Tektronix®

TekExpress® 10G-KR
Compliance, Debug, and Decode Solution

Application Help

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Application Help

For product information, sales, service, and technical support:

- In North America, call 1-800-833-9200.
- Worldwide, visit *www.tek.com* to find contacts in your area.

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Welcome

Welcome to the TekExpress® 10G-KR Transmitter Automated Solution application. This application provides an automated, simple, and efficient way to test the 10G-KR transmitter interfaces and devices consistent to the requirements of the IEEE 802.3ap-2007 specification.

TekExpress 10G-KR Key features and benefits

- Automates compliance measurements for IEEE 802.3ap-2007 specifications
- Automated test setup for measuring transmitter equalization levels
- Provides automation solution for compliance and DPOJET for debug
- Shorter testing time
- Minimizes the user intervention during test execution
- Provision for entering filter files to de-embed the effects of backplane traces and any other components in the signal pathway
- Performs fully-automated testing for transmitter measurements
- Individual test selection or test groups in the tree-structure
- Built-in reporting features
  - Provides a Pass/Fail summary table
  - Provides margin details on each test
  - Provides plots for measurements, with enhanced view of measurement results and waveforms
  - Provides a consolidated report for all tests
- Complete programmatic interface enables automation scripts to call 10G-KR functions

Getting help and support

Conventions

This help uses the following conventions:

- The term "Application" and "Software" refers to the TekExpress 10G-KR Solution application.
- The term "DUT" is an abbreviation for Device Under Test.
- The term "select" is a generic term that applies to the different methods of choosing a screen item (button, control, list item): using a mouse or using the touch screen.
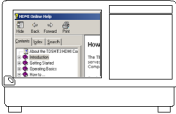
Table 1: Icon descriptions

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.

Related documentation

The following documentation is available as part of the TekExpress® 10G-KR Solution application.

Table 2: Product documentation

Item	Purpose	Location
Help	Application operation and User Interface help	
PDF of the help	Printable version of the compiled help	PDF file that ships with 10G-KR Solution software distribution (*TekExpress 10G-KR-Automated-Test-Solution-Software-Printable-Help-EN-US.pdf*). You can download the PDF version of the manual from the Tektronix website. *www.tek.com*

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 oscilloscope. Contact Tektronix through mail, telephone, or the website.

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
- Probes used
- Your name, company, mailing address, phone number, 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
- If possible, save the TekExpress setup files, log.xml, *.TekX (session files and folders), and status messages text file
- If possible, save the waveform on which you are performing the measurement as a .wfm file

Getting started

Minimum system requirements

The following table shows the minimum system requirements to install and run the TekExpress 10G-KR application.

Table 3: System requirements

Component	Description
Oscilloscope	• Tektronix DPO70K, DX/SX series oscilloscope with bandwidth >=16 GHz • Firmware Version: 10.8 or above • Opt. DJA and DJAN
Software	• IronPython 2.7.3 installed • PyVisa 1.0.0.25 installed • Microsoft .NET 4.0 Framework • Microsoft Internet Explorer 7.0 SP1 or greater, or other Web browser for viewing reports • Adobe Reader software 7.0 or greater for viewing portable document format (PDF) files

Instruments and accessories required

TekExpress 10G-KR application is launched on DPO70K series oscilloscope. The following table lists the instruments and accessories required for this application.

Table 4: Instruments and accessories required for 10G-KR application

Instrument/Accessory	Model number	Quantity
Oscilloscope	DPO/DSA/MSO71604C, DPO/DSA/MSO72004C, DPO/DSA72504D, DPO/DSA73304D, DPO/MSO72304DX, DPO/MSO72504DX, DPO/MSO73304DX, DPO72004DX, MSO71604DX, MSO72004DX, DPO71604DX, DPO77002SX, DPO75002SX, MSO72004SX DPO73304SX, DPO72504SX, DPO72004SX and DPO75902SX,	1
Cables	A pair of matched SMA cables (TCA-SMA connector)	2
Fixtures	N.A. The signal is tapped directly from the source using the single-ended cables or differential probes	-
DC Blocks	PSPL5501A DC Block	2

Table continued…

Instrument/Accessory	Model number	Quantity
Probes	P7516, P7520, P7520A, P7716, P7720, and P7633	one per lane

Downloading and installing the software

Complete the following steps to download and install the latest 10G-KR application. See *Minimum system requirements* for compatibility.

1. Go to *www.tek.com*.
2. Click **Downloads**. In the Downloads menu, select DOWNLOAD TYPE as Software and enter *10G-KR* in the MODEL OR KEYWORD field and click **SEARCH**.
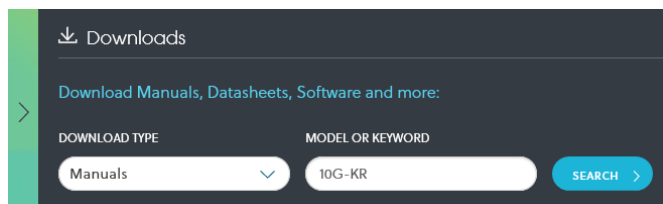
3. Select the latest version of software and follow the instructions to download. Copy the executable file to the oscilloscope.
4. Double-click the executable and follow the on-screen instructions. The software is installed at *C:\Program Files\Tektronix\TekExpress\10G-KR*.
5. Select **Analyze** > **10G-KR** from the TekScope menu to *Launch the application*.

View software version

Use the following instructions to view the version information and the application modules such as the Programmatic Interface and Programmatic Interface Client.

To view version information for TekExpress 10G-KR, click button in the TekExpress application and select **About TekExpress**.

⚠ **Note:** This example shows a typical version details dialog box, and may not reflect the actual values as shown when you open this item in the application.

Application directories

The TekExpress 10G-KR application files are installed at the following location:

```
C:\Program Files\Tektronix\TekExpress\TekExpress 10G-KR
```
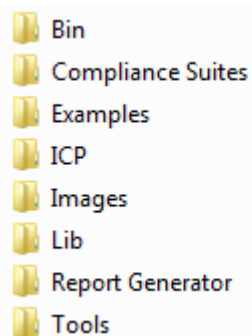
The following table lists the application directory names and their purpose:

Table 5: Application directories and usage

Directory names	Usage
Bin	Contains application libraries
Compliance Suites	Contains compliance-specific files
Examples	Contains various support files
ICP	Contains instrument and application-specific interface libraries
Images	Contains application images
Lib	Contains application utility files
Report Generator	Contains style sheets for report generation
Tools	Contains instrument and application-specific files

See also

View test-related files

File name extensions

File name extensions

This application uses the following file name extensions:

File name extension	Description
.TekX	Application session files (the extensions may not be displayed)
.py	Python sequence file
.xml	Test-specific configuration information (encrypted) files Application log files

Table continued…

File name extension	Description
.csv	Test result reports Plot data
.mht	Test result reports (default) Test reports can also be saved in HTML format
.pdf	Test result reports Application help document
.xslt	Style sheet used to generate reports

See also

View test-related files

Application directories

Operating basics

Launch the application

To launch the TekExpress 10G-KR application, select **Analyze > TekExpress 10G-KR** from the TekScope menu.
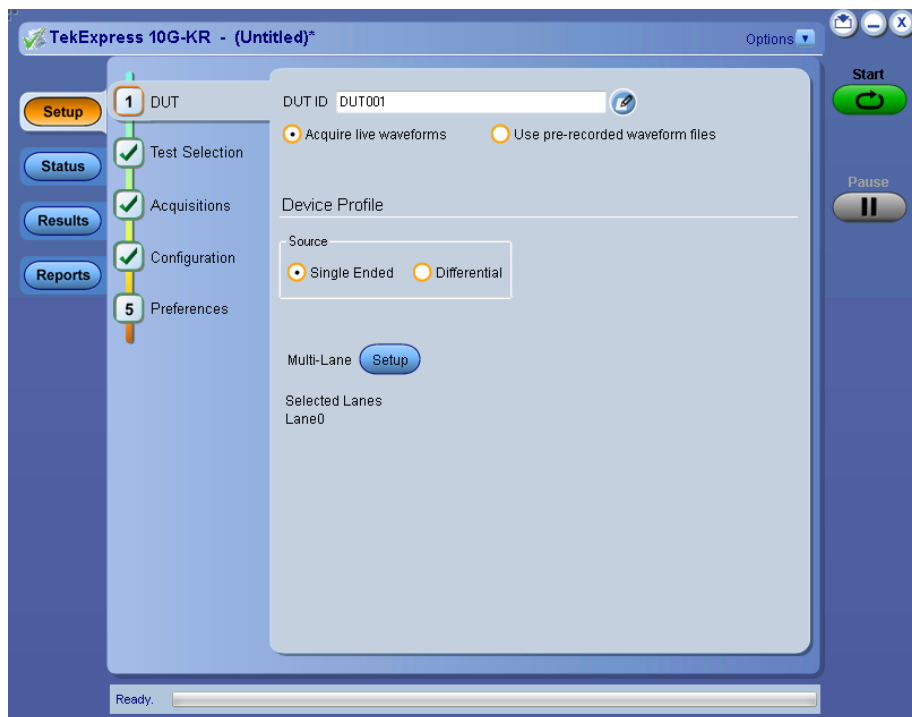
When you launch the application for the first time, the file `C:\Users\<username>\Documents\My TekExpress\TekExpress 10G-KR\Resources.xml` is mapped to drive `X:`. This file contains information about available network-connected instruments. The session files are stored in `X:\10G-KR\`. If this file is not found, then the application runs Instrument Discovery Program to detect the network-connected instruments before launching 10G-KR solution.

If the application is behind the oscilloscope application, click **Analyze > 10G-KR** to bring it to the front. To keep the 10G-KR application window on top, select **Keep On Top** from the 10G-KR *Options menu* .

See also:

Application controls

Applications panel overview

Application panels overview

TekExpress 10G-KR application uses panels to group Configuration, Results, and Reports settings. Click any button to open the associated panel. A panel may have one or more tabs that list the selections available in that panel. Controls in a tab can change depending on the settings made in the same tab or another tab.
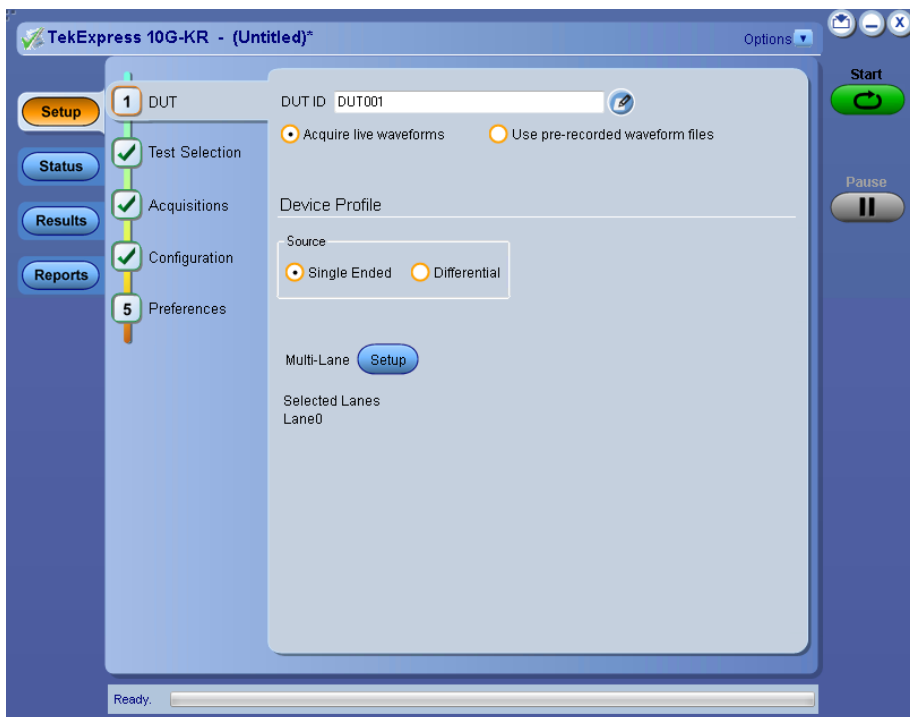
Table 6: Application panels overview

Panel Name	Purpose
Setup panel	Use to select the test setup controls which are grouped in tabs. The controls in a tab can change depending on settings made in the same tab or another tab. Click **Setup** to open this panel.
	Use this panel to:
	• *Set the DUT parameters*
	• *Select tests*
	• *set acquisition parameters*
	• *set configuration parameters*
	• *set preferences parameters*
Status panel	This panel displays the acquisition status and analysis status for the selected tests in Test Status and logs in Log View.
Results panel	This tab displays the summary of test results and allows you to select the result viewing preferences.
Reports panel	Browse for reports, save reports as specific file types, specify report naming conventions, replace current test results in the report with the test result(s) of previous run in current session, select report content to include (summary information, detailed information, user comments, setup configuration, application configuration), and select report viewing options.

See also:

Application controls

Global application controls

Application controls

Table 7: Application controls descriptions
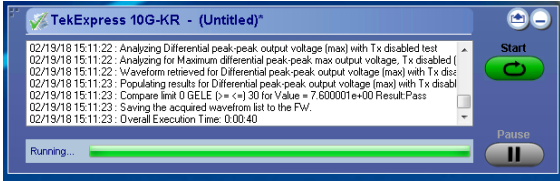
Item	Description
Options menu Options ▼	Menu to display global application controls.
Panel buttons Setup Status Results Reports	Controls that open panels for configuring test settings and options.
Start / Stop button Start Stop	Use the Start button to start the test run of the measurements in the selected order. If prior acquired measurements have not been cleared, the new measurements are added to the existing set. The button toggles to the Stop mode while tests are running. Use the Stop button to abort the test.
Pause / Continue button Pause Continue	Use the Pause button to temporarily interrupt the current acquisition. When a test is paused, the button name changes to "Continue."
Clear button Clear	Use Clear button to clear all the existing measurement results. Adding or deleting a measurement, or changing a configuration parameter of an existing measurement also clears measurements. This is to prevent the accumulation of measurement statistics or sets of statistics that are not coherent. This button is available only on the *Results panel*.
Minimize button	Minimizes the application.
Close button	Exits the application.

Table continued…

Item	Description
Application window move	Place the cursor over the application window and drag it to the desired location.
Mini view / Normal view	Toggles the application between mini view and normal view. Mini view displays the run messages with the time stamp, progress bar, Start / Stop button, and Pause / Continue button. The application automatically moves to the mini view when you click the Start button.

Options menu overview

To access Options menu, click in the upper-right corner of the application. It has the following:

Options menu
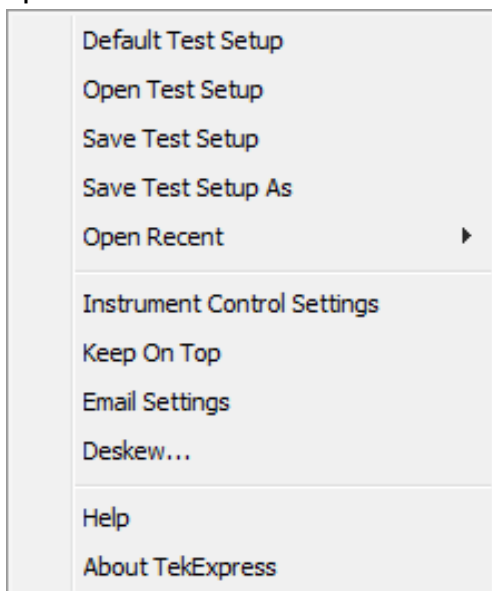
Menu	Function
Default Test Setup	Opens an untitled test setup with the following default configuration: Acquire Live Waveforms **DUT Type**: 10GBase-KR **Source**: Single Ended
Open Test Setup	Opens a saved test setup.
Save Test Setup	Saves the current test setup.

Table continued…

Menu	Function
Save Test Setup As	Saves the current test setup with a different file name or file type.
Open Recent	Displays the recently opened test setups to open
Instrument Control Settings	Detects, lists, and refreshes the connected instruments found on specified connections (LAN, GPIB, USB, and so on).
Keep On Top	Keeps the application on top of all the application.
Email Settings	Use to configure email options for test run and results notifications.
Deskew	Allows to read the skew and attenuation values from the TekScope application. Before using this option, manually compensate for skew and attenuations in Tekscope application.
Help	Displays the application help.
About TekExpress	• Displays application details such as software name, version number, and copyright • Provides a link to the end-user license agreement • Provides a link to the Tektronix website

See also:

Application controls

TekExpress instrument control settings

Use TekExpress Instrument Control Settings dialog box to search the instruments (resources) connected to the application. You can use the Search Criteria to search the connected instruments depending on the connection type. The details of the connected instrument is displayed in the Retrieved Instruments window.

You can access this dialog box from the **Options** menu.

The connected instruments displayed here can be selected under Global settings in the Configuration tab.

⚠ **Note:** Select GPIB (Default) when using TekExpress 10G-KR application.

See also:

Options menu overview

View connected instruments

Use the Instrument Control Settings dialog box to view or search for connected instruments required for the tests. This application uses TekVISA to discover the connected instruments.

To refresh the list of connected instruments:

1. From the Options menu, select **Instrument Control Settings**.
2. In the Search Criteria section of the Instrument Control Settings dialog box, select the connection types of the instruments for which to search.

   Instrument search is based on the VISA layer, but different connections determine the resource type, such as LAN, GPIB, and USB. For example, if you choose LAN, the search will include all the instruments supported by TekExpress that are communicating over the LAN. If the search does not find any instruments that match a selected resource type, a message appears telling you that no such instruments were found.

3. Click **Refresh**. *TekExpress searches for connected instruments.*
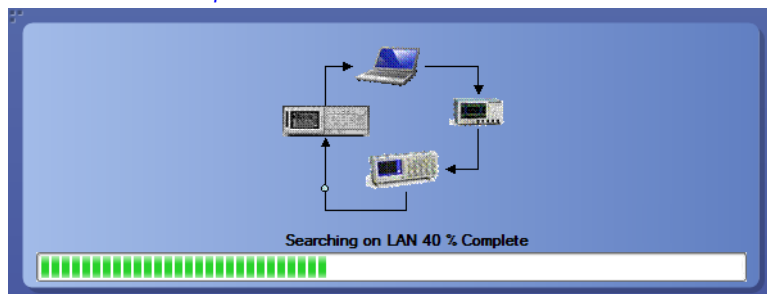
4. After discovery, the dialog box lists the instrument-related details based on the search criteria you selected. For example, if you selected LAN and GPIB as the search criteria, the application checks for the availability of instruments over LAN, then GPIB.
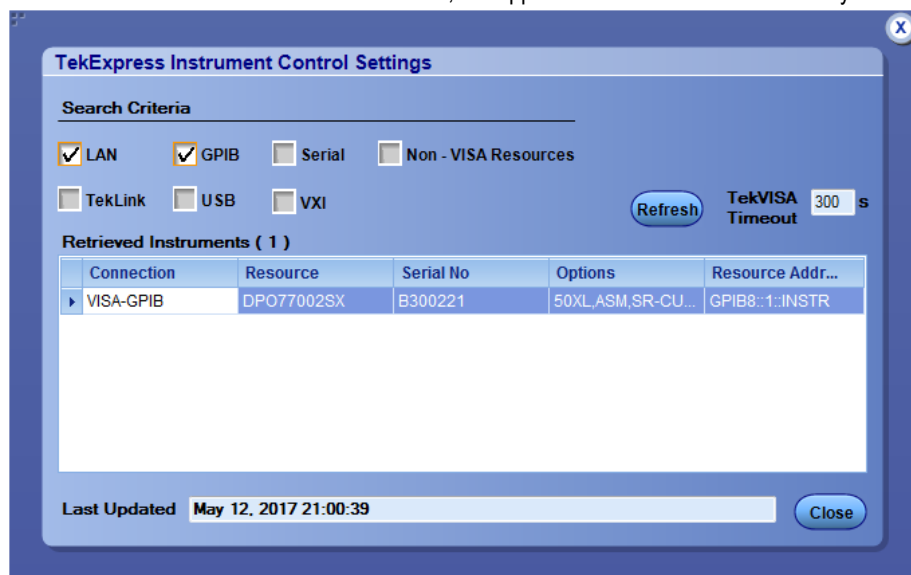
The details of the instruments are displayed in the Retrieved Instruments table. The time and date of instrument refresh is displayed in the Last Updated field.

See also:

Configuration test parameters

Equipment connection diagram

Configure email settings

To be notified by email when a test completes, fails, or produces an error, configure the email settings.

1. Click **Options > Email Settings** to open the Email Settings dialog box.
2. (Required) For Recipient email Address(es), enter one or more email addresses to which to send the test notification. To include multiple addresses, separate the addresses with commas.
3. (Required) For Sender's Address, enter the email address used by the instrument. This address consists of the instrument name followed by an underscore followed by the instrument serial number, then the @ symbol and the email server used. For example: DPO72016C_B130099@yourcompany.com.
4. (Required) In the Server Configuration section, type the SMTP Server address of the Mail server configured at the client location, and the SMTP Port number, in the corresponding fields.

    Enter a valid login name and password in the corresponding fields. Select **Enable SSL**, if the server requires SSL/TLS technology.

    ⚠ **Note:** If any of the above required fields are left blank, the settings will not be saved and email notifications will not be sent.

5. In the Email Attachments section, select from the following options:

    *   **Reports**: Select to receive the test report with the notification email.

    *   **Status Log**: Select to receive the test status log with the notification email. If you select this option, then also select whether you want to receive the full log or just the last 20 lines.

6. In the Email Configuration section:

    *   Select the message file format to send: HTML (the default) or plain text.

    *   Enter a maximum file size for the email message. Messages with attachments larger than this limit will not be sent. The default is 5 MB.

    *   Enter the number in the Number of Attempts to Send field, to limit the number of attempts that the system makes to send a notification. The default is 1. You can also specify a timeout period.

7. Select the **Email Test Results When complete or on error** check box. Use this check box to quickly enable or disable email notifications.
8. To test your email settings, click **Test Email**.
9. To apply your settings, click **Apply**.
10. Click **Close** when finished.
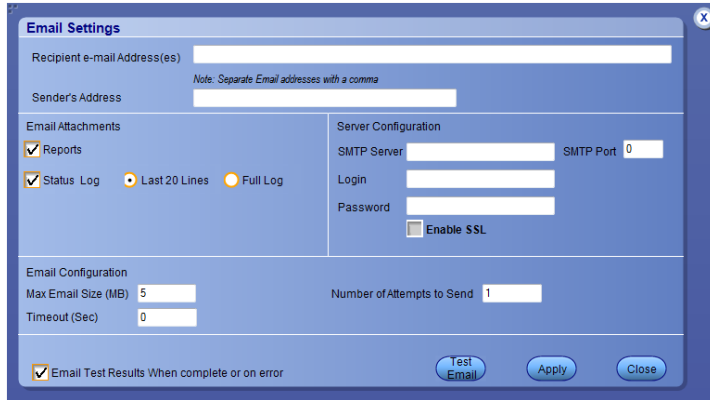
Setup panel

Setup panel overview

The Setup panel contains sequentially ordered tabs that helps you guide through the test setup and execution process.
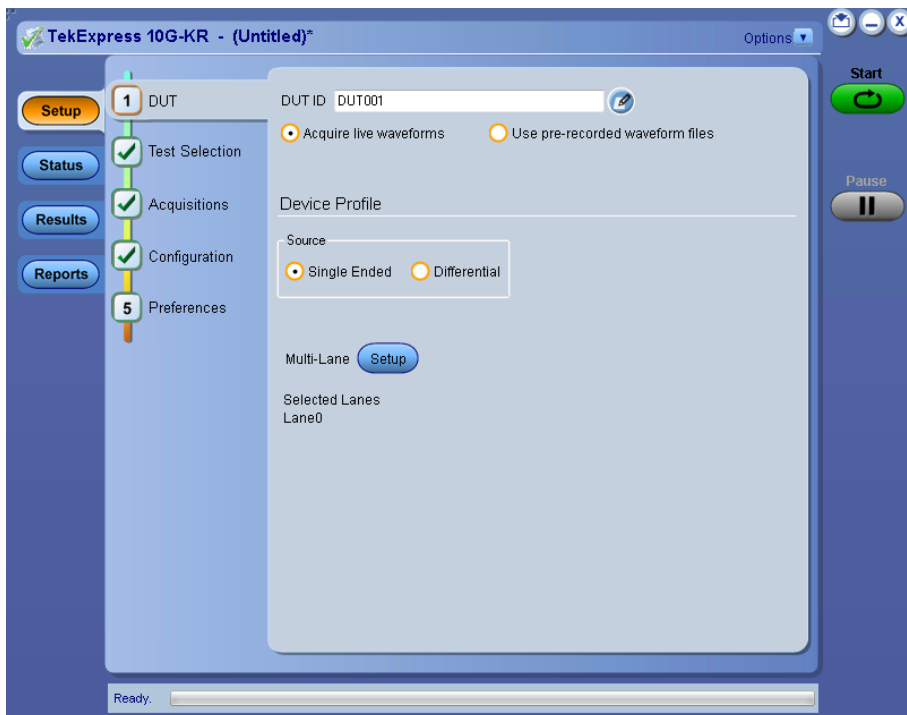
Set DUT parameters

Use the DUT tab to select parameters for the device under test. These settings are global and apply to all tests of current session. DUT settings also affect the list of available tests in the Test Selection tab.
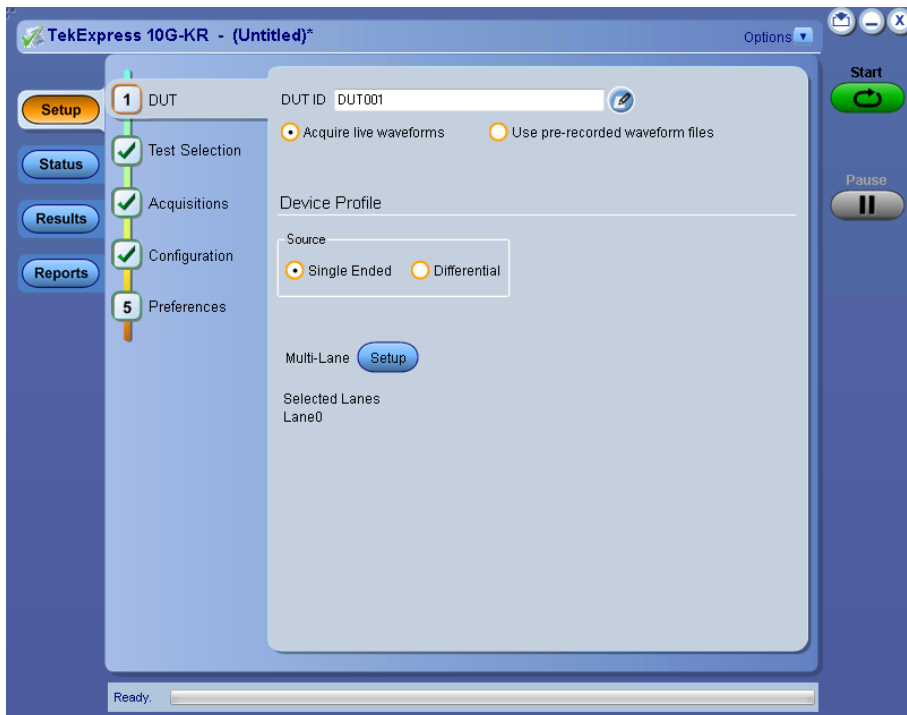
Click **Setup > DUT** to access the DUT parameters:

Table 8: DUT tab settings

Setting	Description
DUT ID	Adds an optional text label for the DUT to reports. The default value is DUT001. The maximum number of characters is 32.
	You cannot use the following characters in an ID name: (.,..,...,\,/:?"<>|*)
Comments icon (to the right of the DUT ID field)	Opens Comments dialog box to enter text to add to the report. Maximum size is 256 characters. To enable or disable comments appearing on the test report, see *Select report options*.
Acquire live waveforms	Acquire active signals from the DUT for measurement and analysis.
Use pre-recorded waveform files	Run tests on a saved waveform. Select **Options** > **Open Test Setup** to recall a saved test setup.
Source	• Single Ended - Source as single-ended signals • Differential - Source as differential signal
Multi-Lane	Multilane is supported using available channels on the oscilloscope (max of two lanes for single-ended, four lanes for differential connections).

See also:

Select tests

Select tests

Use the Test Selection tab to select the tests. The test measurements available depends on the standards selected in the DUT tab.
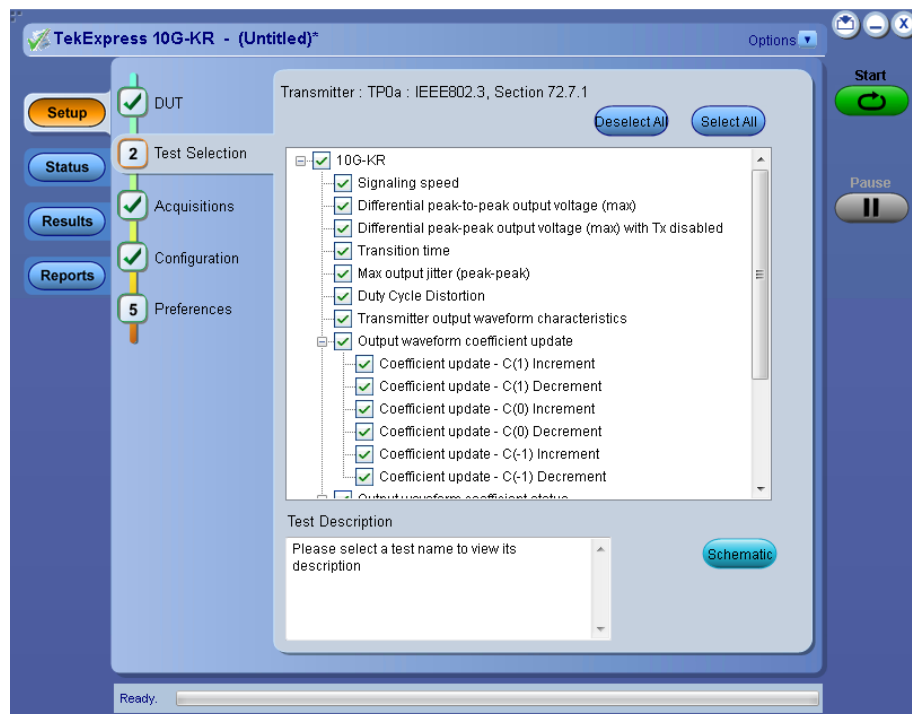
Table 9: Test Selection tab settings

Setting	Description
Tests	Select or deselect a test.
Test Description	Shows brief description for the selected test.
Deselect All	Click to deselect all tests.
Select All	Click to select all tests. By default, all tests are selected.
Schematic	Click to display the schematic diagram of the DUT test setup for the selected test. Use the diagram to verify the test setup before running the test.

See also:

Set acquisition tab parameters

Set acquisition tab parameters

Use the Acquisitions tab to view the test acquisition parameters. The contents displayed on this tab depends on the settings in the DUT tab and Test Selection tab.
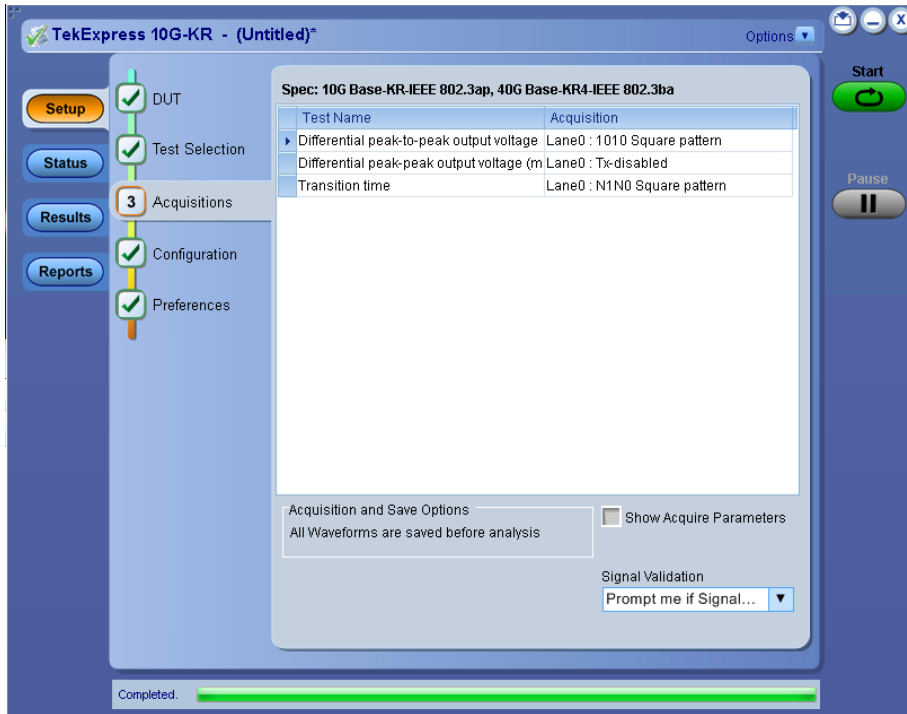
⚠️ **Note:** 10G-KR application acquires all waveforms required by each test group before performing the analysis.

Table 10: Acquisitions tab settings

Setting	Description
Acquisition and Save Options	All waveforms are saved before analysis.
Show Acquire Parameters	Select to view the acquisition parameters.
Signal Validation	Sets the application to validate acquisition signals and perform the specified action to take when acquired signals do not meet the requirements. Select the action from the list.

TekExpress 10G-KR saves all acquisition waveforms to files by default. The waveforms are saved in a unique folder for each session (a session is started when you click the Start button). The folder path is `X:\10G-KR\Untitled Session\<dutid>\<date>_<time>`. The images created for each analysis, CSV files with result values, reports, and other information specific to that particular execution are also saved in this folder.

Saving a session moves the session file contents from the Untitled Session folder to the specified folder name, and changes the session name to the specified name.

Set configuration tab parameters

Use Configuration tab to configure the global settings and test measurement configurations. The global settings and the measurements with configurations available in this tab depends on the standards selected in the DUT tab.
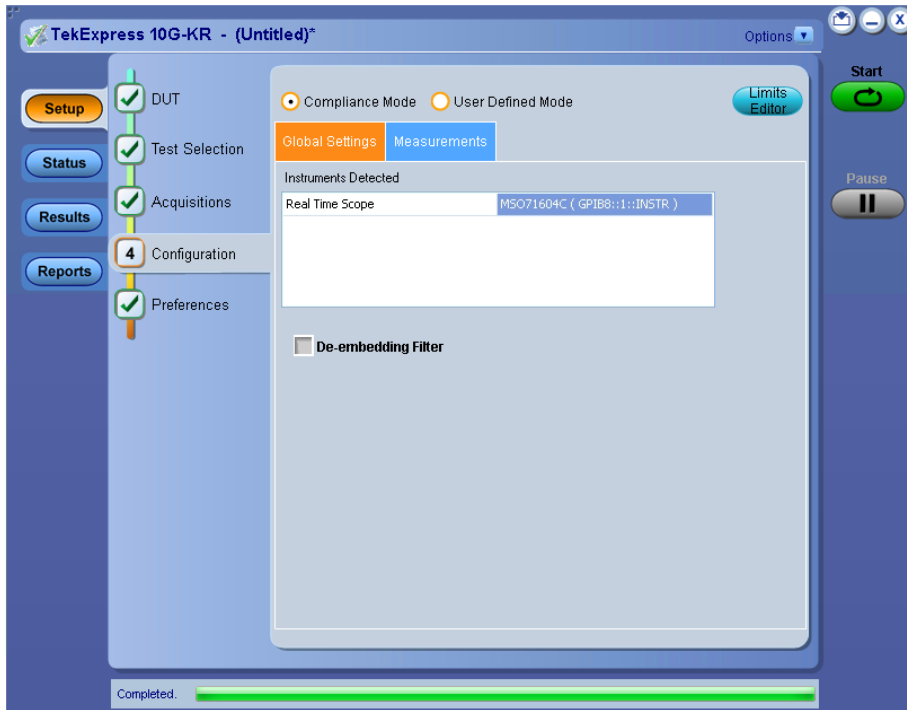
Table 11: Configuration tab settings
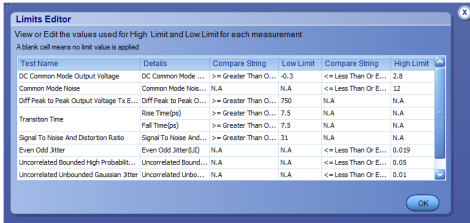
Setting	Description
Compliance Mode	Select compliance mode. By default, Compliance Mode is selected.
User Defined Mode	Select user defined mode; you can edit the test parameters in this mode.
Limits Editor	Shows the upper and lower limits for the applicable measurement using different types of comparisons. In Compliance Mode, use the Limits Editor to view the measurement high and low limits used for selected tests. In User Defined Mode, use the Limits Editor to edit the limit settings. To edit a value, click the respective field and either select from the displayed list or enter a new value. Use the bottom scroll bar to view all available fields.
Global Settings	

Table continued…

Setting	Description
Instruments Detected	Displays the instruments connected to this application. Click the instrument name to open a list of available (detected) instruments. Select **Options** > **Instrument Control Settings** and click Refresh to update the instrument list. ⚠ **Note:** Verify that the **GPIB** search criteria (default) is selected in the Instrument Control Settings.
De-embedding Filter	Select to apply the de-embed filter file. Click Browse and select the de-embedding filter files (.flt). For single ended mode, select filter file for Data Positive and Data Negative. • Source file name for data Positive. • Source file name for data Negative. For Differential mode, select differential file. • Differential source filter file name ⚠ **Note: Browse** option is enabled only when you select **Use filter file for de-embedding**.

Table 12: Measurement settings

Measurements	Settings	
Signaling speed	Acquire	Signal Type
Differential peak-to-peak output voltage (max)		
Differential peak-peak output voltage (max) with Tx disabled		
Transition time		
Duty Cycle Distortion		
Transmitter output waveform characteristics		
Output waveform coefficient update - C(1)		
Output waveform coefficient update - C(0)		
Output waveform coefficient update - C(-1)		
Output waveform coefficient status		
Common-mode voltage limits		
Common mode voltage limits-LPI		
Max output jitter (peak-peak)	Acquire	Signal Type
	RjDj	Target BER (1e-)

Set preferences tab parameters

Use the Preferences tab to set the application action on completion of a measurement.
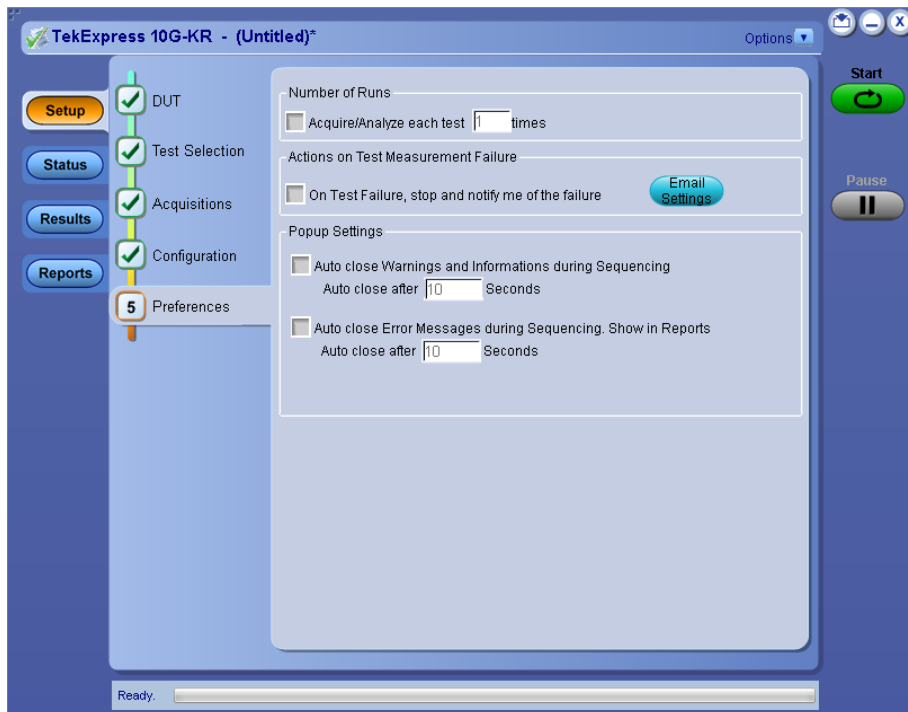
Table 13: Preferences tab settings

Setting	Description
Number of Runs	
Acquire/Analyze each test <n> times (not applicable to Custom Tests)	Select to repeat the test run by setting the number of times. By default, it is selected with 1 run.
Actions on Test Measurement Failure	
On Test Failure, stop and notify me of the failure	Select to stop the test run on test failure, and to get notified via email. By default, it is unselected. Click Email Settings to configure.
Popup Settings	
Auto close Warnings and Informations during Sequencing Auto close after <n> Seconds	Select to auto close warnings/informations during sequencing. Set the Auto close time. By default, it is not selected.
Auto close Error Messages during Sequencing. Show in Reports Auto close after <n> Seconds	Select to auto close Error Messages during Sequencing. Set the Auto close time. By default, it is not selected.

Status panel

Status panel overview

The Status panel accesses the Test Status and Log View tabs, which provide status on test acquisition and analysis (Test Status tab) and a listing of test tasks performed (Log View tab). The application opens the Test Status tab when you start a test run. You can select the Test Status or the Log View tab to view these items while the tests are running.

Log view
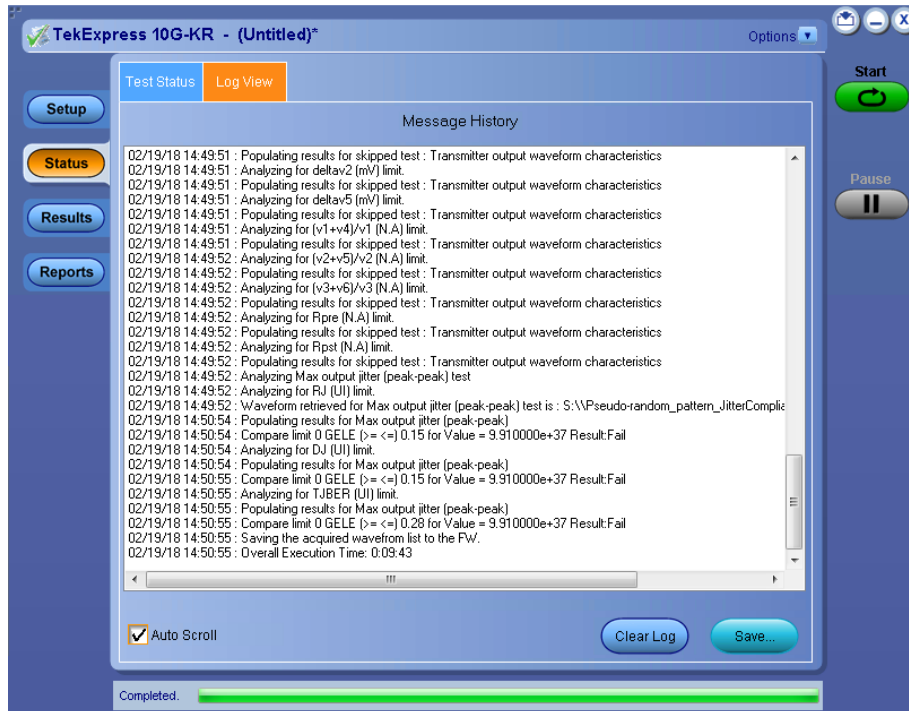
Status view
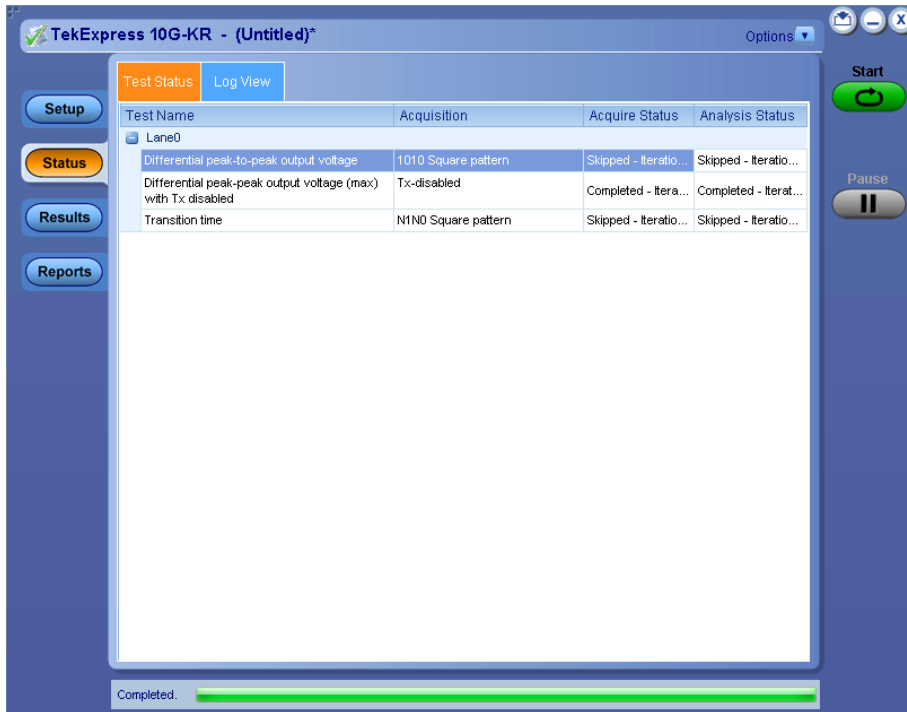
Table 14: Status panel Log View controls

Control	Description
Message History	Lists all executed test operations and timestamp information.
Auto Scroll	Enables automatic scrolling of the log view as information is added to the log during the test.
Clear Log	Clears all messages from the log view.
Save	Saves the log file to a text file. Use the standard Save File window to navigate to and specify the folder and file name to which to save the log text.

See also:

Application panel overview

Results panel

Results panel overview

When a test execution is complete, the application automatically opens the Results panel to display the summary of test results.
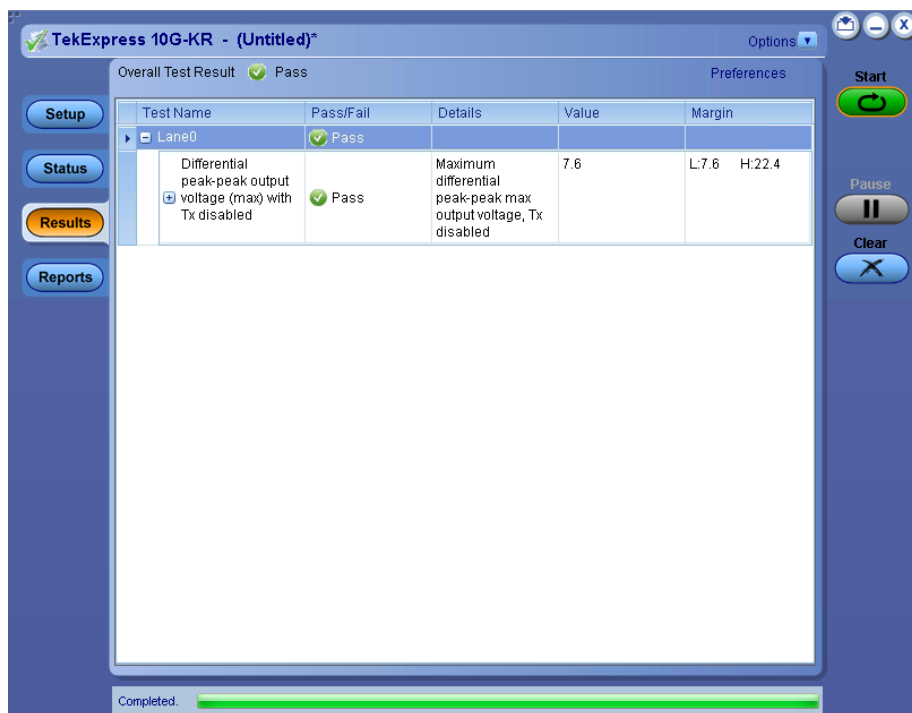
See also:

View a report

Application panels overview

View test-related files

Files related to tests are stored in `C:\Users\<username>\Documents\My TekExpress\10G-KR\`. Each test setup in this folder has a test setup file and a test setup folder, both with the test setup name.

The test setup file is preceded by the TekExpress icon and usually has no visible file name extension.

Inside the test setup folder is another folder named for the DUT ID used in the test sessions. The default is DUT001.

Inside the DUT001 folder are the session folders and files. Each session also has a folder and file pair, both named for the test session using the naming convention (date)_(time). Each session file is stored outside its matching session folder:

Each session folder contains image files of any plots generated from running the test session. If you selected to save all waveforms or ran tests using prerecorded waveform files, these are included here.

The first time you run a new, unsaved session, the session files are stored in the `Untitled Session` folder located at `..\My TekExpress\10G-KR\`. When you name and save the session, the files are placed in a folder with the name that you specify. A copy of the test files stay in the Untitled Session folder until you run a new test or until you close the 10G-KR application.

See also:

File name extensions

Reports panel

Reports panel overview

Use the Reports panel to browse for reports, to name and save reports, select test content to include in reports, and to select report viewing options.
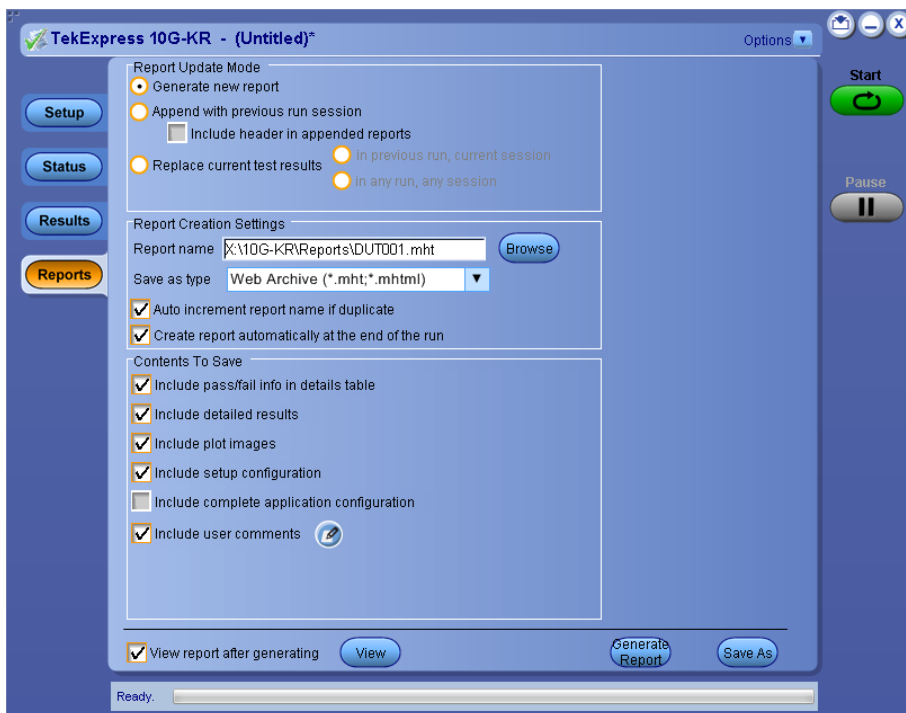
For information on setting up reports, see *Select report options*. For information on viewing reports, see *View a report*.

See also:

Applications panel overview

Select report options

Click the Reports panel to select the test result information to be included in the report, and the naming conventions to be used for the report. For example, always provide a unique name to the report or select to have the same name incremented each time you run a particular test.

Select the report options before running a test or when creating and saving the test setups. Report settings are included in saved test setups.

In the Reports panel, select from the following report options:

Table 15: Report options

Setting		Description
Report Update Mode		
Generate new report		Creates a new report in .mht, .pdf, or .csv file format.
Append with previous run session		Appends the latest test results to the end of the current test results report.
Include header in appended reports		Select to include header in appended reports.
Replace current test results	In previous run, current session	Select to replace current test results in the report with the test result(s) of previous run in current session.
	In any run, any session	Select to replace current test results in the report with the test result(s) in selected run session's report. Click [···] and select the test result of any other run session from another setup.
Report Creation Settings		
Report name		Displays the name and location from which to open a 10G-KR report. The default location is *My TekExpress\10G-KR\Untitled Session*. The report file in this folder gets overwritten each time you run a test unless you specify a unique name or select to auto-increment the report name.
		To change the report name or location
		Do one of the following:
		• In the Report Path field, type over the current folder path and name.
		• Double-click in the Report Path field and then make selections from the pop-up keyboard and click **Enter** button.
		Ensure to include the entire folder path, the file name, and the file extension. For example: C:\Users\<username>\Documents\My TekExpress\10G-KR\DUT001.mht.
		⚠ **Note:** You cannot set the file location using the Browse button.
		Open an existing report.
		Click **Browse**, locate, and select the report file, and then click **View** at the bottom of the panel.

Table continued…

Setting	Description
Save as type	Saves a report in the specified file type selected from the drop-down list. ⚠ **Note:** If you select a file type different from the default, ensure to change the report file name extension in the Report Name field to match.
Auto increment report name if duplicate	Sets the application to automatically increment the name of the report file if the application finds a file with the same name as the one being generated. For example: DUT001, DUT002, DUT003. This option is enabled by default.
Create report automatically at the end of the run	Creates report at the end of the run.
Contents To Save	
Include pass/fail info in details table	Includes pass/fail information in the details table of the report
Include detailed results	Includes detailed results in the report
Include plot images	Includes plot images in the report
Include setup configuration	Select to include hardware and software information in the summary box, at the top of the report. Information includes oscilloscope model and serial number, oscilloscope firmware version, and software versions for the applications used in the measurements.
Include complete application configuration	Include complete application configuration
Include user comments	Select to include any comments about the test that you or another user has added in the DUT tab of the Setup panel. Comments are displayed in the Comments section under the summary box at the beginning of each report.
View report after generating	Automatically opens the report in default Web browser when the test execution is complete. This option is selected by default.
View	Click to view the recent report.
Generate Report	Generates a new report based on the current analysis results.
Save As	Specify a name for the report.

View a report

The application automatically generates a report when the test execution is complete and displays the report in your default Web browser (unless you had cleared the **View Report After Generating** check box in the Reports panel before running the test). If you cleared this check box, or to view a different test report, do the following:

1. Click the **Reports** button.
2. Click the **Browse** button and locate and select the report file to view.
3. In the Reports panel, click **View**.

For information on changing the file type, file name, and other report options, see *Select report options*.

Report contents

A report displays detailed results and plots, as set in the Reports panel.

Tektronix
TekExpress 10G–KR
Transmitter(TP0a) Test Report

Setup Information

DUT ID	DUT001	Scope Information	MSO71604C, B130223
Date/Time	2018-02-19 15:10:43	SPC, FactoryCalibration	PASS;PASS
Device Type	Transmitter	DPOJet Version	10.0.6.106
TekExpress 10G-KR Version	10.1.2.26	Scope F/W Version	10.8.1 Build 37
TekExpress Framework Version	4.3.0.40	Channel1 Probe	N.A, N.A
Execution Mode	Live		
Probing Type	Differential		
Compliance Mode	True		
Overall Test Result	Pass		
Overall Execution Time	0:00:40		
DUT COMMENT:	General comment		

Test Name Summary Table

Differential peak–peak output voltage (max) with Tx disabled	Pass

Differential peak–peak output voltage (max) with Tx disabled

Measurement Details	Lane	Iteration	Measured Value	Test Result	Margin	Low Limit	High Limit	Units	Comments
Maximum differential peak–peak max output voltage, Tx disabled	Lane0	1	7.6	Pass	L:7.6 H:22.4	0	30	mV	N.A
COMMENTS									

Back to Summary Table

Setup configuration information

The summary box at the beginning of the report lists setup configuration information. This information includes the oscilloscope model and serial number, electrical module model, and software version numbers of all associated applications.

To exclude this information from a report, clear the **Include Setup Configuration** check box in the Reports panel before running the test.

User comments

If you had selected to include comments in the test report, any comments you added in the DUT tab are displayed at the top of the report.

See also:

Results panel overview

View test-related files

Running tests

Equipment connection setup

Click **Setup** > **Test Selection** > **Schematic** to view the equipment setup diagram(s).
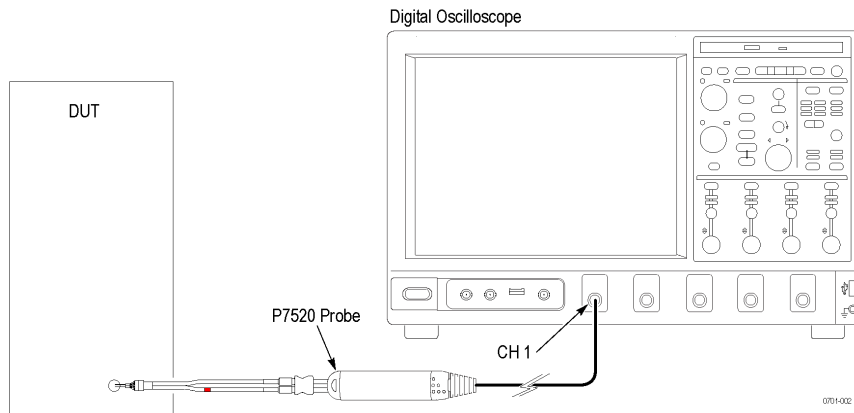
Figure 1: Connection diagram for differential tests
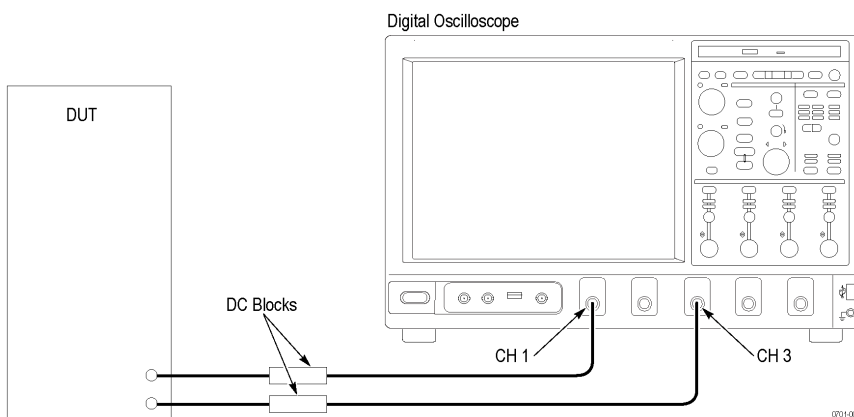
Figure 2: Connection diagram for single-ended tests

Prerequisite

Compensate the signal path

Use the following procedure to compensate the internal signal acquisition path. Perform this procedure if the ambient temperature has changed more than 5 °C (9 °F) since you performed the last signal path compensation. Perform the signal path compensation once a week. Failure to do so may result in the instrument not meeting warranted performance levels.

1. Power on and wait for the instrument to complete its warm up period before continuing with this procedure.
2. Disconnect any probes you have connected to the input channels.
3. Set the instrument to Menu mode.
4. Select Instrument Calibration from the Utilities menu.
5. Note any instructions that appear in the resulting control window.
6. Click **Run SPC** to begin the procedure. The procedure may take several minutes to complete.

7. Verify that the Status changes to Compensated after the procedure is complete. If the Calibration Status field indicates anything other than Compensated, see Signal Path Compensation Status for information on the readout and recommended action.

⚠️ **Note:** When making measurements at vertical scale settings less than or equal to 5 mV, you should perform the signal path compensation at least once a week. Failure to do so may result in the instrument not meeting warranted performance levels at those volts/div settings.

Deskew

If skew is present between positive and negative channels, then the channels need to be deskewed before being used for waveform measurements. TekExpress 10G-KR provides support for channel deskew using the following method:

1. Determine what the skew is for each channel.

2. From the TekScope menu, select **Vertical** > **Deskew**.

3. In the Deskew/Attenuation window, click the channel (1 – 4) button for the first channel to be deskewed.

4. Click in the Ch(x) Deskew Time entry field and enter the skew. The skew can be +ve or –ve.

5. Click the channel button for the next channel and repeat step 4.

6. After entering the skew for all the channels that require it, from the Options menu in TekExpress 10G-KR, select Deskew.

7. In the Deskew and Attenuation dialog box, select the desired level:

   • Less than 100 mV signal amplitude: Select this if the signal amplitude is such that the oscilloscope's vertical setting is less than 100 mV/division.

   • 100 mV or greater signal amplitude: Select this if the signal amplitude is such that the oscilloscope's vertical setting is greater than 100 mV/division.
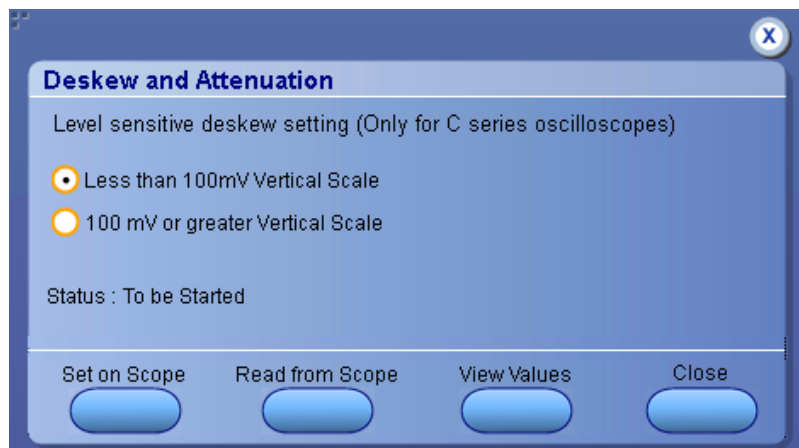
8. Click **Set on Scope** to set the deskew and attenuation values on oscilloscope.

9. Click **Read from Scope** to read the deskew and attenuation values from the oscilloscope.

10. Click **View values** to view the deskew, attenuation, and bandwidth values.

11. When the status in the dialog box indicates the deskew is finished, click **Close**.

Figure 3: Deskew-View values

Each input channel has its own deskew settings. Deskew compensates individual channels for probes or cables of different lengths. The instrument applies the delay values after each completed acquisition. The deskew values are saved as part of the instrument setup. The deskew values for the selected channel are retained until you change the probe, you restore a saved setup, or you recall the factory setup.

⚠️ **Note:** If you perform the de-embed settings, then performing the Deskew and Attenuation settings are not required.

Running tests

Select tests, *set acquisition parameters*, *set configuration parameters*, *set preferences parameters*, and click **Start** to run the tests. While tests are running, you cannot access the Setup or Reports panels. To monitor the test progress, switch between the Status panel and the Results panel.

While the tests are running, other applications may display windows in the background. The TekScope application takes precedence over other applications, but you can switch to other applications by using **Alt + Tab** key combination. To keep the TekExpress 10G-KR application on top, select **Keep On Top** from the TekExpress Options menu.

The application displays report when the tests execution is complete.

Prerun checklist

1. Make sure that the instruments are warmed up (approximately 20 minutes) and stabilized.
2. Perform compensation: In the oscilloscope main menu, select **Utilities** > **Instrument Compensation**. Click **Help** in the compensation window for steps to perform instrument compensation.

10G-KR compliance measurements

Signaling speed

Reference: IEEE 802.3ap, section 72.7.1.3

This measurement measures the signaling speed using the recommended PRBS11 signal. The 10GBASE-KR signaling speed should be 10.3125 GBd ± 100 ppm.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

PRBS signal

Measurement procedure

1. Compute the differential signal (*Math1 = Dp - Dn*).
2. Compute Period using DPOJET with Math1 as source.
3. The required result is 1/Period (mean).

Differential peak-to-peak output voltage (max)

Reference: IEEE 802.3ap, section 72.7.1.4

This measurement measures the differential peak-to-peak output voltage (max) using the recommended 1010 signal. The differential output voltage is constrained through the transmitter output waveform requirements specified in 72.7.1.10 of IEEE 802.3ap. The peak-to-peak differential output voltage should be less than 1200 mV, regardless of equalization setting. The differential output voltage test pattern should consist of at least eight symbols of alternating polarity.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

1010 signal

Measurement procedure

1. Identify the regions with the pattern 1010 or 0101 on the input signal.
2. Measure the high voltage and low voltage in that region.
3. The voltages corresponding to the signal high and signal low regions are taken as vHigh and vLow respectively. Compute the peak-to-peak (V_{pk-pk}) voltage by vHigh – vLow.
4. The V_{pk-pk} values are averaged across all regions (the required result for the differential peak-to-peak measurement).

Differential peak-to-peak output voltage (max) with Tx disabled

Reference: IEEE 802.3ap, section 72.6.5

This measurement measures the differential peak-peak output voltage (max) with Tx disabled. Noise signal is captured when the Transmitter is disabled. The transmitter output voltage should be less than 30 mV peak-to-peak when disabled.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

Noise signal is captured when the Transmitter is disabled

Measurement procedure

1. Measure the high voltage and low voltage in the waveform.
2. The voltages corresponding to the signal high and signal low regions are taken as vHigh and vLow respectively. Compute the peak-to-peak (V_{pk-pk}) voltage by vHigh – vLow.

Common mode voltage limits

Reference: IEEE 802.3ap, section 72.7.1.4

This measurement measures the common mode voltage limits using the recommended PRBS11 signal. The common mode voltage of SL(p) and SL(n) should be between 0 V and 1.9 V with respect to signal ground.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

In case of single-ended mode common mode signal is created using Data positive (Dp) and Data Negative signals (Dn). In case of Trimode probes, the waveform is captured by setting the probe into Common mode.

Measurement procedure

1. *Math1 = (Dp + Dn) ÷ 2*. Switch off channels connected to Dp and Dn.
2. From the Measure menu, select Amplitude > Peak-to-Peak.
3. Select Math1 as the measurement source.
4. Do a single-step run and measure the mean value of the histogram standard deviation. This is the measurement result.

Common mode voltage deviation during LPI mode

Reference: IEEE 802.3ap, section 72.7.1.4

This measurement measures the common mode voltage deviation when the DUT is switched from Normal mode to LPI mode. The common mode voltage in LPI mode shall not deviate by more than 150mV when compared to the common mode voltage in Normal mode.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

In case of single-ended mode common mode signal is created using Data positive (Dp) and Data Negative signals (Dn). In case of Trimode probes, the waveform is captured by setting the probe into Common mode.

Measurement procedure

1. Set the DUT in Normal mode and measure the common mode voltage.
2. Set the DUT in LPI mode and measure the common mode voltage.

3. Measure the deviation in common mode voltages between Normal mode and LPI mode. The difference in voltage should not exceed 150 mV.

Transition time

Reference: IEEE 802.3ap, section 72.7.1.7

This measurement measures the transition time (Rise time and Fall time) using the recommended N1N0 signal where N is between 8 and 11 (inclusive). The rising and falling edge transition times should be between 24 ps and 47 ps as measured at 20% and 80% levels, referenced to v2 and v5, as defined in 72.7.1.11 of IEEE 802.3ap. The measurement is done using the square wave test pattern with no equalization and a run of at least eight consecutive ones and zeroes.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

A differential N1N0 signal (where N lies between 8 and 11, both inclusive).

Measurement algorithm

1. Obtain the values of the upper limit (V2) and lower limit (V5) from the Output Waveform Characteristics measurement.
2. Find the position of the rising and falling edges in the input waveform.
3. On each rising edge, traverse forward until the first point crossing the upper limit (80%) is found (=End) and traverse backward until the first point crossing the lower limit (20%) is found (= Start).
4. On each falling edge, traverse backward until the first point crossing the upper limit (80%) is found (=Start) and traverse forward until the first point crossing the lower limit (20%) is found (=End).
5. Compute the Transition Time, TT = (End – Start). This value is averaged across all edges.

Max output jitter (peak-peak)

Reference: IEEE 802.3ap, section 72.7.1.8

This measurement verifies that the RMS value of the common mode signal is within the conformable limits according to the specification.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

Pattern 2/3

Measurement algorithm (random jitter and deterministic jitter)

1. Deskew the Data+ and Data– inputs. Compute the differential signal on *Math1 = Dp – Dn*.
2. Use DPOJET measurement RJ (Jitter tab) on the Math signal.

Measurement algorithm (total jitter)

1. Deskew the Data+ and Data- inputs. Compute the differential signal on *Math1 = Dp – Dn*.
2. Use DPOJET measurement TJ@BER (Jitter tab) on the Math signal.

Duty cycle distortion

Reference: IEEE 802.3ap, section 72.7.1.9

This measurement verifies that the RMS value of the common mode signal is within the conformable limits according to the specification.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

1010 signal

Measurement algorithm (duty cycle distortion)

1. Check if the input waveform pattern is a square wave test pattern.
2. If the input is a square wave test pattern, check for a number of continuous ones (between 8 and 11) in the test pattern.
3. Estimate the UI of the waveform (UI = bit duration). Identify the edges on the input waveform and the regions with patterns 1010 or 0101.
4. Find the absolute value of the difference in the mean pulse width of a 1 pulse or the mean pulse width of a 0 pulse (from 1010 or 0101 patterns) and the nominal pulse width (estimated UI).

Transmitter output waveform characteristics

Reference: IEEE 802.3ap, section 72.7.1.10

This measurement measures the output waveform characteristics using the recommended N1N0 signal where N is between 8 and 11 (inclusive).

The test pattern for the transmitter output waveform is the square wave test pattern as defined in 52.9.1.2 of IEEE 802.3, with a run of at least eight consecutive ones. The transmitter output waveform test is based on the voltages v1 through v6, Δv2, and Δv5, which should be measured as shown in Figure 72–12 of IEEE 802.3ap.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

A N1N0 signal (where N lies between 8 and 11, both inclusive).

Measurement procedure

1. Check if the input waveform pattern is a square wave test pattern.
2. If the input is a square wave test pattern, check for a number of continuous ones (between 8 and 11) in the test pattern.
3. Determine if the starting edge is rising or falling. Depending on the result, measure the voltages v1, v2, v3, v4, v5, v6, Rpre, and Rpst according to the specification. Average the computed values across all the regions.
4. The values of v2 and v5 are considered as the upper and lower limits for transition time measurement.

⚠️ **Note:** Bandwidth of the scope is limited to 16GHz for Co-efficient tests in order to avoid intrinsic noise of the higher bandwidth scope affecting dV2 and dV5 measurements.

Output waveform coefficient update

Reference: IEEE 802.3ap, section 72.7.1.11a

This measurement measures the output waveform coefficient update and status using the recommended N1N0 signal where N is between 8 and 11 (inclusive).

The state of the transmitter equalizer and hence the transmitter output waveform is manipulated through the protocol defined in 72.6.10 of IEEE 802.3ap or through management. The changes in the transmitter output waveform resulting from coefficient update requests should meet the requirements stated in Table 72–7 of IEEE 802.3ap specification. The coefficient update requests in Table 72–7 of IEEE 802.3ap are to be followed by a coefficient update equal to hold for all taps. The results should be verified after the coefficient status for all taps is reported as not_updated. For any coefficient update, the magnitudes of the changes in v1, v2, and v3 should be within 5 mV of each other. When sufficient increment or decrement updates have been applied to a given tap, it will reach a maximum or minimum limit, governed by the coefficient range or by restrictions placed on minimum steady-state or maximum peak voltage, and the coefficient status is reported accordingly.

The transmitter output waveform should meet the requirements of Table 72–8 of IEEE 802.3ap for all of the limiting cases represented in the table. Implementation of c(–1) or c(1) coefficient values greater than zero or less than the minimum defined by Rpre (min) and Rpst (min) is optional. A coefficient may be disabled by first asserting the preset control defined in IEEE 802.3 Table 45–55 and 45.2.1.78, then manipulating the other coefficients as required by the test.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

A N1N0 signal (N lies between 8 and 11, both inclusive) of the same pattern with different acquisitions captured at different states (1 through 6).

Measurement procedure

1. Check if each input waveform pattern is a square wave test pattern.
2. If the inputs are square wave test patterns, check for a number of continuous ones (between 8 and 11) in the test patterns.
3. Determine if the starting edge is rising or falling. Depending on the result, measure the voltages v1, v2, v3, v4, v5, v6, Rpre, and Rpst according to the specification. Average the computed values across all the regions.
4. Compute Rpre and Rpst values from above computed voltages. Rpre = v3/v2, Rpst = v1/v2 for all input waveforms.
5. Calculate V1(k)-V1(k-1),V2(k)-V2(k-1),V3(k)-V3(k-1) for all input waveforms where K varies from 1 to 6.

⚠ **Note:** Bandwidth of the scope is limited to 16GHz for Co-efficient tests in order to avoid intrinsic noise of the higher bandwidth scope affecting dV2 and dV5 measurements.

Output waveform coefficient status

Reference: IEEE 802.3ap, section 72.7.1.11b

This measurement measures the output waveform coefficient update and status using the recommended N1N0 signal where N is between 8 and 11 (inclusive).

The state of the transmitter equalizer and hence the transmitter output waveform is manipulated through the protocol defined in 72.6.10 of IEEE 802.3ap or through management. The changes in the transmitter output waveform resulting from coefficient update requests should meet the requirements stated in Table 72–7 of IEEE 802.3ap. The coefficient update requests in Table 72–7 of IEEE 802.3ap are to be followed by a coefficient update equal to hold for all taps. The results should be verified after the coefficient status for all taps is reported as not_updated. For any coefficient update, the magnitudes of the changes in v1, v2, and v3 should be within 5 mV of each other. When sufficient increment or decrement updates have been applied to a given tap, it will reach a maximum or minimum limit governed by the coefficient range or by restrictions placed on minimum steady-state or maximum peak voltage, and the coefficient status is reported accordingly.

The transmitter output waveform should meet the requirements of Table 72–8 of IEEE 802.3ap for all of the limiting cases represented in the table. Implementation of c(–1) or c(1) coefficient values greater than zero or less than the minimum defined by Rpre (min) and Rpst (min) is optional. A coefficient may be disabled by first asserting the preset control defined in IEEE 802.3 Table 45–55 and 45.2.1.78, then manipulating the other coefficients as required by the test.

Required test equipment

Minimum system requirements

Equipment connection diagram

Inputs

A N1N0 signal (N lies between 8 and 11, both inclusive) of the same pattern with different acquisitions captured at different states (1 through 4).

Measurement procedure

1. Check if each input waveform pattern is a square wave test pattern.

2. If the inputs are square wave test patterns, check for a number of continuous ones (between 8 and 11) in the test patterns.

3. Determine if the starting edge is rising or falling. Depending on the result, measure the voltages v1, v2, v3, v4, v5, v6, and Rpre, Rpst according to the specification. Average the computed values across all the regions.

4. Compute Rpre and Rpst values from above computed voltages. Rpre = v3/v2, Rpst = v1/v2 for all input waveforms.

> ⚠️ **Note:** Bandwidth of the scope is limited to 16GHz for Co-efficient tests in order to avoid intrinsic noise of the higher bandwidth scope affecting dV2 and dV5 measurements.

SCPI commands

About SCPI command

You can use Standard Commands for Programmable Instruments (SCPI) to communicate with the TekExpress application.

Socket configuration for SCPI commands

This section describes the steps for TCP/IP socket configuration and TekVISA configuration to execute the SCPI commands.

TCP/IP socket configuration

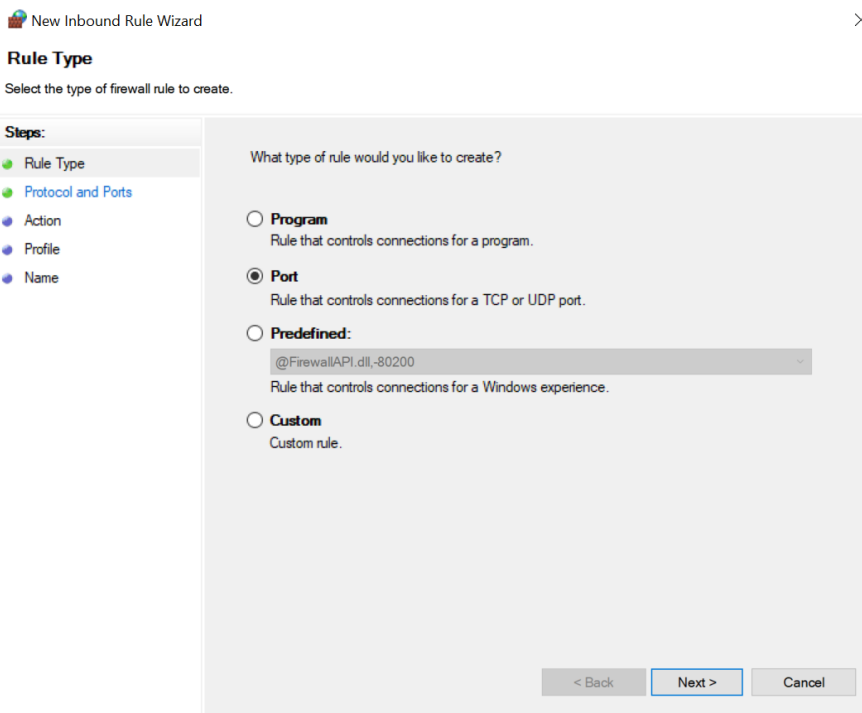1. Click **Start** > **Control Panel** > **System and Security** > **Windows Firewall** > **Advanced settings**.
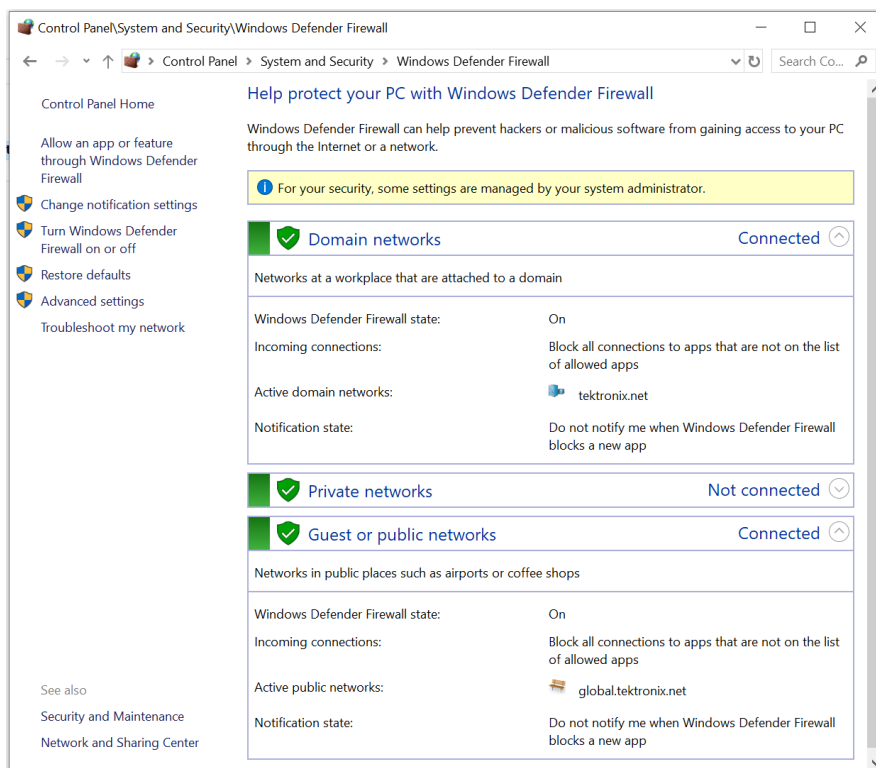
2. In Windows Firewall with Advanced Security menu, select **Windows Firewall with Advanced Security on Local Computer** > **Inbound Rules** and click New Rule…
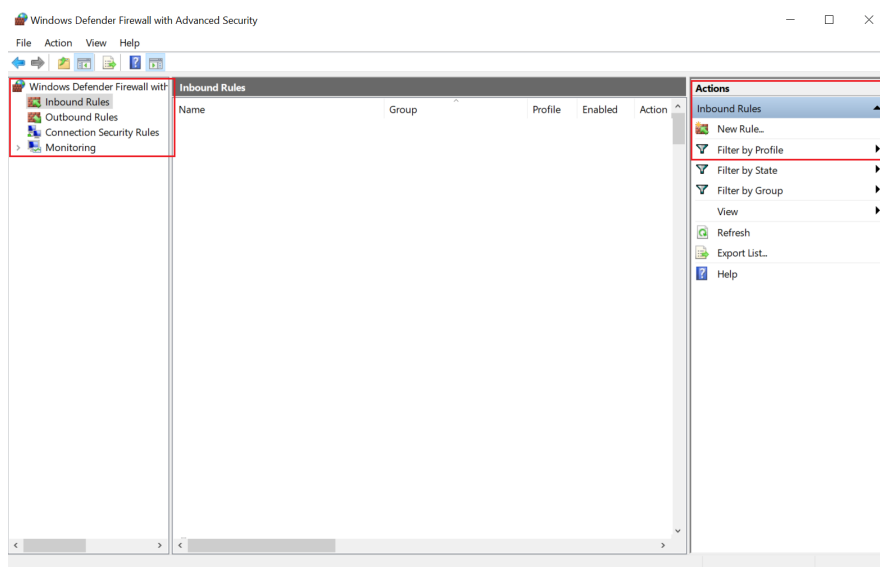
3. In New Inbound Rule Wizard menu

   a. Select **Port** and click **Next**.

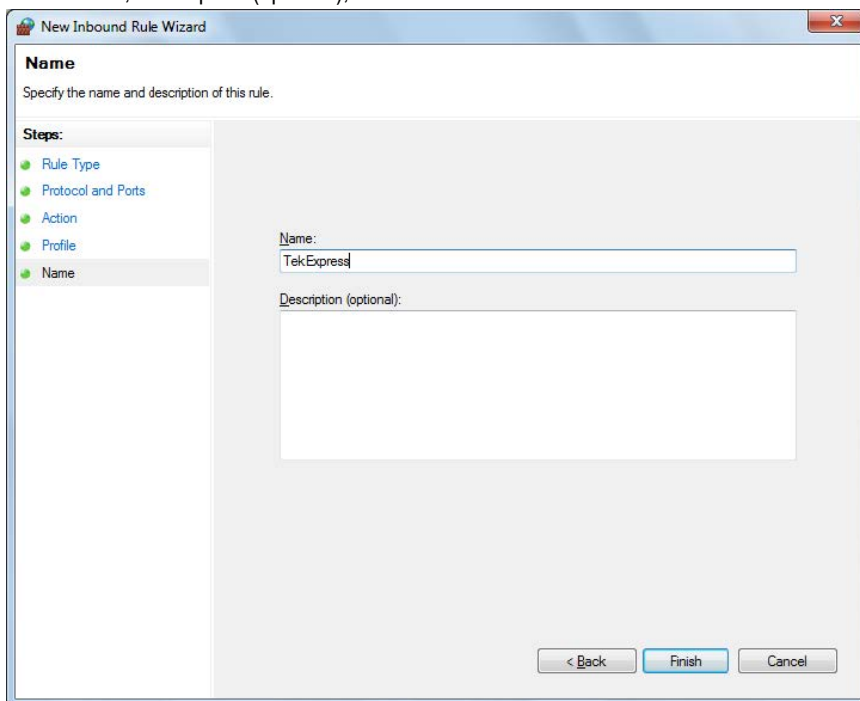   b. Select **TCP** as rule apply and enter 5000 for **Specific local ports** and click **Next**.
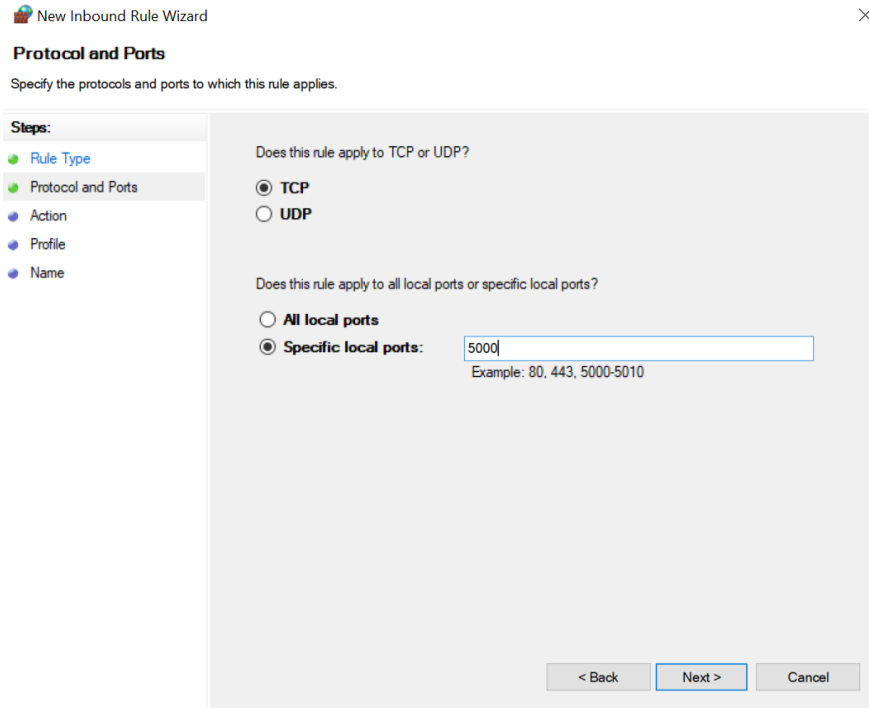
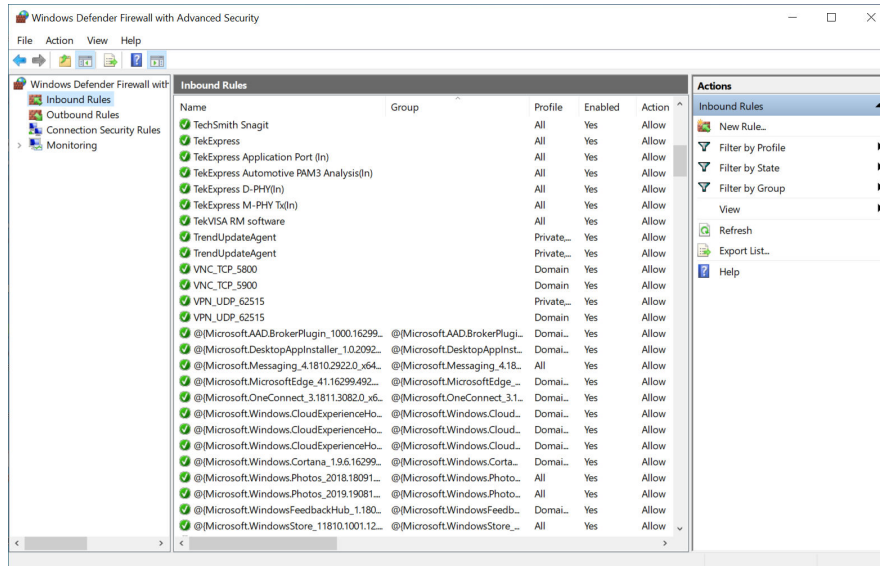c. Select **Allow the connection** and click **Next**.
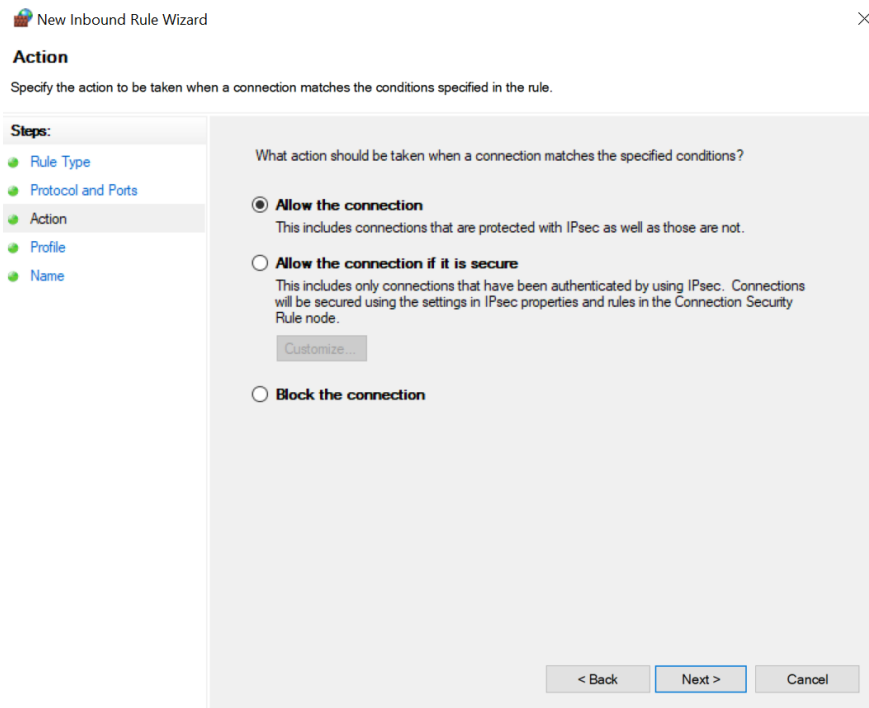
d. Select **Domain, Private, Public** and click **Next**.
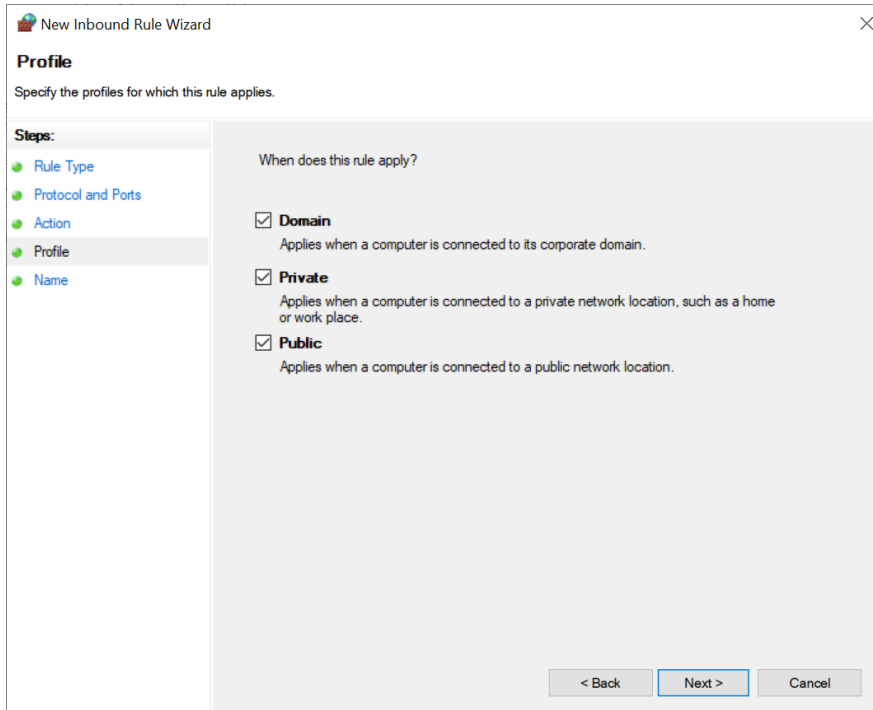
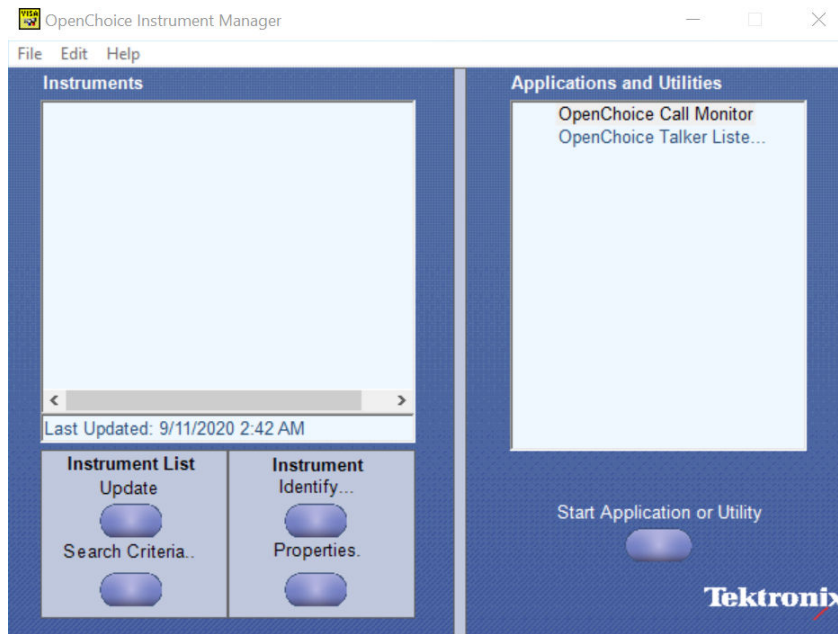e. Enter **Name**, Description (optional), and click **Finish**.

4. Check whether the Rule name is displayed in **Windows Firewall with Advanced Security menu** > **Inbound Rules**.

TekVISA configuration

**1.** Click **Start** > **All Programs** > **TekVISA** > **OpenChoice Instrument Manager**.

2. Click **Search Criteria**. In Search Criteria menu, click **LAN** to Turn-on. Select **Socket** from the drop-down list, enter the IP address of

the TekExpress device in **Hostname** and type **Port** as 5000. Click to configure the IP address with Port.

Enter the Hostname as 127.0.0.1 if the TekVISA and TekExpress application are in the same system, else enter the IP address of the TekExpress application system.
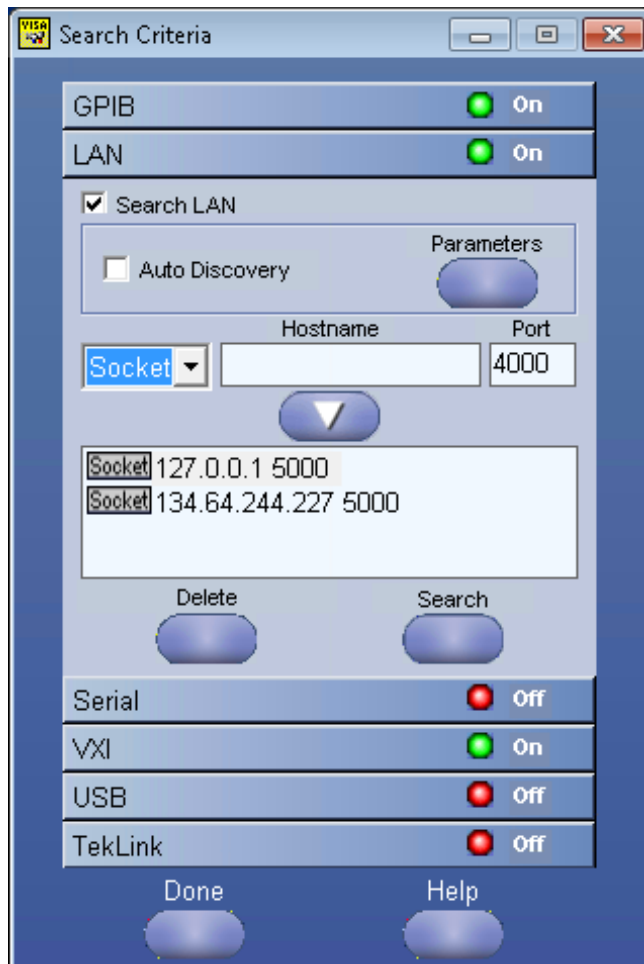
3. Click **Search** to setup the TCPIP connection with the host. Check whether the TCPIP host name is displayed in **OpenChoice Instrument Manager** > **Instruments**.
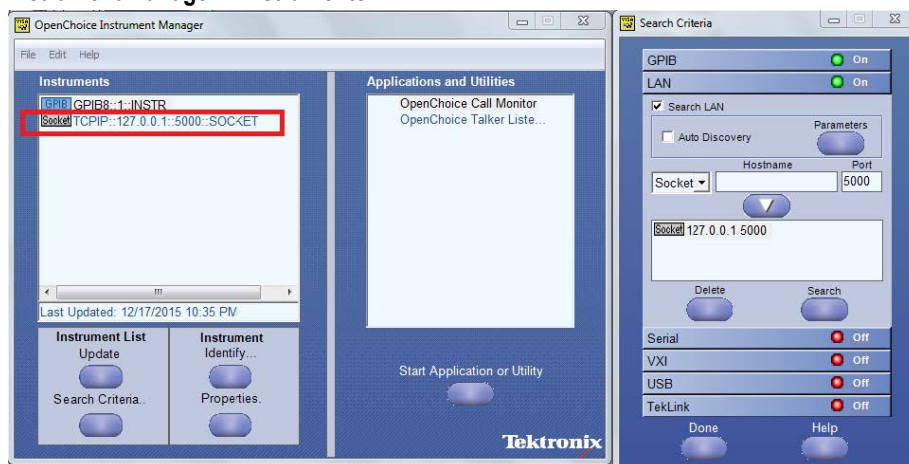
4. Double-click **OpenChoice Talker Listener** and enter the Command *IDN? in command entry field and click **Query**. Check that the Operation is successful and Talker Listener Readout displays the Command / Data.
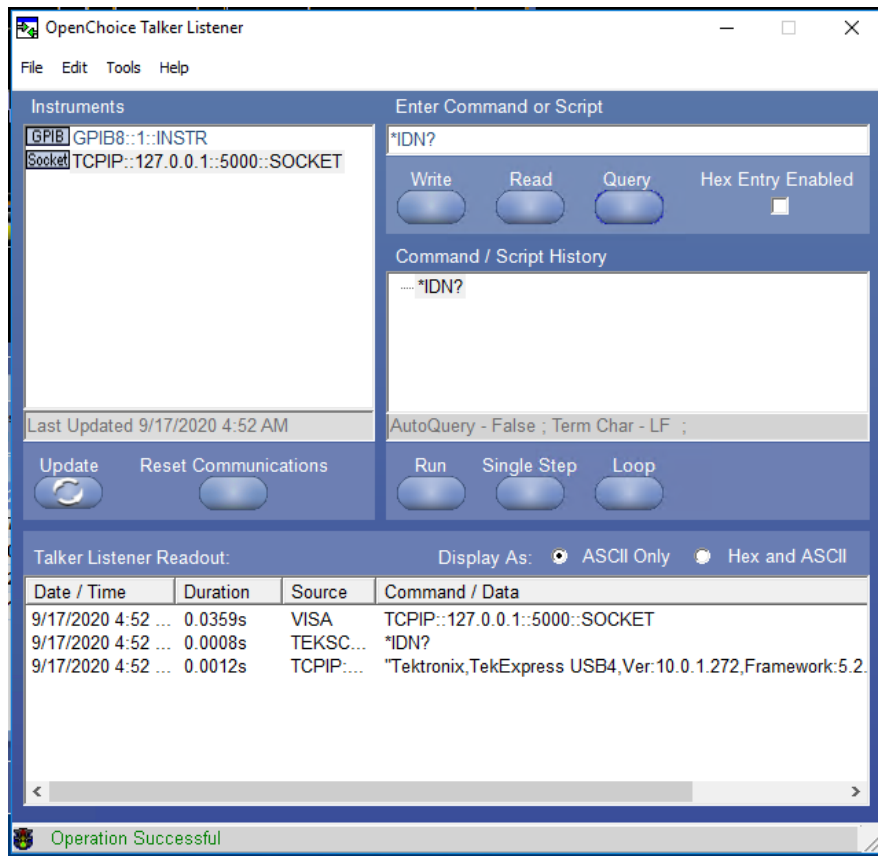
TEKEXP:*IDN?

This command queries the active TekExpress application name running on the oscilloscope.

Syntax

```
TEKEXP:*IDN?\n
```

Inputs

NA

Outputs

Returns active TekExpress application name running on the oscilloscope.

⚠ **Tip:** *Click here* for examples.

TEKEXP:*OPC?

This command queries the execution status of the last executed command.

Syntax

```
TEKEXP:*OPC?\n
```

Inputs

NA

Outputs

0 - last command execution is not complete

1 - last command execution is complete

⚠️ **Tip:** *Click here* for examples.

TEKEXP:ACQUIRE_MODE

This command sets the acquire mode as live or pre-recorded.

Syntax

```
TEKEXP:ACQUIRE_MODE {LIVE | PRE-RECORDED}\n
```

Inputs

```
{LIVE | PRE-RECORDED}
```

Outputs

NA

⚠️ **Tip:** *Click here* for examples.

TEKEXP:ACQUIRE_MODE?

This command queries the acquire mode type.

Syntax

```
TEKEXP:ACQUIRE_MODE?\n
```

Inputs

```
NA
```

Outputs

```
{LIVE | PRE-RECORDED}
```

⚠️ **Tip:** *Click here* for examples.

TEKEXP:EXPORT

This command returns all the bytes of data to the specified file.

Syntax	Outputs
`TEKEXP:EXPORT REPORT\n`	Returns the report file in bytes
`TEKEXP:EXPORT WFM,"<FileName>"\n`	Returns the specified waveform file in bytes
`TEKEXP:EXPORT IMAGE,"<FileName>"\n`	Returns the specified image file in bytes

Inputs

`FileName` - Specifies the file name

⚠️ **Tip:** *Click here* for examples.

TEKEXP:INFO?

This command queries the information about the file(s).

Syntax	Outputs
TEKEXP:INFO? REPORT\n	<ReportFileSize>,"<ReportFileName.mht>"
TEKEXP:INFO? WFM\n	<WfmFile1Size>,"<WfmFileName1.wfm>";<WfmFile2Size>,"<WfmFileName2.wfm>";...
TEKEXP:INFO? IMAGE\n	<Image1FileSize>,"<Image1FileName>";<Image2FileSize>,"<Image2FileName>" ;...

⚠️ **Tip:** *Click here* for examples.

TEKEXP:INSTRUMENT

This command sets the value for the selected instrument type.

Syntax

TEKEXP:INSTRUMENT "<InstrumentType>",<Value>"\n

Inputs

InstrumentType

Value

⚠️ **Tip:** Check *Command parameters list* section for InstrumentType and Value parameters.

Outputs

NA

⚠️ **Tip:** *Click here* for examples.

TEKEXP:INSTRUMENT?

This command queries the instrument selected for the specified instrument type.

Syntax

TEKEXP:INSTRUMENT? "<InstrumentType>"\n

Inputs

InstrumentType

⚠️ **Tip:** Check *Command parameters list* section for InstrumentType parameters.

Outputs

Returns the instrument selected for the specified instrument type

⚠️ **Tip:** *Click here* for examples.

TEKEXP:LASTERROR?

This command queries the last error string occurred for the current TCP session. If there are no errors since startup, or since the last call to TEKEXP:LASTERROR?\n, this command returns an empty string.

Syntax

```
TEKEXP:LASTERROR?\n
```

Inputs

NA

Outputs

<string>

⚠️ **Tip:** *Click here* for examples.

TEKEXP:LIST?

This command queries the list of available device, suite, test, version or instrument.

Syntax	Outputs
`TEKEXP:LIST? DEVICE\n`	Returns the list of available device(s) as comma separated values.
`TEKEXP:LIST? SUITE\n`	Returns the list of available suite(s) as comma separated values.
`TEKEXP:LIST? TEST\n`	Returns the list of available test(s) as comma separated values.
`TEKEXP:LIST? VERSION\n`	Returns the list of available version(s) as comma separated values.
`TEKEXP:LIST? INSTRUMENT,"<InstrumentType>"\n`	Returns the list of available instruments' for the given Instrument type as comma separated values.

⚠️ **Note:** This command returns the list of items within double quotes (""). Iterate the receive procedure until the list ends with double quotes otherwise the next query commands won't work as expected.

Inputs

`InstrumentType`

⚠️ **Tip:** Check *Command parameters list* section for Instrument Type parameters.

⚠️ **Tip:** *Click here* for examples.

TEKEXP:MODE

This command sets the execution mode as compliance or user defined.

Syntax

```
TEKEXP:MODE {COMPLIANCE | USER-DEFINED}\n
```

Inputs

{COMPLIANCE | USER-DEFINED}

Outputs

NA

⚠️ **Tip:** *Click here* for examples.

TEKEXP:MODE?

This command queries the execution mode type.

Syntax

TEKEXP:MODE?\n

Inputs

NA

Outputs

{COMPLIANCE | USER-DEFINED}

⚠️ **Tip:** *Click here* for examples.

TEKEXP:POPUP

This command sets the response to the active popup shown in the application.

Syntax

TEKEXP:POPUP "<PopupResponse>"\n

Inputs

PopupResponse

Outputs

NA

⚠️ **Tip:** *Click here* for examples.

TEKEXP:POPUP?

This command queries the active popup information shown in the application.

Syntax

TEKEXP:POPUP?\n

Inputs

NA

Outputs

Returns the active popup information in the application.

⚠ **Tip:** *Click here* for examples.

TEKEXP:REPORT

This command generates the report for the current session.

Syntax

TEKEXP:REPORT GENERATE\n

Inputs

GENERATE

Outputs

NA

⚠ **Tip:** *Click here* for examples.

TEKEXP:REPORT?

This command queries the queried header field value in the report.

Syntax

TEKEXP:REPORT? "<HeaderField>"\n

Inputs

HeaderField - Specifies to return the measured value for the indicated test.

⚠ **Tip:** Check **Report** for HeaderField parameters.

Outputs

Returns the queried header field value in the report

⚠ **Tip:** *Click here* for examples.

TEKEXP:RESULT?

This command queries the result available in report summary/details table.

Syntax	Outputs
TEKEXP:RESULT? "<TestName>"\n	Return Pass/Fail status of the test.
TEKEXP:RESULT? "<TestName>","<ColumnName>"\n	Returns all the row values of the specified column for the test.
TEKEXP:RESULT? "<TestName>","<ColumnName>",<RowNumber>\n	Returns the column value for the specified row number

Inputs

`TestName` - Specifies the name of the test for which to obtain the test result value.

`ColumnName` - Specifies the column name for the measurement

`RowNumber` - Specifies the row number of the measurement

⚠️ **Tip:** Check **Results** panel for TestName, ColumnName, and RowNumber parameters.

⚠️ **Tip:** *Click here* for examples.

TEKEXP:SELECT

This command selects the device, suite, version, or test.

Syntax

`TEKEXP:SELECT <string1>,<string2>,<string4>\n`

`TEKEXP:SELECT TEST,<string3>,<string4>\n`

Inputs

`<string1> = {DEVICE | SUITE | VERSION}`

`<string2> = {DeviceName | SuiteName | VersionName}`

`<string3> = {"<TestName>"| ALL| REQUIRED }`

`<string4> = {TRUE | FALSE}`

⚠️ **Tip:** Check *Command parameters list* section for DeviceName, SuiteName, VersionName, and TestName parameters.

Outputs

NA

⚠️ **Tip:** *Click here* for examples.

TEKEXP:SELECT?

This command queries the name of the selected device, suite, version, or test.

Syntax

`TEKEXP:SELECT? {DEVICE | SUITE | TEST | VERSION}\n`

Inputs

`{DEVICE | SUITE | TEST | VERSION}`

Outputs

Returns the name of the selected device, suite, version, or test.

⚠️ **Tip:** *Click here* for examples.

TEKEXP:SETUP

This command sets the value of the current setup.

Syntax	Outputs
`TEKEXP:SETUP DEFAULT\n`	Restore to default Setup
`TEKEXP:SETUP OPEN,"<SessionName>"\n`	Open the session
`TEKEXP:SETUP SAVE\n`	Saves the already existing modified session
`TEKEXP:SETUP SAVE,"<SessionName>"\n`	Save the session

Inputs

`SessionName` - The name of the session

⚠ **Tip:** *Click here* for examples.

TEKEXP:STATE

This command sets the execution state of the application.

Syntax

`TEKEXP:STATE {RUN | STOP | PAUSE | RESUME}\n`

Inputs

`{RUN | STOP | PAUSE | RESUME}`

Outputs

NA

⚠ **Tip:** *Click here* for examples.

TEKEXP:STATE?

This command queries the current setup state.

Syntax	Outputs
`TEKEXP:STATE?`	RUNNING	PAUSED	WAIT	ERROR	READY
`TEKEXP:STATE? SETUP`	SAVED	NOT_SAVED

⚠ **Tip:** *Click here* for examples.

TEKEXP:VALUE

This command sets the value of parameters of type General, Acquire, Analyze, or DUTID.

Syntax

`TEKEXP:VALUE GENERAL,"<ParameterName>","<Value>"\n`

`TEKEXP:VALUE ACQUIRE,"<TestName>","<AcquireType>", "<ParameterName>","<Value>"\n`

`TEKEXP:VALUE ANALYZE,"<TestName>","<ParameterName>"."<Value>"\n`

`TEKEXP:VALUE DUTID,"<Value>"\n`

`TEKEXP:VALUE VERBOSE,{TRUE | FALSE}\n`

`TEKEXP:VALUE WFMFILE,<Test_Name>,<Aquire_Type>,<FilesName1$FileName2>\n`

Inputs

`ParameterName` - Specifies the parameter name

`TestName` - Specifies the test name

`AcquireType` - Specifies the acquire type

`Value` - Specifes the value to set

`FilesName1$FileName2` - Specifies the waveform file name

`TRUE` - Pop-ups are enabled

`FALSE` - Pop-ups are disabled

⚠️ **Tip:** Check *Command parameters list* section for ParameterName, AcquireType, and Value parameters.

Outputs

NA

⚠️ **Tip:** *Click here* for examples.

TEKEXP:VALUE?

This command queries the value of the parameter for type General, Acquire, Analyze, or DUTID.

Syntax	Outputs
`TEKEXP:VALUE? GENERAL,"<ParameterName>"\n`	Returns the value of Parameter for type GENERAL
`TEKEXP:VALUE? ACQUIRE,"<TestName>", "<AcquireType>","<ParameterName>"\n`	Returns the value of Parameter for type ACQUIRE
`TEKEXP:VALUE? ANALYZE, "<TestName>","<ParameterName>"\n`	Returns the value of Parameter for type ANALYZE
`TEKEXP:VALUE? DUTID\n`	Returns the DUTID value
`TEKEXP:VALUE? WFMFILE,<Test_Name>,<Aquire_Type>\n`	Returns the waveform file name
`TEKEXP:VALUE? VERBOSE`	Returns the verbose mode type

Inputs

`ParameterName` - Specifies the parameter name

`TestName` - Specifies the test name

`AcquireType` - Specifies the acquire type

`TRUE` - Pop-ups are enabled

`FALSE` - Pop-ups are disabled

⚠️ **Tip:** Check *Command parameters list* section for ParameterName and AcquireType parameters.

Outputs

Returns the value of Parameter for type GENERAL | ACQUIRE | ANALYZE | DUTID.

⚠️ **Tip:** *Click here* for examples.

Command Parameters Lists

This section provides the parameters list for the SCPI commands.

TekExpress 10G-KR command parameters

ParameterName and Value for DUT, Test selection, Acquisition, Configuration and Preferences tabs

Specifies the ParameterName and Value for DUT, Test selection, Acquisition, Configuration, and Preferences tabs

Table 16: ParamterName and Value for DUT tab

Parameters	Description
Instrument Type	Specifies the instrument type. Valid value is: Realtime Scope
DUT ID	Specifies the value parameters. For DUTID, valid value is: Comment For Instrument Type, valid values are: • Do not use • GPIB8::1::INSTR
Link Widths	Specifies the lane. Valid values are 1 Lane, 2 Lanes, and 4 Lanes.
Probing Type	Specifies the selected source. Valid values are Single-ended, Differential

Table continued…

Parameters	Description
TestName	Specifies the test measurement name.
	Valid values for 10G-KR are:
	• Signalling speed
	• Differential peak-to-peak output voltage(max)
	• Differential peak-peak output voltage(max) with Tx disabled
	• Transition time
	• Max output jitter (peak-peak)
	• Duty Cycle Distortion
	• Transmitter output waveform characteristics
	• Coefficient update - C(0) Increment
	• Coefficient update - C(0) Decrement
	• Coefficient update - C(1) Increment
	• Coefficient update - C(1) Decrement
	• Coefficient update - C(-1) Increment
	• Coefficient update - C(-1) Decrement
	• Status C(1)Disabled_C(0)Maximum_C(-1)Disabled
	• Status C(1)Disabled_C(0)Minimum_C(-1)Disabled
	• Status C(1)Disabled_C(0)Minimum_C(-1)Minimum
	• Status C(1)Minimum_C(0)Minimum_C(-1)Disabled
	• Common mode voltage limits
	• Common mode voltage limits-LPI
Mode	Specifies the mode.
	Valid values are:
	• Compliance
	• User-Defined
Apply Filter	Specifies the De-embedding filter. Valid values are:
	• True
	• False
Phase Inverted Filter For Data	• True
	• False
Data Positive De-Embedding filter	Complete Path of filter file has to be updated
Data Negative De-Embedding filter	Complete Path of filter file has to be updated

Table 17: ParameterName and Value for Acquisition tab

Parameters	Description
Signal Validation	Specifies the signal validation. Valid values are: • Skip Test if Signal Validation Fails • Use signal as is - Don't Validate • Prompt me if Signal Validation Fails

Table 18: ParameterName and Value for Acquire

Test Name	Acquire Type	Parameter Name	Values
Signaling speed	Pseudo-random pattern	Signal type	• PRBS7 • PRBS9 • PRBS11 • PRBS15 • PRBS20 • PRBS23 • PRBS31
Differential peak-to-peak output voltage(max)	1010 Square pattern		• 1010 • PRBS7 • RBS9 • PRBS11 • PRBS15 • PRBS20 • PRBS23 • PRBS31
Transition time	N1N0 Square pattern		N1N0
Max output jitter(peak-peak)	Pseudo-random pattern		JitterCompliance
Duty Cycle Distortion	1010 Square pattern		• PRBS7 • PRBS9 • PRBS11 • PRBS15 • PRBS20 • PRBS23 • PRBS31
Transmitter output waveform characteristics	N1N0 Square pattern		N1N0
Coefficient update - C(0) Increment	C(0) Increment - Output waveform coefficient update acquisition		

Table continued…

Test Name	Acquire Type	Parameter Name	Values
Coefficient update - C(0) Decrement	C(0) Decrement - Output waveform coefficient update acquisition		
Coefficient update - C(1) Increment	C(1) Increment - Output waveform coefficient update acquisition		
Coefficient update - C(1) Decrement	C(1) Decrement - Output waveform coefficient update acquisition		
Coefficient update - C(-1) Increment	C(-1) Increment - Output waveform coefficient update acquisition		
Coefficient update - C(-1) Decrement	C(-1) Decrement - Output waveform coefficient update acquisition		
Status C(1)Disabled_C(0)Maximum_C(-1)Disabled	Output waveform status C(1)Disabled_C(0)Maximum_C(-1)Disabled		

Table 19: ParameterName and Value for Analyze

TestName	Parameter Name	Values
Max output jitter (peak-peak)	Target BER (1e-)	10, 12

Table 20: ParameterName and Value for Preferences tab

Parameters	Description
Run Test More than Once	• True • False
Number of Runs	1 to 250
On Failure Stop and Notify	• True • False
Timer Warning Info Message Popup	• True • False
Timer Warning Info Message Popup	1 to 60

ParameterName and Value for General, Acquire and Analyze

Specifies the ParameterName and Value for General, Acquire and Analyze. The configuration parameters available are not same for measurements.

Table 21: ParameterName and Value for General

ParameterName	Value
Report Update Mode	• New • Append • Replace • ReplaceAny
Replace Run session Path	Session file path. Example: `X:\10G-KR\Session1\DUT001\20170421_121534`
Include Header In Appended Report	• True • False
Save As Type	• Web Archive (.*mht;*.mhtml) • PDF (*.pdf)
Auto increment report name if duplicate	• True • False
Create report at the end	• True • False
Include pass/fail results Summary	• True • False
Include detailed results	• True • False
Include plot images	• True • False
Include setup configuration	• True • False
Include user comments	• True • False
View report after generating	• True • False

Table continued…

ParameterName	Value
State	Specifies the state. Valid values are • RUN • PAUSE • RESUME • STOP

Examples

This section provides the examples for the SCPI commands.

Example	Description
TEKEXP:*IDN?\n	It returns the active TekExpress application name running on the scope.
TEKEXP:*OPC?\n	It returns the last command execution status. i.e., (1,0)
TEKEXP:INSTRUMENT "Real Time Scope",DPO77002SX(GPIB8::1::INSTR)\n	It sets the instrument value as DPO77002SX (GPIB8::1::INSTR) for the selected instrument type Real Time Scope.
TEKEXP:INSTRUMENT? "Real Time Scope"\n	It returns "DPO77002SX (GPIB8::1::INSTR),MSO73304DX (TCPIP::134.64.248.91::INSTR)" when DPO72504D(GPIB8::1::INSTR), MSO73304DX (TCPIP:: 134.64.248.91::INSTR) are the list of available instruments.
TEKEXP:SETUP DEFAULT	It sets the default settings.
TEKEXP:VALUE? DUTID	It returns the DUTID.
TEKEXP:VALUE DUTID, "10GKR"	It sets the DUTID.
TEKEXP:ACQUIRE_MODE?	It returns the selected acquisition mode i.e. (LIVE, PRE\u0002RECORDED).
TEKEXP:ACQUIRE_MODE PRE-RECORDED	It sets the PRE-RECORDED acquisition mode
TEKEXP:ACQUIRE_MODE LIVE	It sets the live acquisition mode.
TEKEXP:VALUE? GENERAL, "Probing Type"	It returns selected source i.e. (Single-Ended, Differential).
TEKEXP:VALUE GENERAL, "Probing Type", "Single-Ended"	It sets the source as "Single-Ended".
TEKEXP:VALUE GENERAL, "Probing Type", "Differential"	It sets the source as "Differential".
TEKEXP:VALUE? GENERAL, "Link Widths"	It returns selected lane i.e. (1 Lane, 2 Lanes, 4 Lanes).
EKEXP:VALUE GENERAL, "Link Widths", "2 Lanes"	It sets the lane as "2 Lanes".
TEKEXP:SELECT TEST, ALL, FALSE	Its de-select the all test.
TEKEXP:SELECT TEST, ALL, TRUE	Its select the all test.
TEKEXP:SELECT? TEST	It returns the all selected test.
TEKEXP:SELECT TEST, "Signaling speed", TRUE	Its select the "Signaling speed" test.
TEKEXP:SELECT TEST, "Signaling speed", FALSE	Its de-select the "Signaling speed" test.
TEKEXP:VALUE? ANALYZE,"Max output jitter (peak-peak)","Target BER (1e-)"	It returns selected value.

Table continued…

Example	Description
TEKEXP:VALUE ANALYZE,"Max output jitter (peak-peak)","Target BER (1e-)","10"	It sets the Target BER (1e-) as 10.
TEKEXP:VALUE? GENERAL, "Signal Validation"	It returns the selected signal validation option.
TEKEXP:VALUE GENERAL, "Signal Validation", "Skip Test if Signal Validation Fails"	It sets the signal validation option as "Skip Test if Signal Validation Fails".
TEKEXP:VALUE GENERAL, "Signal Validation", "Use signal as is - Don't Validate"	It sets the signal validation option as "Use signal as is - Don't Validate".
TTEKEXP:VALUE GENERAL, "Signal Validation", "Prompt me if Signal Validation Fails"	It sets the signal validation option as "Prompt me if Signal Validation Fails".
TEKEXP:VALUE? GENERAL, "Acquisition Save Options"	It returns the selected signal save option.
TEKEXP:VALUE GENERAL, "Acquisition Save Options", "Save All Waveforms Before Analysis"	It sets the selected signal save option "Save All Waveforms Before Analysis".
TEKEXP:MODE?	It returns the mode i.e. (USER-DEFINED, COMPLIANCE).
TEKEXP:MODE COMPLIANCE	It sets the mode as COMPLIANCE.
TEKEXP:MODE USER-DEFINED	It sets the mode user as USER-DEFINED.
TEKEXP:VALUE? ACQUIRE,"Signaling speed","Pseudo-random pattern","Signal type"	It returns the selected signal type i.e. PRBS11, PRBS9, PRBS7 etc.
TEKEXP:VALUE ACQUIRE,"Signaling speed","Pseudo-random pattern","Signal type","PRBS7"	It sets the signal type as PRBS7.
TEKEXP:VALUE? GENERAL, "Apply Filter"	It returns false if filter is not selected.
TEKEXP:VALUE GENERAL, "Apply Filter", "True"	It sets the De-Embedding filter as true.
TEKEXP:VALUE GENERAL, "Data Positive De-Embedding filter","C:\Filter.flt"	Its sets the filter file for data positive.
TEKEXP:VALUE GENERAL, "Data Negative De-Embedding filter","C:\Filter.flt"	Its sets the filter file for data negative.
TEKEXP:VALUE? GENERAL, "Run Test More than Once"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Run Test More than Once", "True"	It sets the "Run Test More than Once" as "True".
TEKEXP:VALUE? GENERAL, "Number of Runs"	It returns the selected value i.e."1"
TEKEXP:VALUE GENERAL, "Number of Runs", "100"	It sets the "Number of Runs" as "100".
TEKEXP:VALUE? GENERAL, "On Failure Stop and Notify"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "On Failure Stop and Notify", "True"	It sets the "On Failure Stop and Notify" as "True".
TEKEXP:VALUE? GENERAL, "Timer Warning Info Message Popup"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Timer Warning Info Message Popup", "False"	It sets the "Timer Warning Info Message Popup" as "False".
TEKEXP:VALUE? GENERAL, "Timer Warning Info Message Popup Duration"	It returns the selected value i.e."10".
TEKEXP:VALUE GENERAL, "Timer Warning Info Message Popup Duration", "3"	It sets the "Timer Warning Info Message Popup Duration" as "3".
TEKEXP:VALUE? GENERAL, "Timer Error Message Popup"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Timer Error Message Popup", "True"	It sets the "Timer Error Message Popup" as "True".

Table continued…

Example	Description
TEKEXP:VALUE? GENERAL, "Timer Error Message Popup Duration"	It returns the selected value i.e."10".
TEKEXP:VALUE GENERAL, "Timer Error Message Popup Duration", "60"	It sets the "Timer Error Message Popup Duration" as "60".
TEKEXP:VALUE? GENERAL, "Report Update Mode"	It returns the selected report update mode i.e. "New".
TEKEXP:VALUE GENERAL, "Report Update Mode", "Append"	It sets the "Report Update Mode" as "Append".
TEKEXP:VALUE GENERAL, "Report Settings:Include Header In Appended Reports", "True"	It sets the "Report Settings:Include Header In Appended Reports" as "True".
TEKEXP:VALUE GENERAL, "Report Update Mode", "Replace"	It sets the "Report Update Mode" as "Replace".
TEKEXP:VALUE GENERAL, "Report Update Mode", "ReplaceAny"	It sets the "Report Update Mode" as "ReplaceAny".
TEKEXP:VALUE? GENERAL, "Report Path"	It returns the selected report path "X:\10G-KR\Reports\DUT001.mht".
TEKEXP:VALUE? GENERAL, "Save As Type"	It returns the selected report type "Web Archive (*.mht;*.mhtml)".
TEKEXP:VALUE GENERAL, "Save As Type", "PDF (*.pdf;)"	It sets the report type as "PDF (*.pdf;)"
TEKEXP:VALUE? GENERAL, "Auto increment report name if duplicate"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Auto increment report name if duplicate", "True"	It sets the "Auto increment report name if duplicate" as "True".
It sets the "Auto increment report name if duplicate" as "True"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Create report at the end", "True"	It sets the "Create report at the end" as "True".
TEKEXP:VALUE? GENERAL, "Include Pass/Fail Results Summary"	It returns the "True" or "False"
TEKEXP:VALUE GENERAL, "Include Pass/Fail Results Summary", "True"	It sets the "Include Pass/Fail Results Summary" as "True".
TEKEXP:VALUE? GENERAL, "Include Detailed Results"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Include Detailed Results", "True"	It sets the "Include Detailed Results" as "True".
TEKEXP:VALUE? GENERAL, "Include Plot Images"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Include Plot Images", "True"	It sets the "Include Plot Images" as "True".
TEKEXP:VALUE? GENERAL, "Include Setup Configuration"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Include Setup Configuration", "True"	It sets the "Include Setup Configuration" as "True".
TEKEXP:VALUE? GENERAL, "Include Complete Application Configuration"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Include Complete Application Configuration", "False"	It sets the "Include Complete Application Configuration" as "False".
TEKEXP:VALUE? GENERAL, "Include Complete Application Configuration"	It returns the "True" or "False".
TEKEXP:VALUE? GENERAL, "Include User Comments"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "Include User Comments", "False"	It sets the "Include User Comments" as "False".
TEKEXP:VALUE? GENERAL, "View Report After Generating"	It returns the "True" or "False".
TEKEXP:VALUE GENERAL, "View Report After Generating", "True"	It sets the "View Report After Generating" as "True".
TEKEXP:STATE?	Its returns the current state.

Table continued…

Example	Description
TEKEXP:STATE RUN	Its push the RUN button.
TEKEXP:LASTERROR?	It returns "TEKEXP:INSTRUMENT? "Real Time Scope?" - "ERROR: INSTRUMENT_NOT_FOUND", when no instrument is found.
TEKEXP:EXPORT REPORT\n	It returns the report file in bytes. This can be written into another file for further analysis.
TEKEXP:EXPORT IMAGE,"ImageA.png"\n	It returns the image file in bytes. This can be written into another file for further analysis.
TEKEXP:EXPORT WFM,"WaveformA.wfm"\n	It returns the waveform file in bytes. This can be written into another file for further analysis
TEKEXP:INFO? REPORT\n	It returns "100,"ReportFileName.mht"", when 100 is the filesize in bytes for the filename ReportFileName.
TEKEXP:INFO? WFM\n	It returns "100,"WfmFileName1.wfm"";"200,"WfmFileName2.wfm"" when 100 is the filesize in bytes for the filename WfmFileName1.wfm and 200 is the filesize in bytes for the filename WfmFileName2.wfm.
TEKEXP:INFO? IMAGE	It returns the image file name.
TEKEXP:POPUP "OK"\n	It sets OK as the response to active popup in the application.
TEKEXP:POPUP?\n	It returns "OK", when OK is the active popup information shown in the application.
TEKEXP:REPORT GENERATE\n	It generates report for the current session.
TEKEXP:REPORT? "Scope Information"\n	It returns "DPO73304SX" when DPO73304SX is the scope model.

References

10G-KR protocol decoding

This solution supports KR Protocol Decode for the 64b-66b standard as defined in IEEE802.3.

⚠️ **Note:** KR protocol decoding is supported only on C and DX series oscilloscopes with the Windows 7 (64-bit) operating system.

To decode KR protocol signals:

1. Connect the test setup and acquire a valid signal with the instrument.
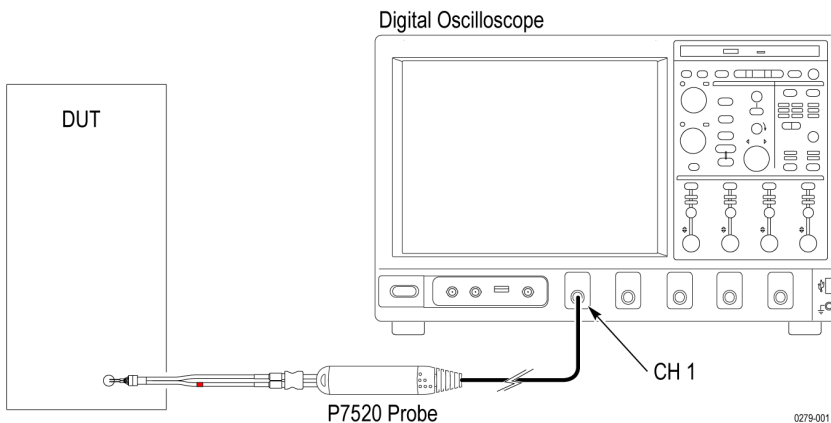
2. Select **Vertical** > **Bus Setup** (or Digital > Bus Setup on MSO70K series oscilloscopes) to open the Bus Setup controls.
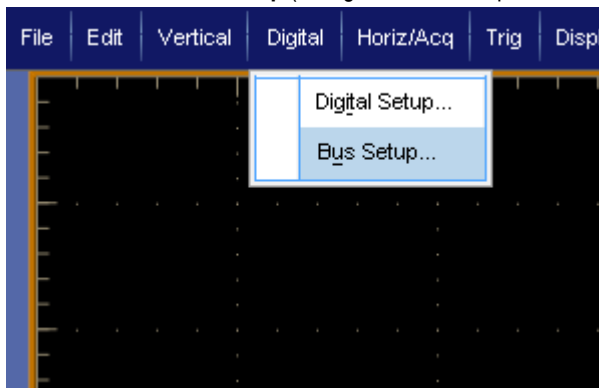
3. Click **Config** tab to open the Bus Setup pane.
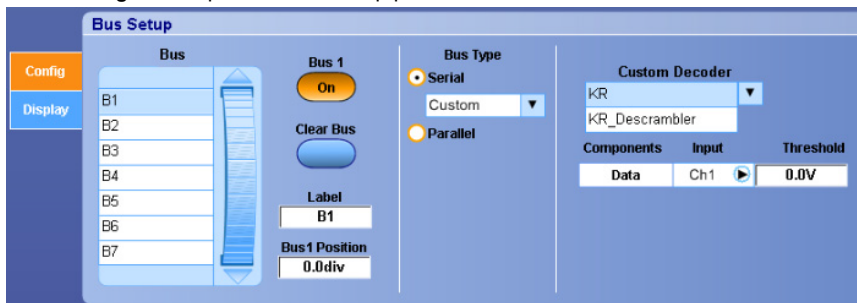
4. Click **Serial** and select **Custom** from the list.
5. Select Custom Decoder option:

- • KR: Without descrambler
- • KR_Descrambler: With descambler support

6. Enter a decoder Threshold value based on the incoming signal.

7. Click Bus 1 On. The oscilloscope screen displays the decoded packets.
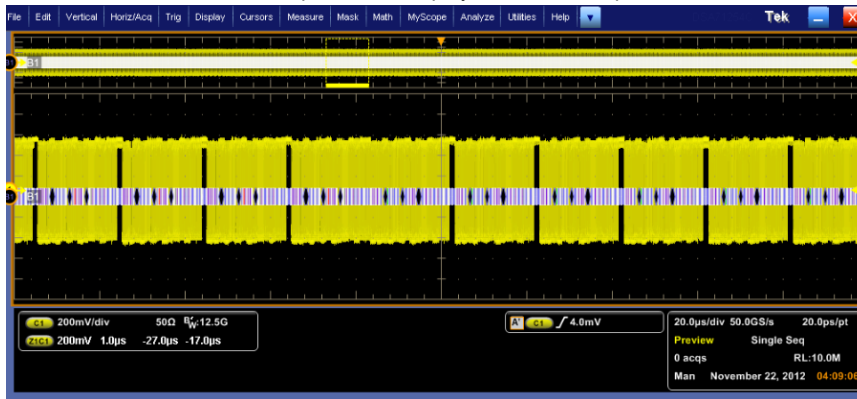
8. Click the Display tab to optionally select Busform and Waveform. The Protocol Decode Event Table shows the list of decoded packets. You can also access the Protocol Decode Event Table from the TekScope Analyze menu.

9. Click **Export** to save the packet information to a .csv format file.

10. Select **Analyze** > **Search** in the TekScope application to enable searching on the various packet fields.
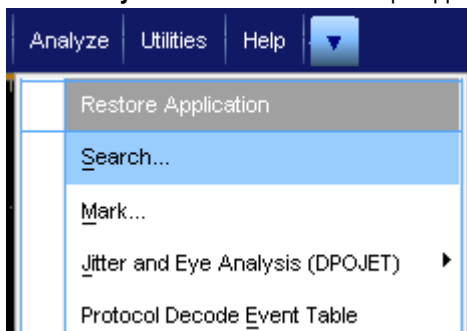
11. Click on Bus in the Type field.
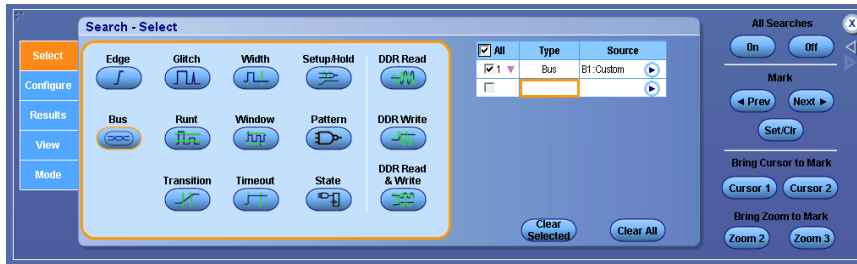
12. Click the Configure tab and select the packet type to search for from the Search For list.
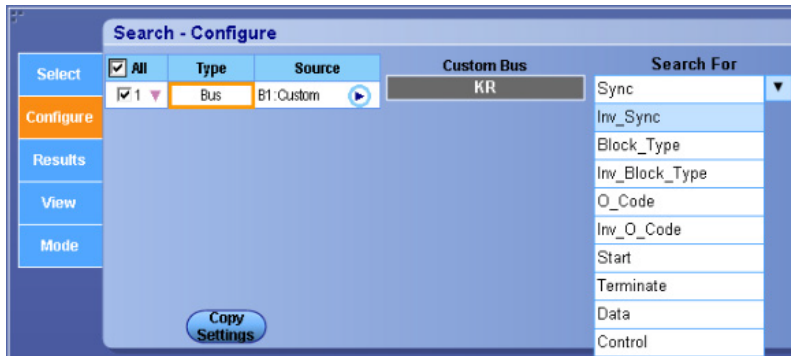
13. Select Data in the Search For list to search on the specific data fields.
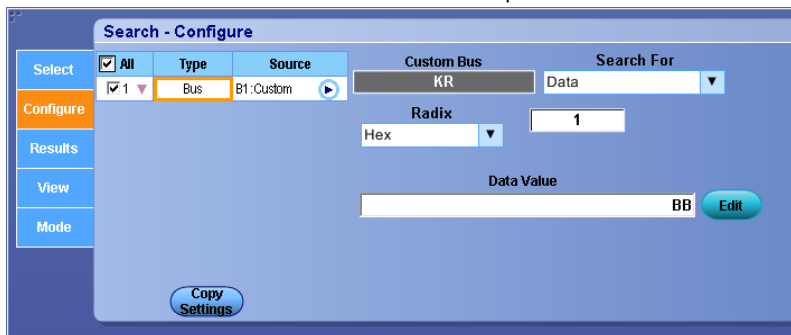
14. Use the Radix and Data fields to specify the data for which to search. The application highlights the search results on the instrument graticule.
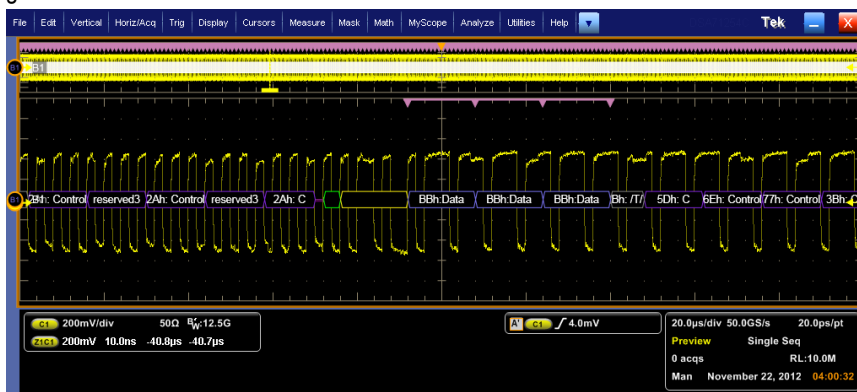
15. Click the Results tab to show the list of search results.

16. Click on items in the list to display the associated waveform on the instrument graticule.
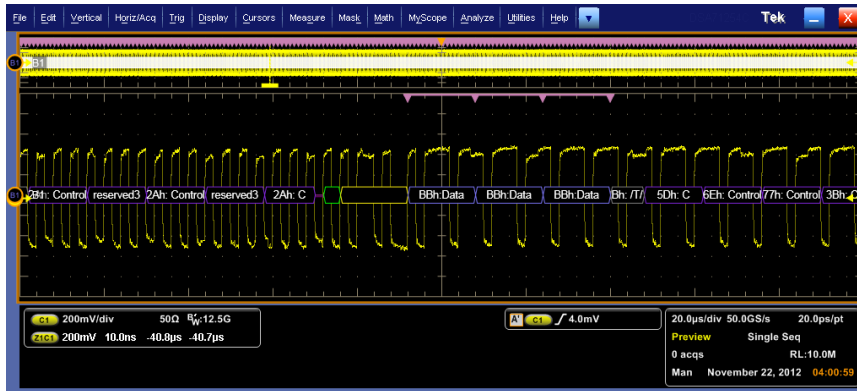
17. Click Export to save the search results to a .csv format file.

Parameters

About application parameters

This section describes the 10G-KR application parameters, and includes the default menu settings.

The parameters for the menus, and options list the selections available for each and include the default values.

Setup panel configuration parameters

DUT tab parameters

Parameters	Selection	Default Setting
DUTID	-	DUT001
Waveform	Acquire live waveforms, Use pre-recorded waveform files	Acquire live waveforms
View	Compliance, Advanced	Compliance
DUT Type	10GBase-KR, 40GBase-KR	10GBase-KR
Number of Lanes to Test	1 Lane, 2 Lanes, 4 Lanes	1 Lane
Selected Test Lanes	Lane0, Lane1, Lane2, Lane3	Lane0

Test Selection tab parameters

Parameters	Selection	Default Setting
10 GBase-KR-IEEE 802.3ap, 40G Base-KR4-IEEE 802.3ba	• Signaling speed • Differential peak-to-peak output voltage (max) • Differential peak-to-peak output voltage (max) with Tx disabled • Common mode voltage limits • Transition time • Max output jitter (peak-peak) • Transmitter output waveform characteristics • Output waveform coefficient update • Output waveform coefficient status	All measurements selected

Acquisitions tab parameters

Parameters	Selection	Default Setting
Acquisition and Save Options	• Save All Waveforms Before Analysis • Analyze Immediately, No Waveforms Saved • Save and Analyze Acquisition In Sequence	Save All Waveforms Before Analysis
Show Acquire Parameters	Select, De-select	De-select
Signal Validation	• Prompt me if signal fails • Skip test if signal fails • Use signal as is - Don't Check	Prompt me if signal fails

Configuration tab parameters

Table 22: Global settings parameters

Parameters	Selection	Default Setting
Mode	Compliance Mode, User Defined Mode	Compliance Mode
Global Settings		
Sample Rate (GS/s)	50	50
Record Length (M)	5, 10	5
Pattern Type	PRBS7, 9, 11, 15, 20, 23, 31	PRBS11

Table continued…

Parameters	Selection	Default Setting
Analysis Option	• Analyze without de-embedding filter • Analyze with de-embedding filter • Analyze with and without de-embedding filter	Analyze without de-embedding filter

Table 23: Measurement settings parameters

Parameters			Selection	Default Setting
Signaling speed	Acquire	Signal Type	PRBS7, 9, 11, 15, 20, 23, 31	PRBS7
Differential peak-to-peak output voltage (max)	Acquire	Signal Type		PRBS11
Differential peak-to-peak output voltage (max) with Tx disabled	Acquire	Signal Type		PRBS11
Common mode voltage limits	Acquire	Signal Type		PRBS11
Transition time	Acquire	Signal Type	N1N0	N1N0
Max output jitter (peak-peak)	Acquire	Signal Type	PRBS7, 9, 11, 15, 20, 23, 31	PRBS11
	RjDj	Target BER (1e-)	10, 12	12
Transmitter output waveform characteristics	Acquire	Signal Type	N1N0	N1N0
Output waveform coefficient update	Acquire	Signal Type	N1N0	N1N0
Output waveform coefficient status	Acquire	Signal Type	N1N0	N1N0

Reports panel parameters

Parameters	Selection	Default Setting
Report name	-	X:\10G-KR\Reports\DUT001.mht
Save as Type	PDF (*.pdf;), Web Archive (*.mht; *.mhtml), CSV (*.csv;)	Web Archive (*.mht; *.mhtml)

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