
Clarius USB Transmitter Compliance Testing Release Notes

Version 3.0.0

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| Clarius USB4v2 Transmitter Compliance Test | <ul style="list-style-type: none">• Version - 3.0.0• Release month: Jun-2025 |
| Compatible version of Clarius Automation Framework | <ul style="list-style-type: none">• Version - 3.0.0• Release month: Jun-2025 |

Supported models

- Oscilloscope
- DPS75004SX/DPS75904SX/DPS77004SX

Release features

- **Sources and Signals enhancement**
 - Sources and Signals panel displays all the required sources for the selected technology with easy check boxes and intelligent defaults for sources, signals, and predefined groups eliminating manual configuration.
 - Enabled synchronization between the Sources and Signals configuration, test settings, ensuring bidirectional updates of sources, signals, and groupings based on selections in either area.
 - Applications that share identical default sources configurations can be seamlessly integrated into a test sequence, leading to more efficient testing and reduced potential for errors.
- **Scenario and step selection and visibility enhancements**
 - The visibility, select ability, and selection state of scenarios and steps can be adjusted based on the chosen test settings or sources.
 - Selecting step or scenario will automatically select and disable its dependent step or scenario, ensuring logical consistency of your tests by executing all necessary steps.
 - You can save and load sequences while preserving the visibility, select ability, and selection state of scenarios and steps. This feature ensures that these configurations remain unchanged when sequences are reloaded.
- **Admin Console enhancements:**
 - "Restart All" triggers a restart of both the Measurement Service and the Clarius VM, ensuring a complete service refresh, while "Stop All" halts both services, stopping all related operations.
 - The "Restart" and "Stop" buttons associated with the Platform Core initiate a restart and shutdown of the Clarius VM, respectively, providing direct control over the virtual machine.
 - When the "Restart" button is clicked, a notification is triggered, and the Platform Core status updates to "Restarting." During transient states such as "Restarting," "Starting," and "Stopping," the "Restart," "Start," and "Stop" buttons are disabled.
 - After successful VM restart, the Platform Core details are updated to display the latest CPU and Memory usage metrics.
 - The Measurement service can only be started, stopped, and view the logs through the Admin Console.
- **Events and Logs enhancements:**
 - Enabled Automator to log its events to Events/Logs.



- **SSL Certificate:**
 - The Admin Console displays SSL certificate details for improved visibility and management.
 - If the SSL certificate expires within 15 days, a notification is sent to Clarius to prompt timely renewal.
 - The Password Utility Tool allows users to view and renew SSL certificate details using commands.
- SigTest v0.95 is supported for analysis.
- The best TXFFE waveform, obtained during the 3.3.1 Transmitter Equalization and Calibration test, is subsequently used in the 3.3.2 Transmitter Timing and Voltage measurements. Additionally, the scope intrinsic noise for the 3.3.2 test is acquired using the same oscilloscope settings that were applied during the Best TXFFE acquisition in 3.3.1 test.
- USB application reads measured value, limits, margin, and pass/fail status from SigTest results.
- The 3.3.8 LFPS (Low Frequency Periodic Signal) test is implemented in compliance with USB4® Version 2 GEN4, Draft v0.98.
- Both asymmetric and symmetric lane testing are supported.
- The data positive and data negative signals are acquired using the same voltage-per-division setting with zero offset.

Defects fixed

- New notification now will appear at the top of the notification widget.
- The source that needs to be changed during test execution now appears in the test notification.
- User can generate a report from the **Test tab > View results > Generate report** from any page.

Known limitations

- SSL certificates are tied to the machine's initial domain name during the installation. If the machine's domain changes, accessing the URL via the new domain name will result in a certificate validation failure. However, as Clarius supports peer-to-peer and router-based communications primarily use the machine name or IP address for URL access, this has minimal impact.
- Log view in the admin console requires manual refresh to display the latest entries at the bottom, necessitating scrolling.
- Users cannot view the status of steps on the Test Status page during test execution.
- The session remains active if the user locks the PC for a short period after using the Clarius Automation Framework, before eventually logging out.
- For SX oscilloscopes operating in standalone mode, ATI channels are not selectable in **Sources and Signals**. Selection for non-ATI channels remains unaffected.
- Search feature on the Reports & Test List page is confined to the results of the page currently being viewed.
- If user creates a duplicate user name for login, no error is displayed but duplicate username will not be created.
- Maximum of 10 applications can be added in a single sequence.
- Installation operations cannot be cancelled once they are in progress.
- Pan and zoom capabilities are limited in waveform view.
- The "Fail" status in **Tests > List of Tests** page and in Reports indicates that either the test execution was unsuccessful or the measurements did not meet the specified limits.
- Re-analysis of waveforms captured from a previous test can only be done by downloading waveforms and analyzing them in pre-recorded mode.
- Export/Import of tests from one Clarius VM to another is not supported.
- The progress bar reflects the count of scenarios executed. If certain scenarios require more time, the progress bar will remain in the same status until those scenarios are fully executed.
- When test is configured with multiple sequences; progress bar of individual sequences does not function.
- The functions of starting, restarting, and stopping instances of test benches (instrument service) and monitor remote instances of measurement services are not available.
- In multi-stack oscilloscope scenarios, extension oscilloscope instrument services cannot be monitored.

- When running tests back to back in LIVE acquisition mode, test may have different run times or fail intermittently due to instrument connectivity. User may provide a time delay between test runs to avoid failure or contact Tektronix to update TekVisa.
- Based on the timeout duration, when Instrument does not respond, test gets aborted and a log message detailing the error is available.
- There is no differentiation between the error icons for critical or system errors in notification.
- Downloading all waveforms of a completed test from the Results section is constrained by size for measurements that require a large record length. In such a case, a utility is provided to download the waveforms. Contact Tektronix AE for the utility.
- When the test bench includes a non-ATI oscilloscope, the option **Dual Stack (ATI mode)** in the acquisition tab under settings should be manually unselected.
- It is recommended to configure the Disk storage in System Settings as 700 GB.
- It is recommended that 10 GB of Disk storage is free if it is desired to run a "3.3.1 Transmitter Equalization and Calibration" test with all 42 presets selected.
- Waveforms are downloaded only after they have been updated on the waveform tab of the results section.
- To run the test manually during DUT Automation, a test bench without Automator has to be used and **DUT Control** should be set to **Manual** in the Global settings.

Known issues

- The tests which are running will not be aborted automatically if you restart the Clarius VM.
- On the Test List page, searching for tests and deleting selected tests from the filtered list will remove all matching tests from the filtered list and not only the selected tests. Selecting 'Delete Waveforms' will delete all waveforms associated with the matching tests.
- Sequences created via SDK will load the default de-embed filter, even if a different filter file is specified in the Clarius UI.
- Hyper-V Default switch issues: Windows updates may cause the default Hyper-V switch used by Clarius Core Services to become unresponsive. This can lead to installation failures or connectivity problems. Refer to the FAQ section in Clarius Getting Started guide for resolution steps.
- Clarius Compliance user interface may become unresponsive due to lack of required resources such as network speed, memory, disk space, and CPU. This can be tracked by using the Admin console and Monitoring.
- Uninstalling Clarius instrument service necessitates re-installation of required application instrument service.
- When the test is running, the Events and Logs pages would refresh to the most recent page even if the user selects to view a different page.
- In some cases, due to temporary disruptions in internal services (example: constraint service in admin console) may lead to inconsistent error messages in the UI and SDK.

Version 2.1.0

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| Clarius USB4v2 Transmitter Compliance Test | <ul style="list-style-type: none"> Version - 2.1.0 Beta Release month: Mar-2025 |
| Compatible version of Clarius Automation Framework | <ul style="list-style-type: none"> Version - 2.1.0 Release month: Mar-2025 |

Supported models

- Oscilloscope**
- DPS75004SX/DPS75904SX/DPS77004SX

Release features

- Platform enhancements to improve performance in long duration tests, waveform upload time and waveforms deletion time.
- Clarius USB Transmitter Compliance solution provides a comprehensive tool set for the USB4v2 Gen4 (80 Gbps) verification, characterization, debugging, and compliance testing.
- The solution is compliant with the USB4 specification v2.0 Electrical Compliance Test specification (Ver 0.98).
- SigTest (USB-IF Compliance Tool) integration for USB4v2 Gen4.
- Supports de-embedding and custom channel characterization. Calibration test to find the best preset number, which works for the DUT for further test qualification.
- The recorded mode supports the offline analysis and baseline for future specification changes.
- Quickly validate test results with comprehensive reporting that details test margin.
- The capability to test all lanes in a single test.
- Application support for DUT Automation using the ETT Tool and USB4V2 Wilder Microcontroller.

Known limitations

- For SX oscilloscopes operating in standalone mode, ATI channels are not selectable in **Sources and Signals**. Selection for non-ATI channels remains unaffected.
- Re-running tests does not accommodate lane changes or the use of multi lane configurations with grouping features.
- Search feature on the Reports & Test List page is confined to the results of the page currently being viewed.
- If user creates a duplicate user name for login, no error is displayed but duplicate username will not be created.
- Test tab > View Results > Generate report** generates report only for 30 tests displayed in the current page.
- New notifications are populated at the end of the list within the notification widget.
- Maximum of 10 applications can be added in a single sequence.
- Installation operations cannot be cancelled once they are in progress.
- Pan and zoom capabilities are limited in waveform view.
- The "Fail" status in **Tests > List of Tests** page and in Reports indicates that either the test execution was unsuccessful or the measurements did not meet the specified limits.
- Re-analysis of waveforms captured from a previous test can only be done by downloading waveforms and analyzing them in pre-recorded mode.
- Export/Import of tests from one Clarius VM to another is not supported.
- The progress bar reflects the count of scenarios executed. If certain scenarios require more time, the progress bar will remain in the same status until those scenarios are fully executed.

- When test is configured with multiple sequences; progress bar of individual sequences does not function.
- The functions of starting, restarting, and stopping instances of test benches (instrument service) and monitor remote instances of measurement services are not available.
- In multi-stack oscilloscope scenarios, extension oscilloscope instrument services cannot be monitored.
- When running tests back to back in LIVE acquisition mode, test may have different run times or fail intermittently due to instrument connectivity. User may provide a time delay between test runs to avoid failure or contact Tektronix to update TekVisa.
- In multi-iteration acquisition mode, the software determines overall measurement pass/fail status based solely on the results of the final acquisition. However, the results from all individual acquisition iterations are accessible through the SDK, allowing users to perform custom calculations and determine their own overall measurement status if desired.
- Based on the timeout duration, when Instrument does not respond, test gets aborted and a log message detailing the error is available.
- There is no differentiation between the error icons for critical or system errors in notification.
- Lane change notification does not provide information on the lane that needs to be changed.
- When you upgrade from v1.1.0 to v2.0.0, the report preview will not work for reports generated on v1.1.0. Regenerate the reports on v2.0.0 for preview.
- Lane change information notifications are static messages that do not provide specific lane number details.
- Grouping information in Sources and signals is not applied when a completed test is run again.
- Downloading all waveforms of a completed test from the Results section is constrained by size for measurements that require a large record length. In such a case, a utility is provided to download the waveforms. Contact Tektronix AE for the utility.
- When the test bench includes a non-ATI oscilloscope, the option **Dual Stack (ATI mode)** in the acquisition tab under settings should be manually unselected.
- It is recommended to configure the Disk storage in System Settings as 700 GB.
- It is recommended that 20 GB of Disk storage is free if it is desired to run a "3.3.1 Transmitter Equalization and Calibration" test with all 42 presets selected.

Known issues

- Hyper-V Default switch issues: Windows updates may cause the default Hyper-V switch used by Clarius Core Services to become unresponsive. This can lead to installation failures or connectivity problems. Refer to the FAQ section in Clarius Getting Started guide for resolution steps.
- Clarius Compliance user interface may become unresponsive due to lack of required resources such as network speed, memory, disk space, and CPU. This can be tracked by using the Admin console and Monitoring.
- Uninstalling Clarius instrument service necessitates re-installation of required application instrument service.
- When the test is running, the Events and Logs pages would refresh to the most recent page even if the user selects to view a different page.
- In some cases, due to temporary disruptions in internal services (example: constraint service in admin console) may lead to inconsistent error messages in the UI and SDK.
- The scroll bar in the local settings window is functional only with the keyboard arrow keys and does not work with mouse controls.
- Doing a web page refresh will reset the filter selections to default.
- Selecting **Cancel** in the "**Filter By**" window will not revert the configurations back to the previous selections.
- Waveforms are downloaded only after they have been updated on the waveform tab of the results section.
- For Transmitter Timing and Voltage measurements, all used waveforms are not displayed in the waveform tab at the application level.
- The Limit tab displays the text clips for the Transmitter Timing and Voltage Measurement Subsets.
- The time information in the waveform plots remains constant.

Version 2.0.0

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| Clarius USB4v2 Transmitter Compliance Test | <ul style="list-style-type: none"> Version -2.0.0 Release month: Dec-2024 |
| Compatible version of Clarius Automation Framework | <ul style="list-style-type: none"> Version -2.0.0 Release month: Dec-2024 |

Supported models

- Oscilloscope**
- DPS75004SX/DPS75904SX/DPS77004SX

Release features

- Test bench creation enhancements**
 - Simplified test bench creation aligned with user workflows.
 - Capability to create test benches for various acquisition modes, including Live and Recorded.
 - Display of necessary instruments for selected applications/technologies on the Live Test Bench.
 - Capability to fetch the instrument properties of the connected instruments on providing the VISA resource addresses in live setup.
 - Functionality to check instrument service connectivity during test bench creation and display connectivity status within the test bench list.
 - Enables flexible instrument control for application-defined instruments. Supports integration with diverse instrument classes (e.g., AFG, AWG) or custom specific controls.
 - Refreshing master oscilloscope properties ensures all extension oscilloscopes are visible.
- Test creation and test run enhancements**
 - Simplified access to acquisition mode selection for a test.
 - Recorded tests utilize pre-acquired data from specified waveform folder path. Standardized for the test rather than for individual applications.
 - Flexibility to run recorded tests on Recorded and Live test benches, while Live tests are exclusive to Live test benches.
 - Flexibility to run recorded tests with Instrument Service installed on the Clarius installed computer either during the initial installation or added subsequently.
 - Notifies the user on start of the test if Clarius disk storage is over 90% capacity or essential Clarius services are not operational.
 - Test execution terminates automatically if Clarius disk storage exceeds 90% allocated capacity or the essential Clarius services are not operational.
- Test and waveform deletion enhancements:**
 - Facilitates efficient storage management and ensures retention of relevant data by enabling users to delete multiple selected tests or waveforms.
- Bulk waveform download using SDK:**
 - Enables users to download waveforms (exceeding 1GB) using SDK.
- Notification enhancements:**
 - Critical Error and Warning Indicators as notifications in Clarius UI, upon exceeding thresholds [user-configurable].
 - System Error notification displayed when essential Clarius services are not operational.

- **Clarius Admin Console**
 - Streamlined service management with start, stop, and restart capabilities.
 - User Configurable settings [threshold and alert frequency] for Critical Error and Warning notifications.
- **In-App Help:**
 - A comprehensive in-app help is enabled in the Clarius webpage under Help for immediate user assistance and guidance.
 - Clarius USB Transmitter Compliance solution provides a comprehensive tool set for the USB4v2 Gen4 (80 Gbps) verification, characterization, debugging, and compliance testing.
 - The solution is compliant with the USB4 specification v2.0 Electrical Compliance Test specification (Ver 0.98).
 - SigTest (USB-IF Compliance Tool) integration for USB4v2 Gen4.
 - Supports de-embedding and custom channel characterization. Calibration test to find the best preset number, which works for the DUT for further test qualification.
 - The recorded mode supports the offline analysis and baseline for future specification changes.
 - Quickly validate test results with comprehensive reporting that details test margin.
 - The capability to test all lanes in a single test.
 - Application support for DUT Automation using the ETT Tool and USB4V2 Wilder Microcontroller.

Known limitations

- For SX oscilloscopes operating in standalone mode, ATI channels are not selectable in **Sources and Signals**. Selection for non-ATI channels remains unaffected.
- Re-running tests does not accommodate lane changes or the use of multi lane configurations with grouping features.
- Search feature on the Reports & Test List page is confined to the results of the page currently being viewed.
- If user creates a duplicate user name for login, no error is displayed but duplicate username will not be created.
- **Test tab > View Results > Generate report** generates report only for 30 tests displayed in the current page.
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- Maximum of 10 applications can be added in a single sequence.
- Installation operations cannot be cancelled once they are in progress.
- Pan and zoom capabilities are limited in waveform view.
- The "Fail" status in **Tests > List of Tests** page and in Reports indicates that either the test execution was unsuccessful or the measurements did not meet the specified limits.
- Re-analysis of waveforms captured from a previous test can only be done by downloading waveforms and analyzing them in pre-recorded mode.
- Export/Import of tests from one Clarius VM to another is not supported.
- The progress bar reflects the count of scenarios executed. If certain scenarios require more time, the progress bar will remain in the same status until those scenarios are fully executed.
- When test is configured with multiple sequences; progress bar of individual sequences does not function.
- The functions of starting, restarting, and stopping instances of test benches (instrument service) and monitor remote instances of measurement services are not available.
- In multi-stack oscilloscope scenarios, extension oscilloscope instrument services cannot be monitored.
- When running tests back to back in LIVE acquisition mode, test may have different run times or fail intermittently due to instrument connectivity. User may provide a time delay between test runs to avoid failure or contact Tektronix to update TekVISA.
- In multi-iteration acquisition mode, the software determines overall measurement pass/fail status based solely on the results of the final acquisition. However, the results from all individual acquisition iterations are accessible through the SDK, allowing users to perform custom calculations and determine their own overall measurement status if desired.
- Based on the timeout duration, when Instrument does not respond, test gets aborted and a log message detailing the error is available.

- There is no differentiation between the error icons for critical or system errors in notification.
- Lane change notification does not provide information on the lane that needs to be changed.
- When you upgrade from v1.1.0 to v2.0.0, the report preview will not work for reports generated on v1.1.0. Regenerate the reports on v2.0.0 for preview.
- Lane change information notifications are static messages that do not provide specific lane number details.
- Grouping information in Sources and signals is not applied when a completed test is run again.
- Downloading all waveforms of a completed test from the Results section is constrained by size for measurements that require a large record length. In such a case, a utility is provided to download the waveforms. Contact Tektronix AE for the utility.
- When the test bench includes a non-ATI oscilloscope, the option **Dual Stack (ATI mode)** in the acquisition tab under settings should be manually unselected.
- It is recommended to configure the Disk storage in System Settings as 700 GB.
- It is recommended that 80 GB of Disk storage is free if it is desired to run a "3.3.1 Transmitter Equalization and Calibration" test with all 42 presets selected.

Known issues

- Hyper-V Default switch issues: Windows updates may cause the default Hyper-V switch used by Clarius Core Services to become unresponsive. This can lead to installation failures or connectivity problems. Refer to the FAQ section in Clarius Getting Started guide for resolution steps.
- Clarius Compliance user interface may become unresponsive due to lack of required resources such as network speed, memory, disk space, and CPU. This can be tracked by using the Admin console and Monitoring.
- Uninstalling Clarius instrument service necessitates re-installation of required application instrument service.
- When the test is running, the Events and Logs pages would refresh to the most recent page even if the user selects to view a different page.
- In some cases, due to temporary disruptions in internal services (example: constraint service in admin console) may lead to inconsistent error messages in the UI and SDK.
- The scroll bar in the local settings window is functional only with the keyboard arrow keys and does not work with mouse controls.
- Doing a web page refresh will reset the filter selections to default.
- Selecting **Cancel** in the "Filter By" window will not revert the configurations back to the previous selections.
- Waveforms are downloaded only after they have been updated on the waveform tab of the results section.
- For Transmitter Timing and Voltage measurements, all used waveforms are not displayed in the waveform tab at the application level.
- The Limit tab displays the text clips for the Transmitter Timing and Voltage Measurement Subsets.
- The time information in the waveform plots remains constant.
- For tests with large waveforms, it is recommended that a rerun of tests (clicking on a completed test and running it again) should be done only after deleting waveforms to save disk space.

Version 1.1.0

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| Clarius Automation Framework | <ul style="list-style-type: none"> • Version -1.1.0 • Release: Aug-2024 |
| Clarius USB4v2 Transmitter Compliance Test | <ul style="list-style-type: none"> • Version -1.1.0 • Release: Aug-2024 |

Supported models

Oscilloscope

- MSO73304DX, DPO73304DX, MSO72504DX, and DPO72504DX.
- DPO73304SX, DPO77002SX, and DPO75002SX.

Release features

- Clarius USB Transmitter Compliance solution provides a comprehensive tool set for the USB4v2 Gen4 (80 Gbps) verification, characterization, debugging, and compliance testing.
- The solution is compliant with the USB4 specification v2.0 Electrical Compliance Test specification (Ver 0.85).
- SigTest (USB-IF Compliance Tool) integration for USB4v2 Gen4 device and host.
- Supports de-embedding and custom channel characterization. Calibration test to find the best preset number, which works for the DUT for further test qualification.
- The recorded mode supports the offline analysis and baseline for future specification changes.
- Quickly validate test results with comprehensive reporting that details test margin.

Known limitations

- In the Manage>Test Bench section, while adding Instruments, the Model field should be set to "default".
- Download and installation operations cannot be cancelled once they are in progress.
- Limits are not shown with explicit units in the Results section and are presented in the same row of individual results indicating they take the same units as Value (measurement result).
- Waveform view controls have limitations with respect to pan and zoom.
- "Fail" status in **Tests > List of Tests** page and in Reports indicates that either the test execution failed or measurements have failed against limits.
- Re-analysis of waveforms captured from a previous test can only be done by downloading waveforms and analyzing them in Pre-Recorded mode.
- Export/Import of tests from one Clarius VM to another is not supported.
- Progress bar only shows progress based on number of scenarios executed. When some scenarios take a long time to run, progress bar will remain in the same status until the scenario is executed completely.
- User account will be locked after three unsuccessful login attempts and cannot be unlocked for an hour.
- The functions of starting, restarting, and stopping instances of test benches (instrument service) and monitor remote instances of measurement services are not available.
- When running tests back to back in LIVE acquisition mode, test may have different run times or fail intermittently due to instrument connectivity. You may provide a time delay between test runs to avoid failure or contact Tektronix to update TekVisa.
- In multi-iteration acquisition mode, the software determines overall measurement pass/fail status based solely on the results of the final acquisition. However, the results from all individual acquisition iterations are accessible through the SDK, allowing users to perform custom calculations and determine their own overall measurement status if desired.

- Admin account passwords cannot be reset, while passwords for non-admin accounts are resettable.
- When you upgrade from v1.0.0 to v1.1.0, the report preview will not work for reports generated on v1.0.0. Regenerate the reports on v1.1.0 for preview.

Known issues

- Occasionally, the default switch in the Windows system becomes unresponsive and the Clarius automation framework installation may fail. Rebooting the system and installing any pending windows updates should fix the issue.
- Clarius SDK will not be installed during Clarius automation framework 1.0.0 to 1.1.0 upgrade. User can always install the Clarius SDK from the target directory where the Clarius automation framework is installed, for example; `... \installer\sdk`.
- Clarius Compliance user interface may become unresponsive due to lack of required resources such as network speed, memory, disk space, and CPU. This can be tracked by using the Monitoring and Admin console under 'Clarius Platform' in your system.
- When multiple applications are present in the system or oscilloscope, uninstalling one "application instrument service" necessitates re-installation of the required application instrument service.
- When the test is running, the Events and Logs pages would refresh to the most recent page even if the user selects to view a different page.
- The Generate Report button will not be functional for the test results that are listed after first page under the Tests tab. You can generate results for those tests from the result page of the test.
- Performance issues may be observed for the test with higher record length and higher iteration count.
- The scroll bar in the local settings window is functional only with the keyboard arrow keys and does not work with mouse controls.
- Doing a web page refresh will reset the filter selections to default.
- Selecting **Cancel** in the "**Filter By**" window will not revert the configurations back to the previous selections.