



ReVeal Wander Analysis Tool (PC Software)

This TIE, TE, MTIE and TDEV post-processing and analysis application is currently distributed free of charge. However, the test sets generating the TIE or Phase/Time Error data may require different paid licenses to measure Wander or Absolute Phase Error and record the TIE or Phase Error results to a FAT32 USB memory stick (in VeEX's proprietary format or CSV). This stand-alone application is compatible with Microsoft® Windows XP, Vista, 7, 8.1, and 10.

Software version 02.02.00

Jul 2, 2021

Release Scope:

Formal Release - General availability.

New features and improvements:

- Added new MTIE and TDEV masks for:
 - ITU-T G.8262.1 - enhanced SyncE (enhanced Ethernet Equipment Clock - eEEEC)
 - ITU-T G.8272.1 - PTP ePRTC (enhanced Primary Reference Time Clock)
 - ITU-T G.8271.1 - dTE Limit at Point C, T-BC or T-TSC (Table 7.1)
 - ITU-T G.8271.1 - dTE Limit for Level 6A at Point C, Class C T-BC or T-TSC (Table 7.2)
 - ITU-T G.8272 - Primary Reference Time Clock (PRTC-B) in Locked Mode
 - ITU-T G.8272 - Primary Reference Time Clock (PRTC-A) in Locked Mode

Note: Users can still add their own mask files. Just copy one of the existing files (similar one) in \Mask folder and edit.

- Resolved an issue with the TIE graph not displaying for long-term tests, after the frequency offset was removed. In certain cases, this also caused the MTIE and/or analysis to fail the mask.
- This version includes an exploratory (beta) version of the CSV Export, adding a function to convert and export Wander (TEI) and 1PPS Phase (TE) measurement results to a simplified CLNX.CSV file format. It is an effort to allow compatibility with third-party post-analysis PC applications, like Calnex Solutions' CAT. The goal of this new type of format would be to allow customers who are already used to these analyzer tools to open, analyze and compare wander and TE measurements taken by VeEX's products, as well as allow access advanced post-analysis features, maintain report consistency, and compare them to previous measurements taken with different test equipment. It should also allow VeEX users to open version 1 CSV files generated by the CAT applications or compatible test devices.

Note: For certain types of signals under test (e.g., SyncE, T1, E1, etc.) end users may need to open the CLNX.CSV file, with a Notepad-like application, and manually edit the MeasType field to match the signal under test. (The use of **Excel** is **not recommended**, since it can truncate long-term test results, due its limits in the number of rows allowed.)

File Header Example	Suggested Measurement Types you may try	
VER:;1;	Signal Under Test	MeasType
DataType:;TIEDATA; Format:;CSV;	1.544 MHz	1.5M TIE
MeasType:;SyncE TIE;	2.048 MHz	2M TIE
Port:;C;	10 MHz	10M TIE
START:;30/05/2021 13:47:20;	1PPS TE	1PPS TE Absolute
PERIOD:;0.033333;	2.048 Mbps	E1 TIE
value;	1.544 Mbps	T1 TIE
0	SyncE TIE	SyncE TIE
0.4238552	1588v2 1PPS TE	1PPS TE Absolute
0.6357828	Forward TE	Sync
0.7236481	Reverse TE	Delay Req
0.5562349	Path Delay PDV	Path Delay
⋮	Sync PDV	Sync
	Follow Up PDV	Follow Up
	Delay Req PDV	Delay Req

Disclaimer: This file export/import feature is in beta/exploratory stage and provided as-is. Compatibility among all CAT versions is not guaranteed and can be changed by third parties at any time. Not all measurement types are supported for import or export. CAT is a trademark of Calnex Solutions plc.



Known issues or limitations:

- a. No new significant issues to report.

Software version 02.01.07

Jan 12, 2020

Release Scope:

General availability.

New features and improvements:

- 1. Changed the frequency offset unit of measure, from ppm to ppb, in the CSV and PDF reports.

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.01.06

Oct 8, 2018

Release Scope:

General availability.

New features and improvements:

- 1. Improved CSV format backward compatibility.

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.01.05

Mar 28, 2018

Release Scope:

General availability.

New features and improvements:

- 1. Added time of day conversion for the marker position, to make it easier to identify the date and time of individual events. The GUI now shows the marker's X position in seconds (for easier calculations) and YYYY-MM-DD HH:MM:SS (for specific event time identification).
- 2. Changed the Y-scale numeric format to show the complete grid division value in nanoseconds, so all significant digits are always shown (no longer converts large numbers to scientific notation). The thousand-group comma separator was also added to make large numbers easier to read, scale and compare.
- 3. Changed the on-screen date format to a more universally-accepted YYYY-MM-DD HH:MM:SS, to avoid the confusion between day and month that other regional formats may create.

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.01.04

Sep 30, 2017

Release Scope:

General availability.

New features and improvements:

- 4. Added partial Frequency Offset calculation, based on the selected data range that is being displayed on the graph. This



allow users to analyze specific TIE and TE segments in long-terms tests. The frequency offset value will automatically update based on the data being displayed on the graph, whether the range was manually enter using the Start and End or by dragging the cursor while pressing right mouse button. Previous versions always displayed the overall long-term frequency offset calculation, independently of the zoom level. To display the overall frequency offset calculation, press the Reset button. [3346]

5. Users can now enter customized values in the Frequency Offset field to perform manual compensation adjustments, when the Remove Offset box is checked. A Recalculate button has been added replace any manually entered value with the one calculated from the TIE or TE data. Note: The correction is applied to the whole TIE or TE data set, so it is better used when analyzing the overall trend.

Known issues or limitations:

- b. No new significant issues to report.

Software version 02.01.02

May 26, 2017

Release Scope:

General availability.

New features and improvements:

1. Added the ability to open and analyze TIE and TE wander files captured in CSV format, by VeEX products
2. Added the ability to convert (export) existing TIE and TE wander files, captured in VeEX's raw format, to an open CSV format. Enables users to create their own analysis tools via spreadsheet and other vendors to add import functions for this self-documenting CSV file format.
3. Added MTIE and TDEV analysis data to the end of exported CSV files. Users can now easily rebuild the MTIE and TDEV graphs and masks using a spreadsheet, for better detail, presentation and/or to integrate into reports.
4. Added Test Signal and Reference Signal information to the main window, so it is always visible. The information is color-coded for easy correlation with their respective traces, when comparing two measurements.
5. Added the CPRI 2ppb frequency offset contribution reference mask for link stability and accuracy evaluation.

Known issues or limitations:

- a. No new significant issues to report.

Software version 02.00.08

Jun 22, 2015

Release Scope:

General availability.

New features and improvements:

1. Fixed an error in the Frequency Drift formula that made the application report large ppm/s estimates
2. Increased internal calculation resolution for frequency offset and drift for improved results accuracy

Known issues or limitations:

- a. No new significant issues to report.

Software version 2.0.7

Sep 5, 2014

Release Scope:

General availability.



New features and improvements:

1. Adds support for TX300S PDH/DSn, SDH/SONET, SyncE, 1588v2 and Clock Wander Measurement data logs (Frequency and Phase)

Known issues or limitations:

- a. No new significant issues to report.

Software version 2.0.6

Jul 7, 2014

Release Scope:

General availability.

New features and improvements:

1. New Masks: G.8261 - EEC Option 1 and Option 2 for SyncE Interfaces
2. New Masks: G.8261.1/Y.1361.1 – Packet-based Equipment Clock-Slave-Frequency (PEC-S-F) Case 3 (n=16 ppb)

Known issues or limitations:

- a. No new significant issues to report.

Software version 2.0.5

Jun 5, 2014

Release Scope:

General availability.

New features and improvements:

1. New Masks: G.8272 – Primary Reference Time Clock (PRTC) in Locked Mode
2. New Masks: G.8261 – Circuit Emulation Services (CES) Case 1 at 1544 and 2048 kbit/s and Case 2A
3. New Masks: G.8263 – Packet-based Equipment Clock-Slave-Frequency (PEC-S-F) Locked at Constant and Variable Temperatures
4. Adds support for TX300S Wander log files (TIE and Phase). Check the TX300S Release Notes for the availability of the software version required for these functions.

Known issues or limitations:

- a. No new significant issues to report.

Software version 2.0.4

Jun 6, 2013

Release Scope:

General availability.

New features and improvements:

1. Test Signal and Reference Clock label improvements in the report generation function. Supports the new TYPE file in the TIE measurement results to identify the Test Mode and properly assign the signal labels.

Known issues or limitations:

- a. No new significant issues to report.



Software version 2.0.1

Dec 10, 2012

Release Scope:

General availability.

New features and improvements:

1. New wander comparison feature allows having two TIE files to be loaded and analyzed for comparison purposes [1132]
2. New trace auto-scale. TIE graphs are auto scaled to fit the minimum and maximum TIE values shown at any zoom levels [1133]
3. New color customization for the graphs [1131]
4. Improved Wander test report PDFs with test and reference signal information [1123]
5. Fixed the cursor control. Now the cursor is released when the Wander Analysis window is in the background

Known issues or limitations:

- a. No new significant issues to report.

Software version 1.0.1 (2012-04-23)

Apr 23, 2012

Release Scope:

General availability.

New features and improvements:

1. Activated the Remove Offset function (blue trace) and its relative MTIE and TDEV calculations.
2. Improved Frequency Offset calculation. Previous versions may have produced erroneous readings under certain conditions.

Known issues or limitations:

- a. ~~The software may not properly release the cursor keys, when user is working on another window or program.~~

Software version 1.0.0 (2012-01-17)

Jan 17, 2012

Release Scope:

Initial Release.

New features and improvements:

1. Improved file load times. Long-term test files are now loaded almost instantly.
2. Improved MTIE and TDEV analysis time. Long-term test files can now be analyzed in a few seconds.
3. Added G.8262 Ethernet Equipment Clock (Option 1/PDH and Option 2/DSn) Masks for SyncE applications.

Known issues or limitations:

- a. The analysis files saved by previous pre-release versions would prevent this new version from re-analyzing the data. Delete the analysis file from the folder, restart the application, and perform the analysis again.
- b. ~~The "Remove Offset" function has not been activated yet.~~



References

Wander Analysis PC Software

Installing or Updating ReVeal Wander Analysis Tool (PC software)

This TIE, TE, MTIE and TDEV post-processing software is a small portable application that does not require installation. For added convenience and portability, it can be stored in the same USB memory stick containing the TIE or Phase Error data logs and run from any Windows® PC.

- Download the latest version from www.veexinc.com or [here](#)
- Delete any previous VeEX Wander Analysis software version and shortcuts.
- Copy the [VeEX_Wander_Analysis.zip](#) package to a PC or USB Memory
- Unzip the folder and move it to the desired destination.
- Create a shortcut for [WanderAnalysis.exe](#) on the desktop, USB memory root or desired destination.
- Create a folder to store the TIE and TE files generated by VeEX's test sets.

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