

PCIe Gen1 Base/CEM Receiver Test Application Help

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

Contents

Welcome	7
Getting help and support	8
Related documentation	8
Technical support	8
Conventions	8
Getting started	10
Required equipment and accessories	10
Installing the software	11
Operational basics	13
Launch the application	13
Close the application	13
Launch Real-Time Oscilloscope	14
Launch TekRxService	14
Application panels	15
Application panels overview	15
Connections panel	15
Settings panel	17
Components settings	17
TP1 Calibration	19
TP2 Calibrations	21
Remote access: Configuration	23
Help panel	24
Calibrations panel	24
TP1 Calibration	24
TP2 Calibration	34
Options panel	43
JTOL Test	43
Programmatic interface commands	55
TEKRXTEST:SELECT:HOME	55
TEKRXTEST:SELECT:PCIe1	55
PREF:BERT:IP	55
PREF:RTS:IP	56
CONN:BERT	56
CONN:RTS	56
SETTINGS:RTS:POSITIVECHANNEL	57

SETTINGS:RTS:NEGATIVECHANNEL	57
SETTINGS:RTS:SAMPLERATE	57
SETTINGS:TEKRXSERVICE:ANALYSISTIMEOUT	58
SETTINGS:SIGTEST:VERSION	58
SETTINGS:AMPLITUDE:TARGET	58
SETTINGS:RJ:TARGET	58
SETTINGS:SJAT100MHZ:TARGET	59
SETTINGS:CMI:TARGET	59
SETTINGS:MULTITONESJCAL:ENABLE	59
SETTINGS:MULTITONESJCAL:FREQUENCYCOUNT	60
SETTINGS:MULTITONESJCAL:MAXFREQUENCY	60
SETTINGS:MULTITONESJCAL:MINFREQUENCY	60
SETTINGS:MULTITONESJCAL:POINTS	61
SETTINGS:EYE:ACQUISITIONS	61
SETTINGS:MULTITONESJCAL:DEFAULT	61
SETTINGS:MULTITONESJCAL:GENERATE	61
SETTINGS:SOCKETSERVER:IP	62
SETTINGS:SOCKETSERVER:LISTENINGPORT	62
SETTINGS:SOCKETSERVER:TIMEOUT	62
SETTINGS:RESTORE	63
SETTINGS:RECALL	63
SETTINGS:SAVE	63
SETTINGS:RECALL:STATUS	63
SETTINGS:RESTORE:STATUS	64
SETTINGS:SAVE:STATUS	64
TP1CAL:OPEN	64
TP1CAL:WIZARD:OPEN	64
TP1CAL:WIZARD:CLOSE	65
TP1CAL:DELETE	65
TP1CAL:REPORT	65
TP1CAL:SAVE	66
TP1CAL:EQUIP:INIT	66
TP1CAL:AUTOCAL	66
TP1CAL:AMPLITUDE:RUN	66
TP1CAL:RJ:RUN	67
TP1CAL:SJ:RUN	67
TP1CAL:MULTITONESJCAL:RUN	67
TP1CAL:EQUIP:STATUS	68
TP1CAL:AMPLITUDE:STATUS	68
TP1CAL:RJ:STATUS	68
TP1CAL:SJ:STATUS	69
TP1CAL:MULTITONESJCAL:STATUS	69
TP1CAL:AMPLITUDE:SETTING	69
TP1CAL:RJ:SETTING	69
TP1CAL:SJ:SETTING	70
TP1CAL:SAVE:ID	70

TP1CAL:SAVE:GENERATEDBY.....	70
TP1CAL:SAVE:COMMENTS.....	71
TP2CAL:OPEN.....	71
TP2CAL:WIZARD:OPEN.....	71
TP2CAL:WIZARD:CLOSE.....	71
TP2CAL:DUT:TYPE.....	72
TP2CAL:SELECT:TP1.....	72
TP2CAL:DELETE.....	72
TP2CAL:REPORT.....	73
TP2CAL:SAVE.....	73
TP2CAL:EQUIP:INIT.....	73
TP2CAL:CMI:RUN.....	73
TP2CAL:STRESSEDEYE:RUN.....	74
TP2CAL:EQUIP:STATUS.....	74
TP2CAL:CMI:STATUS.....	74
TP2CAL:STRESSEDEYE:STATUS.....	75
TP2CAL:CMI:SETTING.....	75
TP2CAL:SAVE:ID.....	75
TP2CAL:SAVE:GENERATEDBY.....	75
TP2CAL:SAVE:COMMENTS.....	76
TP2CAL:STRESSEDEYE:ACQUISITIONS.....	76
TP2CAL:STRESSEDEYE:SJ.....	76
TP2CAL:STRESSEDEYE:AMPLITUDE.....	77
TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP.....	77
TP2CAL:STRESSEDEYE:LINEARSWEEP.....	77
TP2CAL:STRESSEDEYE:EXHAUSTIVE.....	78
TP2CAL:STRESSEDEYE:STEPSIZE.....	78
LOOPBACK:SELECT:AUTOSEARCHMODE.....	79
LOOPBACK:SELECT:PATTERN TYPE.....	79
JTOLTEST:OPEN.....	80
JTOLTEST:REPORT.....	80
JTOLTEST:WIZARD:OPEN.....	80
JTOLTEST:WIZARD:CLOSE.....	80
JTOLTEST:LOADSTRESS.....	81
JTOLTEST:FREQ:DEFAULT.....	81
JTOLTEST:RUN.....	81
JTOLTEST:SAVE:ID.....	82
JTOLTEST:SAVE:GENERATEDBY.....	82
JTOLTEST:SAVE:COMMENTS.....	82
JTOLTEST:SAVE.....	83
JTOLTEST:RUNSTATUS.....	83
JTOLTEST:FREQ.....	83
JTOLTEST:PLOT:POINTS.....	83
JTOLTEST:SELECT:SJAMPUNITS.....	84
JTOLTEST:SELECT:CLOCKTYPE.....	84
JTOLTEST:PLOT.....	84

JTOLTEST:TABLE. 85

JTOLTEST:SELECT:DUTTYPE. 85

LOOPBACK:SELECT:BERTCTLEMODE. 85

LOOPBACK:SELECT:BERTCTLETYPE. 86

LOOPBACK:SELECT:PRESETSDEEMPHASIS. 86

TEST:SELECT:TESTDURATION. 86

TEST:SELECT:STRESSCONFIGTYPE. 86

TEST:SELECT:AMP. 87

TEST:SELECT:CMI. 87

TEST:SELECT:RJ. 87

TEST:SELECT:SJ. 88

LOOPBACK:AAS:DELAYSEARCHTYPE. 88

LOOPBACK:AAS:EYETHRESHOLDTYPE. 88

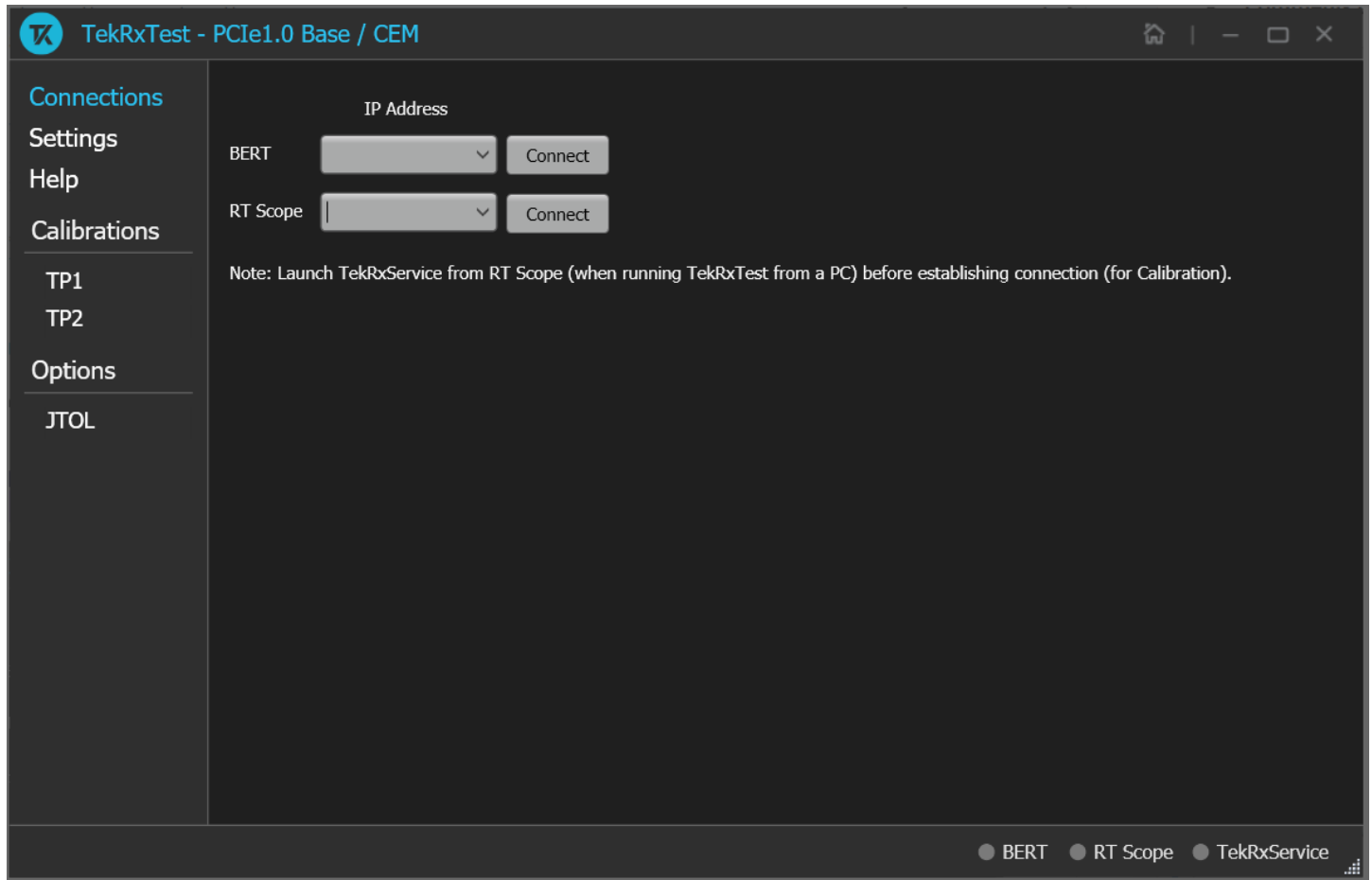
LOOPBACK:SELECT:LFEDFEMODE. 89

LOOPBACK:SELECT:AUTOSEARCH. 89

LOOPBACK:AUTOSEARCH:TYPE. 89

Welcome

Welcome to the PCIe1.0 (Base/CEM). This application performs the test as per the "PCI Express® Base Specification Revision 6.2.



TekRxTest - PCIe1.0 application

Key features and benefits

- Supports full Receiver JTOL testing in accordance with the PCIe Base Specification for both Root Complex and non root Complex devices.
- Enables automated calibration, forced loopback control, and JTOL test execution.
- Jointly with Anritsu BERT MP1900A series, the receiver solution provides the tools and flexibility needed to visualize and control impairments , observe real-time eye performance, etc. for PCIe Gen1 devices.
- Reliable and accurate results reduce the test execution time and minimize the skill-set required to perform calibration and testing.
- Provides user configurable control of test parameters, allowing engineers to observe receiver behavior, jitter tolerance margins, and eye closure in real time.
- Automation and accuracy together enable faster bring up, consistent results across test runs, and improved overall lab efficiency.

Getting help and support

Related documentation

The following documentation is available as part of the PCIe1.0 (Base/CEM) test application.

Product documentation

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

See also

Technical support

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

Conventions

Help uses the following conventions:

- The term "Application", "Software", and "PCIe1.0 (Base/CEM)" refers to the TekRxTest - PCIe1.0 Application.
- The term "DUT" is an abbreviation for Device Under Test.
- The term "select" is a generic term that applies to the two methods of choosing a screen item (button, control, list item): using a mouse or using the touch screen.

Icon descriptions

Icon	Meaning
	This icon identifies important information.
	This icon identifies conditions or practices that could result in loss of data.
	This icon identifies additional information that will help you use the application more efficiently.

Getting started

Required equipment and accessories

Item	Vendor	R/O	Qty	Description	Notes
MP1900A	Anritsu	Required	1	≥2.5 Gb/s BERT	NRZ or PAM4 Configuration can be used for Gen 1/2/3/4/5 NOTE: Configuration and Cables are required for connection between BERT modules are included by the 3rd party vendor.
DPO70K SX/DX or DPO714AX	Tektronix	Required	1	6 GHz, 4-channel oscilloscope	
DJA	Tektronix	Required	1	DPOJET Advanced option	DPOJET advanced Jitter, Eye and Timing Analysis SW option
174-6659-01	Tektronix	Required	1	Cable pair (2.92 mm SMA Male - SMP)	Refclk connection between DUT and BERT
PMCABLE1M	Tektronix	Required	2	1 m Cable pair (2.92 mm M-M, Straight, 1.5 ps phase-matched, 40 GHz)	Equipment connection to fixtures and DUT
PCIe Gen5 CEM fixture	PCI-SIG	Required	1	Equivalent variable ISI channel fixture	

Item	Vendor	R/O	Qty	Description	Notes
RXSW-NLP-PCIE4	Tektronix	Required	1	PCIe Gen1 Receiver software	PCI Gen1 Rx BASE and CEM automation software - Node-Locked; Permanent
RXSW-NL1- PCIE4C					Gen1 Rx BASE and CEM test software - Node Locked, Time Based, 1 year
RXSW-FLP-PCIE4					PCI Gen1 Rx BASE and CEM automation software - Floating; Permanent
RXSW-FL1- PCIE4C					Gen1 Rx BASE and CEM test software - Floating, Time Based, 1 year

Installing the software

Complete the following steps to download and install the latest PCIe1.0 TekRx test application.

1. Go to www.tek.com.
2. Click **Downloads**. In the Download menu, select DOWNLOAD TYPE as Software and enter **PCIe1.0 (BASE / CEM)** in the MODEL OR KEYWORD field and click **SEARCH**.

Download Manuals, Datasheets, Software and more:

>

DOWNLOAD TYPE

Show All ▼

MODEL OR KEYWORD

PCIe1.0 (Base/CEM) Rx

SEARCH

Download Manuals, Datasheets, Software

1. Select the latest version of the software and follow the instructions to download.
2. Copy the executable file into the instrument you wish to install the software (Real-time oscilloscope or PC).
3. Follow the installation instruction that is available in the website. The software is installed at **C:\Program Files\Tektronix\BERTScope\RxTest60**
4. Double click the shortcut icon on the desktop to launch the application.
 - The 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.

Operational basics

Launch the application

To launch the PCIe1.0 (BASE / CEM) test application, double click the shortcut icon **TekRxTest** on the desktop and select **PCIe1.0 (BASE / CEM)** in the application window.



TekRxTest application window

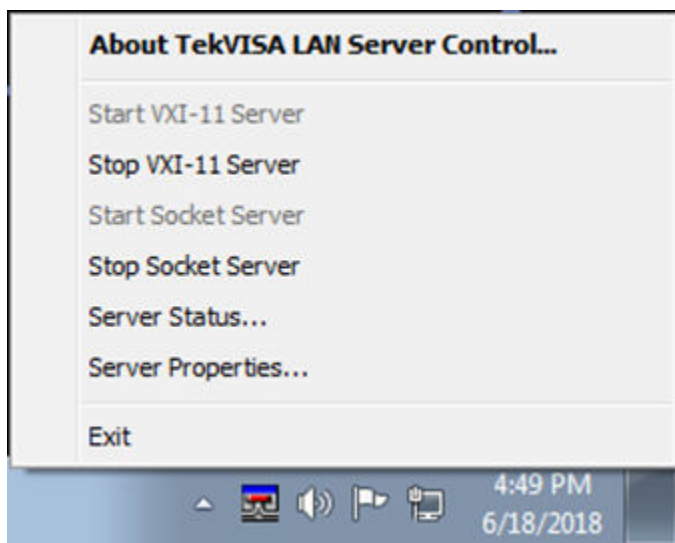
Close the application

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 PCIe1.0 (BASE / CEM) 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.

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

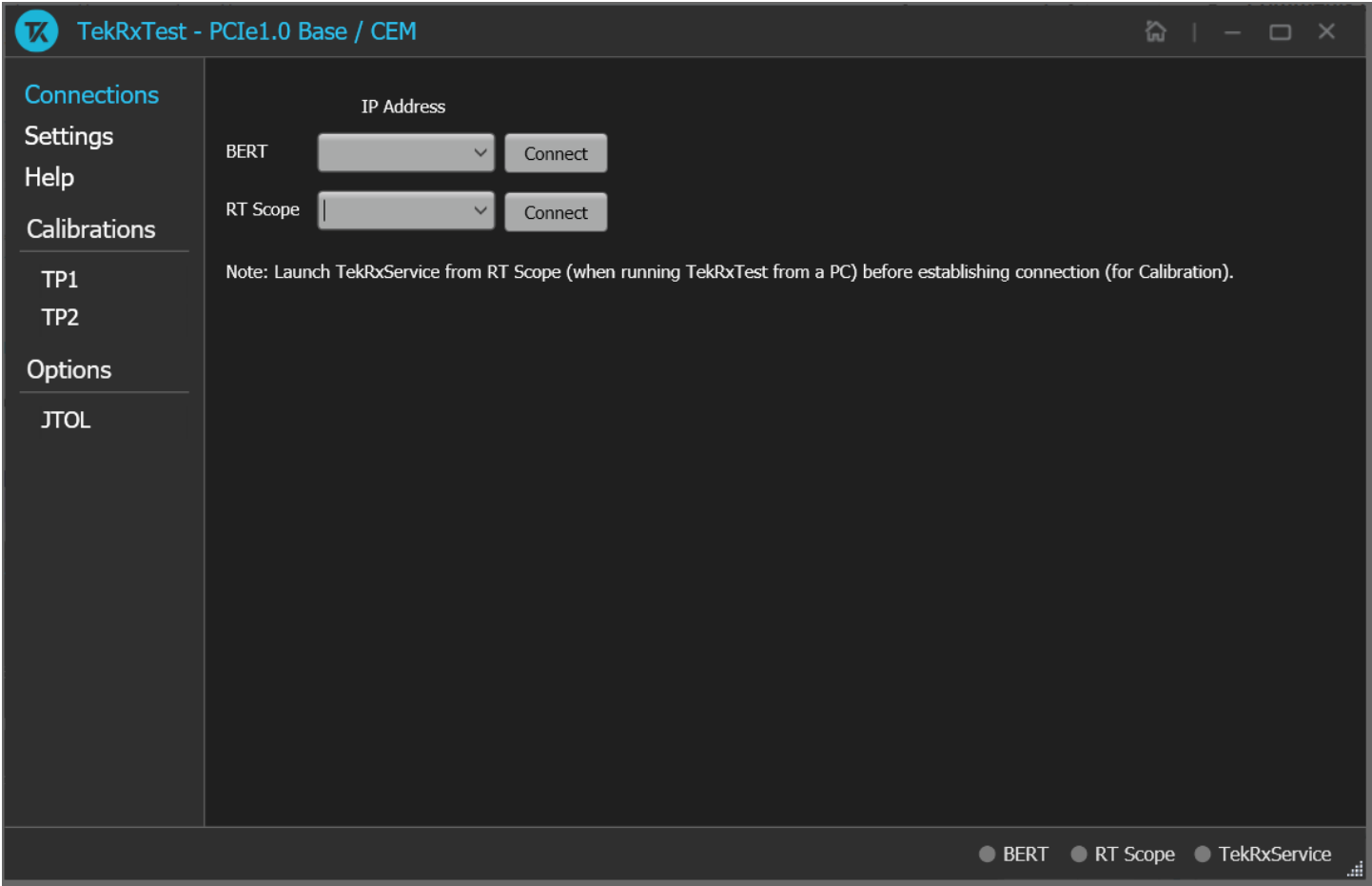
The PCIe1.0 (BASE / CEM) TekRxTest application uses panels to group the configurations and settings. Click on any panel to configure the associated settings. A panel may have one or more tabs that lists the selections available in that panel. Controls in a tab may change depending on the settings made 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, TP1 and TP2 Calibration.
Help	This panel displays the application help.
Calibrations	This panel allows you to configure the calibration parameters for TP1/TP2 and save the results.
Options	This panel allows you to configure the JTOL test settings and view the results.

Connections panel

The connections panel allows you to connect to a real-time oscilloscope and BERT with the PCIe1.0 (Base/CEM) TekRxTest application. Enter the IP address of the instruments and click **Connect** to establish the connection.



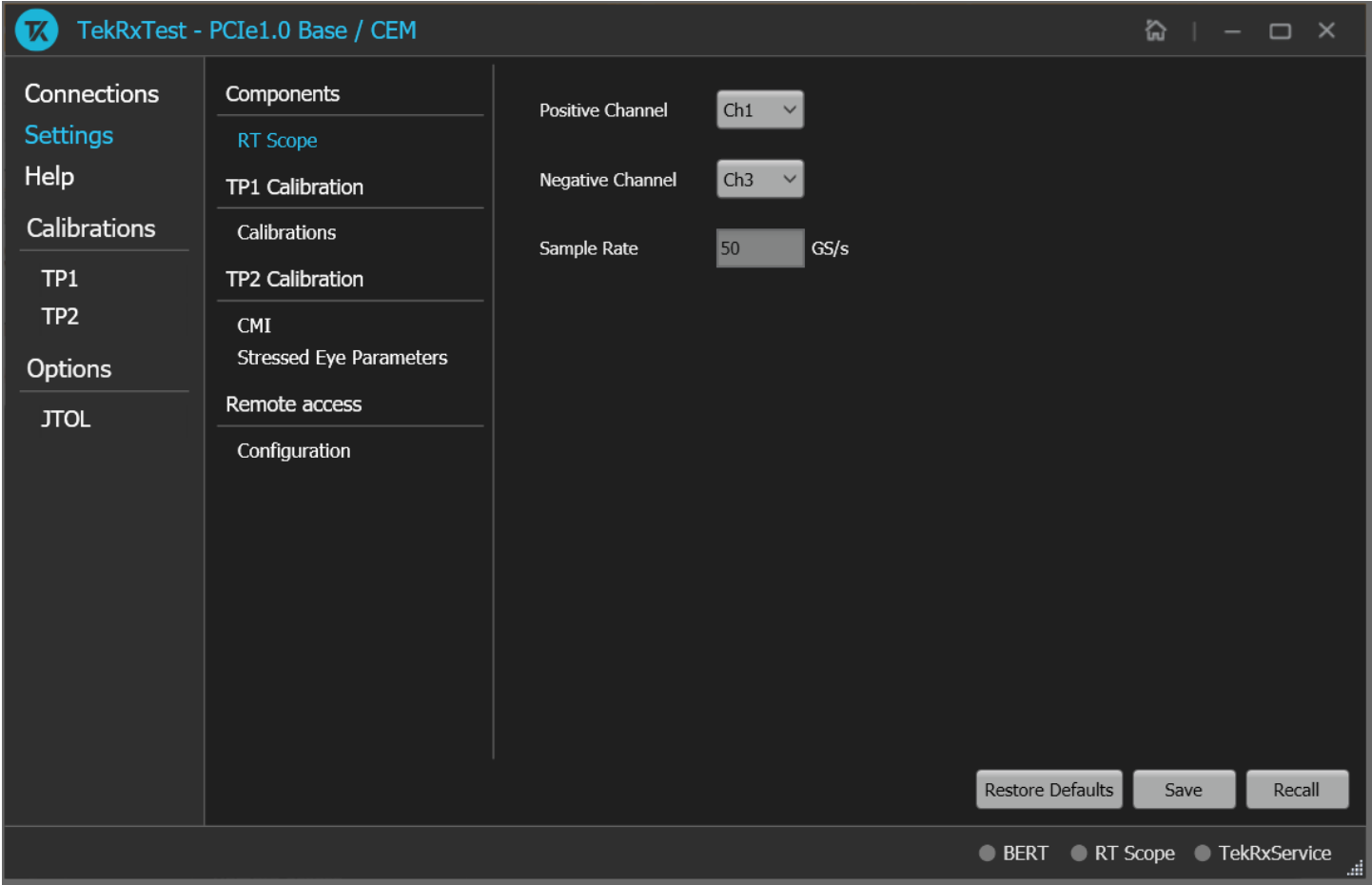
Connection panel

Connections panel

Connections	Description
BERT	Enter the BERT IP address in the address field and click Connect . When the BERT is connected successfully, the circle next to BERT in the right end corner turns green.
RT Scope	Enter the RT Scope IP address in the address field and click Connect. When the RT Scope is connected successfully, the circle next to RT Scope and TekRxService in the right end corner turns green. Once the RT Scope IP 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 Calibration. NOTE: 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.

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.

TekRxTest - PCIe1.0 Base / CEM

Connections

Settings

Help

Calibrations

TP1

TP2

Options

JTOL

Components

RT Scope

TP1 Calibration

Calibrations

TP2 Calibration

CMI

Stressed Eye Parameters

Remote access

Configuration

Positive Channel

Ch1

Negative Channel

Ch3

Sample Rate

50

GS/s

Restore Defaults

Save

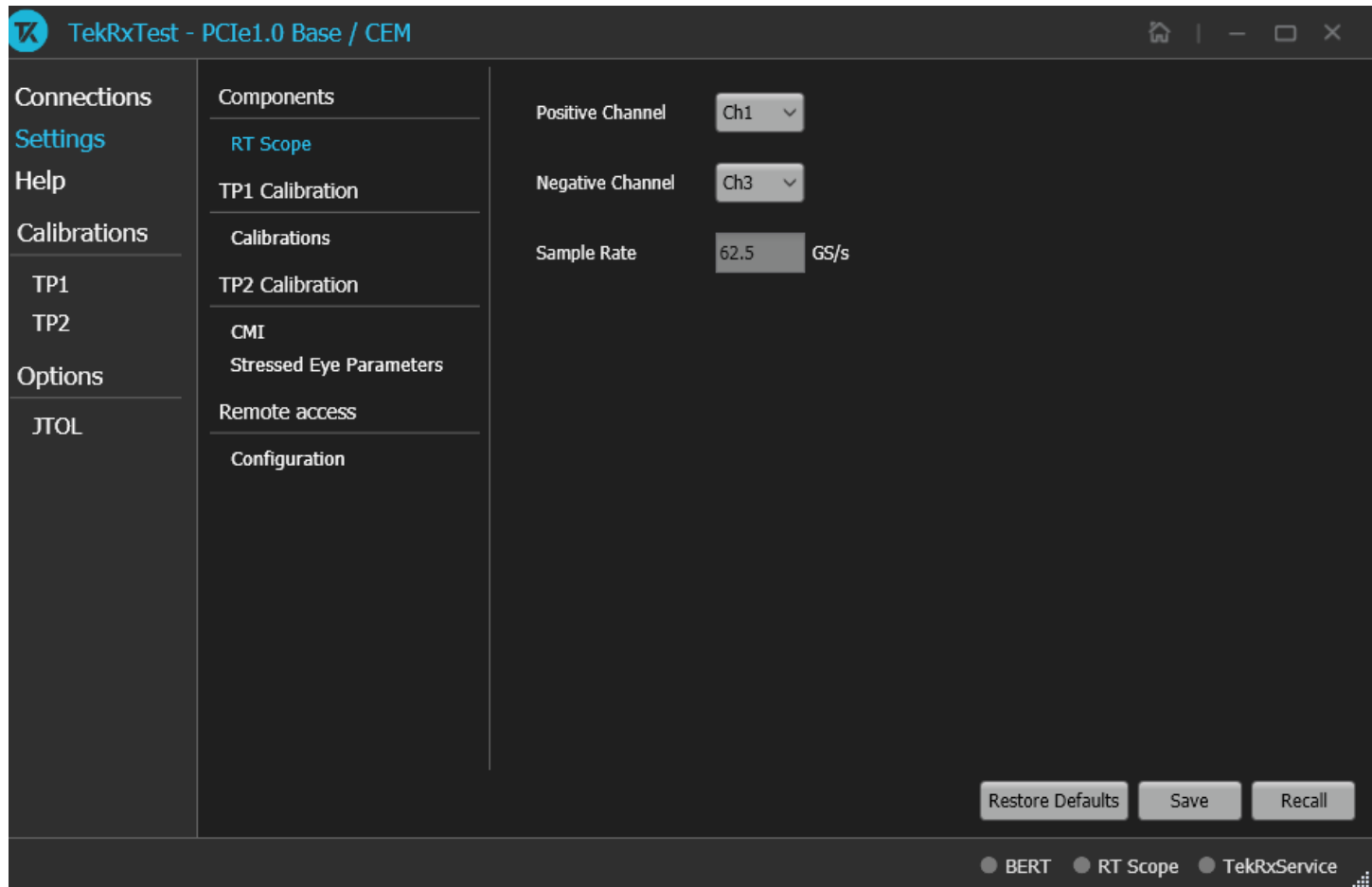
Recall

BERT

RT Scope

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. NOTE: The Sample Rate automatically updates to 62.5 when the system is connected to a DPO714AX Oscilloscope.

TP1 Calibration

The TP1 calibration tab allows you to configure the multi-tone calibration settings.

TekRxTest - PCIe1.0 Base / CEM

Connections

Settings

Help

Calibrations

TP1

TP2

Options

JTOL

Components

RT Scope

TP1 Calibration

Calibrations

TP2 Calibration

CMI

Stressed Eye Parameters

Remote access

Configuration

Nominal

Amplitude800mV

RJ3.4ps (RMS)

SJ @ 100 MHz150ps

☒ Multi-tone Calibration

Frequency Settings

Min Frequency0.03MHz

Max Frequency100MHz

Frequencies2

Points4

Frequency (MHz)	Lower Amp Limit (UI p-p)	Higher Amp Limit (UI p-p)
0.033	0.10	1.25
100.000	0.01	0.50

Generate

Default

Note: Changing Frequency will cause change in Lower/Higher Amplitude Limit

Restore Defaults

Save

Recall

BERT

RT Scope

TekRxService

TP1 Calibration: Calibrations

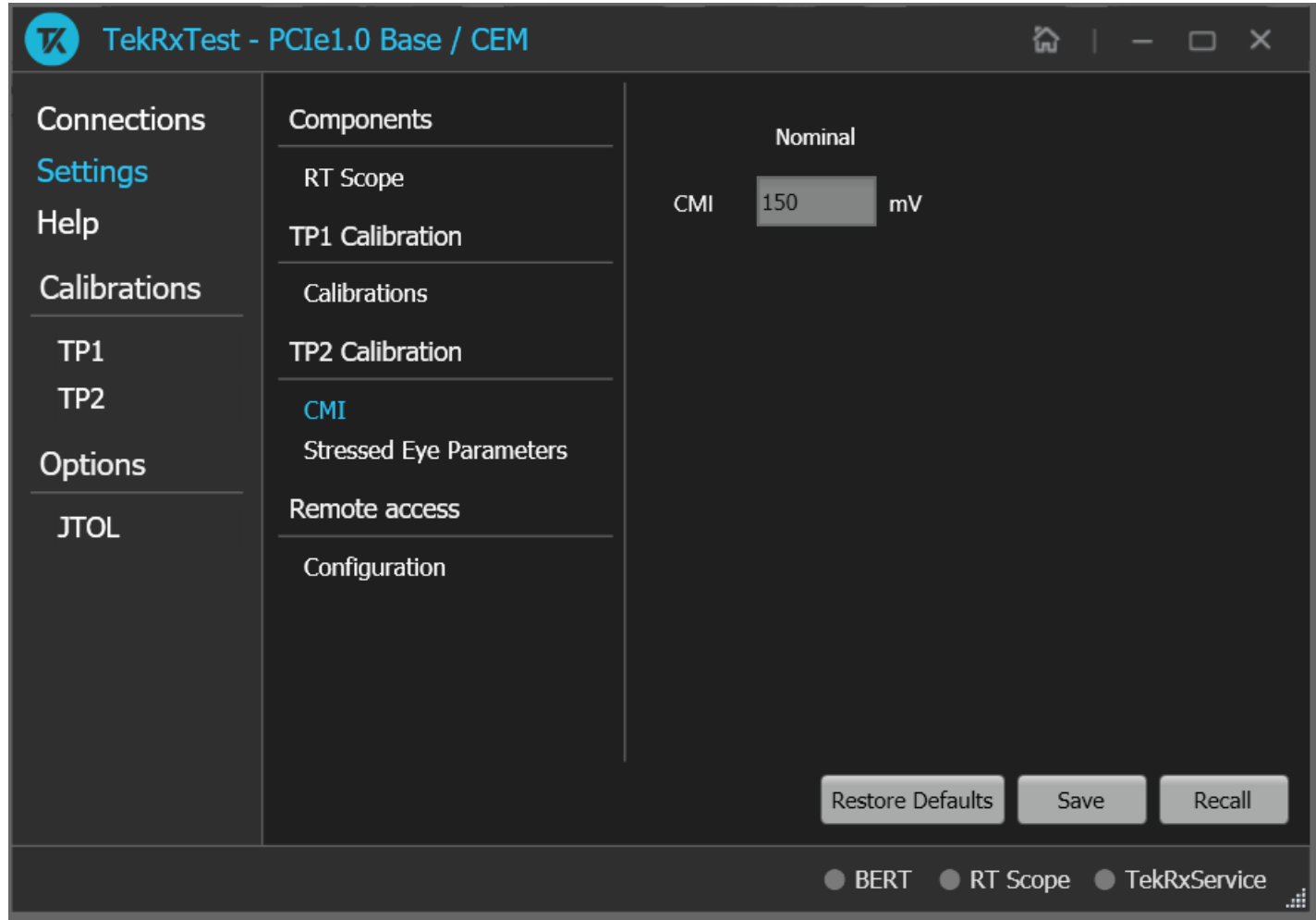
TP1 Calibrations

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.
Min Frequency	Enter the minimum frequency value.

Parameter	Description
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 Calibrations

The TP2 calibration tab allows you to configure the CMI calibration and Stressed Eye Parameters.



P2 Calibration: CMI

TP2 Calibration: CMI

Parameter	Description
CMI	Displays the nominal CMI value in mV.

TekRxTest - PCIe1.0 Base / CEM

Connections

Settings

Help

Calibrations

TP1

TP2

Options

JTOL

Components

RT Scope

TP1 Calibration

Calibrations

TP2 Calibration

CMI

Stressed Eye Parameters

Remote access

Configuration

acqs for stressed eye

5

AIC

System

Eye Target

Eye Target

Width

160

ps

Width

160

ps

Height

175

mV

Height

175

mV

SJ Sweep

SJ Sweep

Min

40

ps

Min

40

ps

Max

150

ps

Max

150

ps

Restore Defaults

Save

Recall

BERT

RT Scope

TekRxService

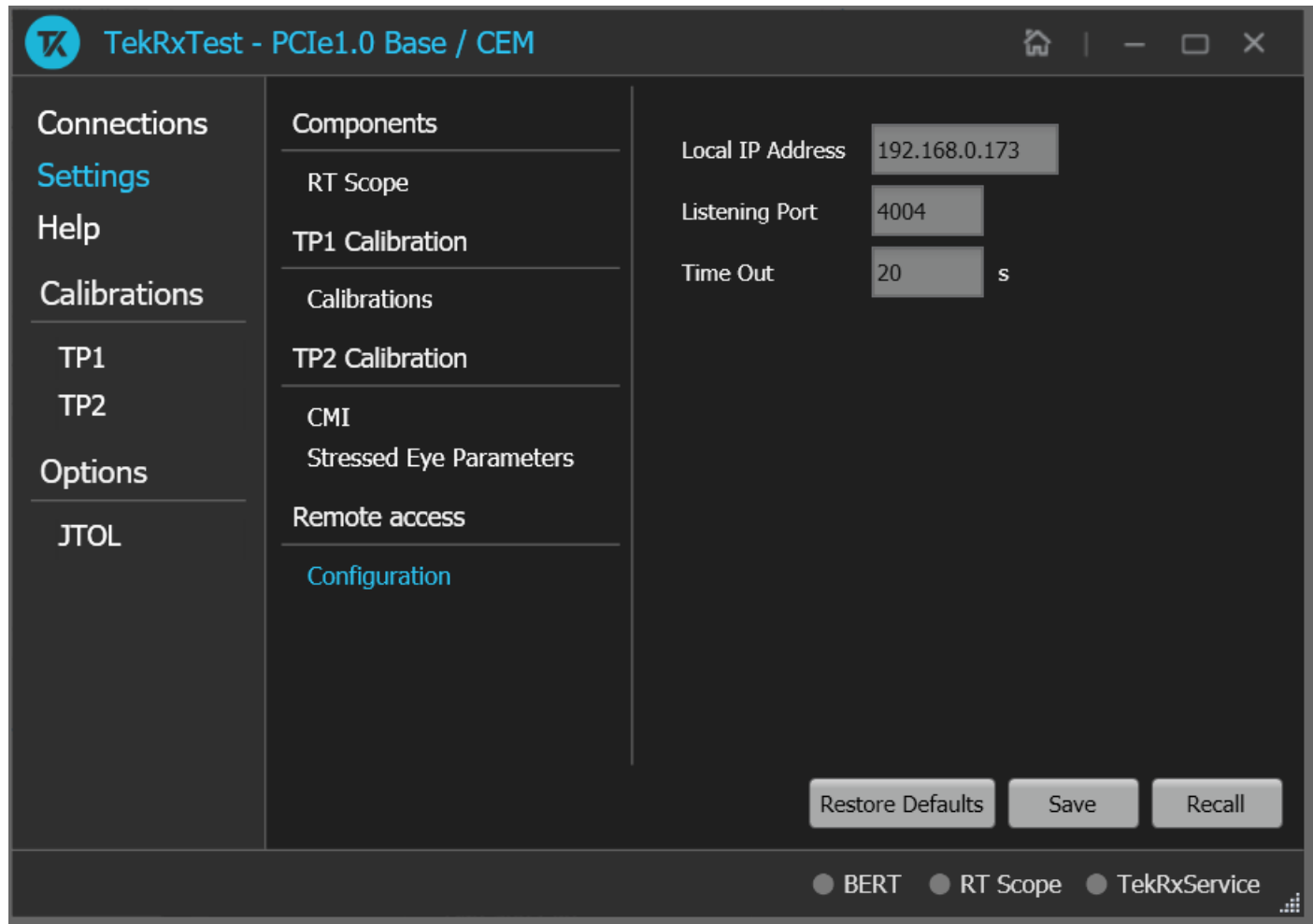
TP2 Calibration: Stressed Eye Parameters

TP2 Calibration: Stressed Eye Parameters

Parameter	Description
# 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.
SJ Sweep	
Min	Displays the minimum value of SJ sweep during stressed eye calibration.
Max	Displays the maximum value of SJ 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. Default Value: 4004
Time Out	Displays the timeout value used when communicating with the socket server. Default Value: 20 Seconds

Help panel

The help panel launches the PCIe1.0 (BASE / CEM) TekRxTest application help document.

Calibrations panel

Complete TP1 and TP2 calibrations before you start the DUT testing using the PCIe1.0 (Base/CEM) 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.

TP1 Calibration

The TP1 calibration panel allows you to perform calibration for TP1 and save the results. You can perform calibration for Signal Amplitude, De-emphasis, Random Jitter (RJ), Sinusoidal Jitter (SJ).

The PCIe1.0 (BASE / CEM) TekRxTest application calibrates the following at TP1:

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. De-emphasis - The calibration of de-emphasis value -3.5 dB is required.
3. RJ - It is calibrated to be 3.4 ps RMS for 2.5GT/s.
4. SJ - The SJ is calibrated over the desired value of 150 ps for 2.5 GT/s.
5. Multi-tone - It is calibrated over a specific range for multiple user-defined frequencies.

TP1 Calibration procedure

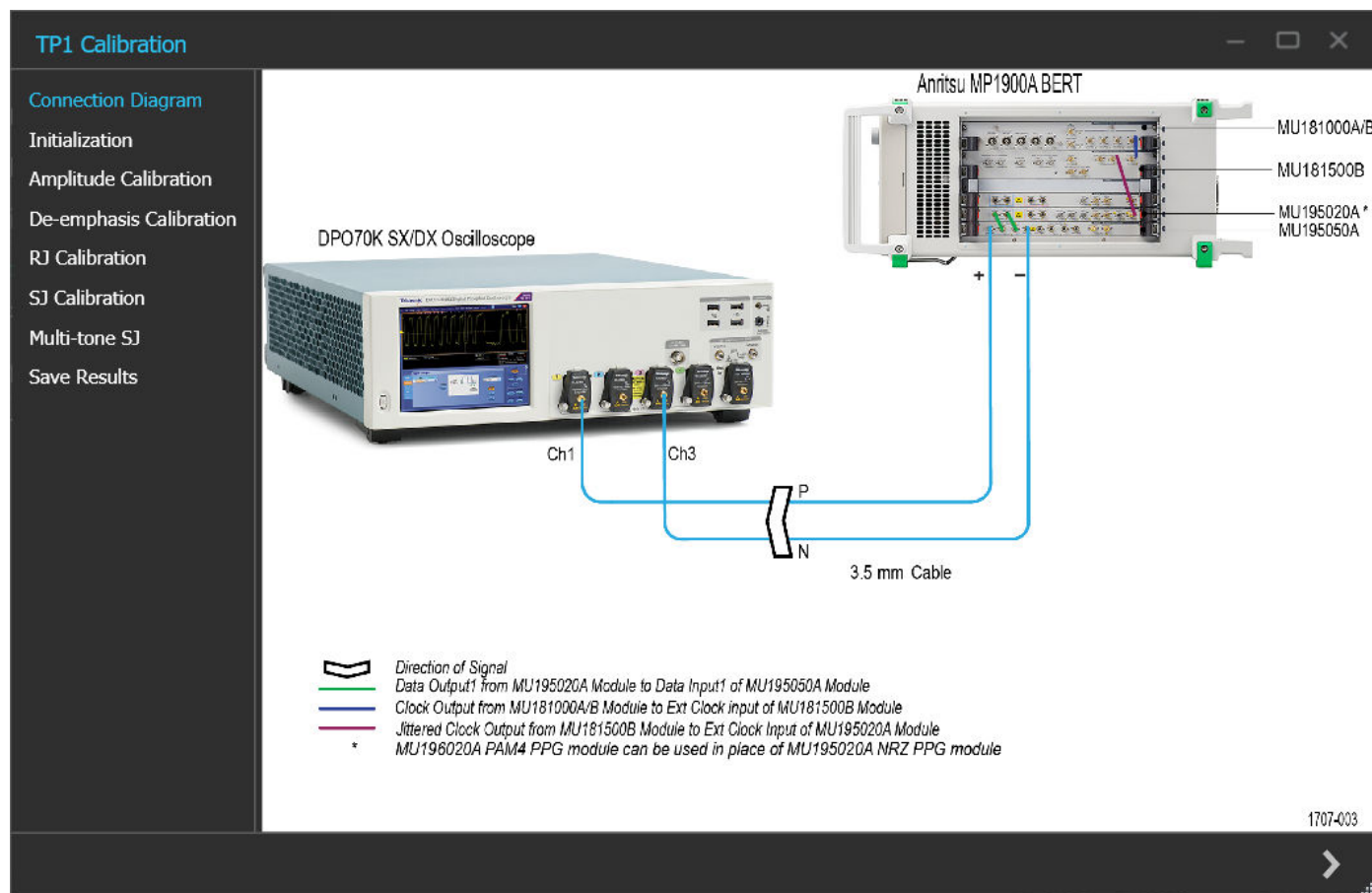


TP1 Calibration

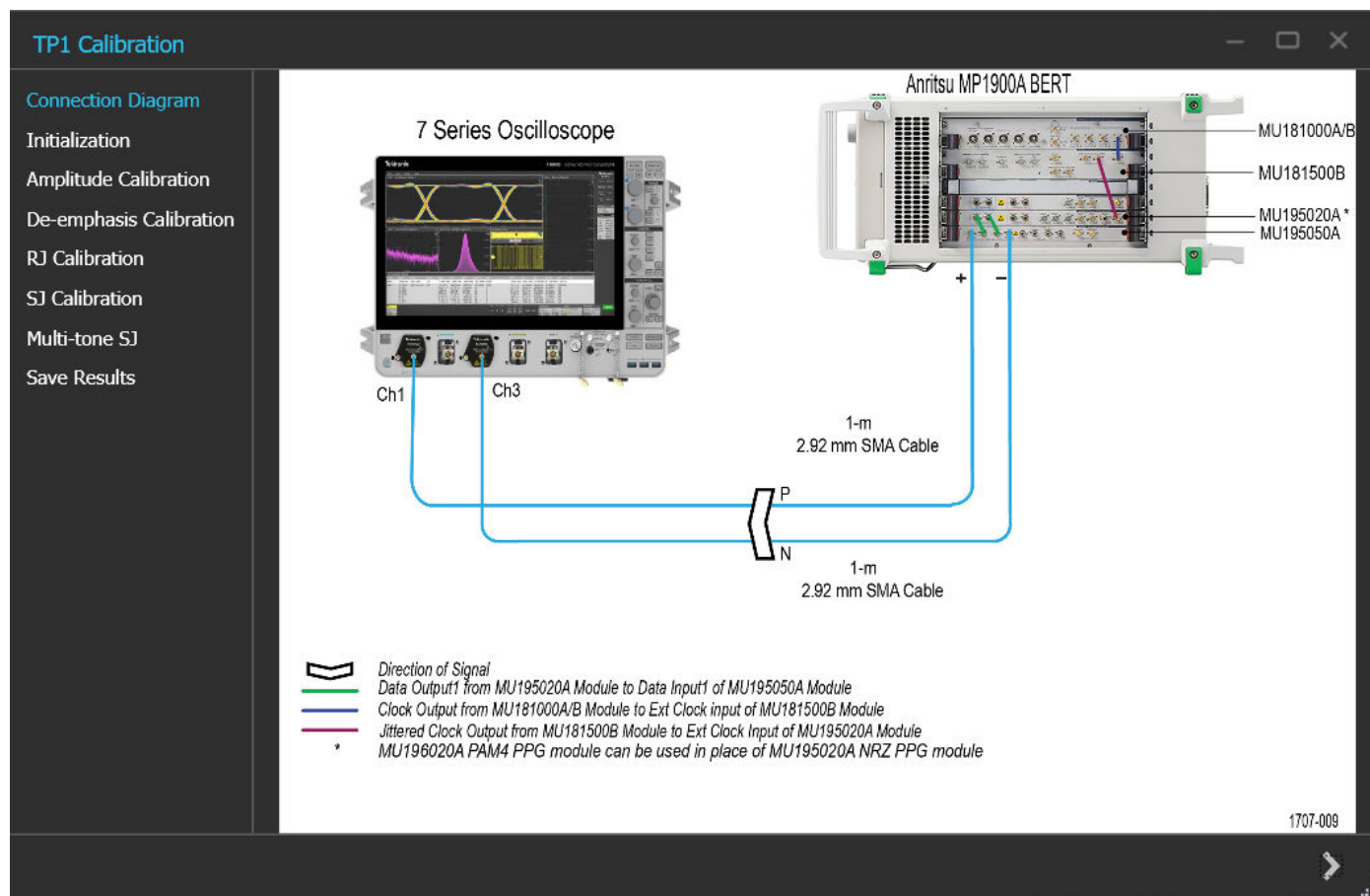


Click TP1 under the calibration tab to view the calibration results. Click  at the right end corner of the application to launch the TP1 calibration wizard. This wizard will guide you through the sequential procedure to perform the calibration.

- 1. **Connection Diagram:** This tab displays the connection diagram for TP1 calibration. The connection diagram is same for AIC / System:



TP1 Calibration: Connection Diagram



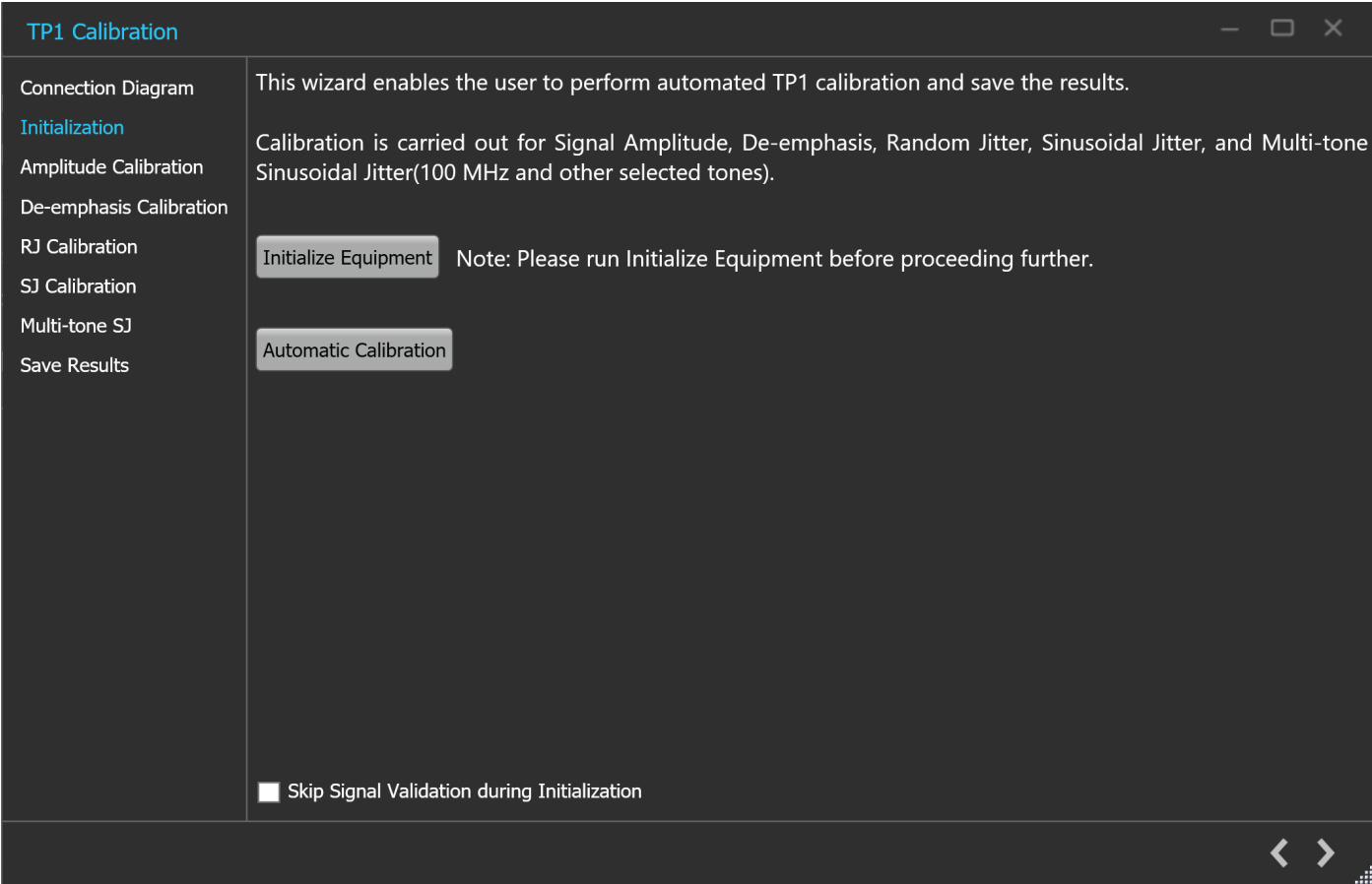
TP1 Calibration: Connection Diagram with 7 series oscilloscope.



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, De-emphasis, RJ, and SJ parameters without user intervention.

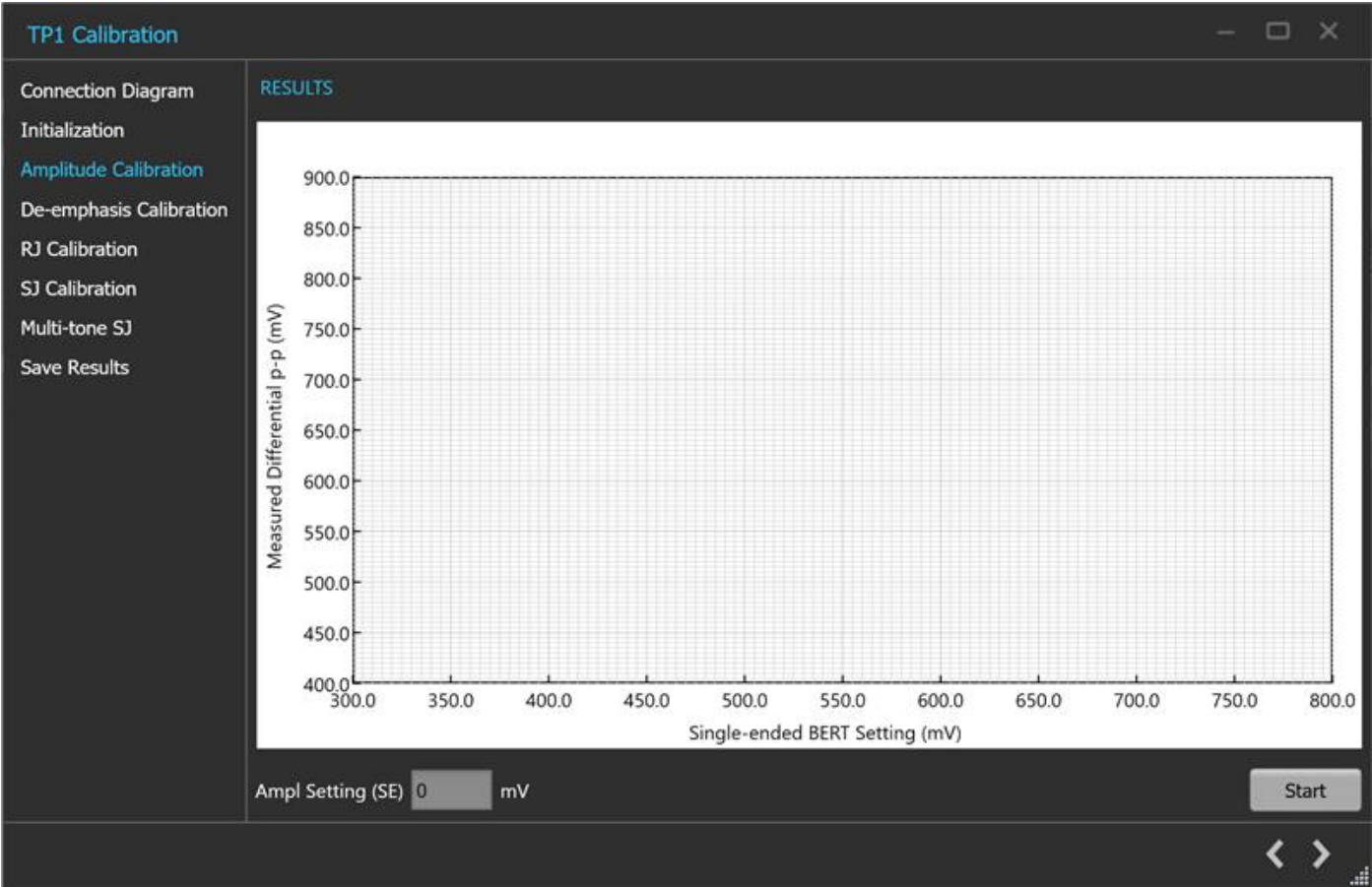


TP1 Calibration: Initialization



Click to move to the next screen.

3. **Amplitude Calibrations:** This tab displays the graph plots of amplitude calibration.



TP1 Calibration: Amplitude Calibration

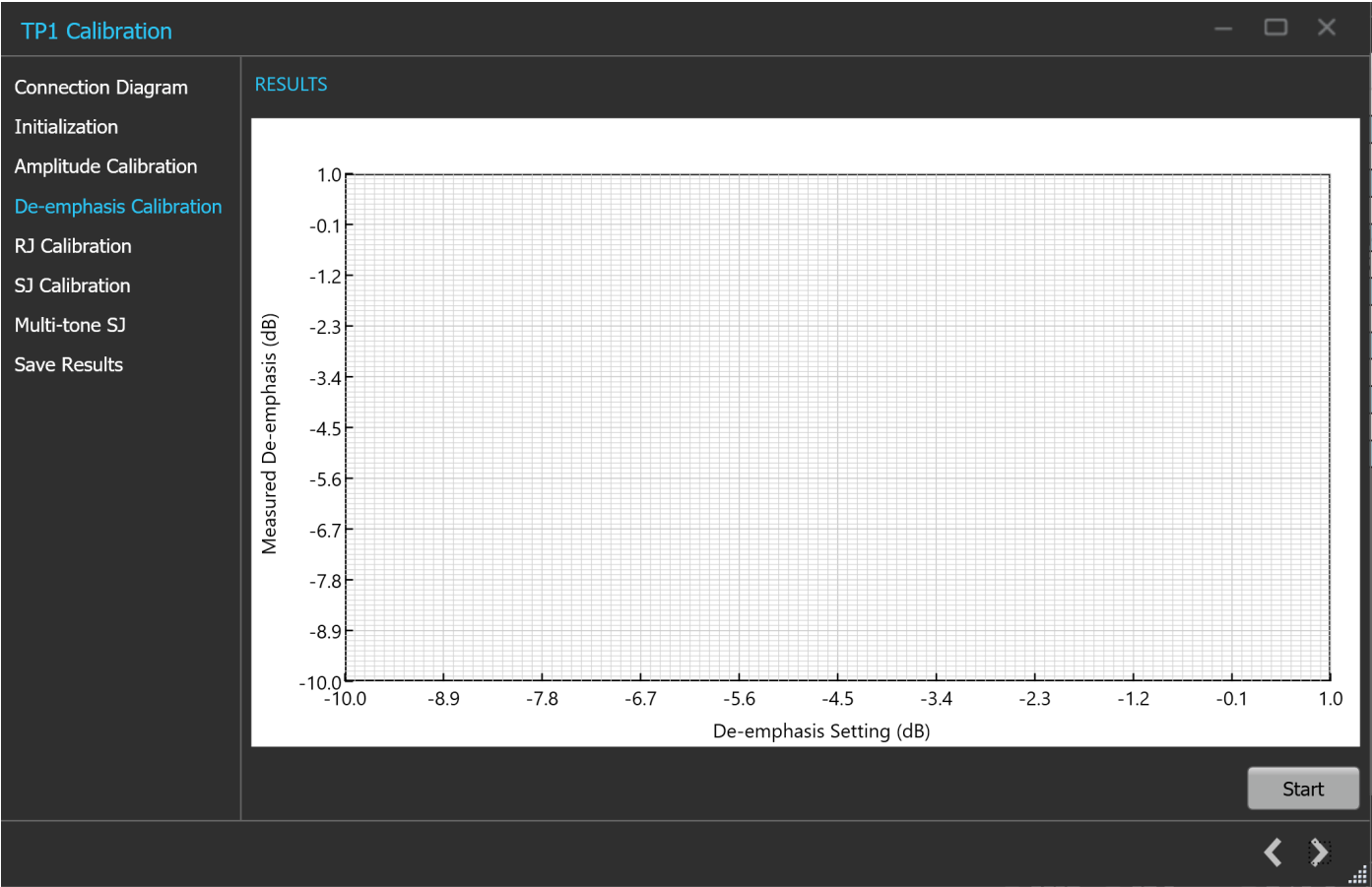
TP1 Calibration: Amplitude Calibration

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



Click to move to the next screen.

4. **De-emphasis Calibration:** This tab displays the graph plots of de-emphasis calibration.

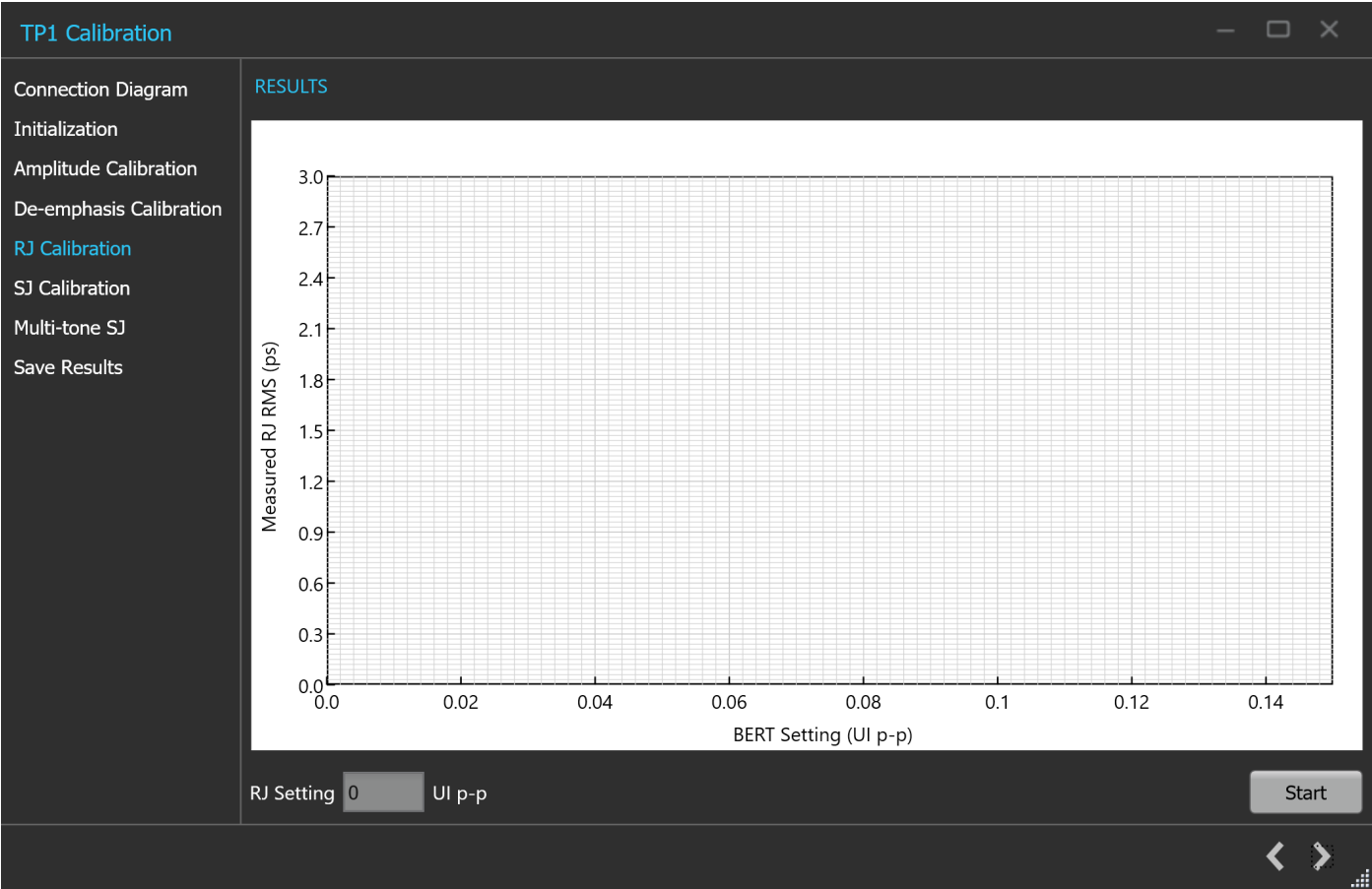


TP1 Calibration: De-emphasis Calibration



Click to move to the next screen.

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



TP1 Calibration: RJ Calibration

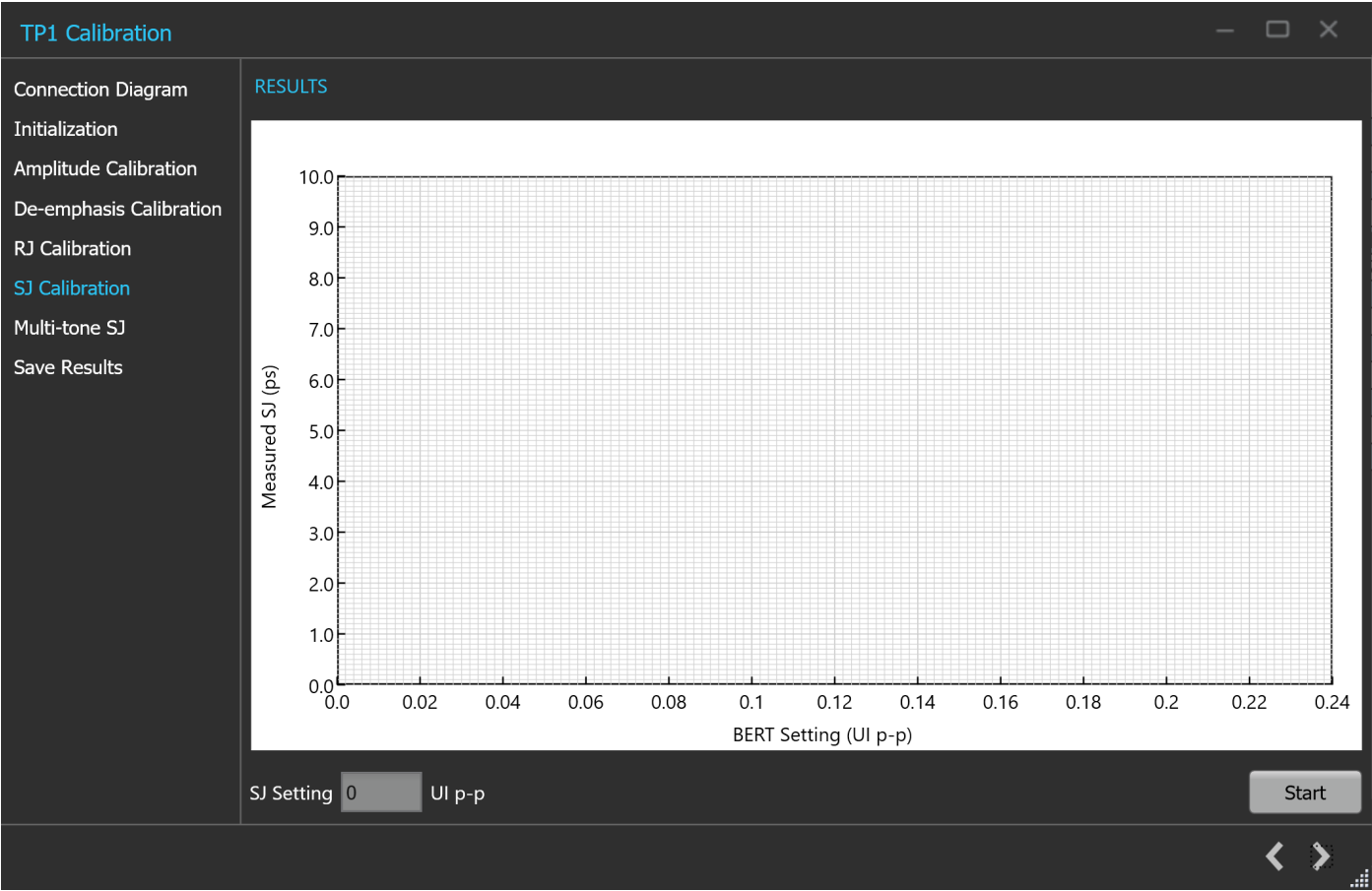
TP1Calibration: RJ Calibration

Parameter	Description
RJ Setting	Displays the calibrated RJ setting corresponding to the nominal value.
start	Click Start to run the measurements.



Click to move to the next screen.

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



TP1 Calibration: SJ Calibration

TP1 Calibration: SJ Calibration

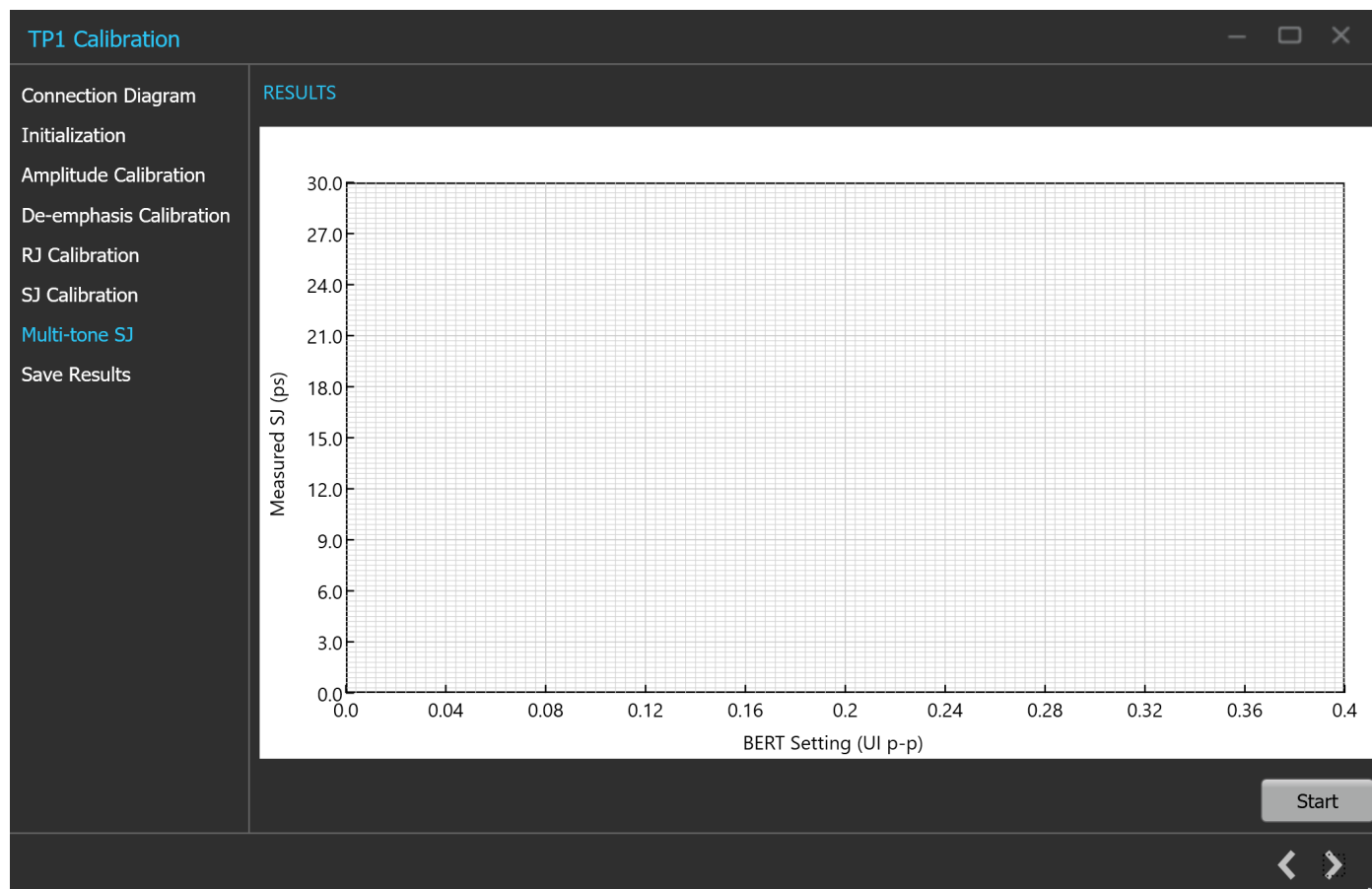
Parameter	Description
SJ Setting	Displays the calibrated SJ setting corresponding to the nominal target value.
Start	Click Start to run the measurements.



Click to move to the next screen.

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

NOTE: Enable the multi-tone option in the settings panel to display the Multi-tone SJ calibration panel in the TP1 calibration wizard window.



TP1 Calibration: Multi-tone SJ

TP1 Calibration: Multi-tone SJ



Click  to move to the next screen.

8. **Save Results:** This tab allows you to save all the TP1 calibration results.

TP1 Calibration

Connection Diagram

Initialization

Amplitude Calibration

De-emphasis Calibration

RJ Calibration

SJ Calibration

Multi-tone SJ

Save Results

Unique ID

Generated By

Comments

Save

TP1 Calibration: Save Results

TP1 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 TP1 calibration and close the wizard.

TP2 Calibration

The TP2 calibration panel allows you to manually perform calibration for the equipment and save the results. TP2 Calibration is carried out for CMI, and Stressed Eye. This procedure sets SJ and Amplitude levels to achieve target eye-opening.

You must perform TP1 calibration before you start performing the calibration for TP2.

The PCIe1.0 (BASE / CEM) TekRx test application calibrates the following at TP2:

1.

CMI - The common-mode sinusoidal interference is required to be calibrated for a nominal voltage of 150 mV .
2.

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

TekRxTest - PCIe1.0 Base / CEM

Connections

Settings

Help

Calibrations

TP1

TP2

Options

JTOL

Unique ID	Device	Completion Status	Stressed Eye Convergence	Generated By	Date/Time	Comment
[Example_TP2_AI]	Non-Root Complex	Complete	True	TEK	16 Dec 2023, 00:3	
[Example_TP2_SY]	Root Complex / Sy	Complete	True	TEK	16 Dec 2023, 00:5	

TP2 Calibration

● BERT ● RT Scope ● TekRxService

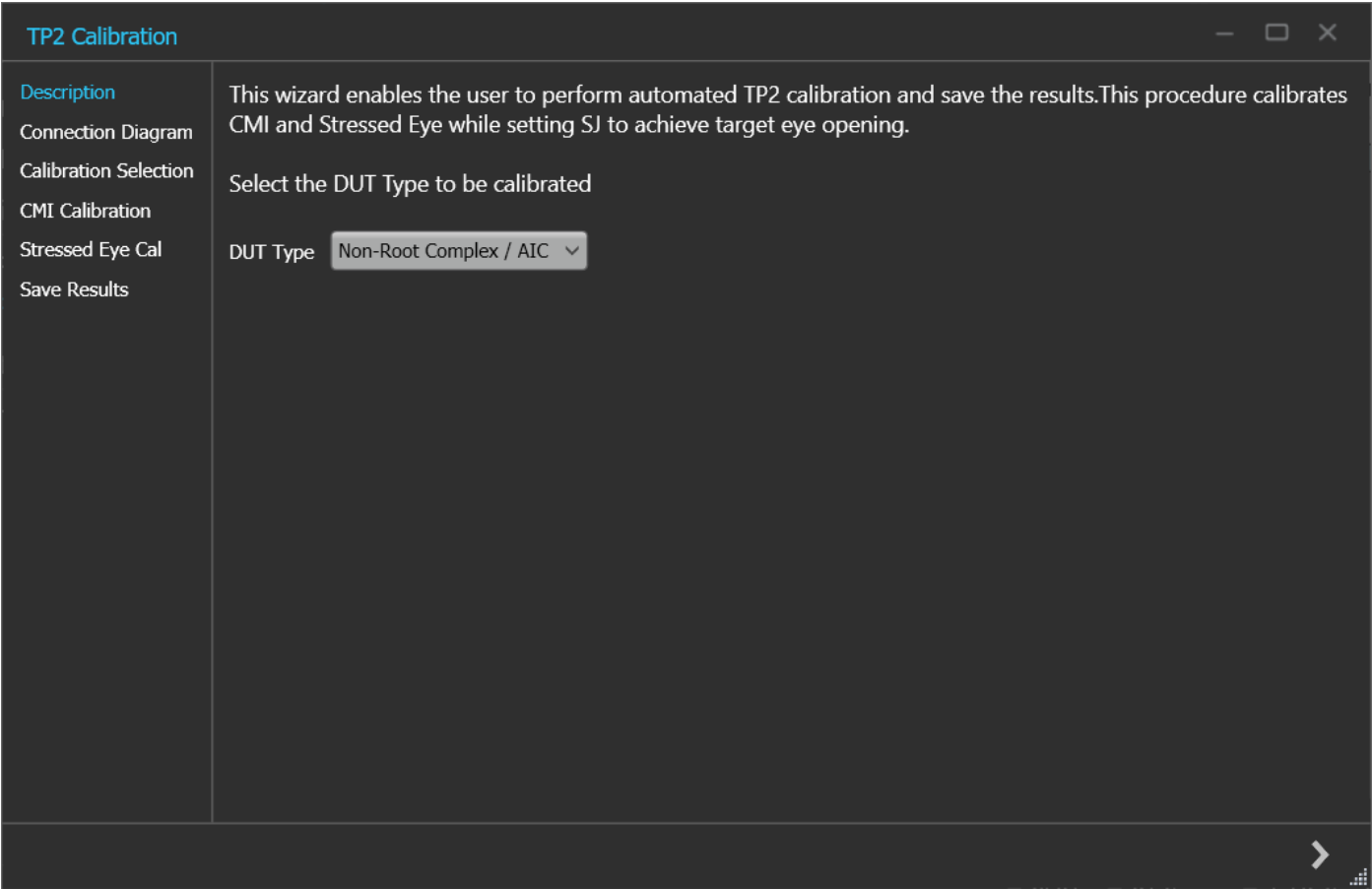
TP2 Calibration

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 TP1 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

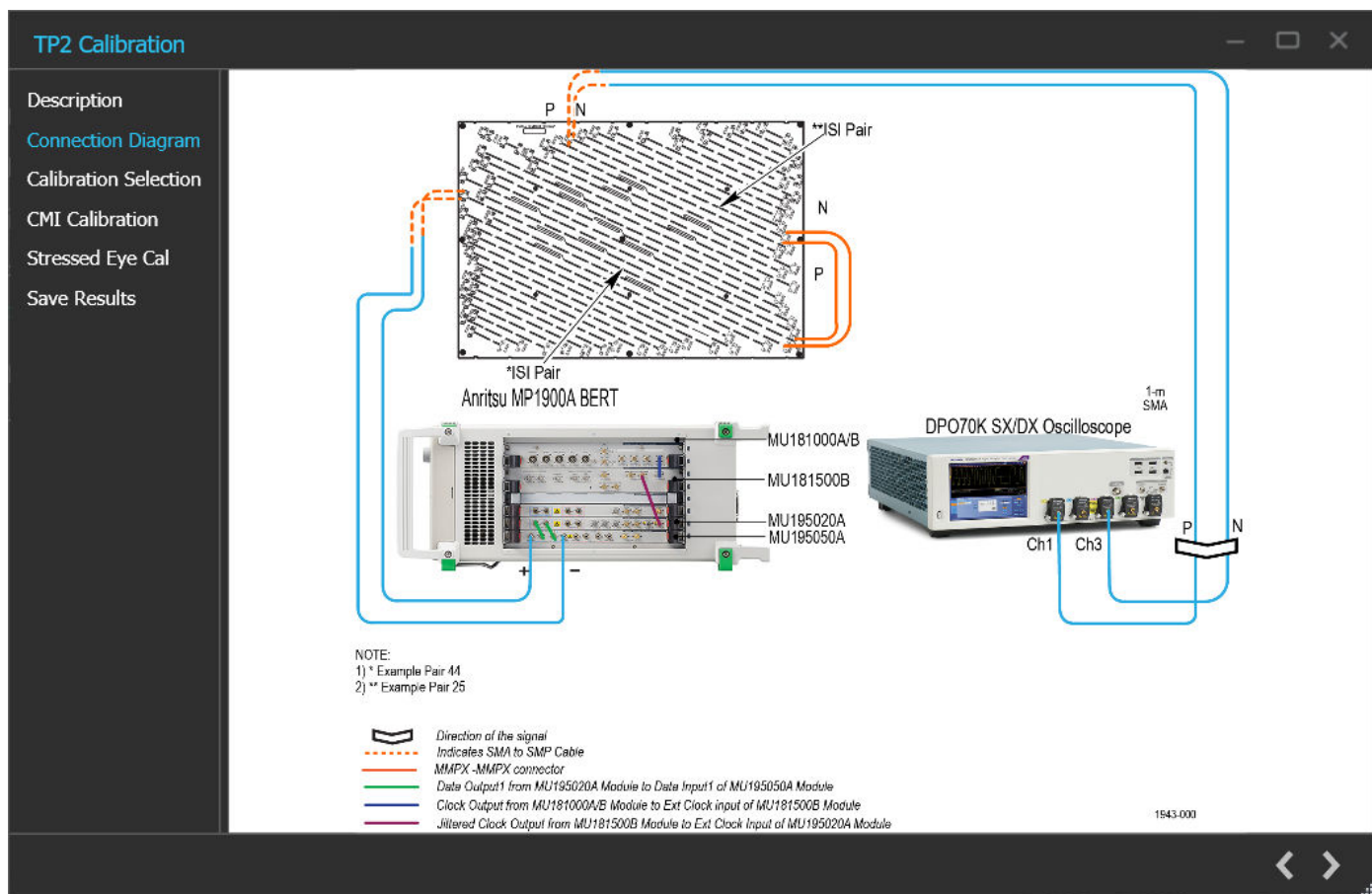
TP2 Calibration: Description

Parameter	Description
DUT Type	Non-Root Complex / AIC Card Root Complex / System

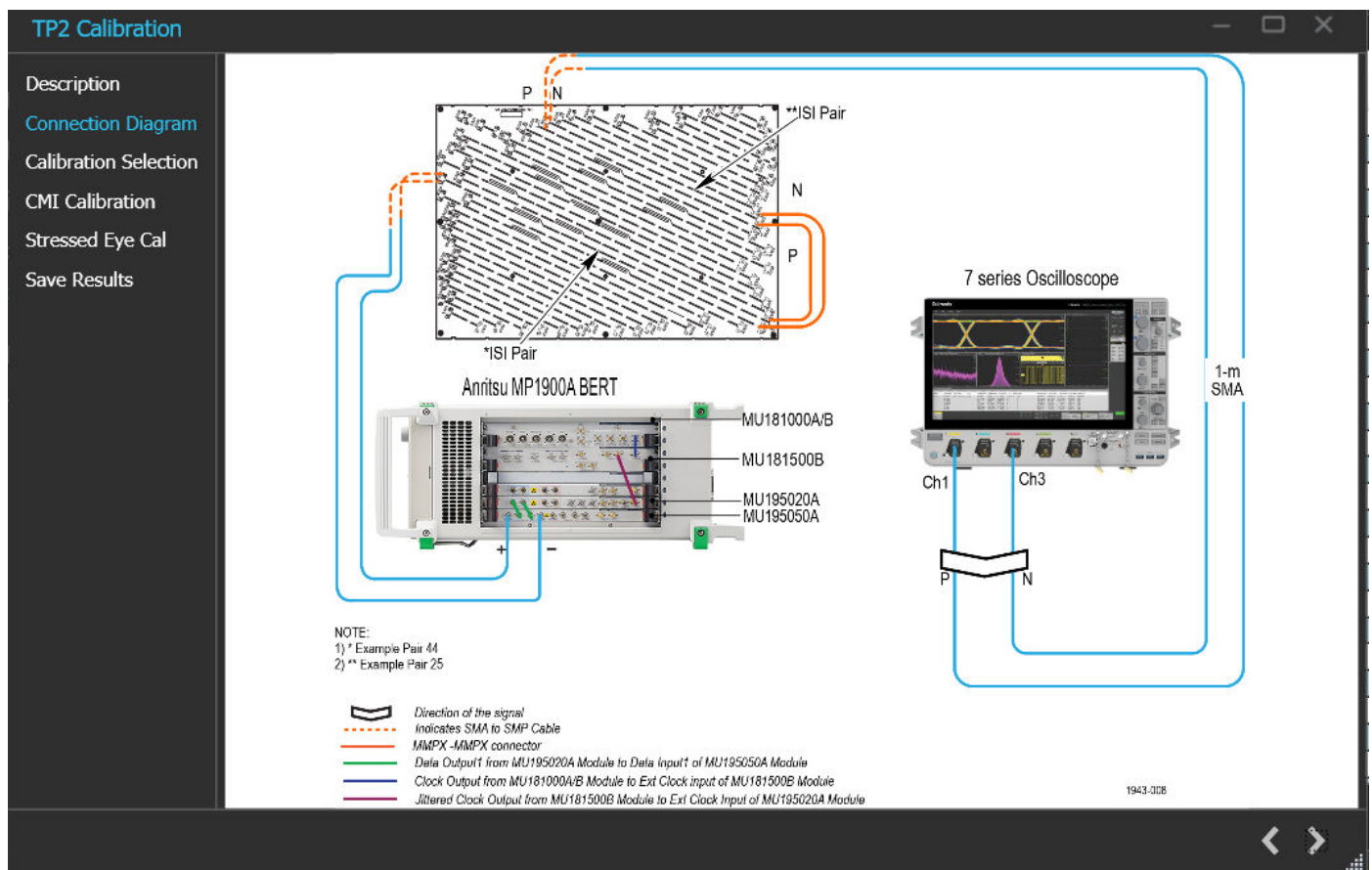


Click to move to the next screen.

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



TP2 Calibration: Connection Diagram

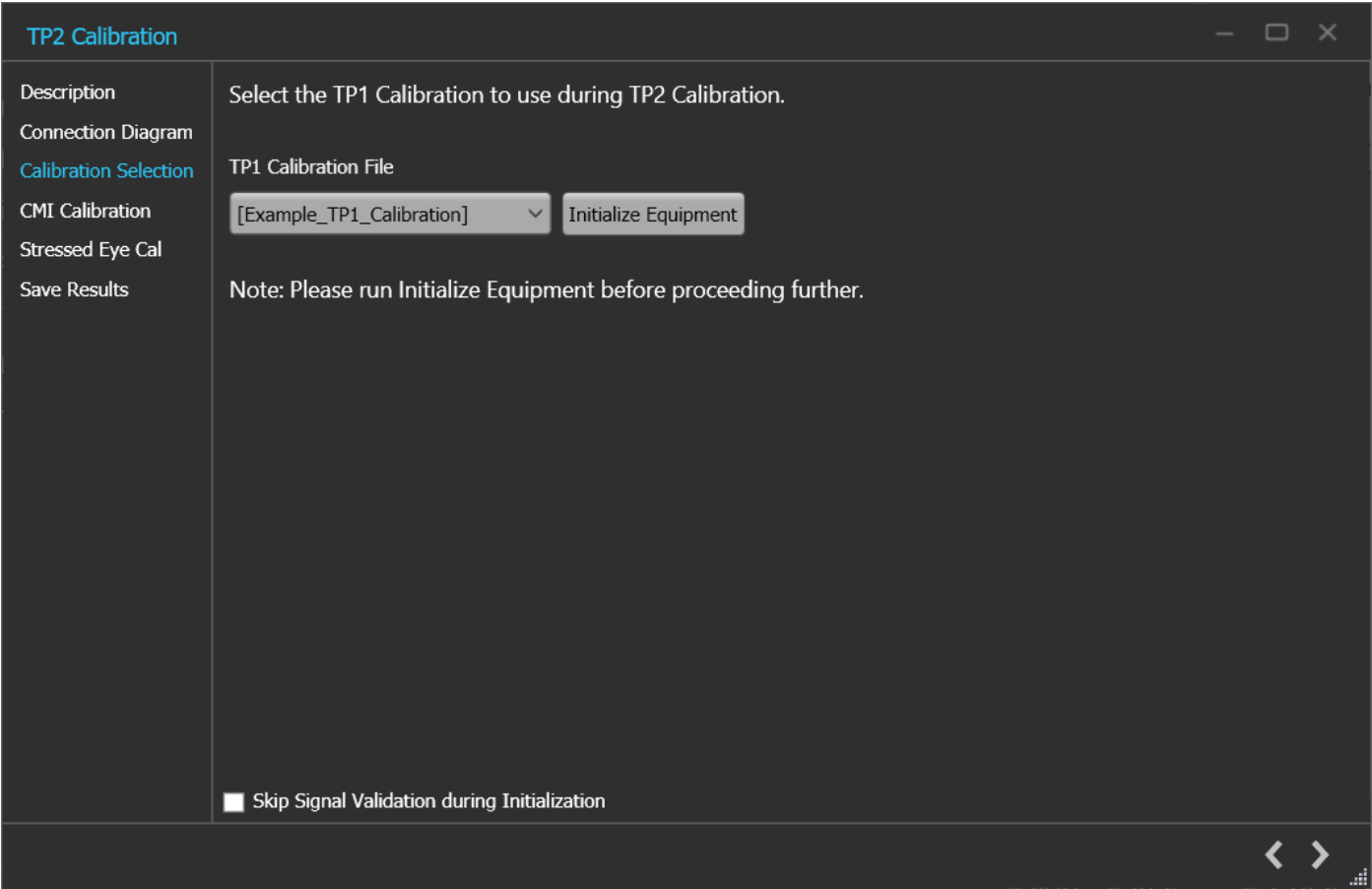


TP2 Calibration:Connection Diagram - AIC with 7 series oscilloscope.



Click to move to the next screen.

3. **Calibration Selection:** This tab allows you to select the TP1 Calibration file from the drop-down list and click Initialize Equipment.



TP2 Calibration: Calibration Selection

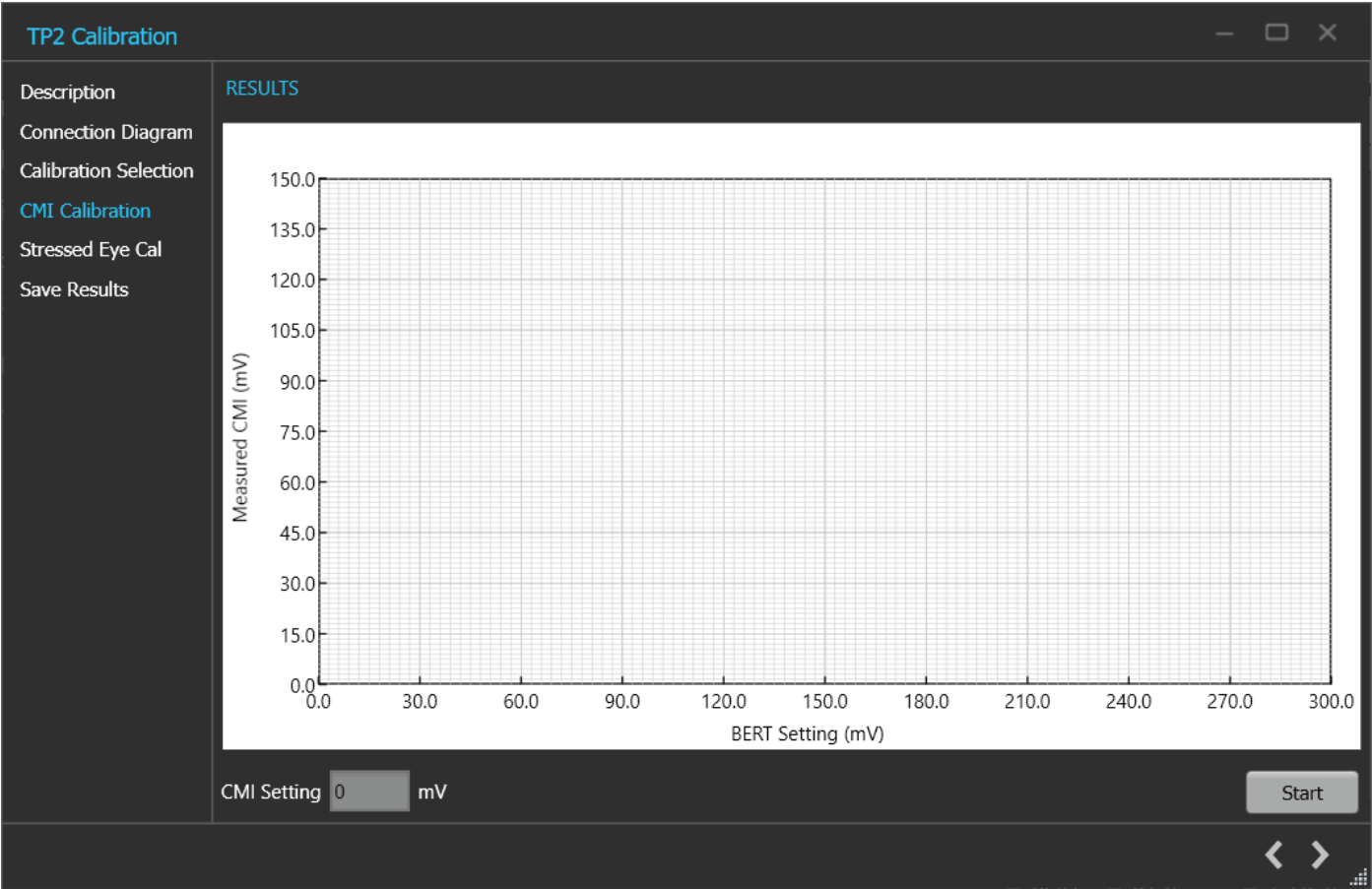
TP2 Calibration: Calibration Selection

Parameter	Description
TP1 Calibration File	Select the desired TP1 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. **CMI Calibration:** This tab displays the graph plots of CMI calibration.



TP2 Calibration: CMI Calibration

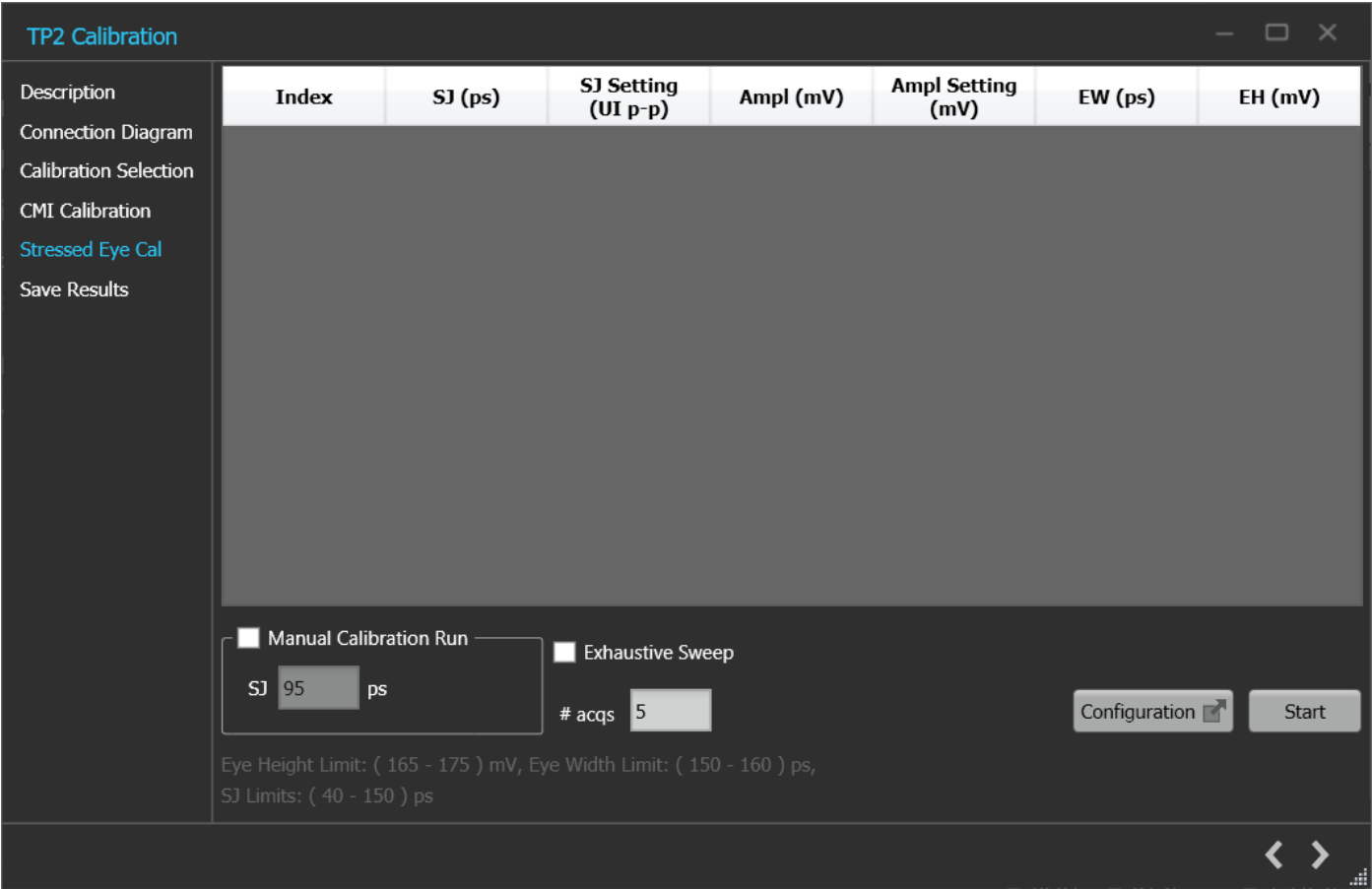
TP2 Calibration: CMI Calibration

Parameter	Description
CMI Setting	Displays the calibrated CMI setting corresponding to nominal value.
Start	Click Start to run the measurement.



Click to move to the next screen.

5. **Stressed Eye Calibration:** TP2 calibration for stressed eye requires information from the TP1 calibration that is performed for the set-up under consideration or from one of the saved TP1 results. The relevant TP1 calibration file can be chosen from the calibration selection page shown from a drop-down button listing all the TP1 calibration files stored in the PCIe Gen3 TekRxTest application repository.



TP2 Calibration: Stressed EYE Calibration

TP2 Calibration: Stressed Eye Cal

Parameter	Description
Manual Calibration Run	Select to manually enter the SJ,values for Stressed Eye calibration.
SJ	Diplays the SJ value 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 within the sweep range with defined step sizes.
# acqs	Enter the number of waveforms used to obtain the average EW and EH.



Click to move to the next screen.

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

TP2 Calibration

Description

Connection Diagram

Calibration Selection

CMI Calibration

Stressed Eye Cal

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 PCIe1.0 (BASE / CEM) Test Application.

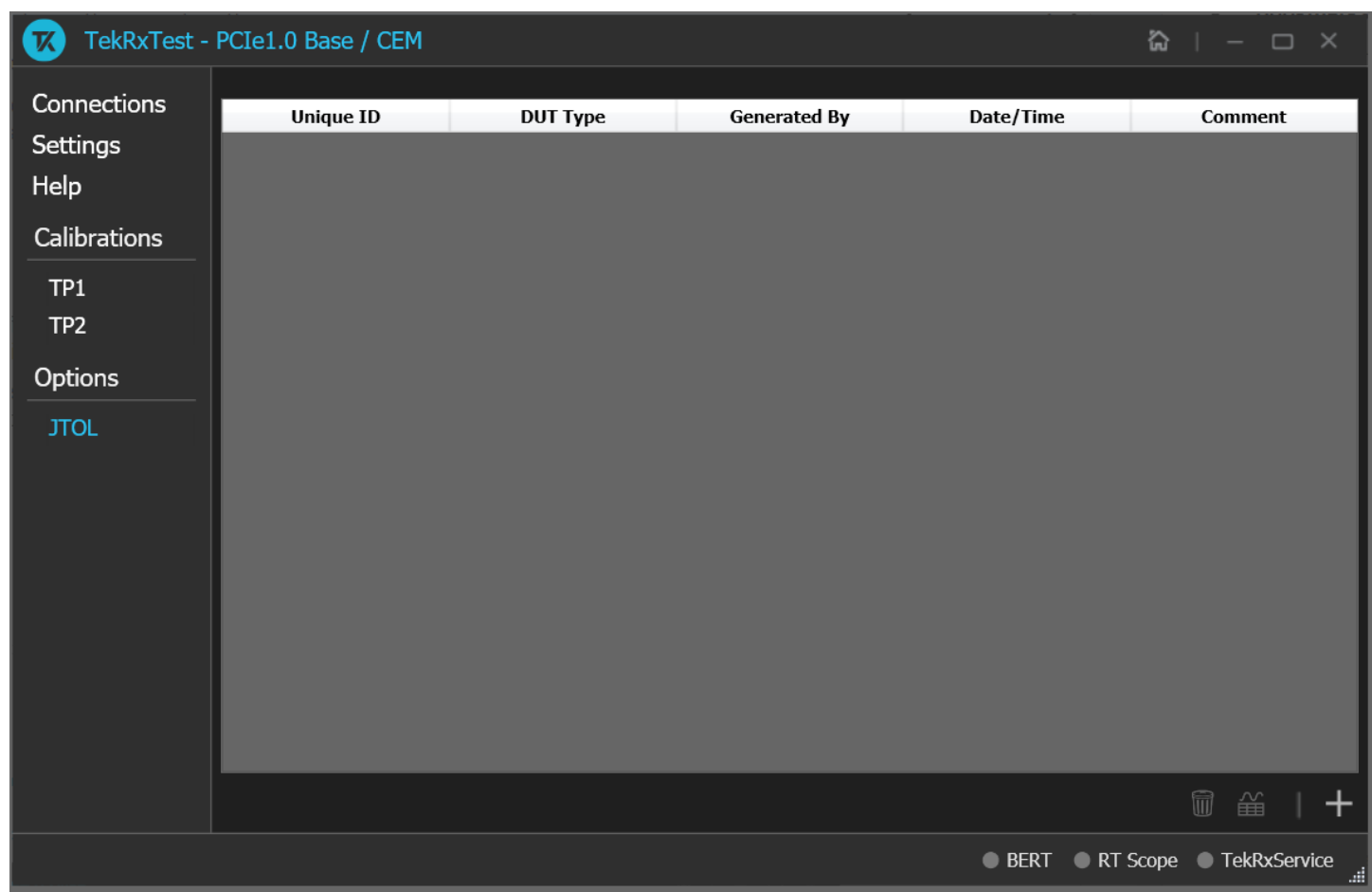
Options panel

JTOL Test

To test SJ at multiple frequencies for the JTOL test, you need to perform Multi-tone SJ calibration during TP1 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 TP1 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.

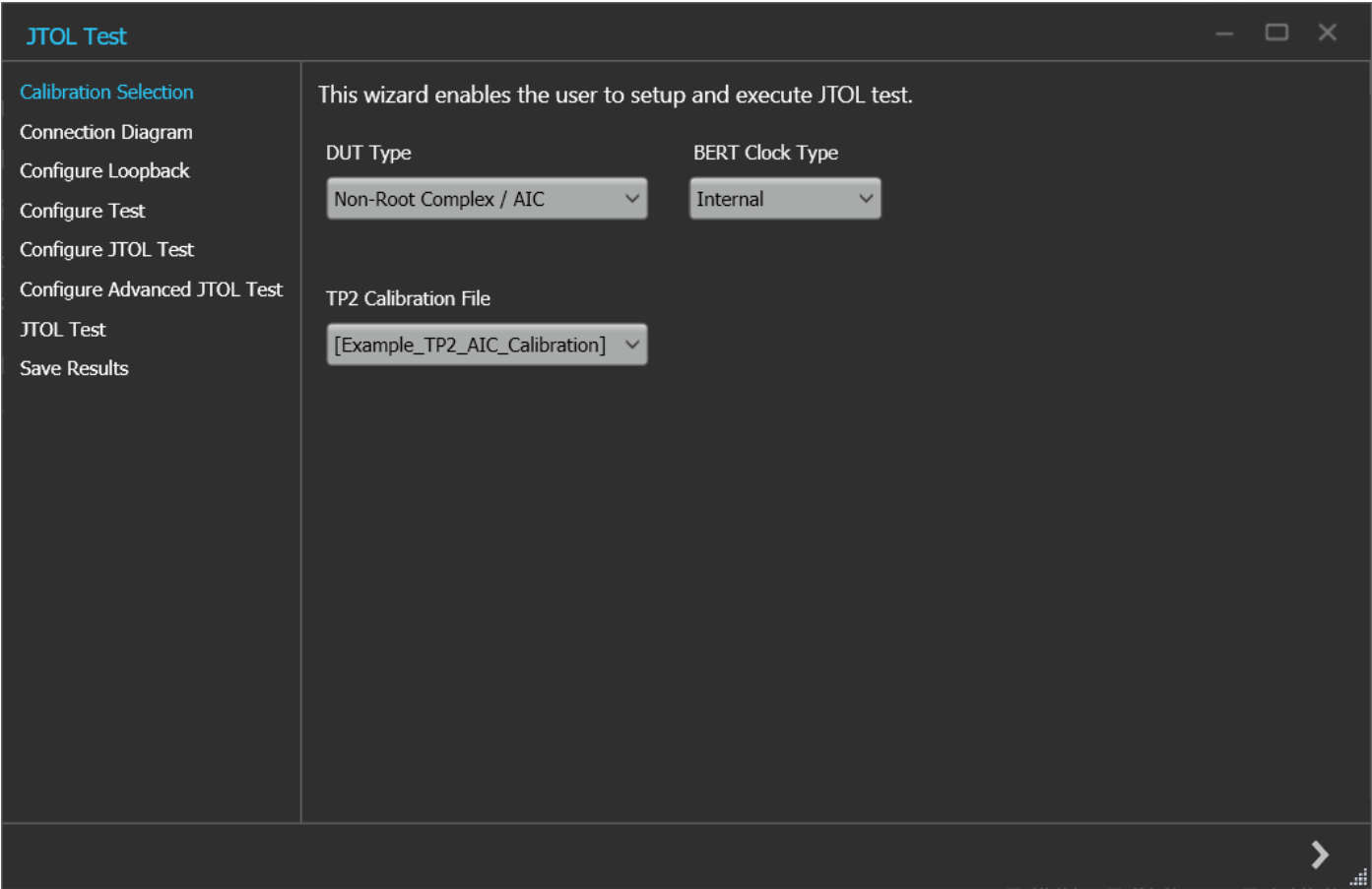
JTOL Test procedure



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

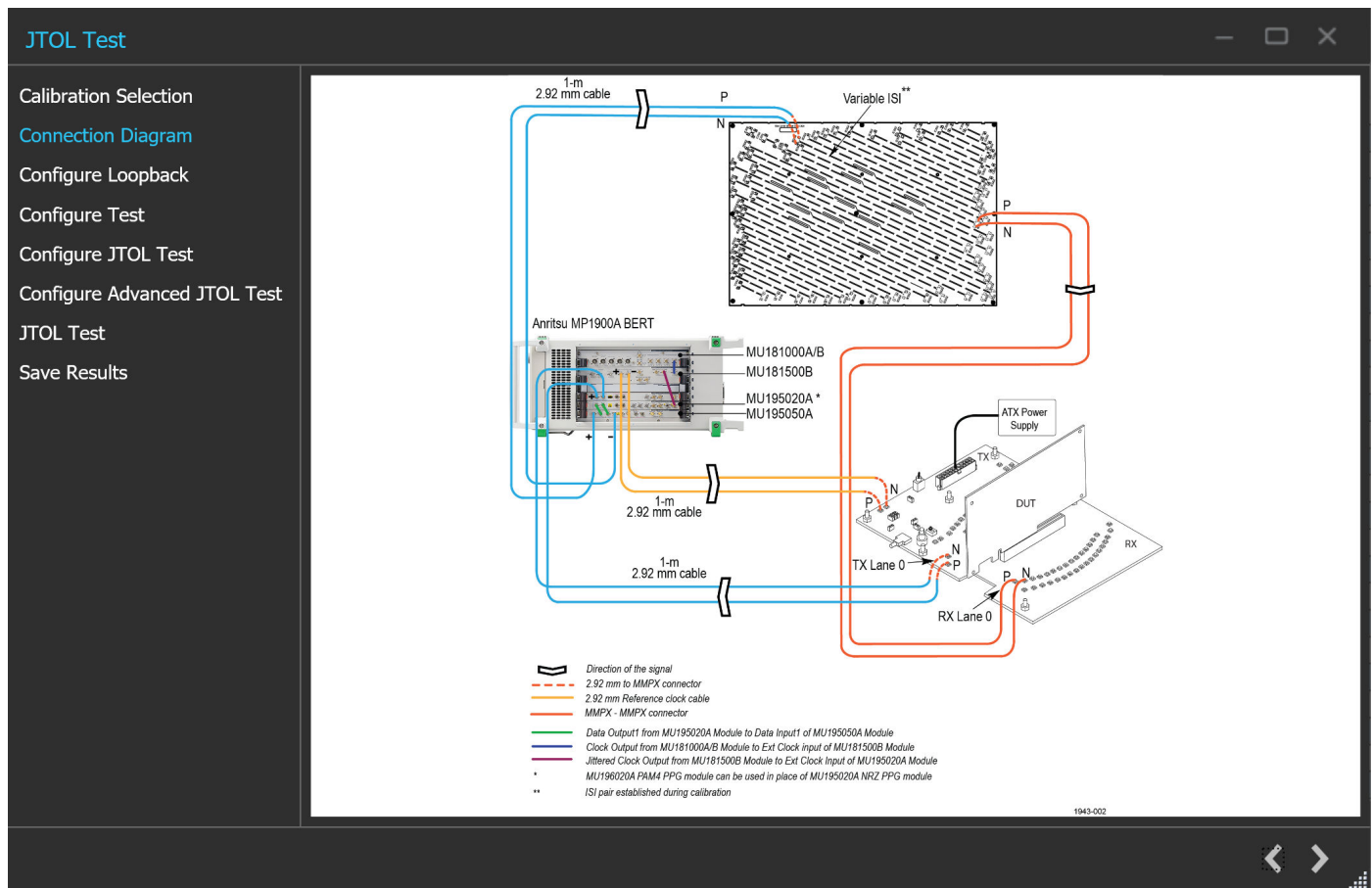
JTOL Test: Calibration Selection

Parameter	Description
DUT Type	Select the required DUT type. - Non-Root Complex / AIC - Root Complex / System
BERT Clock Type	Select the required BERT clock type. 100 MHz External - 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 different for AIC and System in case of JTOL test.

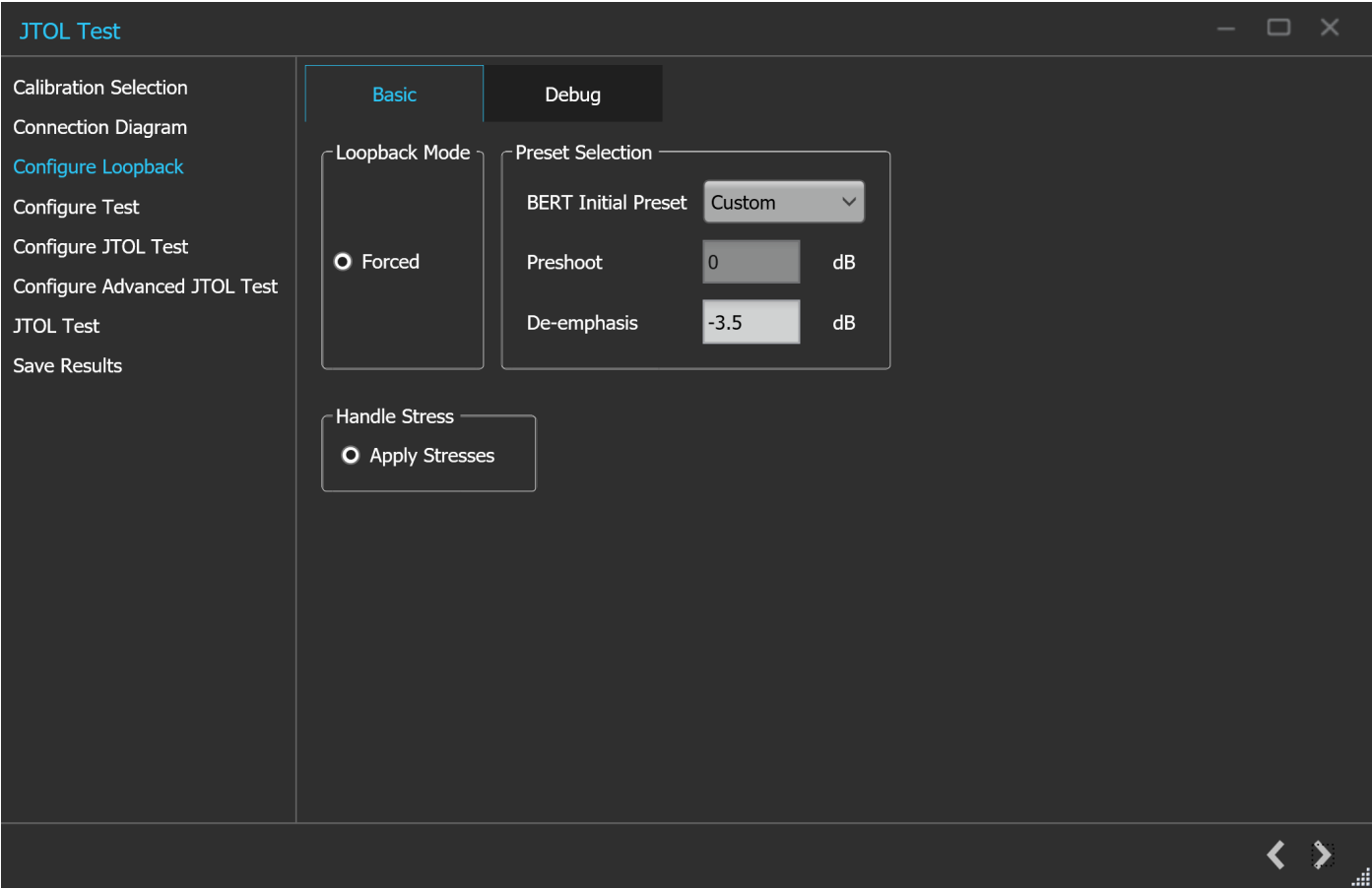


JTOL Test: Connection Diagram



Click  to move to the next screen.

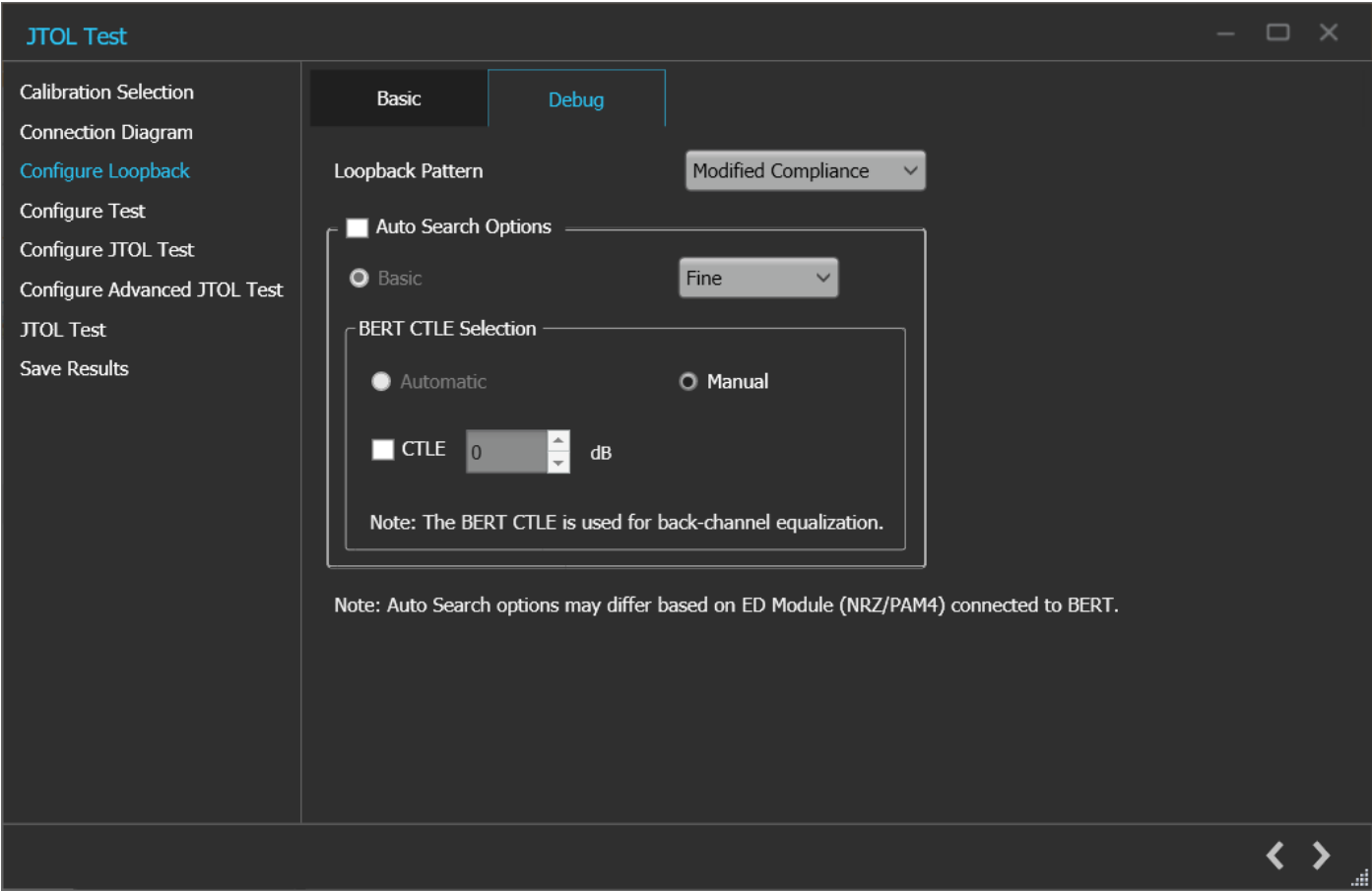
3. **Configure Loopback:** This tab allows you to configure the loopback settings (Basic and Debug).



JTOL Test: Configure Loopback basic

JTOL Test: Configure Loopback (Basic)

Parameter	Description
Loopback Mode	Displays the default loopback mode selected.
Preset Selection	Displays the default Preset Selection selected.
BERT Initial Preset	Configure the Deemphasis value to be set on the BERT PPG during loopback using Custom value from drop-down list.
Preshoot	NA
De-emphasis	Displays the De-emphasis to be set on the BERT PPG during loopback.



JTOL Test: Configure Loopback (Debug)

JTOL Test: Configure Loopback (Debug)

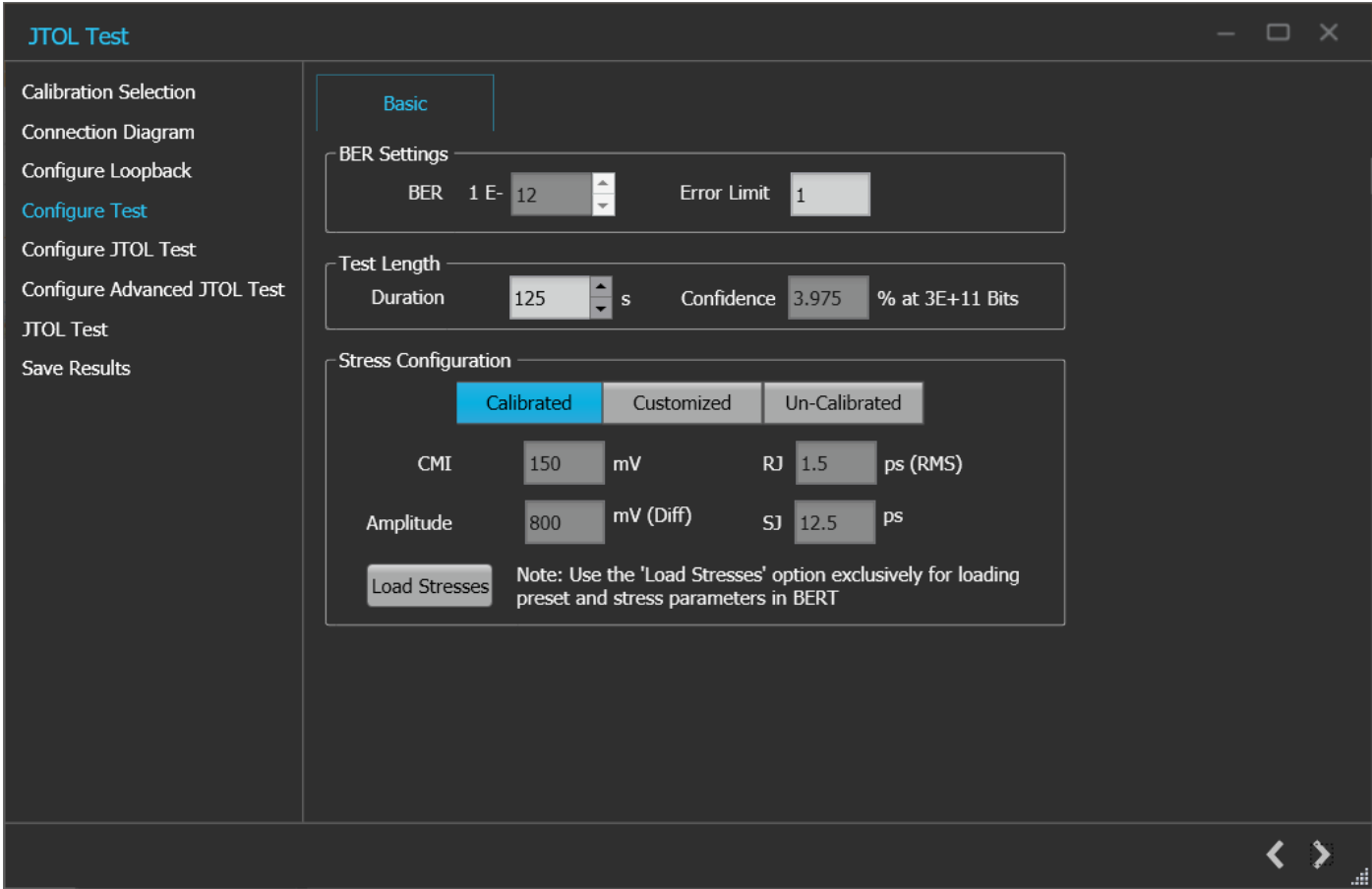
Parameter	Description
Loopback pattern	Select the pattern to be used during loopback from the drop-down list. The drop-down list contains the following elements: • Modified Compliance • Compliance • Clock Pattern • PRBS7 • PRBS9 • PRBS10 • PRBS11 • PRBS15 • PRBS20 • PRBS23 • PRBS31

Parameter	Description
Auto Search	Select to enable the auto search basic mode and choose from the dropdown. The drop-down contains the following elements: • Fine • 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.



JTOL Test: Configure Test

JTOL Test: Configure Test (Basic)

Parameter	Description
BER Settings	BER - Enter the number of bits in error that can be tolerated. Error Limit - Enter the required error limit. The default value is 1.

Test Length	Duration - Enter the test length duration value. 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.
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.



Click  to move to the next screen.

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

JTOL Test

Calibration Selection
Connection Diagram
Configure Loopback
Configure Test
Configure JTOL Test
Configure Advanced JTOL Test
JTOL Test
Save Results

Frequency Settings

Min Frequency
0.03 MHz

Max Frequency
100 MHz

Frequencies
2

Frequency (MHz)	Lower Amp Limit (UI p-p)	Higher Amp Limit (UI p-p)
0.033	0.10	1.25
100.000	0.01	0.50

Generate
Default

Note: Changing Frequency will cause change in Lower/Higher Amplitude Limit

JTOL Test: Configure JTOL Test

JTOL Test: Configure JTOL Test

Parameter	Description
Frequency Settings	
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.



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 s

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

< >

JTOL Test: Configure Advanced JTOL Test

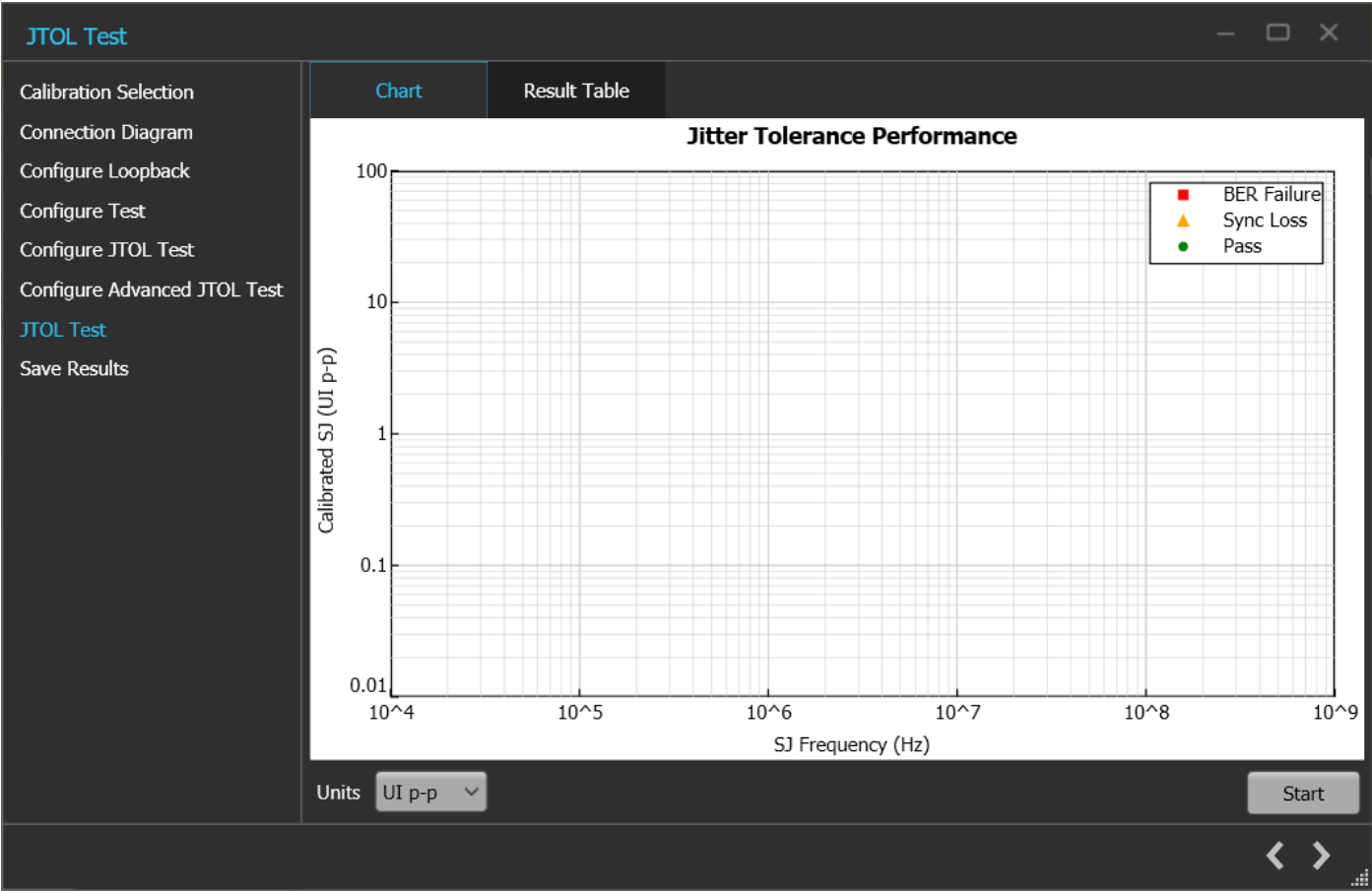
JTOL Test: Configure Advanced JTOL Test

Parameter	Description
Relaxation Time	Enter the amount of time BERT needs to relax before running BER for each amplitude point.
Search Algorithms	Select the required search algorithm from the drop-down for JTOL test. • Binary • Downwards Linear • Downwards Log • Upwards Log • Upwards Linear • Binary + Linear
Jitter Steps	
Jitter Freq Range	The different frequency ranges can have different step size for SJ amplitude sweep. • Freq <= 100 KHz • 100KHz < Freq <=1 MHz • 1 MHz < Freq <=10 MHz • 10 MHz <Freq <= 100 MHz
Step (UI p-p)	Sets the SJ amplitude step size for different frequency ranges. Sets the ratios for Downward and Upward-Log search algorithms. No steps size is defined for Binary + Linear search algorithm.



Click  to move to the next screen.

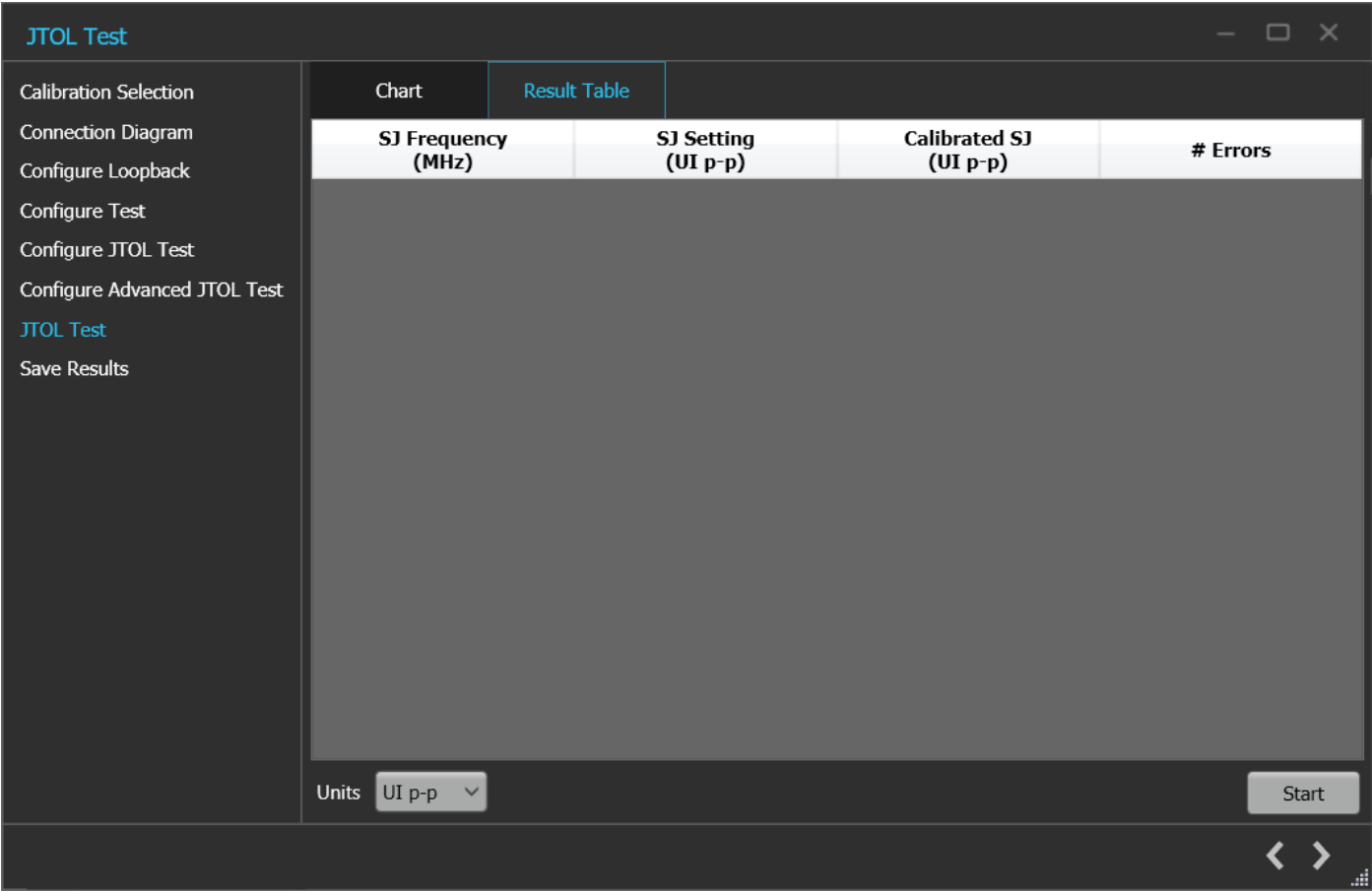
7. **JTOL Test:** This tab displays a graphical representation of JTOL test result. It includes the result table tab which displays the JTOL test results in a tabular form.



JTOL Test: JTOL Chart

JTOL Test: JTOL Chart

Parameter	Description
Units	Select the required unit from the drop-down list. The list contains the following elements: - ps - UI_{p-p}
Start	Click Start to run the test.
Skip Link Training	Select if DUT is already in link.



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 _{p-p} / ps)	Displays the SJ Amplitude on the BERT.
Calibrated SJ (UI _{p-p} / ps)	Displays the Calibrated SJ Amplitude.
#Errors	Displays the Error count 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

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:PCle1

This command selects the PCIe 1.0 application.

Syntax

TEKRXTEST:SELECT:PCle1

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:RTS:POSITIVECHANNEL

This command sets or returns the real time scope channel number for positive channel.

Syntax

```
SETTINGS:RTS:POSITIVECHANNEL <0 | 1 | 2 | 3>
```

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

Inputs

<0 | 1 | 2 | 3>

0 - Indicates the CH1.

1 - Indicates the CH2.

2 - Indicates the CH3.

3 - Indicates the CH4.

Outputs

<0 | 1 | 2 | 3>

SETTINGS:RTS:NEGATIVECHANNEL

This command sets or returns the real time scope channel number for negative channel.

Syntax

```
SETTINGS:RTS:NEGATIVECHANNEL <0 | 1 | 2 | 3>
```

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

Inputs

<0 | 1 | 2 | 3>

0 - Indicates the CH1.

1 - Indicates the CH2.

2 - Indicates the CH3.

3 - Indicates the CH4.

Outputs

<0 | 1 | 2 | 3>

SETTINGS:RTS:SAMPLERATE

This command returns the sample rate of Real Time oscilloscope.

Syntax

```
SETTINGS:RTS:SAMPLERATE?
```

Inputs

NA

Outputs

<int>

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:AMPLITUDE:TARGET

This command returns the nominal amplitude target value.

Syntax

```
SETTINGS:AMPLITUDE:TARGET?
```

Inputs

NA

Outputs

<float>

SETTINGS:RJ:TARGET

This command returns the nominal RJ target value.

Syntax

SETTINGS:RJ:TARGET?

Inputs

NA

Outputs

<NRf>

SETTINGS:SJAT100MHZ:TARGET

This command returns the nominal SJ target value.

Syntax

SETTINGS:SJAT100MHZ:TARGET?

Inputs

NA

Outputs

<NRf>

SETTINGS:CMI:TARGET

This command returns the nominal CMI target value.

Syntax

SETTINGS:CMI:TARGET?

Inputs

NA

Outputs

<NRf>

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: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: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: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: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: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: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:RUN

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

Syntax

TP1CAL:MULTITONESJCAL:RUN <0|1>

Inputs

<0 | 1>

0 - Stop the Multi-tone SJ calibration run.

1 - Start the Multi-tone SJ calibration run.

Outputs

NA

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: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:STATUS

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

Syntax

TP1CAL:MULTITONESJCAL:STATUS?

Inputs

NA

Outputs

{InProgress | Done}

TP1CAL:AMPLITUDE:SETTING

This command returns the amplitude value for calibration.

Syntax

TP1CAL:AMPLITUDE:SETTING?

Inputs

NA

Outputs

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

```
TP1CAL:SAVE:COMMENTS <String>
```

```
TP1CAL:SAVE:COMMENTS?
```

Inputs

<String>

Outputs

<String>

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: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: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: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:STRESSEDEYE:STATUS

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

Syntax

TP2CAL:STRESSEDEYE:STATUS?

Inputs

NA

Outputs

{InProgress | Done}

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: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:STRESSEDEYE:SJ

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

Syntax

TP2CAL:STRESSEDEYE:SJ <float>

TP2CAL:STRESSEDEYE:SJ ?

Inputs

<float> 5 to 10

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: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. <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> and <double> for other sweep parameters.

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

40-150 ps for SJ.

Example

TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP SJ 40,150 .

Output

<double/int>

Example

TP2CAL:STRESSEDEYE:EXHAUSTIVESWEEP SJ?

40, 150.

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.

<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> and <double> for other sweep parameters.

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

40-150 ps for SJ.

Example

```
TP2CAL:STRESSEDEYE:LINEARSWEEP 40, 150 .
```

Output

```
<double/int>
```

Example

```
TP2CAL:STRESSEDEYE:LINEARSWEEP ?
40, 150.
```

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.

<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> and <double> for other sweep parameters.

The Step Size values should be within the below range:

0.5 to 10 ps for SJ

Example

TP2CAL:STRESSEDEYE:STEPSIZE .

Output

<double/int>

Example

TP2CAL:STRESSEDEYE: STEPSIZE ?

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?

Outputs

<0 | 1>

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 >

JTOLTEST:OPEN

This command opens the JTOL test panel.

Syntax

JTOLTEST:OPEN

Inputs

NA

Outputs

NA

JTOL:REPORT

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

Syntax

JTOL:REPORT <string>

Inputs

<string>

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:LOADSTRESS

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

Syntax

JTOLTEST:LOADSTRESS

Input

NA

Output

NA

JTOLTEST:FREQ:DEFAULT

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

Syntax

JTOLTEST:FREQ:DEFAULT

Inputs

NA

Outputs

NA

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

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> = <double> 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>

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.

Syntax

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

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

Inputs

<0 | 1>

0 - Indicates BERT CTLE is On.

1 - Indicates BERT CTLE is Off.

Outputs

<0 | 1>

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>

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:AMP

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

Syntax

```
TEST:SELECT:AMP <int>
```

```
TEST:SELECT:AMP?
```

Inputs

<int> 100 to 800 for customized stress selection.

<int> 100 to 650 for un-calibrated stress selection.

Outputs

<int>

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 for customized stress selection.

<float> 0 to 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>

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: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: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:AUTOSEARCH:TYPE

This command sets or returns the BERT Auto Search Type.

Syntax

LOOPBACK:AUTOSEARCH:TYPE <0 | 1>

LOOPBACK:AUTOSEARCH:TYPE?

Inputs

<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