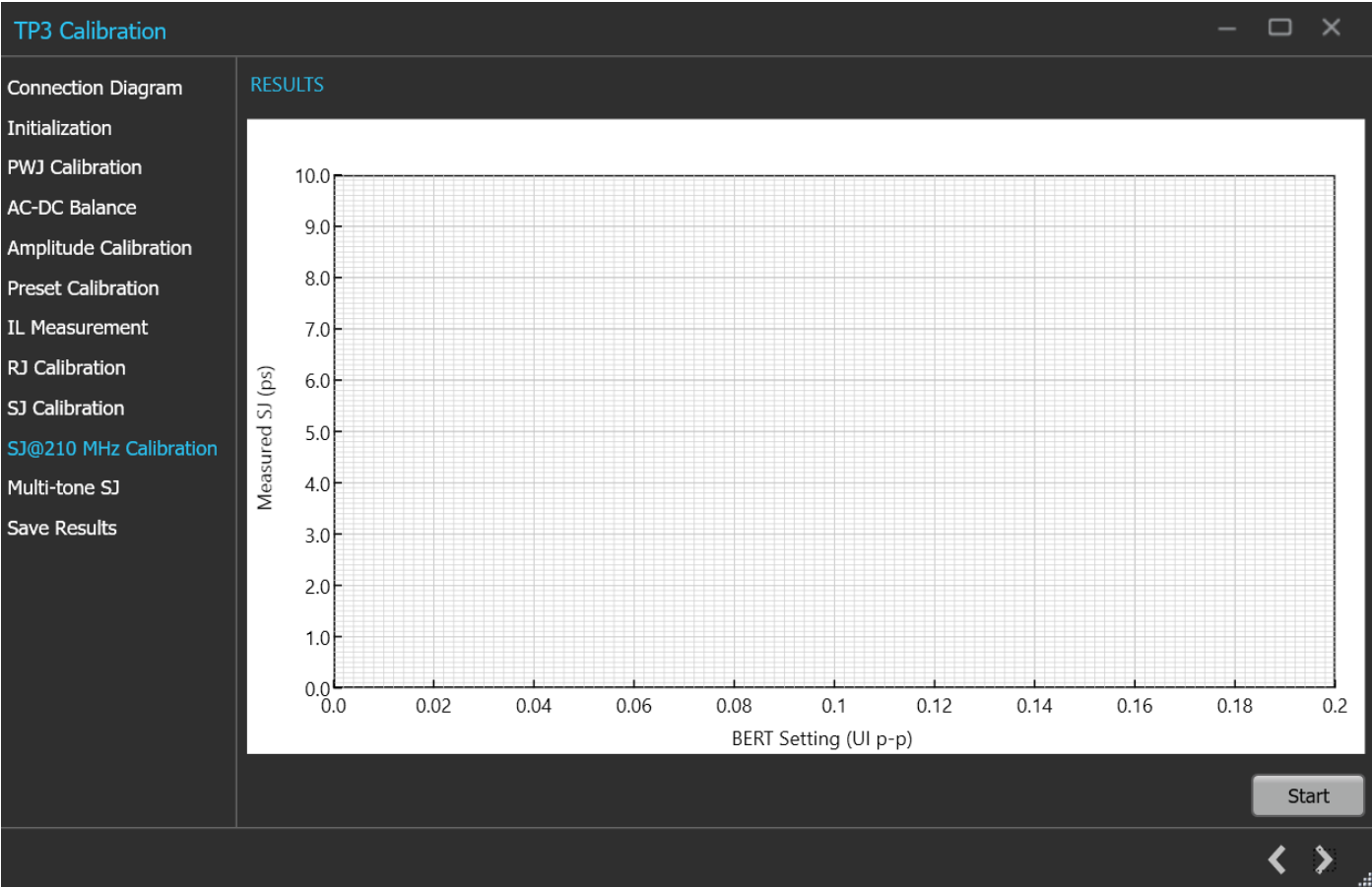
TP3 Calibration: SJ Calibration

| Parameter  | Description                                                                   |
|------------|-------------------------------------------------------------------------------|
| SJ Setting | Displays the calibrated SJ setting corresponding to the nominal target value. |
| Start      | Click <b>Start</b> to run the measurements.                                   |



Click to move to the next screen.

10.**SJ@210 MHz Calibration:** This tab displays the graph plots of SJ@210 MHz calibration.



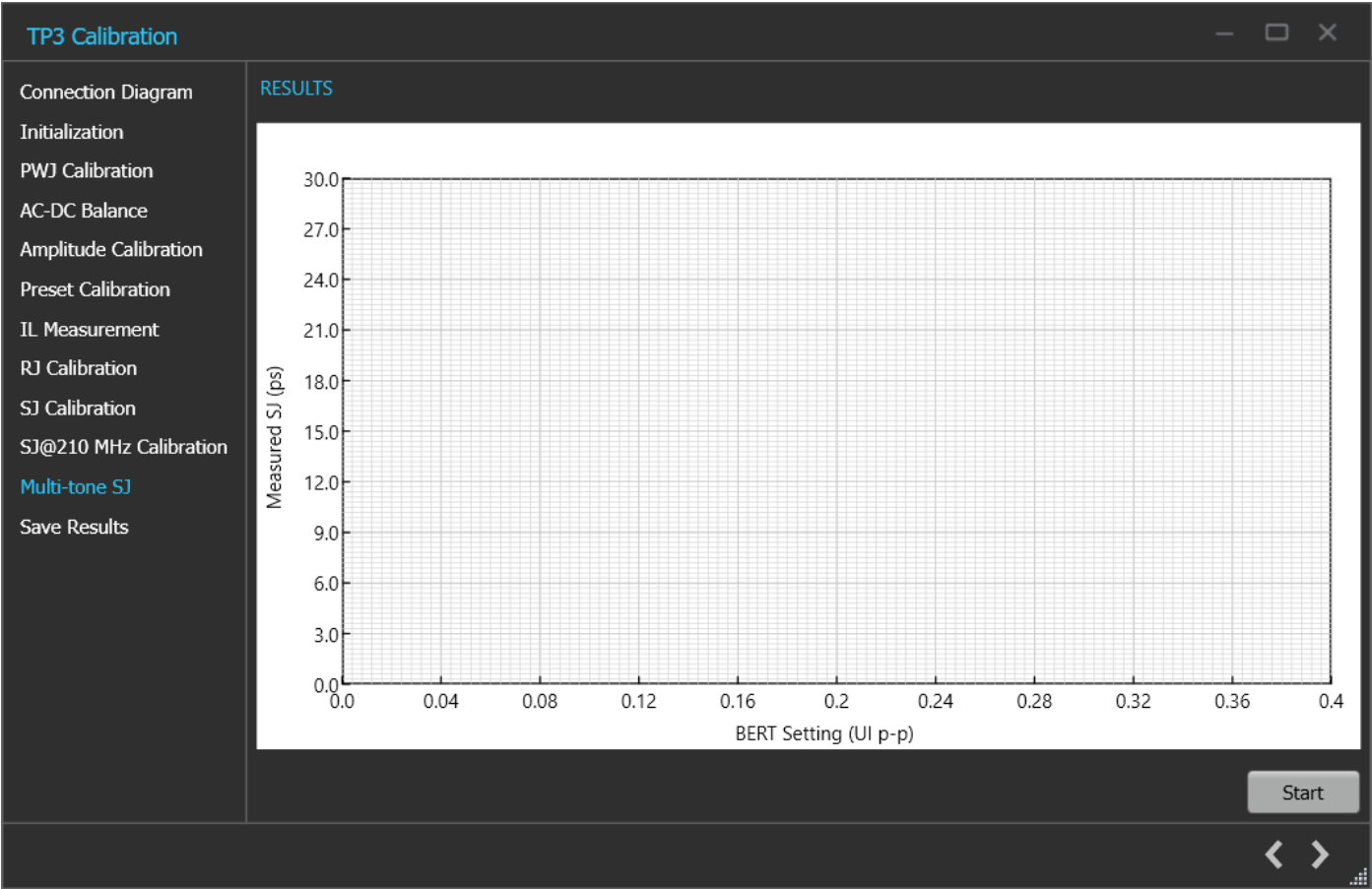
TP3 Calibration: SJ@210 MHz Calibration

TP3 Calibration: SJ@210 MHz Calibration

| Parameter   | Description                                                                                                                                                                                                                                                     |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Scope Noise | Displays the automatically calculated scope noise value. The measurement is susceptible to scope noise as the calibrated values are required to be in ps or fs. Hence, it is important to compensate for scope noise before we run a measurement on the signal. |
| Start       | Click <b>Start</b> to run the measurements.                                                                                                                                                                                                                     |

11. **Multi-tone SJ:** This tab displays the graph plots of multi-tone SJ calibration.

Enable the multi-tone option in the settings panel to display the Multi-tone SJ calibration panel in the TP3 calibration wizard window.



TP3 Calibration : Multi-tone SJ

Calibration: Multi-tone SJ

| Parameter | Description                                 |
|-----------|---------------------------------------------|
| Start     | Click <b>Start</b> to run the measurements. |

12.**Save Results:** This tab allows you to save all the TP3 calibration results.

TP3 Calibration

Connection Diagram

Initialization

PWJ Calibration

AC-DC Balance

Amplitude Calibration

Preset Calibration

IL Measurement

RJ Calibration

SJ Calibration

SJ@210 MHz Calibration

Multi-tone SJ

Save Results

Unique ID

Generated By

Comments

Save

TP3 Calibration : Save Results

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



Click to complete the TP3 calibration and close the wizard.

**NOTE:** Completion of the TP3 calibration process or in the event of cancellation of the process, the BERT data generator is turned off automatically by the PCIe6.0 (Base) TekRxTest application.

## TP2 Calibration

TP2 Calibration is carried out for DMI, Preset selection, and Stressed Eye. This procedure sets SJ, DMI, and Amplitude levels to achieve target eye-opening.

You must perform TP3 calibration before you start performing the calibration for TP2.

The PCIe6.0 (Base) TekRx test application calibrates the following at TP2:

1. DMI - The differential mode sinusoidal interference is required to be calibrated within 5 - 25 mV (pk-pk) by capturing the 2.1 GHz sinusoidal output for a duration of at least 125 us.
2. CMI - The common-mode sinusoidal interference is required to be calibrated for a nominal voltage of 75 mV (pk-pk) by capturing the 120 MHz sinusoidal output for a duration of at least 125 us.
3. Preset selection- Tx equalization presets Q5, Q6, Q8, and Q9 are used to find the optimal eye area with the optimal CTLE.
4. Stressed Eye calibration - As per the specification, various signal parameters and stress levels are computed to generate a signal that meets the stressed eye targets.

### TP2 Calibration procedure

Tk

TekRxTest - PCIe6.0 Base

Home

[-]

[\_]

[X]

Connections

Settings

Help

Calibrations

TP3

TP2

Tests

JTOL

| Unique ID        | Device            | Completion Status | Stressed Eye Convergence | Generated By | Date/Time          | Comment |
|------------------|-------------------|-------------------|--------------------------|--------------|--------------------|---------|
| [Example_TP2_NR] | Non-Root Complex  | Complete          | True                     | TEK          | 07 Jul 2022, 03:48 |         |
| [Example_TP2_RC] | Root Complex / Sy | Complete          | True                     | TEK          | 06 Jul 2022, 18:47 |         |

[-]

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[+]

BERT

RT Scope

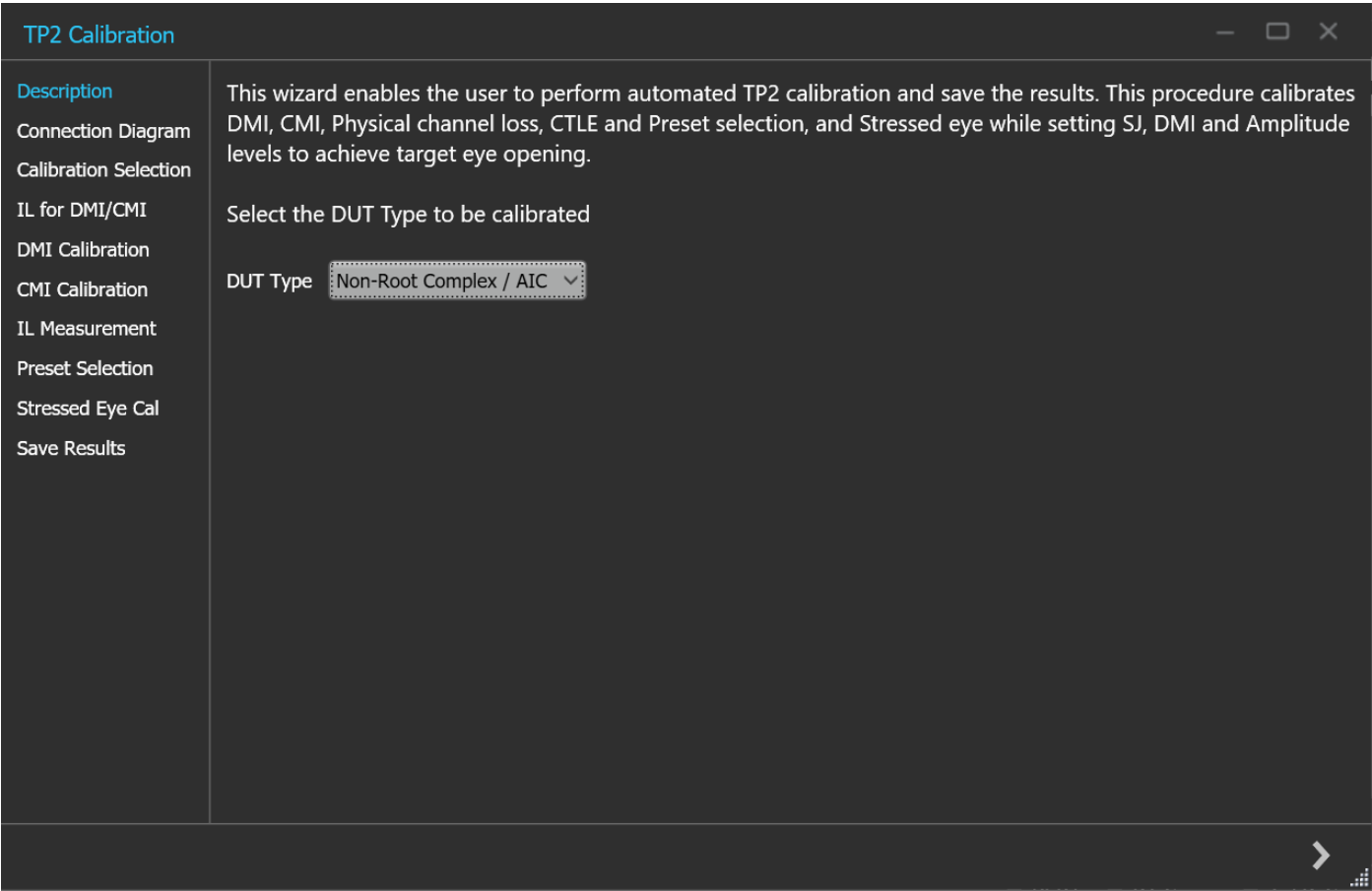
TekRxService

#### TP2 Calibration

Click **TP2** under the calibration tab to view the calibration results. Click  at the right end corner of the application, to launch the TP2 calibration wizard. This wizard will guide you through the sequential procedure to perform the calibration.

You must perform TP3 calibration before you start performing the calibration for TP2.

1. **Description:** This tab displays the description and allows you to select the DUT Type as Non-Root Complex or Root Complex.



TP2 Calibration: Description

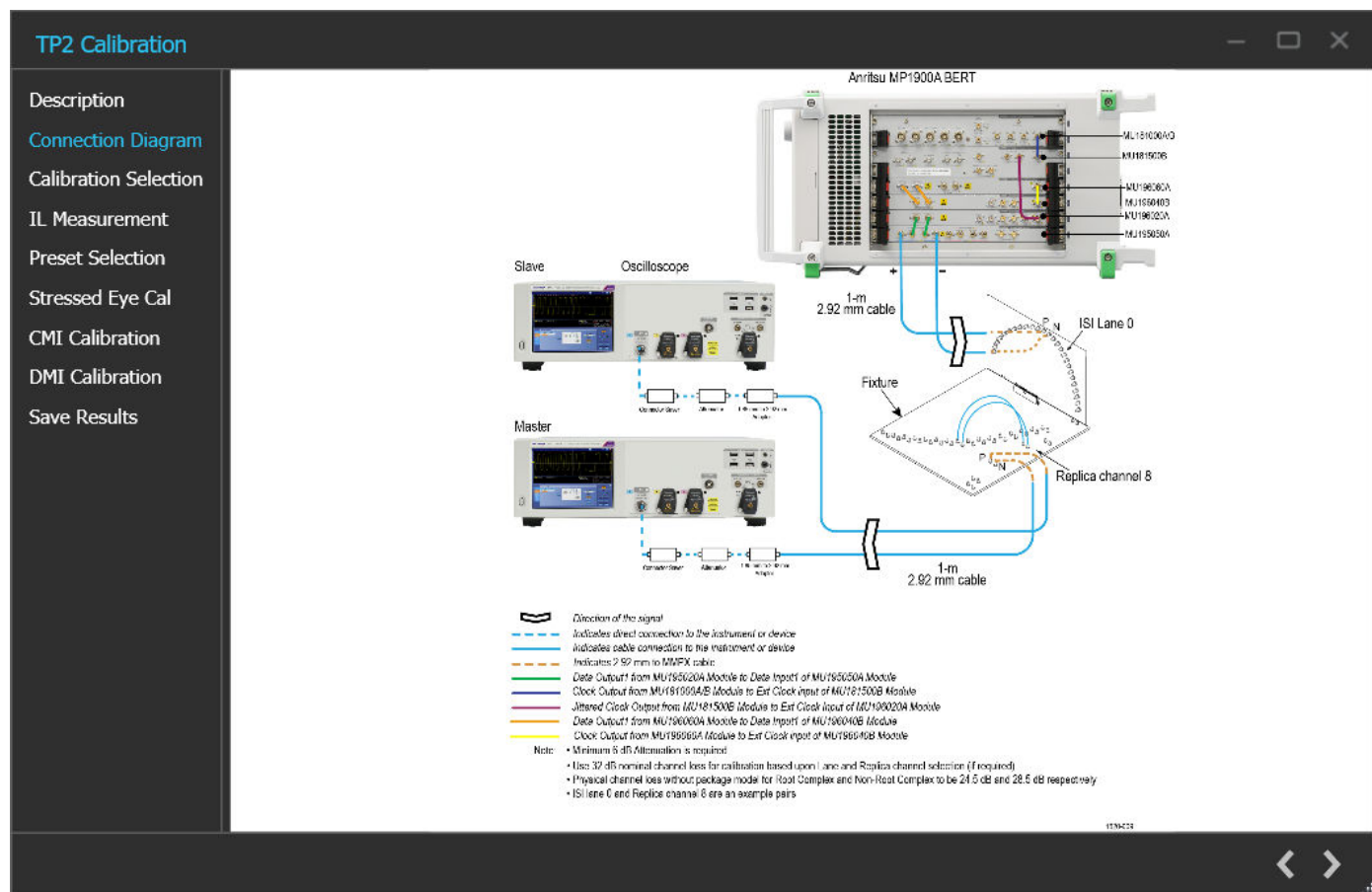
TP2 Calibration: Description

| Parameter | Description                                          |
|-----------|------------------------------------------------------|
| DUT Type  | Non-Root Complex / AIC Card<br>Root Complex / System |



Click to move to the next screen.

2. **Connection Diagram:** This tab displays the connection diagram for the DUT Type selected in description screen.



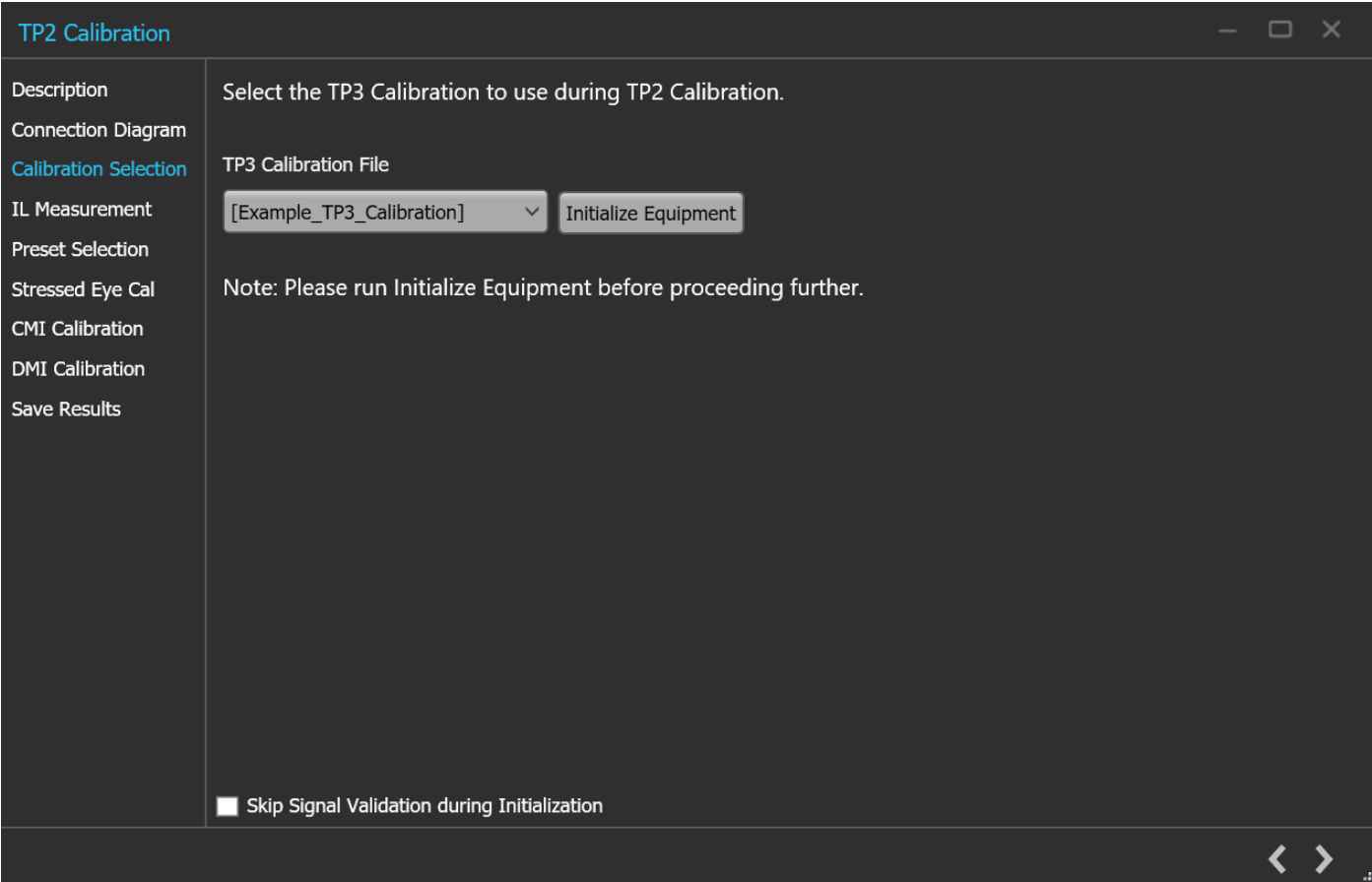
TP2 Calibration: Connection Diagram - AIC

The System Connection Diagram for TP2 Calibration is same as the connection diagram shown above for the DPO71AX Oscilloscope



Click to move to the next screen.

- Calibration Selection:** This tab allows you to select the TP3 Calibration file from the drop-down list and click **Initialize Equipment**.



TP2 Calibration: Calibration Selection

TP2 Calibration: Calibration Selection

| Parameter                                    | Description                                                           |
|----------------------------------------------|-----------------------------------------------------------------------|
| TP3 Calibration File                         | Select the desired TP3 calibration file and initialize the equipment. |
| Skip Signal Validation during Initialization | Check the checkbox to skip signal validation.                         |



Click to move to the next screen.

4. IL Measurement:

The Stressed Eye calibration including CTLE selection and optimal preset identification needs to be performed with a full physical channel loss between 30 dB to 33 dB. This includes the package embedding loss.



**TP2 Calibration**

Description

Connection Diagram

Calibration Selection

IL Measurement

Preset Selection

Stressed Eye Cal

CMI Calibration

DMI Calibration

Save Results

1. This module returns the full channel loss in the present set-up.

2. The user is expected to change the ISI pair number on the board to start with a full channel loss of 33 dB before proceeding with the next step.

30 dB - 33 dB (IL Measurement)

☐ Measure Loss ☒ Manual Entry

Settings

# Scope acqs 10240 # avgs 3

Loss Value 33 dB

Start

## TP2 Calibration : IL Measurement

## TP2 Calibration: IL Measurement

| Parameter    | Description                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manual Entry | Select the manual entry option and enter the loss value in dB.                                                                                                                                                                                                                                                                                                                                   |
| Measure Loss | Select the measure loss option for the TekRxTest application to initiate measure loss                                                                                                                                                                                                                                                                                                            |
| Settings     |                                                                                                                                                                                                                                                                                                                                                                                                  |
| #Scope acqs  | The number of scope acquisitions that allows the algorithm to make multiple insertion loss measurements and report the mean insertion loss. This way, any error in a particular acquisition will get averaged out. The mean of scope noise is usually zero. If we have a large number of samples and we average out those samples, then the noise component in the averaged sample will be zero. |
| # avgs       | The number of averages that will run the insertion loss measurement multiple times and calculate the average value. This way, any error in a particular acquisition will get averaged out.                                                                                                                                                                                                       |
| Loss Value   | Displays the final loss value after computing.                                                                                                                                                                                                                                                                                                                                                   |
| Start        | Click <b>Start</b> to run the measurements.                                                                                                                                                                                                                                                                                                                                                      |



Click to move to the next screen.

5. Stressed Eye Calibration:

TP2 calibration for stressed eye requires information from the TP3 calibration that is performed for the set-up under consideration or from one of the saved TP3 results. The relevant TP3 calibration file can be chosen from the calibration selection page shown from a drop-down button listing all the TP3calibration files stored in the PCIe Gen6 TekRxTest application repository.

TP2 Calibration

Description  
Connection Diagram  
Calibration Selection  
IL Measurement  
Preset Selection  
Stressed Eye Cal  
CMI Calibration  
DMI Calibration  
Save Results

| Index | SJ (ps) | DMI (mV) | Ampl (mV) | EW (ps) | EH (mV) |
|-------|---------|----------|-----------|---------|---------|
|-------|---------|----------|-----------|---------|---------|

☐ Manual Calibration Run

SJ1.563ps

DMI15mV

Amplitude800mV

☐ Exhaustive Sweep

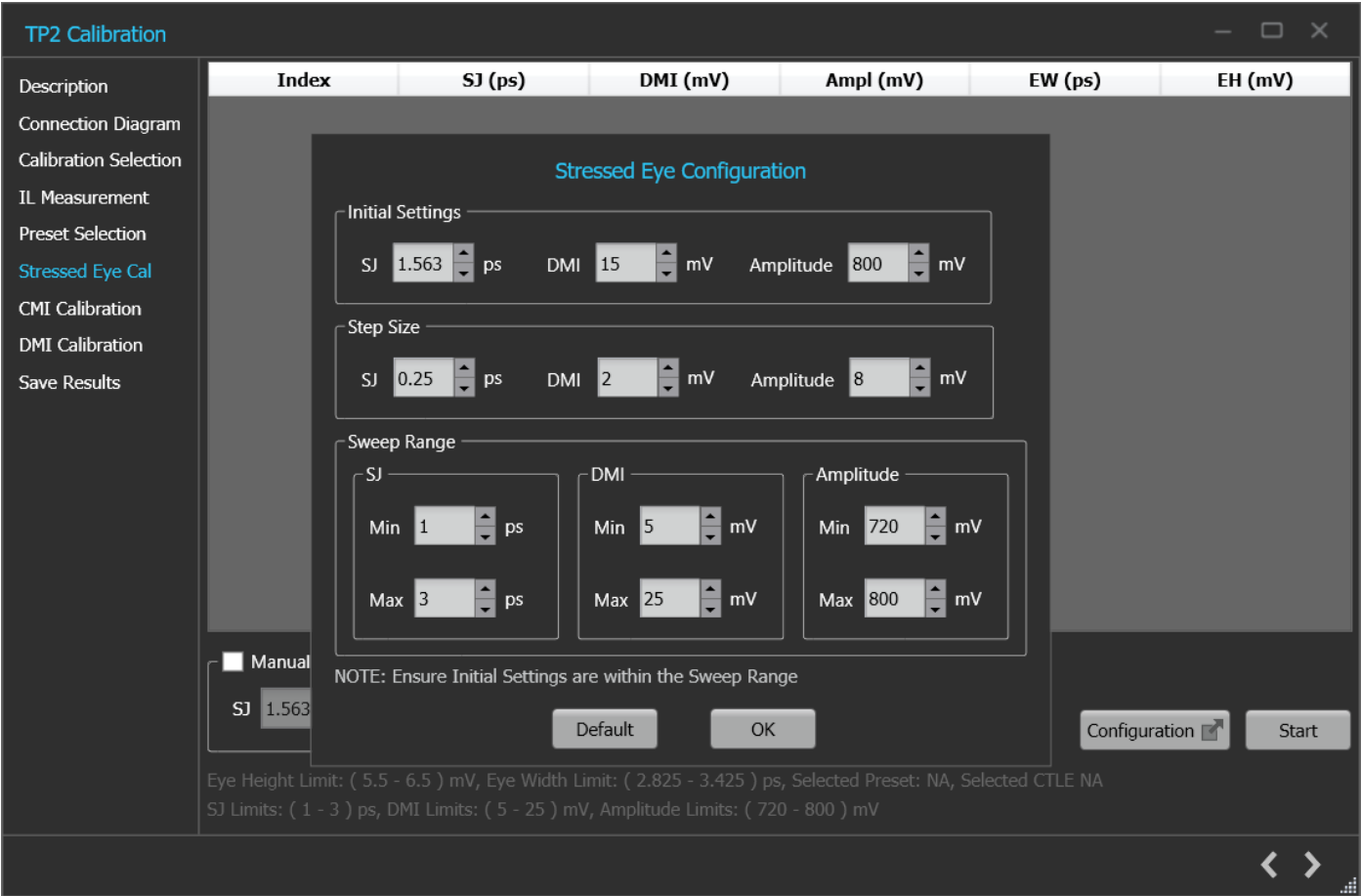
# acqs5

Configuration

Start

Eye Height Limit: ( 5.5 - 6.5 ) mV, Eye Width Limit: ( 2.825 - 3.425 ) ps, Selected Preset: NA, Selected CTLE NA  
SJ Limits: ( 1 - 3 ) ps, DMI Limits: ( 5 - 25 ) mV, Amplitude Limits: ( 720 - 800 ) mV

TP2 Calibration : Stressed Eye Cal



Gen-6 Base TP2 cal- stressed eye (configuration)

TP2 Calibration: Stressed Eye Cal

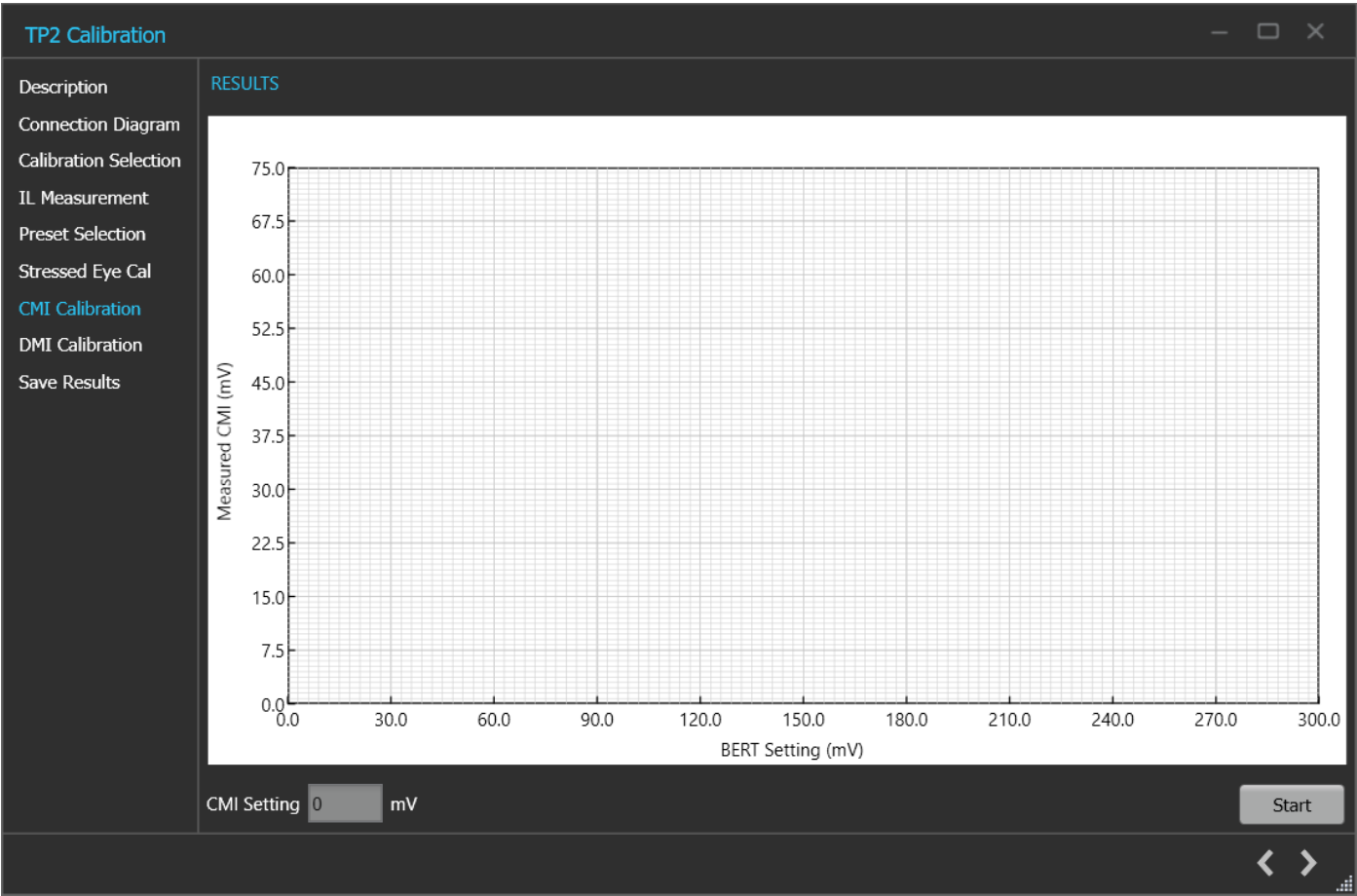
| Parameter              | Description                                                                                                                               |
|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| Manual Calibration Run | Select to manually enter the SJ, DMI and Amplitude values for Stressed Eye calibration.                                                   |
| SJ                     | Displays the SJ value at which Eye Width (EW) and Eye height (EH) needs to be computed.                                                   |
| DMI                    | Displays the DMI value at which Eye Width (EW) and Eye height (EH) needs to be computed.                                                  |
| Amplitude              | Displays the amplitude level at which Eye Width (EW) and Eye height (EH) needs to be computed.                                            |
| Exhaustive Sweep       | Select to run the stressed eye calibration for all combinations of Amplitude, SJ, and DMI within the sweep range with defined step sizes. |
| # acqs                 | Enter the number of waveforms used to obtain the average EW and EH.                                                                       |

| Parameter     | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Configuration | <p>Select to configure initial settings, step size, sweep range.</p> <p>Initial Settings - Configure the Initial SJ / DMI / Amplitude value from which your Linear Sweep should start (Not applicable for Exhaustive Sweep).</p> <p>Step Size - Configure the SJ / DMI / Amplitude step size value by which the increment or decrement of your SJ / DMI / Amplitude values should happen for Stressed Eye Calibration.</p> <p>Sweep Range - Configure the SJ / DMI / Amplitude min and max sweep range for which the Stressed Eye Calibration is executed.</p> <p>Default - Select to apply the initial settings, step size and sweep range to the default values.</p> <p>OK - Select to apply the configured values of initial settings, step size, sweep range.</p> |
| Start         | Click <b>Start</b> to run the measurements.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



Click to move to the next screen.

6. **CMI Calibration:** This tab displays the graph plots of CMI calibration.



TP2 Calibration : CMI Calibration

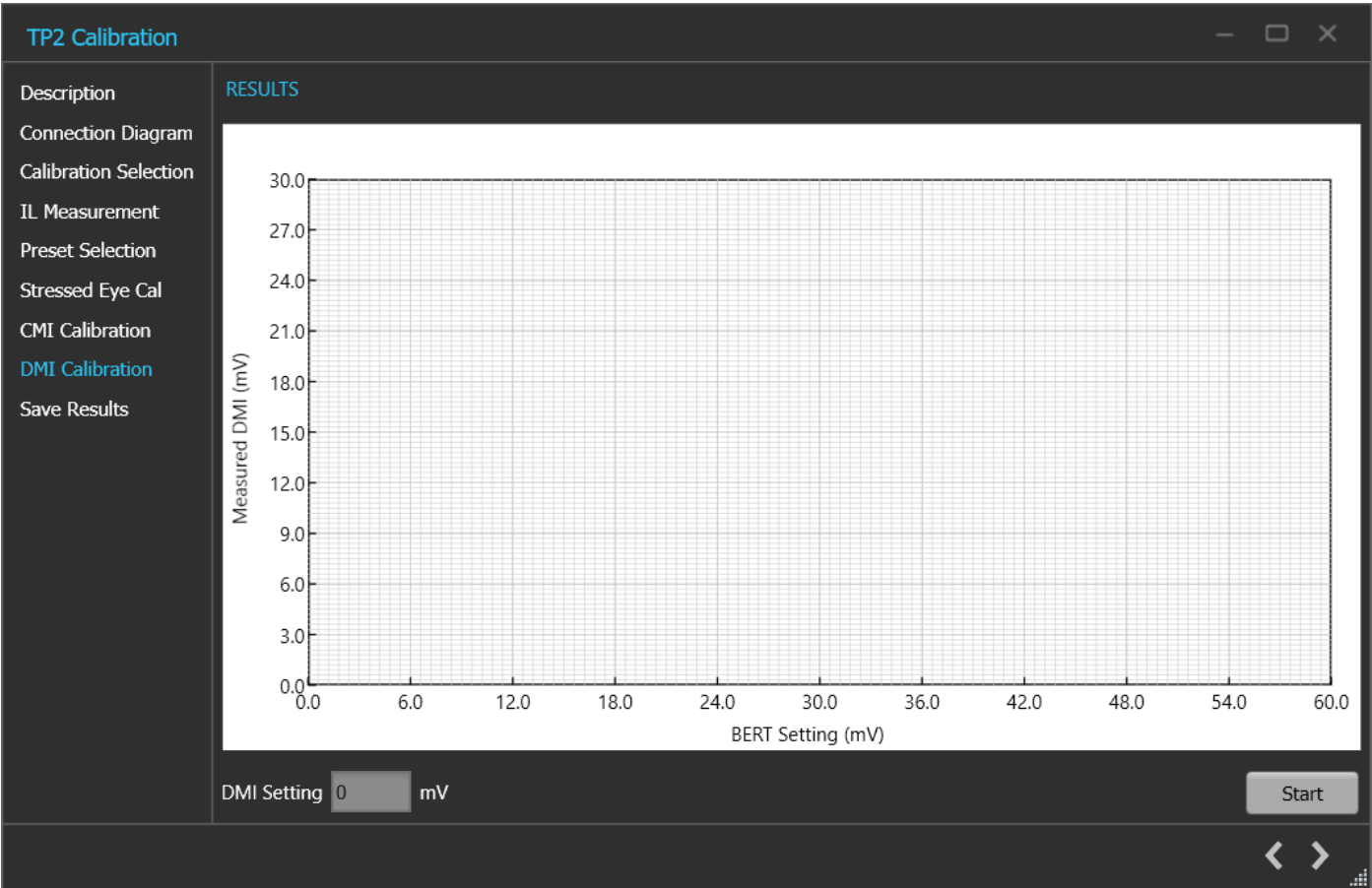
TP2 Calibration: CMI Calibration

| Parameter   | Description                                                         |
|-------------|---------------------------------------------------------------------|
| CMI Setting | Displays the calibrated CMI setting corresponding to nominal value. |
| Start       | Click <b>Start</b> to run the measurement.                          |



Click to move to the next screen.

7. **DMI Calibration:** This tab displays the graph plots of DMI calibration.



TP2 Calibration : DMI Calibration

d}}

TP2 Calibration: DMI Calibration

| Parameter   | Description                                                         |
|-------------|---------------------------------------------------------------------|
| DMI Setting | Displays the calibrated DMI setting corresponding to nominal value. |
| Start       | Click <b>Start</b> to run the measurement.                          |



Click to move to the next screen.

8. **Save Results:** This tab allows you to save all the TP2 calibration results.

TP2 Calibration

Description

Connection Diagram

Calibration Selection

IL Measurement

Preset Selection

Stressed Eye Cal

CMI Calibration

DMI Calibration

Save Results

Unique ID

Generated By

ISI Pair

Comments

Save

TP2 Calibration: Save Results

TP2 Calibration: Save Results



Click  to complete the TP2 calibration and close the wizard.

**NOTE:** Completion of the TP2 calibration process or in the event of cancellation of the process, the BERT data generator is turned off automatically by the PCIe6.0 (Base) Test Application.

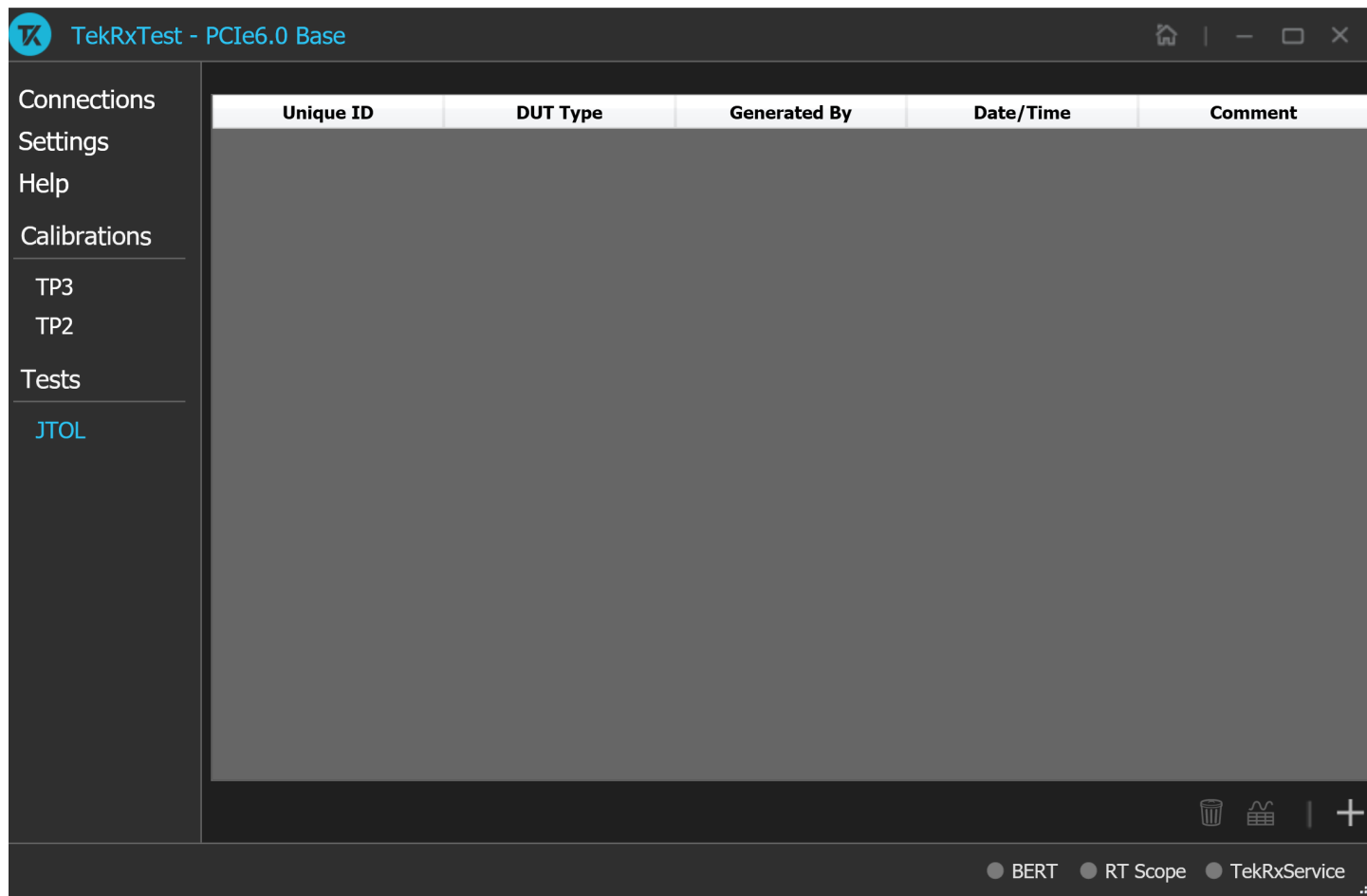
Tests panel

JTOL TEST

To test SJ at multiple frequencies for the JTOL test, you need to perform Multi-tone SJ calibration during TP3 Calibration. You can generate 30 KHz to 100 MHz with a maximum of 14 different frequencies.

The frequency settings table lists the frequencies calibrated during Multi-tone SJ calibration while performing TP3 calibration. If the newly generated frequency doesn't match with the calibrated frequency, then nearby calibrated frequency data will be used for running the JTOL test.

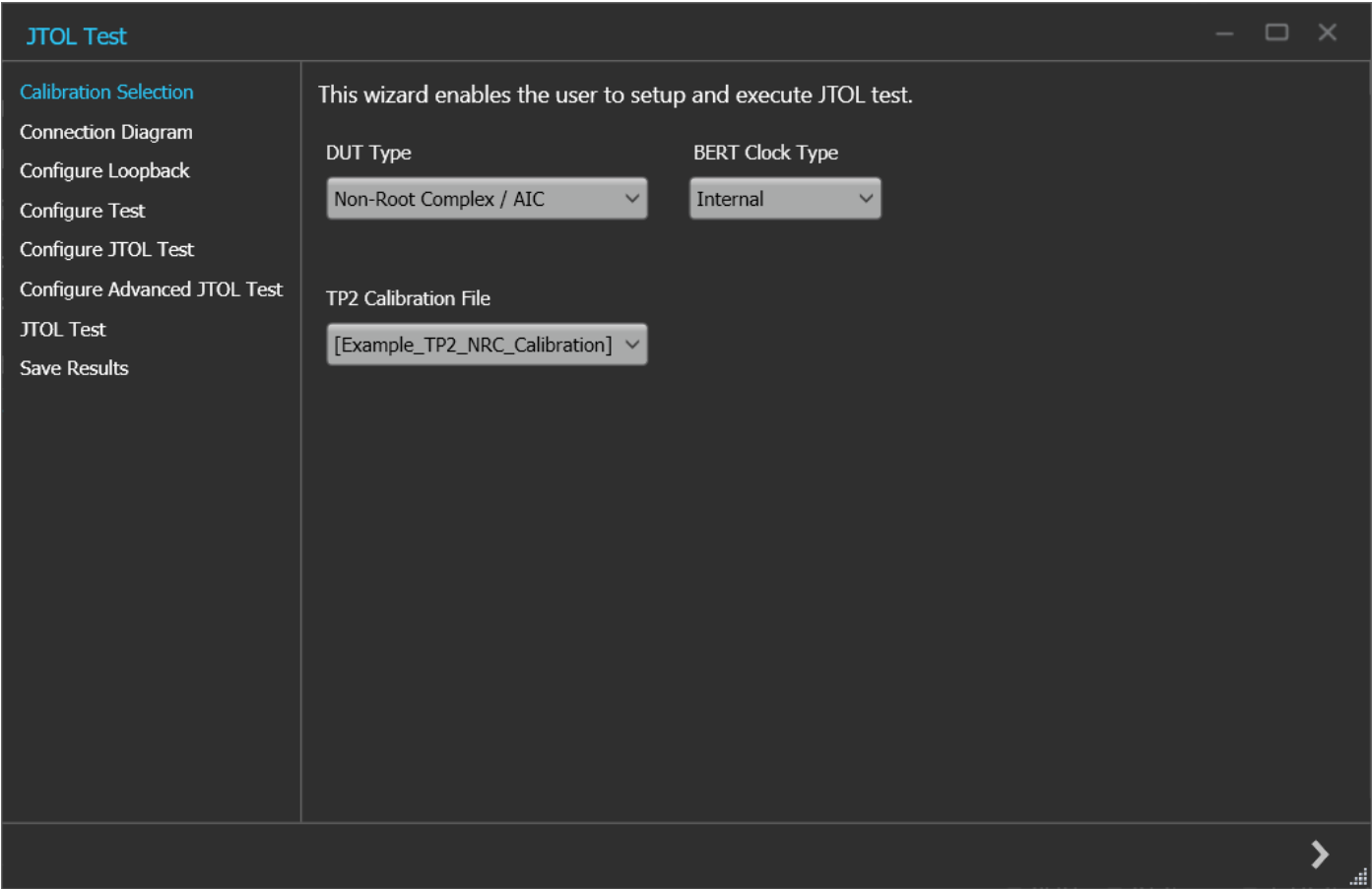
JTOL Test procedure



JTOL Test

Click **JTOL Test** under the Tests panel to view the measurement results. Click  at the right end corner of the application, to launch the JTOL test wizard. This wizard will guide you through the sequential procedure to perform the test.

1. **Calibration Selection:** This tab allows you to select the calibration file from the drop-down list. The drop-down lists all the TP2 calibration files available as per the choice made under DUT Type selection.



JTOL Test: Calibration Selection

JTOL Test: Calibration Selection

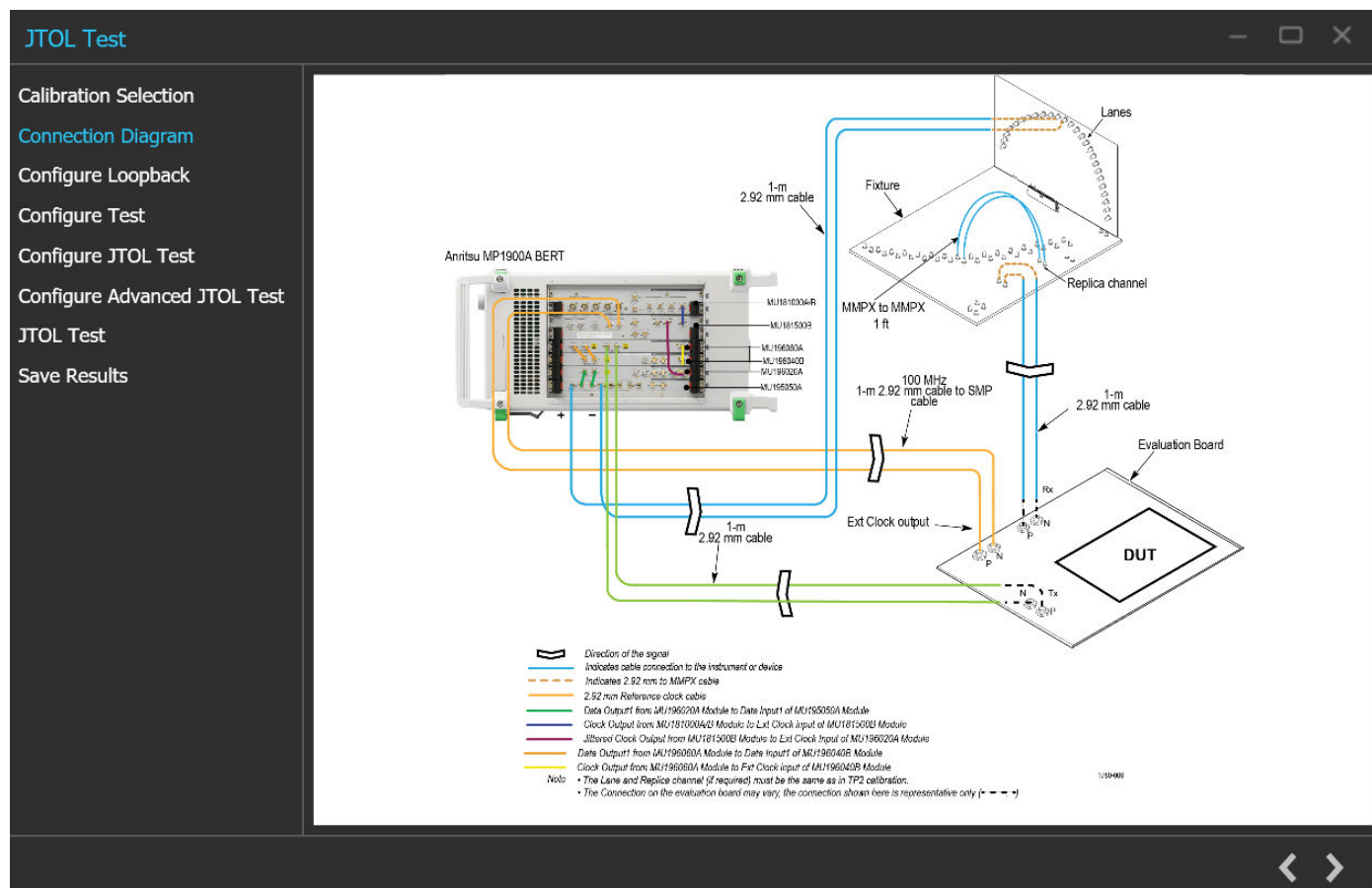
| Parameter            | Description                                                                      |
|----------------------|----------------------------------------------------------------------------------|
| DUT Type             | Select the required DUT type.<br>Non-Root Complex / AIC<br>Root Complex / System |
| BERT Clock Type      | Select the required DUT clock type.<br>100 MHz External<br>Internal              |
| TP2 Calibration File | Select the required TP2 calibration file.                                        |



Click  to move to the next screen.

- 2. **Connection Diagram:** This tab displays the connection diagram for the JTOL test. The connection diagram is the same for Non-Root Complex and Root Complex in case of JTOL test.



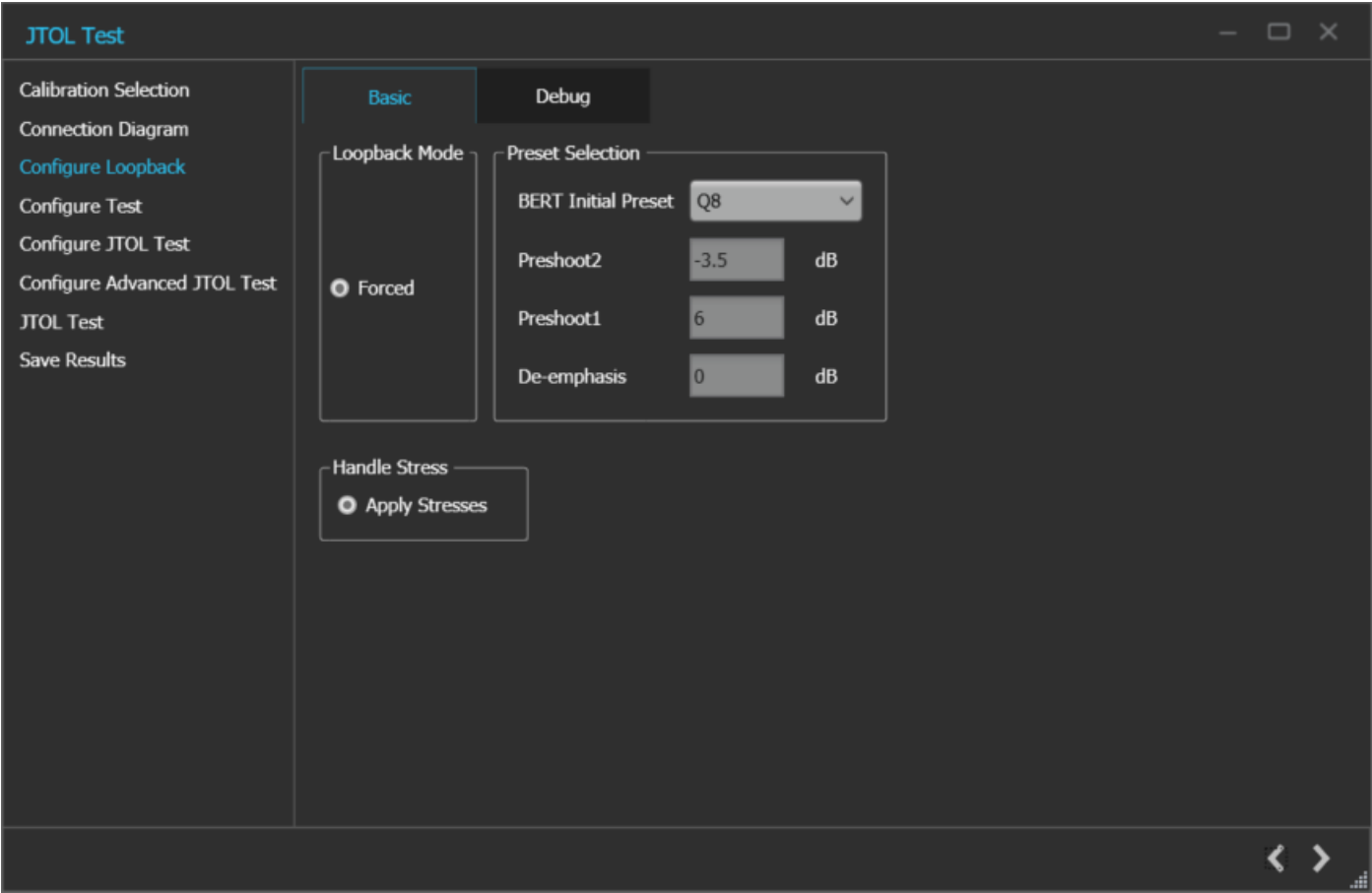


JTOL Test: Connection Diagram



Click  to move to the next screen.

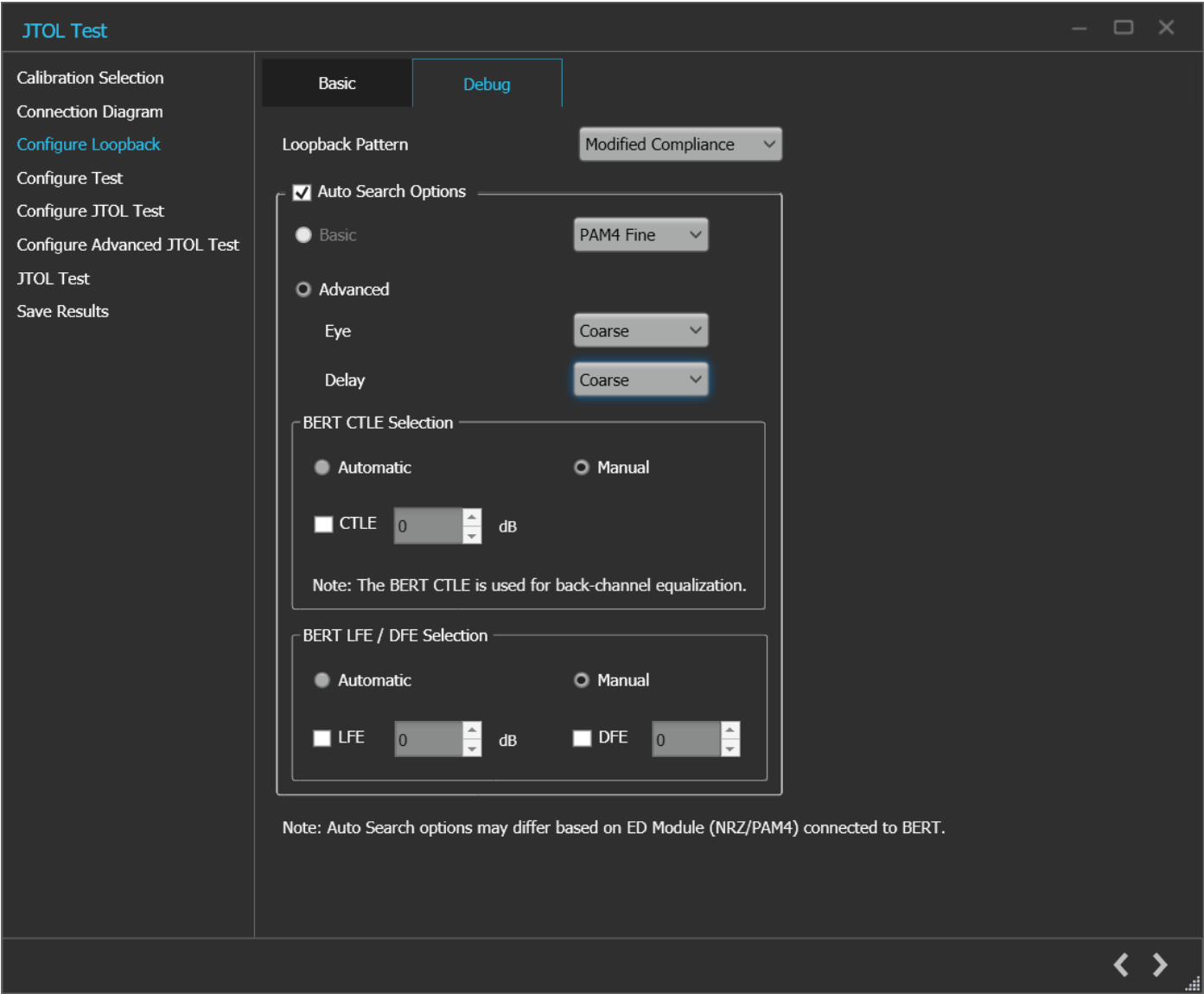
3. **Configure Loopback:** This tab allows you to configure the loopback settings (Basic and Debug).



JTOL Test Configure Loopback (Basic)

JTOL Test: Configure Loopback (Basic)

| Parameter            | Description                                                                                                                                                                                    |
|----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loopback Mode        | Displays the default loopback mode selected.                                                                                                                                                   |
| Preset Selection     |                                                                                                                                                                                                |
| BERT Initial Preset  | Select the Preset to be set on the BERT PPG during loopback from the drop-down list.<br>If user selects Custom Setting, the Preshoot1, Preshoot2 and De-emphasis are directly set on the BERT. |
| Preshoot2, Preshoot1 | Displays the Preshoots to be set on the BERT PPG during loopback.                                                                                                                              |
| De-emphasis          | Displays the De-emphasis to be set on the BERT PPG during loopback.                                                                                                                            |
| Handle Stress        | Displays the default handle stress option selected.                                                                                                                                            |



JTOL Test Configure Loopback (Debug)

JTOL Test: Configure Loopback (Debug)

| Parameter        | Description                                                                                                                                                                                                                                                    |
|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Loopback pattern | Select the pattern to be used during loopback from the drop-down list. The drop-down list contains the following elements:<br>Modified Compliance<br>Compliance<br>Clock Pattern<br>PRBS7<br>PRBS9<br>PRBS10<br>PRBS11<br>PRBS15<br>PRBS20<br>PRBS23<br>PRBS31 |

| Parameter           | Description                                                                                                                                     |
|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Auto Search         | Select to enable the auto search basic mode and choose from the drop-down. The drop-down contains the following elements:<br><br>Fine<br>Coarse |
| BERT CTLE Selection | Select the type of CTLE selection.                                                                                                              |
| BERT CTLE           | Enable the BERT CTLE value in dB. This parameter is used for back channel equalization.                                                         |



Click to move to the next screen.

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

Calibration Selection

Connection Diagram

Configure Loopback

Configure Test

Configure JTOL Test

Configure Advanced JTOL Test

JTOL Test

Save Results

JTOL Test

Basic

BER Settings

BER

1 E-

6

Error Limit

1

Test Length

Duration

15

s

Confidence

99.999

% at 5E+11 Bits

Stress Configuration

Calibrated

Customized

Un-Calibrated

CMI

75

mV

RJ

0.25

ps (RMS)

DMI

11

mV

SJ

1.563

ps

Amplitude

800

mV (Diff)

Load Stresses

Note: Use the 'Load Stresses' option exclusively for loading preset and stress parameters in BERT

JTOL Test: Configuration Test

JTOL Test: Configure Test (Basic)

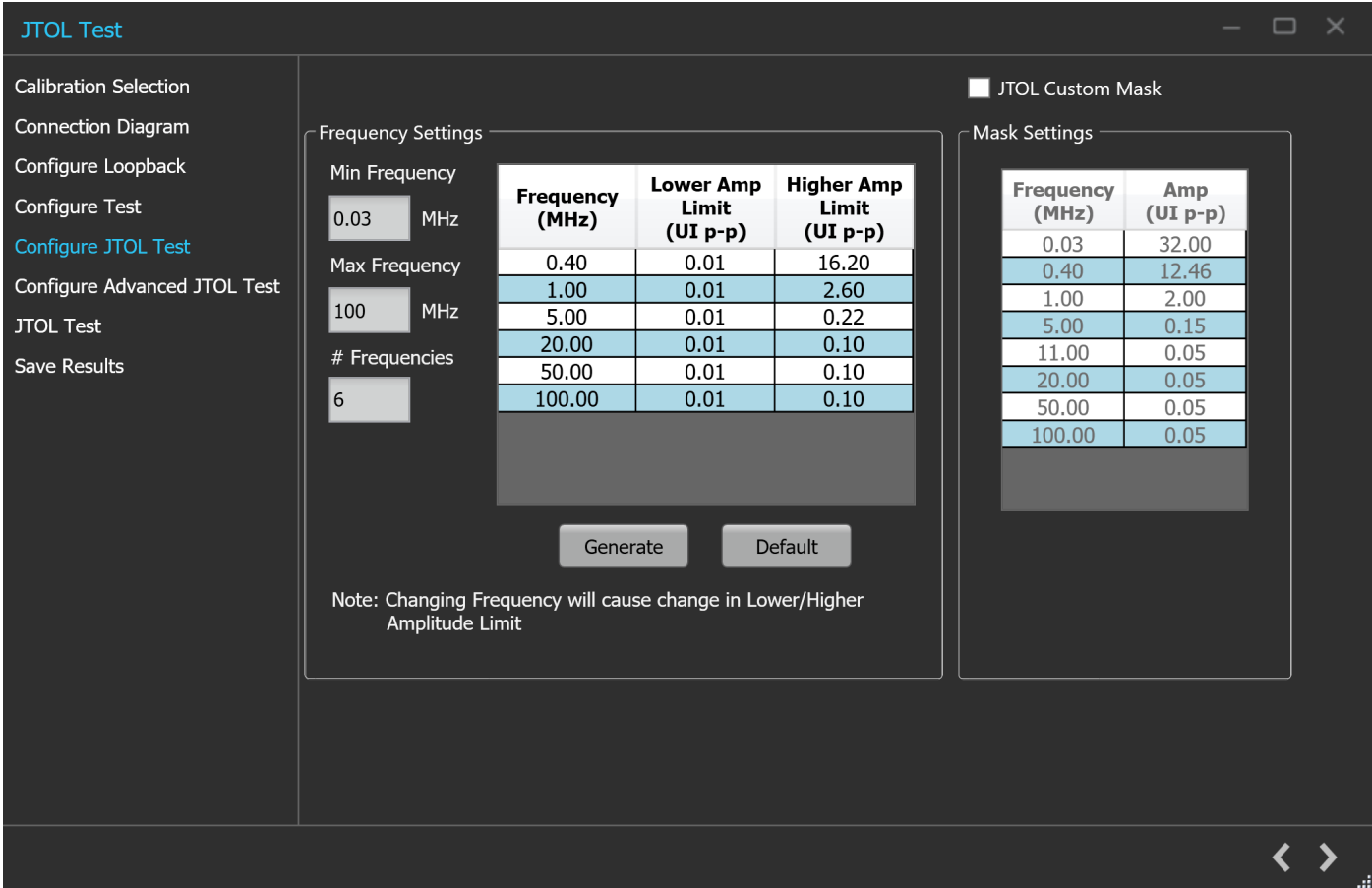
| Parameter                          | Description                                                                                                                             |
|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|
| Apply SSC to data and clock output | Select to apply SSC to data and clock output.                                                                                           |
| BER Settings                       | BER - Enter the number of bits in error that can be tolerated.<br>Error Limit - Enter the required error limit. The default value is 1. |

| Parameter            | Description                                                                                                                                                                                                          |
|----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Length          | Duration - Enter the test length duration value.<br>Confidence - Displays the test length confidence value.                                                                                                          |
| Stress Configuration | Select the required stress configuration among calibrated, customized, un-calibrated.                                                                                                                                |
| CMI                  | Displays the CMI value in mV. The stress on the waveform is defined by the parameters of CMI.                                                                                                                        |
| DMI                  | Displays the DMI value in mV. The stress on the waveform is defined by the parameters of DMI.                                                                                                                        |
| Amplitude            | Displays the Amplitude value in mV. The stress on the waveform is defined by the parameters of Amplitude.                                                                                                            |
| RJ                   | Displays the RJ value in ps or Ulp-p. The stress on the waveform is defined by the parameters of RJ.                                                                                                                 |
| SJ                   | Displays the SJ value in ps or Ulp-p. The stress on the waveform is defined by the parameters of SJ.                                                                                                                 |
| Load Stresses        | Click <b>Load Stresses</b> to apply all the configured stress parameters CMI, DMI, SJ, and amplitude in the BERT.<br>Use the <b>Load Stresses</b> option exclusively to load preset and stress parameters into BERT. |



Click  to move to the next screen.

5. **Configure JTOL Test:** This tab allows you to configure the JTOL test settings.



JTOL Test: Configure JTOL Test

JTOL Test: Configure JTOL Test

| Parameter                       | Description                                                                                                                                  |
|---------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Frequency Settings</b>       |                                                                                                                                              |
| Frequency (MHz)                 | Displays the table of frequencies in MHz for which JTOL test is to be performed.                                                             |
| Lower Amplitude Limit (UI p-p)  | Displays the table of lower amplitude limit values at which JTOL test starts for that frequency.                                             |
| Higher Amplitude Limit (UI p-p) | Displays the table of higher amplitude limit values at which JTOL test ends for that frequency.                                              |
| Min Frequency                   | Enter the minimum frequency value.                                                                                                           |
| Max Frequency                   | Enter the maximum frequency value.                                                                                                           |
| # Frequencies                   | Enter the desired number of frequencies within the specified range.                                                                          |
| Generate                        | Click to view the table populated with the frequencies.                                                                                      |
| Default                         | Click to view the table populated with default list of frequencies.                                                                          |
| JTOL Custom Mask                | Select to enable the JTOL Custom mask.<br>On JTOL custom mask selection with the defined mask settings, mask will get generated on the plot. |

| Parameter            | Description                                          |
|----------------------|------------------------------------------------------|
| <b>Mask Settings</b> |                                                      |
| Frequency (MHz)      | Displays the table of knee frequencies for the mask. |
| Amplitude (UI p-p)   | Displays the amplitude of SJ at each knee frequency. |



Click to move to the next screen.

6. **Configure Advanced JTOL Test:** This tab allows you to configure the advanced JTOL test settings.

JTOL Test

Calibration Selection

Connection Diagram

Configure Loopback

Configure Test

Configure JTOL Test

Configure Advanced JTOL Test

JTOL Test

Save Results

Relaxation Time

2s

Note: Relaxation time is the "Settling Time" in MX183000A which is the interval between amplitude jumps for a particular frequency.

Search Algorithms

Upwards Linear

Jitter Steps

| Jitter Freq Range      | Step (UI p-p) |
|------------------------|---------------|
| Freq <= 100kHz         | 0.5           |
| 100kHz < Freq <= 1MHz  | 0.02          |
| 1MHz < Freq <= 10MHz   | 0.008         |
| 10MHz < Freq <= 100MHz | 0.004         |

☒ BER Threshold Check

☐ Retest frequencies failing below Spec Mask

JTOL Test: Configure Advanced JTOL Test

JTOL Test: Configure Advanced JTOL Test

| Parameter       | Description                                                                               |
|-----------------|-------------------------------------------------------------------------------------------|
| Relaxation Time | Enter the amount of time BERT needs to relax before running BER for each amplitude point. |

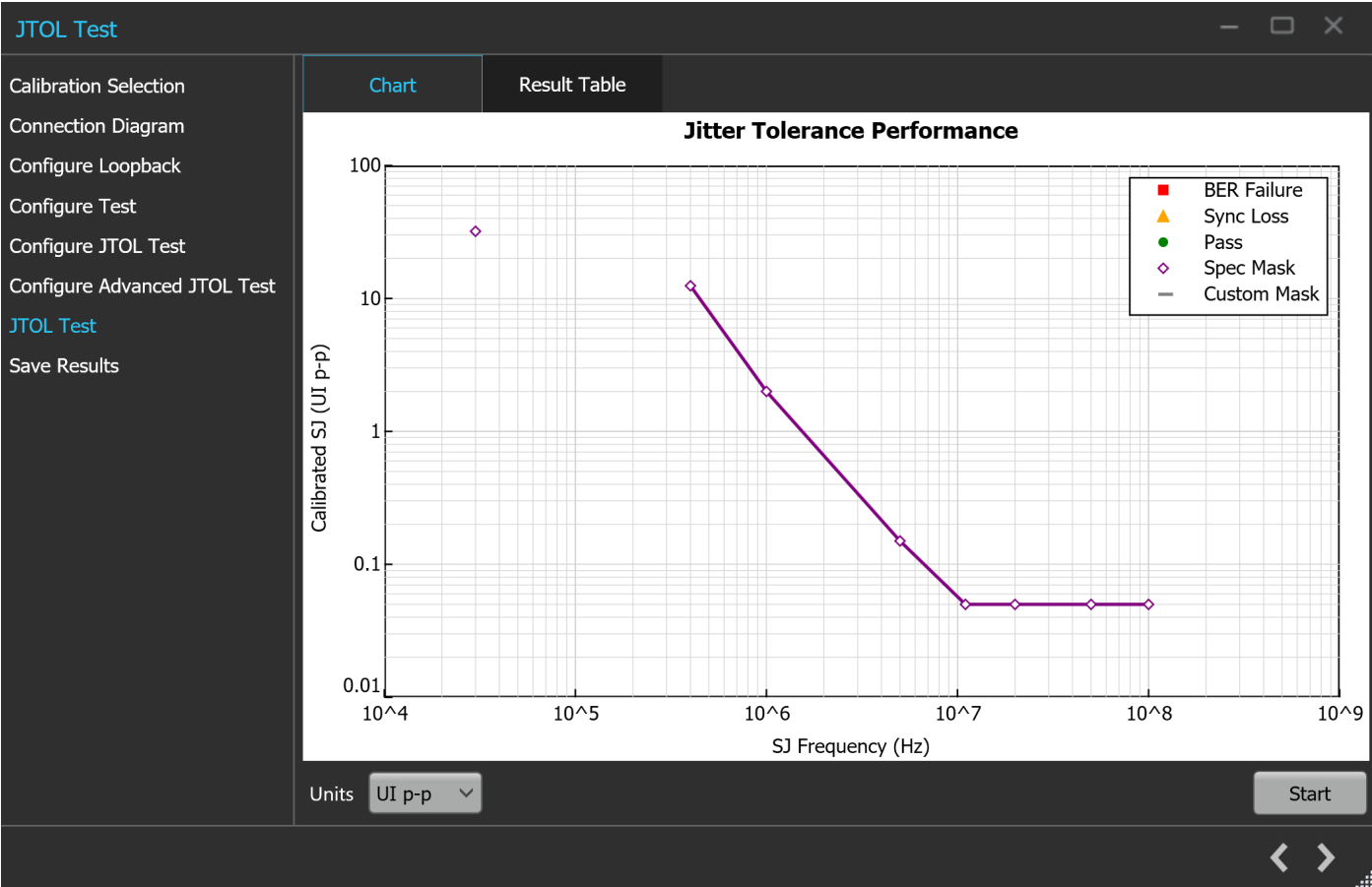
| Parameter                                  | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Search Algorithms                          | <p>Select the required search algorithm from the drop-down for JTOL test.</p> <p>Binary</p> <p>Downwards Linear</p> <p>Downwards Log</p> <p>Upwards Log</p> <p>Upwards Linear</p> <p>Binary + Linear</p>                                                                                                                                                                                                                                                                                                     |
| Jitter Steps                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Jitter Freq Range                          | <p>The different frequency ranges can have different step size for SJ amplitude sweep.</p> <p>Freq <math>\leq</math> 100 KHz</p> <p>100KHz &lt; Freq <math>\leq</math> 1 MHz</p> <p>1 MHz &lt; Freq <math>\leq</math> 10 MHz</p> <p>10 MHz &lt; Freq <math>\leq</math> 100 MHz</p>                                                                                                                                                                                                                           |
| Step (UI p-p)                              | <p>Sets the SJ amplitude step size for different frequency ranges.</p> <p>Sets the ratios for Downward and Upward-Log search algorithms.</p> <p>No steps size is defined for Binary + Linear search algorithm.</p>                                                                                                                                                                                                                                                                                           |
| BER Threshold Check                        | <p>When the user selects the BER Threshold Check (selected by default), it performs a BER check as the first step before initiating the Jitter Tolerance test. The BER is checked for the lowest SJ Tone and amplitude to ensure it meets the Threshold requirements as configured by the user on the Configure Test page. If the threshold is not met, the user is prompted to either continue with the test, recheck, or cancel the current instance and revisit the setup before restarting the test.</p> |
| Retest frequencies failing below Spec Mask | <p>In case a user-configured SJ tone fails below the limit as provided by the specification, the TekRxTest application will throw a prompt. In such a scenario, the user can either retest the tone or proceed with the test. We also allow the user to perform auto search before retesting at this point in case retesting the tone alone doesn't help.</p>                                                                                                                                                |

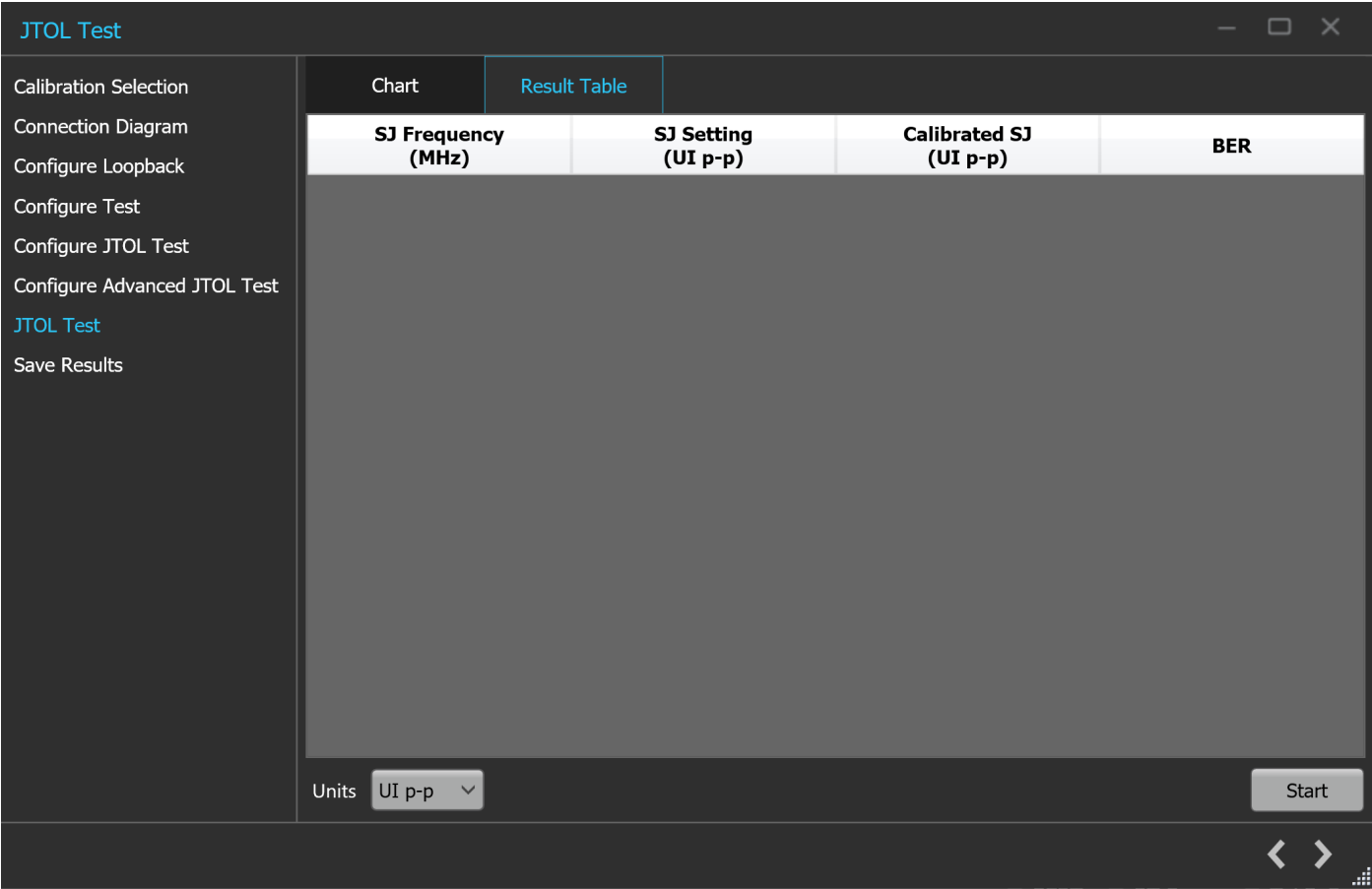


Click  to move to the next screen.

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







JTOL Test Result Table

JTOL Test (Results Table)

| Parameter                              | Description                                                 |
|----------------------------------------|-------------------------------------------------------------|
| SJ Frequency (MHz)                     | Displays the frequencies for which JTOL Test was performed. |
| SJ Setting (UI <sub>p-p</sub> / ps)    | Displays the SJ Amplitude on the BERT.                      |
| Calibrated SJ (UI <sub>p-p</sub> / ps) | Displays the Calibrated SJ Amplitude.                       |
| BER                                    | Displays the BER value reported by MX183000A.               |



Click to move to the next screen.

8. **Save Results:** This tab allows you to save the JTOL test results.

JTOL Test

Calibration Selection

Connection Diagram

Configure Loopback

Configure Test

Configure JTOL Test

Configure Advanced JTOL Test

JTOL Test

Save Results

Unique ID

Generated By

Comments

Save

JTOL Test : Save Results

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

Click  to complete the JTOL Test and close the wizard.

---

# Programmatic interface commands

## TEKRXTEST:SELECT:HOME

This command selects the home button.

### Syntax

TEKRXTEST:SELECT:HOME

### Inputs

NA

### Outputs

NA

## TEKRXTEST:SELECT:PCle6Base

This command selects the PCIe6.0 Base application.

### Syntax

TEKRXTEST:SELECT:PCle6Base

### Inputs

NA

### Outputs

NA

## PREF:BERT:IP

This command sets or returns the IP address of the BERT used to connect with the TekRxTest application.

### Syntax

PREF:BERT:IP <IP address>

PREF:BERT:IP?

### Inputs

<IP address> = <String>

### Outputs

<String>

## PREF:RTS:IP

This command sets or returns the IP address of the Real Time Oscilloscope used to connect with the TekRxTest application.

### Syntax

```
PREF:RTS:IP <IP address>
```

```
PREF:RTS:IP?
```

### Inputs

<IP address> = <String>

### Outputs

<String>

## CONN:BERT

This command sets or returns the connection status of the BERT with TekRxTest application.

### Syntax

```
CONN:BERT <0 | 1>
```

```
CONN:BERT?
```

### Inputs

<0 | 1>

0 indicates to disconnect the BERT.

1 indicates to connect the BERT.

### Outputs

<0 | 1>

## CONN:RTS

This command sets or returns the connection status of the Real Time Oscilloscope with TekRxTest application.

### Syntax

```
CONN:RTS <0 | 1>
```

```
CONN:RTS?
```

### Inputs

<0 | 1>

0 indicates to disconnect the Real Time Oscilloscope.

1 indicates to connect the Real Time Oscilloscope.

### Outputs

<0 | 1>

## SETTINGS:TEKRXSERVICE:ANALYSISTIMEOUT

This command sets or returns TekRxService analysis time out value.

### Syntax

```
SETTINGS:TEKRXSERVICE:ANALYSISTIMEOUT<int>
```

```
SETTINGS:TEKRXSERVICE:ANALYSISTIMEOUT?
```

### Inputs

<int> 15 to 1000

### Outputs

<int>

## SETTINGS:SIGTEST:VERSION

This command sets or returns the sigtest version number.

### Syntax

```
SETTINGS:SIGTEST:VERSION <String>
```

```
SETTINGS:SIGTEST:VERSION?
```

### Inputs

<String>

### Outputs

<String>

## SETTINGS:MULTITONESJCAL:ENABLE

This command sets or returns the enable or disable status of Multi-tone SJ calibration.

### Syntax

```
SETTINGS:MULTITONESJCAL:ENABLE {0|1}
```

```
SETTINGS:MULTITONESJCAL:ENABLE?
```

### Inputs

{0 | 1}

0 indicates to disable the multi-tone SJ calibration.

1 indicates to enable the multi-tone SJ calibration.

### Outputs

{0 | 1}

## SETTINGS:SOCKETSERVER:IP

This command returns the IP address of the socket server.

## Syntax

```
SETTINGS:SOCKETSERVER:IP?
```

## Inputs

NA

## Outputs

<String>

# SETTINGS:SOCKETSERVER:LISTENINGPORT

This command returns the listening port of the socket server.

## Syntax

```
SETTINGS:SOCKETSERVER:LISTENINGPORT?
```

## Inputs

NA

## Outputs

<String>

# SETTINGS:SOCKETSERVER:TIMEOUT

This command returns the time out value of the socket server.

## Syntax

```
SETTINGS:SOCKETSERVER:TIMEOUT?
```

## Inputs

NA

## Outputs

<int>

# SETTINGS:MULTITONESJCAL:FREQUENCYCOUNT

This command sets or returns the frequency count value for Multi-tone SJ calibration.

## Syntax

```
SETTINGS:MULTITONESJCAL:FREQUENCYCOUNT <NR1>
```

```
SETTINGS:MULTITONESJCAL:FREQUENCYCOUNT?
```

## Inputs

<NR1> 1 to 14

## Outputs

<NR1>

## SETTINGS:MULTITONESJCAL:MAXFREQUENCY

This command sets or returns the maximum frequency value for Multi-tone SJ calibration.

### Syntax

```
SETTINGS:MULTITONESJCAL:MAXFREQUENCY <NR1>
```

```
SETTINGS:MULTITONESJCAL:MAXFREQUENCY?
```

### Inputs

<NR1> 1 to 100 MHz

### Outputs

<NR1>

## SETTINGS:MULTITONESJCAL:MINFREQUENCY

This command sets or returns the minimum frequency value for Multi-tone SJ calibration.

### Syntax

```
SETTINGS:MULTITONESJCAL:MINFREQUENCY <NR1>
```

```
SETTINGS:MULTITONESJCAL:MINFREQUENCY?
```

### Inputs

<NR1> 0.03 to 99 MHz

### Outputs

<NR1>

## SETTINGS:MULTITONESJCAL:POINTS

This command sets or returns the number of points for Multi-tone SJ calibration.

### Syntax

```
SETTINGS:MULTITONESJCAL:POINTS <NR1>
```

```
SETTINGS:MULTITONESJCAL:POINTS?
```

### Inputs

<NR1> 2 to 8

### Outputs

<NR1>

## SETTINGS:EYE:ACQUISITIONS

This command sets or returns the number of acquisitions for stressed eye calibration.



## Syntax

```
SETTINGS:EYE:ACQUISITIONS <int>
```

```
SETTINGS:EYE:ACQUISITIONS?
```

## Inputs

<int> 1 to 20

## Outputs

<int>

# SETTINGS:TP1:CH1DEEMBEDFILE

This command sets or returns the CH1 de-embedding filter file path for calibration.

## Syntax

```
SETTINGS:TP1:CH1DEEMBEDFILE <"File path">
```

```
SETTINGS:TP1:CH1DEEMBEDFILE?
```

## Inputs

<"File path"> = <String>

## Outputs

<String>

# SETTINGS:TP1:CH2DEEMBEDFILE

This command sets or returns the CH2 de-embedding filter file path for calibration .

## Syntax

```
SETTINGS:TP1:CH2DEEMBEDFILE <"File path">
```

```
SETTINGS:TP1:CH2DEEMBEDFILE?
```

## Inputs

<"File path"> = <String>

## Outputs

<String>

# SETTINGS:TP1:ENABLECH1DEEMBED

This command sets or returns the enable or disable status of CH1 de-embedding for calibration.

## Syntax

```
SETTINGS:TP1:ENABLECH1DEEMBED {0 | 1}
```

```
SETTINGS:TP1:ENABLECH1DEEMBED?
```

## Inputs

{0 | 1}

0 - Indicates the CH1 de-embedding is disabled.

1 - Indicated the CH1 de-embedding is enabled

## Outputs

{0 | 1}

# SETTINGS:TP1:ENABLECH2DEEMBED

This command sets or returns the enable or disable status of CH2 de-embedding for calibration.

## Syntax

```
SETTINGS:TP1:ENABLECH2DEEMBED {0 | 1}
```

```
SETTINGS:TP1:ENABLECH2DEEMBED?
```

## Inputs

{0 | 1}

0 - Indicates the CH2 de-embedding is disabled.

1 - Indicates the CH2 de-embedding is enabled.

## Outputs

{0 | 1}

# SETTINGS:TP2:CH1DEEMBEDFILE

This command sets or returns the filter file path of CH1 de-embedding for TP2 calibration.

## Syntax

```
SETTINGS:TP2:CH1DEEMBEDFILE <"File path">
```

```
SETTINGS:TP2:CH1DEEMBEDFILE?
```

## Inputs

<"File path"> = <String>

## Outputs

<String>

# SETTINGS:TP2:CH2DEEMBEDFILE

This command sets or returns the filter file path of CH2 de-embedding for TP2 calibration.

## Syntax

```
SETTINGS:TP2:CH2DEEMBEDFILE <String>
```

```
SETTINGS:TP2:CH2DEEMBEDFILE?
```

## Inputs

<"File path"> = <String>

## Outputs

<String>

# SETTINGS:TP2:ENABLECH1DEEMBDED

This command sets or returns the enable or disable status of CH1 de-embedding for TP2 calibration.

## Syntax

SETTINGS:TP2:ENABLECH1DEEMBDED {0 | 1}

SETTINGS:TP2:ENABLECH1DEEMBDED?

## Inputs

{0 | 1}

0 - Indicates the CH1 de-embedding is disabled.

1 - Indicates the CH1 de-embedding is enabled.

## Outputs

{0 | 1}

# SETTINGS:TP2:ENABLECH2DEEMBDED

This command sets or returns the enable or disable status of CH2 de-embedding for TP2 calibration.

## Syntax

SETTINGS:TP2:ENABLECH2DEEMBDED {0 | 1}

SETTINGS:TP2:ENABLECH2DEEMBDED?

## Inputs

{0 | 1}

0 - Indicates the CH2 de-embedding is disabled.

1 - Indicates the CH2 de-embedding is enabled.

## Outputs

{0 | 1}

# SETTINGS:MULTITONESJCAL:DEFAULT

This command sets the SJ Frequencies to its default value for multitone SJ calibration.

## Syntax

SETTINGS:MULTITONESJCAL:DEFAULT

## Inputs

NA

## Outputs

NA

# SETTINGS:MULTITONESJCAL:GENERATE

This command generates the SJ frequencies for multitone SJ calibration.

## Syntax

```
SETTINGS:MULTITONESJCAL:GENERATE
```

## Inputs

NA

## Outputs

NA

# SETTINGS:TP1:CH1:EXTERNALATTEN

This command sets or returns the external attenuation of CH1 for calibration.

## Syntax

```
SETTINGS:TP1:CH1:EXTERNALATTEN <int>
```

```
SETTINGS:TP1:CH1:EXTERNALATTEN?
```

## Inputs

<int> 0 to 10

## Outputs

<int>

# SETTINGS:TP1:CH2:EXTERNALATTEN

This command sets or returns the external attenuation of CH2 for calibration.

## Syntax

```
SETTINGS:TP1:CH2:EXTERNALATTEN <int>
```

```
SETTINGS:TP1:CH2:EXTERNALATTEN?
```

## Inputs

<int> 0 to 10

## Outputs

<int>

# SETTINGS:TP2:CH1:EXTERNALATTEN

This command sets or returns the external attenuation of CH1 for TP2 calibration.

## Syntax

```
SETTINGS:TP2:CH1:EXTERNALATTEN <int>
```

```
SETTINGS:TP2:CH1:EXTERNALATTEN?
```

## Inputs

<int> 0 to 10

## Outputs

<int>

# SETTINGS:TP2:CH2:EXTERNALATTEN

This command sets or returns the external attenuation of CH2 for TP2 calibration.

## Syntax

```
SETTINGS:TP2:CH2:EXTERNALATTEN <int>
```

```
SETTINGS:TP2:CH2:EXTERNALATTEN?
```

## Inputs

<int> 0 to 10

## Outputs

<int>

# SETTINGS:TP2:ENABLEREPLICACHDEMBED

This command sets or returns the enables or disable status for the use of replica channel cable de-embedding in TP2 calibration.

## Syntax

```
SETTINGS:TP2:ENABLEREPLICACHDEMBED {0 | 1}
```

```
SETTINGS:TP2:ENABLEREPLICACHDEMBED?
```

## Inputs

{0 | 1}

0 - Disable the use of replica channel cable de-embedding.

1 - Enable the use of replica channel cable de-embedding.

## Outputs

{0 | 1}

# SETTINGS:TP2:REPLICACHDEEMBEDDIFF

This command sets or returns the differential filter file path for replica channel cable de-embedding in TP2 calibration.

## Syntax

```
SETTINGS:TP2:REPLICACHDEEMBEDDIFF <"File path">
```

```
SETTINGS:TP2:REPLICACHDEEMBEDDIFF?
```

### Inputs

<"File path"> = <String>

### Outputs

<String>

## SETTINGS:TP2:REPLICACHDEEMBEDCH1

This command sets or returns the Ch1 filter file path for replica channel cable de-embedding in TP2 calibration.

### Syntax

```
SETTINGS:TP2:REPLICACHDEEMBEDCH1 <"File path">
```

```
SETTINGS:TP2:REPLICACHDEEMBEDCH1?
```

### Inputs

<"File path"> = <String>

### Outputs

<String>

## SETTINGS:TP2:REPLICACHDEEMBEDCH2

This command sets or returns the Ch2 filter file path for replica channel cable de-embedding in TP2 calibration.

### Syntax

```
SETTINGS:TP2:REPLICACHDEEMBEDCH2 <"File path">
```

```
SETTINGS:TP2:REPLICACHDEEMBEDCH2?
```

### Inputs

<"File path"> = <String>

### Outputs

<String>

## SETTINGS:TP2:REPLICACHDEEMBEDFILETYPE

This command sets or returns the filter file type for replica channel deembedding in TP2 calibration.

### Syntax

```
SETTINGS:TP2:REPLICACHDEEMBEDFILETYPE <0 | 1>
```

```
SETTINGS:TP2:REPLICACHDEEMBEDFILETYPE?
```

### Inputs

<0 | 1>

0 - Indicates Differential as the filter type for replica channel de-embedding.

1 - Indicates Single-ended as the filter type for replica channel de-embedding.

## Outputs

<0 | 1>

# SETTINGS:RESTORE

This command resets the application to default settings.

## Syntax

```
Settings:Restore
```

## Inputs

NA

## Outputs

NA

# SETTINGS:RECALL

This command recalls the settings as per specified file.

## Syntax

```
SETTINGS:RECALL <"File path">
```

## Inputs

<"File path"> = <String>

## Outputs

NA

# SETTINGS:SAVE

This command saves the settings into the specified file.

## Syntax

```
Settings:Save <"File path">
```

## Inputs

<"File path"> = <String>

## Outputs

NA

# SETTINGS:RECALL:STATUS

This command returns the status of the recall command execution.

## Syntax

SETTINGS:RECALL:STATUS?

## Inputs

NA

## Outputs

<String>

# SETTINGS:RESTORE:STATUS

This command returns the status of restore command execution.

## Syntax

SETTINGS:RESTORE:STATUS?

## Inputs

NA

## Outputs

<String>

# SETTINGS:SAVE:STATUS

This command returns the status of the save command execution.

## Syntax

SETTINGS:SAVE:STATUS?

## Inputs

NA

## Outputs

<String>

# TP1CAL:OPEN

This command opens the calibration panel.

## Syntax

TP1CAL:OPEN

## Inputs

NA

## Outputs

NA



# TP1CAL:WIZARD:OPEN

This command opens the calibration wizard.

## Syntax

TP1CAL:WIZARD:OPEN

## Inputs

NA

## Outputs

NA

# TP1CAL:WIZARD:CLOSE

This command closes the calibration wizard.

## Syntax

TP1CAL:WIZARD:CLOSE

## Inputs

NA

## Outputs

NA

# TP1CAL:DELETE

This command deletes the selected calibration file.

## Syntax

TP1CAL:DELETE

## Inputs

NA

## Outputs

NA

# TP1CAL:REPORT

This PI command generates a TP1 Calibration report for the specified unique ID.

## Syntax

TP1CAL:REPORT <string>

## Inputs

<string>

## Outputs

NA

# TP1CAL:SAVE

This command saves the current Calibration file to the database.

## Syntax

```
TP1CAL:SAVE
```

## Inputs

NA

## Outputs

NA

# TP1CAL:EQUIP:INIT

This command sets the equipment initialization run status for calibration.

## Syntax

```
TP1CAL:EQUIP:INIT <0 | 1>
```

## Inputs

<0 | 1>

0 - Stop the equipment initialization to run.

1 - Start the equipment initialization to run.

## Outputs

NA

# TP1CAL:EQUIP:SKIPSIGNALVALIDATION

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

## Syntax

```
TP1CAL:EQUIP:SKIPSIGNALVALIDATION <0 | 1>
```

```
TP1CAL:EQUIP:SKIPSIGNALVALIDATION?
```

## Input

<0 | 1>

1- Skip signal validation.

0 - Perform signal validation.

## Output

<0 | 1>

# TP1CAL:AUTOCAL

This command sets the automatic calibration run status.

## Syntax

TP1CAL:AUTOCAL <0 | 1>

## Inputs

<0 | 1>

0 - Stop the automatic calibration run.

1 - Start the automatic calibration run.

## Outputs

NA

# TP1CAL:AMPLITUDE:RUN

This command sets the Amplitude calibration run status.

## Syntax

TP1CAL:AMPLITUDE:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the Amplitude calibration run.

1 - Start the Amplitude calibration run.

## Outputs

NA

# TP1CAL:PRESET:RUN

This command sets the Preset calibration run status.

## Syntax

TP1CAL:PRESET:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the the Preset calibration run.

1 - Start the the Preset calibration run.

## Outputs

NA

# TP1CAL:RJ:RUN

This command sets the RJ calibration run status.

## Syntax

TP1CAL:RJ:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the RJ calibration run.

1 - Start the RJ calibration run.

## Outputs

NA

# TP1CAL:SJ:RUN

This command sets the SJ calibration run status.

## Syntax

TP1CAL:SJ:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the SJ calibration run.

1 - Start the SJ calibration run.

## Outputs

NA

# TP1CAL:MULTITONESJCAL:STATUS

This command sets the Multi-tone SJ calibration run status.

## Syntax

TP1CAL:MULTITONESJCAL:STATUS? <0 | 1>

## Inputs

<0 | 1>

0 - Stop the Multi-tone SJ calibration run.

1 - Start the Multi-tone SJ calibration run.

## Outputs

NA

## TP1CAL:PWJCAL:MODE

This command sets or returns the PWJ calibration type for TP3 calibration.

### Syntax

```
TP1CAL:PWJCAL:MODE <0 | 1>
```

```
TP1CAL:PWJCAL:MODE?
```

### Inputs

<0 | 1>

0 - Indicates the mode is manual.

1 - Indicates the mode is measure.

### Outputs

<0 | 1>

## TP1CAL:PWJCAL:DJ

This command sets or returns the PWJ DJ value in TP3 calibration.

### Syntax

```
TP1CAL:PWJCAL:DJ <float>
```

```
TP1CAL:PWJCAL:DJ?
```

### Inputs

<float> 0 to 1 ps

### Outputs

<float>

## TP1CAL:PWJCAL:RJ

This command sets or returns the PWJ RJ value in TP3 calibration.

### Syntax

```
TP1CAL:PWJCAL:RJ <float>
```

```
TP1CAL:PWJCAL:RJ?
```

### Inputs

<float> 0 to 1 (RMS) ps

### Outputs

<float>

## TP1CAL:PWJCAL:STATUS

This command returns the PWJ calibration test run status.

## Syntax

TP1CAL:PWJCAL:STATUS?

## Inputs

N/A

## Outputs

{InProgress | Done}

# TP1CAL:PWJCAL:START

This command starts or stops the PWJ Calibration.

## Syntax

TP1CAL:PWJCAL:START <0 | 1>

## Inputs

<0 | 1>

0 - Indicates to start the PWJ calibration test.

1 - Indicates to stop the PWJ calibration test.

## Outputs

<0 | 1>

# TP1CAL:EQUIP:STATUS

This command returns the equipment initialization run status for calibration.

## Syntax

TP1CAL:EQUIP:STATUS?

## Inputs

NA

## Outputs

{InProgress | Done}

# TP1CAL:AMPLITUDE:STATUS

This command returns the amplitude calibration run status.

## Syntax

TP1CAL:AMPLITUDE:STATUS?

## Inputs

NA

## Outputs

{InProgress | Done}

# TP1CAL:PRESET:STATUS

This command returns the preset calibration run status.

## Syntax

TP1CAL:PRESET:STATUS?

## Inputs

NA

## Outputs

{InProgress | Done}

# TP1CAL:RJ:STATUS

This command returns the RJ calibration run status.

## Syntax

TP1CAL:RJ:STATUS?

## Inputs

NA

## Outputs

{InProgress | Done}

# TP1CAL:SJ:STATUS

This command returns the SJ calibration run status.

## Syntax

TP1CAL:SJ:STATUS?

## Inputs

NA

## Outputs

{InProgress | Done}

# TP1CAL:MULTITONESJCAL:RUN

This command returns the Multi-tone SJ calibration run status.

## Syntax

```
TP1CAL:MULTITONESJCAL:RUN
```

## Inputs

NA

## Outputs

{InProgress | Done}

# TP1CAL:AMPLITUDE:SETTING

This command returns the amplitude value for calibration.

## Syntax

```
TP1CAL:AMPLITUDE:SETTING?
```

## Inputs

NA

## Outputs

# TP1CAL:SEASIMACQ:MODE

This command sets and queries the acquisition mode for seasim.

## Syntax

```
TP1CAL:SEASIMACQ:MODE < 0 | 1 | 2>
```

## Inputs

< 0 | 1 | 2>

0 - Average.

1 - FastFrame.

2 - LFPR.

## Outputs

NA

# TP1CAL:RJ:SETTING

This command returns the RJ calibrated value for calibration.

## Syntax

```
TP1CAL:RJ:SETTING?
```

## Inputs

NA

## Outputs



<float>

## TP1CAL:SJ:SETTING

This command returns the SJ calibrated value for calibration.

### Syntax

```
TP1CAL:SJ:SETTING?
```

### Inputs

NA

### Outputs

<float>

## TP1CAL:SAVE:ID

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

### Syntax

```
TP1CAL:SAVE:ID <String>
```

```
TP1CAL:SAVE:ID?
```

### Inputs

<String>

### Outputs

<String>

## TP1CAL:SAVE:GENERATEDBY

This command sets or returns the creator name who save the report in database for calibration.

### Syntax

```
TP1CAL:SAVE:GENERATEDBY <String>
```

```
TP1CAL:SAVE:GENERATEDBY?
```

### Inputs

<String>

### Outputs

<String>

## TP1CAL:SAVE:COMMENTS

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

### Syntax

Application Help

TP1CAL:SAVE:COMMENTS <String>

TP1CAL:SAVE:COMMENTS?

### Inputs

<String>

### Outputs

<String>

## TP1CAL:ACDC:RUN

This command runs the AC-DC balance calibration process.

### Syntax

TP1CAL:ACDC:RUN <0 | 1>

### Inputs

<0 | 1>

1 - Start the AC-DC balance calibration run.

0 - Stop the AC-DC balance calibration run.

### Outputs

NA

## TP1CAL:ACDC:STATUS

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

### Syntax

TP1CAL:ACDC:STATUS?

### Inputs

NA

### Outputs

{InProgress | Done}

## TP1CAL:ACDC:SETTING

This command returns the AC-DC balanced value for calibration.

### Syntax

TP1CAL:ACDC:SETTING?

### Inputs

NA

## Outputs

<float>

# TP1CAL:SJ@210MHz:RUN

This command sets the SJ@210MHz calibration run status.

## Syntax

```
TP1CAL:SJ@210MHz:RUN <0 | 1>
```

## Inputs

<0 | 1>

1 - Start the SJ@210 MHz calibration run.

0 - Stop the SJ@210 MHz calibration run.

## Outputs

NA

# TP1CAL:SJ@210MHz:STATUS

This command returns the status of SJ@210 MHz Calibration run status.

## Syntax

```
TP1CAL:SJ@210MHz:STATUS?
```

## Inputs

NA

## Outputs

{InProgress | Done}

# TP1CAL:IL:MODE

This command sets or returns the type of insertion loss in TP3 calibration.

## Syntax

```
TP1CAL:IL:MODE <0 | 1>
```

```
TP1CAL:IL:MODE?
```

## Inputs

<0 | 1>

0 - Indicates the insertion loss type is in manual mode.

1 - Indicates the insertion loss type is in measure mode.

## Outputs

<0 | 1>

# TP1CAL:MANUAL:IL

This command sets or returns the manual insertion loss value for TP3 calibration.

## Syntax

TP1CAL:MANUAL:IL <float>

TP1CAL:MANUAL:IL?

## Inputs

<float> 0 to 10

## Outputs

<float>

# TP1CAL:IL:SCOPEACQS

This command sets or returns the value for scope acquisitions for insertion loss in TP3 calibration.

## Syntax

TP1CAL:IL:SCOPEACQS <int>

TP1CAL:IL:SCOPEACQS?

## Inputs

16 to 10240

## Outputs

<int>

# TP1CAL:IL:AVGS

This command sets or returns the value for the number of waveforms averages for insertion loss in TP3 calibration.

## Syntax

TP1CAL:IL:AVGS<int>

TP1CAL:IL:AVGS?

## Inputs

1 to 10

## Outputs

<int>

# TP1CAL:SCOPENOISE

This command returns the calculated scope noise value in TP3 calibration.

## Syntax

TP1CAL:SCOPENOISE?

### Inputs

NA

### Outputs

<float>

## TP1CAL:MEASURELOSS:START

This command runs the automatic insertion loss calculation process.

### Syntax

TP1CAL:MEASURELOSS:START <0 | 1>

### Inputs

<0 | 1>

1 - Start the insertion loss measurement.

0 - Stop the insertion loss measurement.

### Outputs

NA

## TP1CAL:MEASURELOSS:STATUS

This command returns the automatic insertion loss measurement run status.

### Syntax

TP1CAL:MEASURELOSS:STATUS?

### Inputs

NA

### Outputs

{InProgress | Done}

## TP2CAL:OPEN

This command opens the TP2 calibration panel.

### Syntax

TP2CAL:OPEN

### Inputs

NA

### Outputs

NA

## TP2CAL:WIZARD:OPEN

This command opens the TP2 calibration wizard.

### Syntax

```
TP2CAL:WIZARD:OPEN
```

### Inputs

NA

### Outputs

NA

## TP2CAL:WIZARD:CLOSE

This command closes the TP2 calibration wizard.

### Syntax

```
TP2CAL:WIZARD:CLOSE
```

### Inputs

NA

### Outputs

NA

## TP2CAL:DUT:TYPE

This command sets or returns the DUT type used for TP2 calibration.

### Syntax

```
TP2CAL:DUT:TYPE <0 | 1>
```

```
TP2CAL:DUT:TYPE?
```

### Inputs

<0 | 1>

0 - Indicates the DUT type is Non-Root Complex.

1 - Indicates the DUT type is Root Complex.

### Outputs

<0 | 1>

## TP2CAL:SELECT:TP1

This command sets or returns the selected calibration file.

## Syntax

TP2CAL:SELECT:TP1 <String>

TP2CAL:SELECT:TP1?

## Inputs

<String>

## Outputs

<String>

# TP2CAL:DELETE

This command deletes the selected TP2 calibration file.

## Syntax

TP2CAL:DELETE

## Inputs

NA

## Outputs

NA

# TP2CAL:REPORT

This PI command generates a TP2 Calibration report for the specified unique ID.

## Syntax

TP2CAL:REPORT <string>

## Inputs

<string>

## Outputs

NA

# TP2CAL:SAVE

This command saves the current TP2 Calibration file to the database.

## Syntax

TP2CAL:SAVE

## Inputs

NA

## Outputs

NA

## TP2CAL:SEASIMACQ:MODE

This command sets and queries the acquisition mode for seasim.

### Syntax

TP2CAL:SEASIMACQ:MODE < 0 | 1 | 2 >

### Inputs

< 0 | 1 | 2 >

0 - Average.

1 - FastFrame.

2 - LFPR.

### Outputs

NA

## TP2CAL:EQUIP:INIT

This command sets the equipment initialization run status for TP2 calibration.

### Syntax

TP2CAL:EQUIP:INIT <0 | 1>

### Inputs

<0 | 1>

0 - Stop the equipment initialization run.

1 - Start the equipment initialization run.

### Outputs

NA

## TP2CAL:EQUIP:SKIPSIGNALVALIDATION

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

### Syntax

TP2CAL:EQUIP:SKIPSIGNALVALIDATION <0 | 1 >

TP2CAL:EQUIP:SKIPSIGNALVALIDATION?

### Input

<0 | 1>

1- Skip signal validation.

0 - Perform signal validation.



## Output

<0 | 1>

# TP2CAL:CMI:RUN

This command sets the CMI calibration run status.

## Syntax

TP2CAL:CMI:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the CMI calibration run.

1 - Start the CMI calibration run.

## Outputs

NA

# TP2CAL:ILMEAS:RUN

This command sets the channel loss calculation run status.

## Syntax

TP2CAL:ILMEAS:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the channel loss calculation run.

1 - Start the channel loss calculation run.

## Outputs

NA

# TP2CAL:CTLEANDPRESET:RUN

This command sets the CTLE and preset selection run status.

## Syntax

TP2CAL:CTLEANDPRESET:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the CTLE and preset selection run.

1 - Start the CTLE and preset selection run.

## Outputs

NA

## TP2CAL:STRESSEDEYE:RUN

This command sets the stressed eye calibration run status.

### Syntax

```
TP2CAL:STRESSEDEYE:RUN <0 | 1>
```

### Inputs

<0 | 1>

0 - Stop the stressed eye calibration run.

1 - Start the stressed eye calibration run.

### Outputs

NA

## TP2CAL:EQUIP:STATUS

This command returns the equipment initialization run status for TP2 calibration.

### Syntax

```
TP2CAL:EQUIP:STATUS?
```

### Inputs

NA

### Outputs

{InProgress | Done}

## TP2CAL:CMI:STATUS

This command returns the CMI calibration run status for TP2 calibration.

### Syntax

```
TP2CAL:CMI:STATUS?
```

### Inputs

NA

### Outputs

{InProgress | Done}

## TP2CAL:ILMEAS:STATUS

This command returns the channel loss calculation run status for TP2 calibration.

### Syntax

Application Help

TP2CAL:ILMEAS:STATUS?

### Inputs

NA

### Outputs

{InProgress | Done}

## TP2CAL:CTLEANDPRESET:STATUS

This command returns the CTLe and Preset selection run status for TP2 calibration.

### Syntax

TP2CAL:CTLEANDPRESET:STATUS?

### Inputs

NA

### Outputs

{InProgress | Done}

## TP2CAL:STRESSEDEYE:STATUS

This command returns the stressed eye calibration run status for TP2 calibration.

### Syntax

TP2CAL:STRESSEDEYE:STATUS?

### Inputs

NA

### Outputs

{InProgress | Done}

## TP2CAL:DMI:SETTING

This command returns the DMI calibrated value for TP2 calibration.

### Syntax

TP2CAL:DMI:SETTING?

### Inputs

NA

### Outputs

<float>

## TP2CAL:CMI:SETTING

This command returns the CMI calibrated value for TP2 calibration.

### Syntax

TP2CAL:CMI:SETTING?

### Inputs

NA

### Outputs

<int>

## TP2CAL:SAVE:ID

This command sets or returns the unique identifier used as key to save the report in database for TP2 calibration.

### Syntax

TP2CAL:SAVE:ID <String>

TP2CAL:SAVE:ID?

### Inputs

<String>

### Outputs

<String>

## TP2CAL:SAVE:GENERATEDBY

This command sets or returns the creator name who save the report in database for TP2 calibration.

### Syntax

TP2CAL:SAVE:GENERATEDBY <String>

TP2CAL:SAVE:GENERATEDBY?

### Inputs

<String>

### Outputs

<String>

## TP2CAL:SAVE:COMMENTS

This command sets or returns the comments given to save the report in database for TP2 calibration.

### Syntax

TP2CAL:SAVE:COMMENTS <String>

TP2CAL:SAVE:COMMENTS?

### Inputs

<String>

### Outputs

<String>

## TP2CAL:ILMEASFORDMI:RUN

This command sets the run status for Insertion loss calculation before DMI/CMI in TP2 calibration.

### Syntax

TP2CAL:ILMEASFORDMI:RUN <0 | 1>

### Inputs

<0 | 1>

0 - Stop the Insertion loss calculation before DMI/CMI.

1 - Start the Insertion loss calculation before DMI/CMI.

### Outputs

NA

## TP2CAL:ILMEASFORDMI:STATUS

This command returns the run status of Insertion loss calculation before DMI/CMI in TP2 calibration.

### Syntax

TP2CAL:ILMEASFORDMI:STATUS?

### Inputs

NA

### Outputs

{InProgress | Done}

## TP2CAL:STRESSEDEYE:ACQUISITIONS

This command sets or returns the number of acquisitions value for TP2 stressed eye calibration.

### Syntax

TP2CAL:STRESSEDEYE:ACQUISITIONS<int>

TP2CAL:STRESSEDEYE:ACQUISITIONS?

### Inputs

<int> 1 to 20

## Outputs

<int>

# TP2CAL:DMI:RUN

This command sets the run status for TP2 DMI calibration.

## Syntax

TP2CAL:DMI:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the TP2 DMI calibration.

1 - Start the TP2 DMI calibration.

## Outputs

NA

# TP2CAL:DMI:STATUS

This command returns the TP2 DMI calibration run status.

## Syntax

TP2CAL:DMI:STATUS?

## Inputs

NA

## Outputs

{InProgress | Done}

# TP2CAL:CTLEANDPRESET:ACQUISITIONS

This command sets or returns the number of acquisitions value for CTLE or Preset selection in TP2 calibration.

## Syntax

TP2CAL:CTLEANDPRESET:ACQUISITIONS<int>

TP2CAL:CTLEANDPRESET:ACQUISITIONS?

## Inputs

<int> 1 to 20

## Outputs

<int>

## TP2CAL:CTLE:ESTIMATOR

This command sets or returns the CTLE Estimation method for TP2 calibration.

### Syntax

TP2CAL:CTLE:ESTIMATOR <0 | 1>

TP2CAL:CTLE:ESTIMATOR?

### Inputs

<0 | 1>

0 - Indicates the CTLE method is automatic.

1 - Indicates the CTLE method is manual.

### Outputs

<0 | 1>

## TP2CAL:SEASIMCTLE:GEN6

This command sets or returns the manual Seasim CTLE value in dB to be applied on the waveform.

### Syntax

TP2CAL:SEASIMCTLE:GEN6 <int>

TP2CAL:SEASIMCTLE:GEN6?

### Inputs

<int> 15 to 2

### Outputs

<int>

## TP2CAL:STRESSEDEYE:

This command sets or returns the stress value for Manual Stressed Eye Calibration run.

### Syntax

TP2CAL:STRESSEDEYE: <float>

TP2CAL:STRESSEDEYE:?

### Inputs

<float> 5 to 10

### Outputs

<float>

## TP2CAL:STRESSEDEYE:DMI

This command sets or returns the DMI stress value for Manual Stressed Eye Calibration run.

## Syntax

```
TP2CAL:STRESSEDEYE:DMI <float>
```

```
TP2CAL:STRESSEDEYE:DMI?
```

## Inputs

<float> 5 to 25

## Outputs

<float>

# TP2CAL:STRESSEDEYE:AMPLITUDE

This command sets or returns the amplitude value for Manual Stressed Eye Calibration run.

## Syntax

```
TP2CAL:STRESSEDEYE:AMPLITUDE<int>
```

```
TP2CAL:STRESSEDEYE:AMPLITUDE?
```

## Inputs

<int> 720 to 800

## Outputs

<int>

# TP2CAL:STRESSEDEYE:MANUALCALRUN

This command sets or returns the enable or disable status of the manual calibration run for stressed eye.

## Syntax

```
TP2CAL:STRESSEDEYE:MANUALCALRUN {0 | 1}
```

```
TP2CAL:STRESSEDEYE:MANUALCALRUN?
```

## Inputs

{0 | 1}

0 - Indicates to disable the manual calibration run.

1 - Indicates to enable the manual calibration run.

## Outputs

{0 | 1}

# TP2CAL:IL:MODE

This command sets or returns the type of insertion loss in TP2 calibration.

## Syntax

```
TP2CAL:IL:MODE <0 | 1>
```



TP2CAL:IL:MODE?

### Inputs

<0 | 1>

0 - Indicates the insertion loss type is manual entry.

1 - Indicates the insertion loss type is Measure loss.

### Outputs

<0 | 1>

## TP2CAL:MANUAL:IL

This command sets or returns the manual insertion loss value for TP2 calibration.

### Syntax

TP2CAL:MANUAL:IL <float>

TP2CAL:MANUAL:IL?

### Inputs

<float> 0 to 50

### Outputs

<float>

## TP2CAL:IL:SCOPEACQS

This command sets or returns the value for scope acquisitions for insertion loss in TP2 calibration.

### Syntax

TP2CAL:IL:SCOPEACQS <int>

TP2CAL:IL:SCOPEACQS?

### Inputs

16 to 10240

### Outputs

<int>

## TP2CAL:IL:AVGS

This command sets or returns the value for the number of waveforms averages for insertion loss in TP2 calibration.

### Syntax

TP2CAL:IL:AVGS <int>

TP2CAL:IL:AVGS?

### Inputs

1 to 10

## Outputs

<int>

# TP2CAL:CTLEANDPRESET:SNDR

This command sets or returns the SNDR value that needs to be applied in TP2 calibration.

## Syntax

TP2CAL:CTLEANDPRESET:SNDR <int>

TP2CAL:CTLEANDPRESET:SNDR?

## Inputs

1 to 50

## Outputs

<int>

# TP2CAL:CTLEANDPRESET:CHKPRESET

This command check and uncheck the check box for specific Presets.

## Syntax

TP2CAL:CTLEANDPRESET:CHKPRESET <0 to 9> <1 | 0>

TP2CAL:CTLEANDPRESET:CHKPRESET <0 to 9>?

## Inputs

<0 to 9> corresponds to Presets Q0 to Q9

<1 | 0>, 1 for check and 0 for uncheck

## Outputs

<1 | 0>

# TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP

This command sets or returns the min, max settings for the specified sweep parameter for Exhaustive Sweep.

## Syntax

TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP <string> <double/int>

TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP? <string>

## Inputs

<string> (Sweep Parameter) - Indicates the parameter for which min, max value needs to be set. The Sweep parameters can be Amplitude, SJ.

<double/int> (MIN,MAX) - Indicates the min, max settings for the specified sweep parameter.

---

**NOTE:** If sweep parameter is amplitude then min, max values should be of type <int> or <double>

---

The min, max values should be within the below range:

1. 720 – 800 mV for Amplitude.

### Example

TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP SJ 1,3.

### Output

<double/int>

### Example

TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP SJ?

1,3.

## TP2CAL:STRESSEDEYE:LINEARSWEEP

This command sets or returns the initial, min, max settings for the specified sweep parameter for Linear Sweep.

### Syntax

TP2CAL:STRESSEDEYE:LINEARSWEEP <string> <double/int>

TP2CAL:STRESSEDEYE:LINEARSWEEP? <string>

### Inputs

<string> (Sweep Parameter) - Indicates the parameter for which initial, min, max value needs to be set. The Sweep parameters can be

<double/int> (Initial,MIN,MAX) - Indicates the Initial, min, max settings for the specified sweep parameter.

---

**NOTE:** If sweep parameter is amplitude then initial, min, max values should be of type <int> or <double>

---

The initial min, max values should be within the below range:

1. 1 – 3 ps for .
2. 5 – 25

### Example

TP2CAL:STRESSEDEYE:LINEARSWEEP 1.563,1,3.

### Output

<double/int>

### Example

TP2CAL:STRESSEDEYE:LINEARSWEEP ?

1.563,1,3.

## TP2CAL:STRESSEDEYE:EXHAUSTIVE

This command sets or returns enable or disable status of Exhaustive Sweep for TP2 Stressed Eye Calibration

### Syntax

```
TP2CAL:STRESSEDEYE:EXHAUSTIVE <0 / 1>
```

```
TP2CAL:STRESSEDEYE:EXHAUSTIVE?
```

### Inputs

```
<0 / 1>
```

0 - Indicates the Exhaustive Sweep is disabled.

1 - Indicates the Exhaustive Sweep is enabled.

### Output

```
<0 | 1>
```

## TP2CAL:STRESSEDEYE:STEPSIZE

The Command sets or returns the step size settings for the specified sweep parameter of TP2 Calibration

### Syntax

```
TP2CAL:STRESSEDEYE:STEPSIZE <string> <double/int>
```

```
TP2CAL:STRESSEDEYE:STEPSIZE? <string>
```

### Inputs

<string> (Sweep Parameter) - Indicates the parameter for which step size value needs to be set. The Sweep parameters can be

<double/int> (Step Size) - Indicates the step size value for the specified sweep parameter

---

**NOTE:** If sweep parameter is amplitude then step size value should be of type <int> or <double>

---

The Step Size values should be within the below range:

1. 0.1 – 0.25 ps for .

2. 0.1 – 2

### Example

```
TP2CAL:STRESSEDEYE:STEPSIZE 0.25.
```

### Output

```
<double/int>
```

### Example

```
TP2CAL:STRESSEDEYE: STEPSIZE ?
```

```
0.25.
```

## LOOPBACK:SELECT:PRESETSPRESHOOT

This command sets or returns the preshoot value to be applied during loopback training.

### Syntax

```
LOOPBACK:SELECT:PRESETSPRESHOOT <float>
```

```
LOOPBACK:SELECT:PRESETSPRESHOOT?
```

## Inputs

<float> 0 to 12

## Outputs

<float>

# LOOPBACK:SELECT:PRESETSDEEMPHASIS

This command sets or returns the preset deemphasis value to be applied during loopback training.

## Syntax

```
LOOPBACK:SELECT:PRESETSDEEMPHASIS <float>
```

```
LOOPBACK:SELECT:PRESETSDEEMPHASIS?
```

## Inputs

<float> -20 to 0

## Outputs

<float>

# LOOPBACK:SELECT:BERTCTLEMODE

This command sets or returns the BERT CTLE mode.

## Syntax

```
LOOPBACK:SELECT:BERTCTLEMODE <0 | 1>
```

```
LOOPBACK:SELECT:BERTCTLEMODE?
```

## Inputs

<0 | 1>

0 - Indicates BERT CTLE mode is Automatic.

1 - Indicates BERT CTLE mode is Manual.

## Outputs

<0 | 1>

# LOOPBACK:SELECT:BERTCTLETYPE

This command sets or returns the BERT CTLE Type when loopback configuration type selected is forced loopback.

## Syntax

```
LOOPBACK:SELECT:BERTCTLETYPE<0 | 1>
```

```
LOOPBACK:SELECT:BERTCTLETYPE?
```

## Inputs

<0 | 1>

0 - Indicates the BERT CTLE type is OFF.

1 - Indicates the BERT CTLE type is ON.

### Outputs

<0 | 1>

## LOOPBACK:SELECT:AUTOSEARCHMODE

This command sets or returns the auto search mode when loopback configuration type selected is forced loopback.

### Syntax

LOOPBACK:SELECT:AUTOSEARCHMODE <0 | 1>

LOOPBACK:SELECT:AUTOSEARCHMODE?

### Inputs

<0 | 1>

0 – Fine

1 – Coarse

### Outputs

<0 | 1>

## LOOPBACK:SELECT:BERTCTLEVALUE

This command sets or returns the BERT CTLE value.

### Syntax

LOOPBACK:SELECT:BERTCTLEVALUE <float>

LOOPBACK:SELECT:BERTCTLEVALUE?

### Inputs

<float> -30 to 0.

### Outputs

<float>

## TEST:SELECT:TESTDURATION

This command sets or returns the test length duration value.

### Syntax

TEST:SELECT:TESTDURATION <float>

TEST:SELECT:TESTDURATION?

### Inputs

<float> 1 to 1000

## Outputs

<float>

# TEST:SELECT:STRESSCONFIGTYPE

This command sets or returns the required stress config type.

## Syntax

TEST:SELECT:STRESSCONFIGTYPE <0 | 1 | 2>

TEST:SELECT:STRESSCONFIGTYPE?

## Inputs

0 indicates that stress config type is calibrated.

1 indicates that stress config type is customized

2 indicates that stress config type is un-calibrated.

## Outputs

<0 | 1 | 2>

# TEST:SELECT:DMI

This command sets or returns the DMI value to be used for non-compliance test.

## Syntax

TEST:SELECT:DMI <float>

TEST:SELECT:DMI?

## Inputs

<float> 0 to 200

## Outputs

<float>

# TEST:SELECT:CMI

This command sets or returns the CMI value to be used for non-compliance test.

## Syntax

TEST:SELECT:CMI <float>

TEST:SELECT:CMI?

## Inputs

<float> 0 to 250

## Outputs

<float>

## TEST:SELECT:RJ

This command sets or returns the RJ value used for the test.

### Syntax

```
TEST:SELECT:RJ <float>
```

```
TEST:SELECT:RJ?
```

### Inputs

<float> 0 to 31.25 for customized stress selection.

<float> 0 to 0.496 for un-calibrated stress selection.

### Outputs

<float>

## TEST:SELECT:SJ

This command sets or returns the SJ value used for the test.

### Syntax

```
TEST:SELECT:SJ <float>
```

```
TEST:SELECT:SJ?
```

### Inputs

<float> 0 to for customized stress selection.

<float> 0 to 0.5 for un-calibrated stress selection.

### Outputs

<float>

## TEST:SELECT:BER

This command sets or returns the BER value over which the test should be done.

### Syntax

```
TEST:SELECT:BER <int>
```

```
TEST:SELECT:BER?
```

### Inputs

<int> 3 to 12

### Outputs

<int>

## TEST:SELECT:ERRORLIMIT

This command sets or returns the maximum errors limit value.



## Syntax

```
TEST:SELECT:ERRORLIMIT <int>
```

```
TEST:SELECT:ERRORLIMIT?
```

## Inputs

<int> 1 to 1000

## Outputs

<int>

# JTOLTEST:OPEN

This command opens the JTOL test panel.

## Syntax

```
JTOLTEST:OPEN
```

## Inputs

NA

## Outputs

NA

# JTOLTEST:WIZARD:OPEN

This command opens the JTOL test wizard.

## Syntax

```
JTOLTEST:WIZARD:OPEN
```

## Inputs

NA

## Outputs

NA

# JTOLTEST:WIZARD:CLOSE

This command closes the JTOL test wizard.

## Syntax

```
JTOLTEST:WIZARD:CLOSE
```

## Inputs

NA

## Outputs

NA

## JTOLTEST:SELECT:TP2FILE

This command sets or returns the selected TP2 calibration file for the JTOL test.

### Syntax

```
JTOLTEST:SELECT:TP2FILE <String>
```

```
JTOLTEST:SELECT:TP2FILE:FILE?
```

### Inputs

<String>

### Outputs

<String>

## JTOLTEST:SELECT:CUSTOM:MASK

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

### Syntax

```
JTOLTEST:SELECT:CUSTOM:MASK {0 | 1}
```

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

### Inputs

{0 | 1}

0 - Indicates that custom mask is disabled.

1 - Indicates that custom mask is enabled.

### Outputs

{0 | 1}

## JTOLTEST:LOADSTRESS

This command loads stresses to the BERT for the JTOL Test.

### Syntax

```
JTOLTEST:LOADSTRESS
```

### Input

NA

### Output

NA

# JTOLTEST:MIN:FREQ

This command sets or returns the minimum frequency value for JTOL test.

## Syntax

```
JTOLTEST:MIN:FREQ <float>
```

```
JTOLTEST:MIN:FREQ?
```

## Inputs

<float> 0.03 to 99

## Outputs

<float>

# JTOLTEST:MAX:FREQ

This command sets or returns the maximum frequency value for JTOL test.

## Syntax

```
JTOLTEST:MAX:FREQ <float>
```

```
JTOLTEST:MAX:FREQ?
```

## Inputs

<float> 1 to 100

## Outputs

<float>

# JTOLTEST:FREQ:POINTS

This command sets or returns the number of SJ Frequencies for JTOL Test.

## Syntax

```
JTOLTEST:FREQ:POINTS <int>
```

```
JTOLTEST:FREQ:POINTS?
```

## Inputs

<int> 1 to 14

## Outputs

<int>

# JTOLTEST:FREQ:GENERATE

This command generates frequency in grid view.

## Syntax

JTOLTEST:FREQ:GENERATE

### Inputs

NA

### Outputs

NA

## JTOLTEST:FREQ:DEFAULT

This command loads the grid with calibrated SJ-tone values.

### Syntax

JTOLTEST:FREQ:DEFAULT

### Inputs

NA

### Outputs

NA

## JTOLTEST:SELECT:RELAXATION

This command sets or returns the relaxation time to ignore the BER bits before running every amplitude points in JTOL test.

### Syntax

JTOLTEST:SELECT:RELAXATION <int>

JTOLTEST:SELECT:RELAXATION?

### Inputs

<int> 1 to 10

### Outputs

<int>

## JTOLTEST:SEARCH:ALGO

This command sets or returns the selected search algorithm type for JTOL test.

### Syntax

JTOLTEST:SEARCH:ALGO <0 | 1 | 2 | 3 | 4 | 5>

JTOLTEST:SEARCH:ALGO?

### Inputs

0 indicates that search algorithm type is Binary.

1 indicates that search algorithm type is Downwards linear.

2 indicates that search algorithm type is Downwards log.

3 indicates that search algorithm type is Upwards linear.

4 indicates that search algorithm type is Upwards log.

5 indicates that search algorithm type is Binary+Linear.

## Outputs

<0 | 1 | 2 | 3 | 4 | 5>

# JTOLTEST:RUN

This commands sets the run status of JTOL test.

## Syntax

JTOLTEST:RUN <0 | 1>

## Inputs

<0 | 1>

0 - Stop the JTOL test run.

1 - Start the JTOL test run.

## Outputs

NA

# JTOL:REPORT

This PI commands generates a JTOL test report for the specified unique ID.

## Syntax

JTOL:REPORT <string>

## Inputs

<string>

## Outputs

NA

# JTOLTEST:SAVE:ID

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

## Syntax

JTOLTEST:SAVE:ID <String>

JTOLTEST:SAVE:ID?

## Inputs

<String>

## Outputs

<String>

# JTOLTEST:SAVE:GENERATEDBY

This command sets or returns the creator name who save the report in database for JTOL test.

## Syntax

JTOLTEST:SAVE:GENERATEDBY <String>

JTOLTEST:SAVE:GENERATEDBY?

## Inputs

<String>

## Outputs

<String>

# JTOLTEST:SAVE:COMMENTS

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

## Syntax

JTOLTEST:SAVE:COMMENTS <String>

JTOLTEST:SAVE:COMMENTS?

## Inputs

<String>

## Outputs

<String>

# JTOLTEST:SAVE

This command saves the current JTOL test file to the database.

## Syntax

JTOLTEST:SAVE

## Inputs

NA

## Outputs

NA

# JTOLTEST:RUNSTATUS

This command returns the JTOL test run status.

## Syntax

JTOLTEST:RUNSTATUS?

## Inputs

NA

## Outputs

{InProgress | Done}

# JTOLTEST:FREQ

This command returns the JTOL test result for the specified frequency.

## Syntax

JTOLTEST:FREQ <Freq>?

## Inputs

<Freq> = <int> Frequency for which JTOL results need to be shown.

## Outputs

<String>

# JTOLTEST:PLOT:POINTS

This command returns the number of plotted points in JTOL test plot.

## Syntax

JTOLTEST:PLOT:POINTS?

## Inputs

NA

## Outputs

<int>

# JTOLTEST:SELECT:SJAMPUNITS

This command sets or returns the SJ Amplitude unit for JTOL test.

## Syntax

JTOLTEST:SELECT:SJAMPUNITS <0 | 1>

JTOLTEST:SELECT:SJAMPUNITS?

## Inputs

<0 | 1>

0 - Indicates the unit is ps.

1 - Indicates the unit is UI p-p.

## Outputs

<0 | 1>

# JTOLTEST:SELECT:CLOCKTYPE

This command sets or returns the clock type used for JTOL test.

## Syntax

JTOLTEST:SELECT:CLOCKTYPE <1>

JTOLTEST:SELECT:CLOCKTYPE?

## Inputs

<1>

1 - Indicates the clock type is Internal.

## Outputs

<1>

# JTOLTEST:PLOT

This command displays the JTOL test results plot.

## Syntax

JTOLTEST:PLOT

## Inputs

NA

## Outputs

NA

# JTOLTEST:TABLE

This command displays the JTOL test results table.

## Syntax

JTOLTEST:TABLE

## Inputs

NA

## Outputs

NA

# JTOLTEST:SELECT:DUTTYPE

This command sets or returns the DUT Type used for JTOL test.



## Syntax

```
JTOLTEST:SELECT:DUTTYPE <0 | 1>
```

```
JTOLTEST:SELECT:DUTTYPE?
```

## Inputs

<0 | 1>

0 - Indicates the DUT type is Non-RootComplex.

1 - Indicates the DUT type is RootComplex.

## Outputs

<0 | 1>

# JTOLTEST:JITTERSTEP:HIGHFREQ

This command sets or returns the jitter step size/ratio (high frequency) value for linear and log based search algorithms respectively.

## Syntax

```
JTOLTEST:JITTERSTEP:HIGHFREQ <int>
```

```
JTOLTEST:JITTERSTEP:HIGHFREQ?
```

## Inputs

<int> = 0.01 to 1 for log algorithms / 0.004 to 0.5 for linear algorithms.

## Outputs

<int>

# JTOLTEST:JITTERSTEP:LOWFREQ

This command sets or returns the jitter step size/ratio (low frequency) value for linear and log based search algorithms respectively.

## Syntax

```
JTOLTEST:JITTERSTEP:LOWFREQ <int>
```

```
JTOLTEST:JITTERSTEP:LOWFREQ?
```

## Inputs

<int> = 0.01 to 1 for log algorithms / 0.004 to 75 for linear algorithms.

## Outputs

<int>

# JTOLTEST:JITTERSTEP:MIDDLEFREQ

This command sets or returns the jitter step size/ratio (middle frequency) value for linear and log based search algorithms respectively.

## Syntax

```
JTOLTEST:JITTERSTEP:MIDDLEFREQ <int>
```

```
JTOLTEST:JITTERSTEP:MIDDLEFREQ?
```

## Inputs

<int> = 0.01 to 1 for log algorithms / 0.004 to 7.5 for linear algorithms.

## Outputs

<int>

# JTOLTEST:JITTERSTEP:VERYLOWFREQ

This command sets or returns the jitter step size/ratio (very low frequency) value for linear and log based search algorithms respectively.

## Syntax

```
JTOLTEST:JITTERSTEP:VERYLOWFREQ <int>
```

```
JTOLTEST:JITTERSTEP:VERYLOWFREQ?
```

## Inputs

<int> = 0.01 to 1 for log algorithms / 0.004 to 1000 for linear algorithms.

## Outputs

<int>

# LOOPBACK:SELECT:PATTERN TYPE

This command sets or returns the pattern used for BER Measurement.

## Syntax

```
LOOPBACK:SELECT:PatternType <0 | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 >
```

```
LOOPBACK:SELECT:PatternType?
```

## Inputs

0 indicates that Pattern type is Modified Compliance

1 indicates that Pattern type is Compliance

3 indicates that Pattern type is PRBS7

4 indicates that Pattern type is PRBS9

5 indicates that Pattern type is PRBS10

6 indicates that Pattern type is PRBS11

7 indicates that Pattern type is PRBS15

8 indicates that Pattern type is PRBS20

9 indicates that Pattern type is PRBS23

10 indicates that Pattern type is PRBS31

## Outputs

<0 | 1 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 >

# LOOPBACK:SELECT:AUTOSEARCH

This command sets or queries the auto search mode to be performed as a part of JTOL Test

## Syntax

LOOPBACK:SELECT:AUTOSEARCH <0|1>

LOOPBACK:SELECT:AUTOSEARCH?

## Inputs

<0 | 1>

0 - turn OFF the Auto search mode

1 - turn ON the Auto search mode

## Outputs

<0 | 1>

# LOOPBACK:SELECT:AUTOSEARCHMODE

This command sets or queries the auto search mode when loopback configuration type is selected as forced loopback.

## Syntax

LOOPBACK:SELECT:AUTOSEARCHMODE <0|1>

LOOPBACK:SELECT:AUTOSEARCHMODE?

## Inputs

<0 | 1>

0 - Auto search is Fine

1 - Auto search is Coarse

## Outputs

<0 | 1>

0 indicates that auto search is Fine

1 indicates that auto search is Coarse

# LOOPBACK:AUTOSEARCH:TYPE

This command sets or returns the BERT Auto Search Type.

## Syntax

LOOPBACK:AUTOSEARCH:TYPE <0 | 1>

LOOPBACK:AUTOSEARCH:TYPE?

## Inputs

Application Help

<0 | 1>

0 - Auto search TYPE is Basic

1 - Auto search TYPE is Advanced

## Outputs

<0 | 1>

0 - Auto search TYPE is Basic

1 - Auto search TYPE is Advanced

# LOOPBACK:AAS:DELAYSEARCHTYPE

This command sets or queries the delay search type to be set as a part of JTOL Test

## Syntax

LOOPBACK:AAS:DELAYSEARCHTYPE <string>

LOOPBACK:AAS:DELAYSEARCHTYPE?

## Inputs

<string> Fine, Coarse, OFF

## Outputs

<string> Fine, Coarse, OFF

# LOOPBACK:AAS:EYETHRESHOLDTYPE

This command sets or queries the eye threshold type to be set as a part of the JTOL test

## Syntax

LOOPBACK:AAS:EYETHRESHOLDTYPE <string>

LOOPBACK:AAS:EYETHRESHOLDTYPE?

## Inputs

<string> Fine, Coarse, OFF

## Outputs

<string> Fine, Coarse, OFF

# LOOPBACK:SELECT:DFE

This command sets or queries the decision feedback factor for the Decision Feedback Equalizer

## Syntax

LOOPBACK:SELECT:DFE <0 | 1>

LOOPBACK:SELECT:DFE?

## Inputs

<0 | 1>

0 - Decision feedback factor is OFF

1 - Decision feedback factor is ON

## Outputs

<0 | 1>

0 indicates that decision feedback factor is OFF

1 indicates that decision feedback factor is ON

# LOOPBACK:SELECT:DFEVALUE

This command sets or queries the value of decision feedback factor for the Decision Feedback Equalizer.

## Syntax

LOOPBACK:SELECT:DFEVALUE <int> <dB>

LOOPBACK:SELECT:DFEVALUE?

## Inputs

<int> 0 to 30

<dB> 1

## Outputs

<int>

<dB>

# LOOPBACK:SELECT:LFE

This command sets or queries the ATT factor for data input of the Low Frequency Equalizer.

## Syntax

LOOPBACK:SELECT:LFE <0 | 1>

LOOPBACK:SELECT:LFE?

## Inputs

<0 | 1>

0 - ATT factor is OFF

1 - ATT factor is ON

## Outputs

<0 | 1>

0 indicates ATT factor is OFF

1 indicates ATT factor is ON

# LOOPBACK:SELECT:LFEVALUE

This command sets or queries the value of ATT factor for the data input.

## Syntax

```
LOOPBACK:SELECT:LFEVALUE <float> <dB>
```

```
LOOPBACK:SELECT:LFEVALUE?
```

## Inputs

<dB> -2 to 0

<float> 0.5

## Outputs

<float>

<dB>

# LOOPBACK:SELECT:LFEDFEMODE

This command sets or returns the BERT LFE DFE selection mode.

## Syntax

```
LOOPBACK:SELECT:LFEDFEMODE <0 | 1>
```

```
LOOPBACK:SELECT:LFEDFEMODE?
```

## Inputs

<0 | 1>

0 - Indicates BERT LFE DFE selection mode is Automatic.

1 - Indicates BERT LFE DFE selection mode is Manual.

## Outputs

<0 | 1>

# LOOPBACK:SELECT:GEN6PRESETNAME

This command sets or queries the PCIe Preset and controls preshoot1, preshoot2, deemphasis values.

## Syntax

```
LOOPBACK:SELECT:GEN6PRESETNAME <int>
```

```
LOOPBACK:SELECT:GEN6PRESETNAME?
```

## Inputs

<int> 0 to 9 for Q0 to Q9

<int> 10 for Custom Setting

## Outputs

<int>

# LOOPBACK:SELECT:PRESHOOT2

This command sets or queries the preshoot2 value that is to be applied during loopback training.

## Syntax

```
LOOPBACK:SELECT:PRESHOOT2 <float>
```

```
LOOPBACK:SELECT:PRESHOOT2?
```

## Inputs

<float> -7 to 0

## Outputs

<float>

# LOOPBACK:SELECT:PRESHOOT1

This command sets or queries the preshoot1 value that is to be applied during loopback training.

## Syntax

```
LOOPBACK:SELECT:PRESHOOT1 <float>
```

```
LOOPBACK:SELECT:PRESHOOT1?
```

## Inputs

<float> 0 to 10

## Outputs

<float>

# LOOPBACK:SELECT:DEEMPHASIS

This command sets the or queries deemphasis value that is to be applied during loopback training.

## Syntax

```
LOOPBACK:SELECT:DEEMPHASIS <float>
```

```
LOOPBACK:SELECT:DEEMPHASIS?
```

## Inputs

<float> -20 to 0

## Outputs

<float>