xGenius software / firmware release notes

1. Software 2.12.X

Date	03/04/2025
Software version	2.12.2
Firmware versions	XGbE-0074 / E1-647A

#	Description	Remarks
1	The capture function is now extended to Port B. In endpoint mode the tester captures transmitted and received traffic from either Port A or Port B. In pass-through mode, the unit captures received traffic from Port A and Port B	• Requires the *Packet Capture* license. • Available in APP5 (modular) units only.
2	Events are now allowed to trigger the beginning or the end of a capture. A new triggered capture mode allows the user to configure how many frames are stored before and after the trigger.	• Requires the *Packet Capture* license. • Available in APP5 (modular) units only.
3	Source MAC and IP addresses can now be configured as ranges. This function enables the unit to simulate traffic from many different simultaneous sources.	
4	The Synchronous Ethernet test is now compatible with enhanced SSM codes. Users are now allowed to configure and analyse custom clock identities and to set the number of cascaded eEECs and EECs in ESMC messages.The packet capture includes a new Synchronous Ethernet packet dissector compatible with enhanced SSM codes.	• Requires the *SyncE Clock Emulation* license. • To display the ESMC in captures, the *Packet Capture* license is needed.
5	New test manager increases reliability when tests are configured and started. Fixes inconsistencies when tow or more test run at the same time and adds more flexibility to the test programming function (auto-start, auto-stop)	
6	New home panel desktop that enables users to define and share their own test profiles. New test profiles are identified not only by its file name but also by a title and description that is also displayed when test is located in the desktop.	
6	Users are now allowed to configure the SdoID in PTP applications. Now users can set IEEE 1588-2008 or IEEE 802.1AS domains to enable interoperability with gPTP applications.	• Requires the *IEEE 1588v2 Emulation* license.
7	The capture function includes a PRP packet dissector that recognises and represents information captured from PRP LAN A and B.	• Requires the *Packet Capture* license. • Available in APP5 (modular) units only.
8	Users have now the ability to configure a custom title in PDF reports. The report header has been also updated and now includes a new *Description* field to allow users to include custom information about the test.	
9	The IEC 61850 SV test has been improved. Now all samples are taken into account to generate delay statistics and not not the ones with SmpCnt = 0 as in previous versions.	• Requires the *IEC 61850 Analysis* license.
10	Ethernet Generation and Analysis now becomes an optional feature provided through a license. This feature allows for more flexible and scalable xGenius factory configurations.	• This feature is relevant for newly purchased units. Users upgrading their existing units will not see any change in functionality.

Date	13/05/2025

Software version	2.12.2
Firmware versions	XGbE-0074 / E1-647A

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	The memory leak in ESMC task is now fixed.	-
2	The issue related with the spontaneous log viewer crash in live mode is resolved.	-

2. Software 2.10.X

Date	21/09/2023
Software version	2.10.1
Firmware versions	XGbE-006B / E1-596E

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	PTP test for boundary clocks (BCs) and transparent clocks. (TCs). In this mode, xGenius port A works in master emulation mode and port B measures TE and other performance metrics from the device under test.	• Requires "IEEE 1588v2 Advanced Test "software option.
2	PTP slave clock test. This is a test that configures xGenius port A to provide a PTP clock reference to an slave clock (SC) an it then measures the SC performance in a frequency or time output generated by this clock using port C or the PHM-25 IRIG-B port.	• Requires "IEEE 1588v2 Advanced Test" software option.
3	PTP dual slave clock test. It runs independent PTP performance tests in xGenius ports A and B. In generates independent sets of TE results and it also generates differential TE results between both testing ports.	• Requires "IEEE 1588v2 Advanced Test" software option.
4	New average total TE statistic for PTP, equivalent to cTE metric defined in ITU-T standards.	• Requires "IEEE 1588v2 Wander Test" software option.
	New "IEEE 61850-3 PTP Test" and "Boundary Clock test (G.8273.2)" shortcuts enable quick configuration of new PTP tests.	
5	New implementation for the Delay / PDV statistics panel with a simpler representations of all metrics related with latency in PTP applications.	• Requires "IEEE 1588v2 Emulation" software option.
6	Adds support for multi-band GNSS receiver (L1, L2 and L5). The new GNSS receivers provide a significant increase in the accuracy of time and latency measurements.	• Requires multi-band GNSS receiver.
7	Adds support for GNSS receivers supporting the NavIC constellation.	• Requires references board with multi-band GNSS receiver.
8	Support for jamming and spoofing detection in GNSS references.	• Requires references board.
9	Adds controls for minimum C/N0 and minimum elevation for the GNSS receiver	• Requires references board.
10	Improved support of 1PPS references which is now supported in all PTP, NTP and delay tests for TDM interfaces.	• Requires references board.

Date	15/12/2023

Software version	2.10.4
Firmware versions	XGbE-006B / E1-596E

#	Description	Remarks
1	Traces new events in the event logger: GM clock class, GM accuracy and GM variance for PTP applications. ESMC QL for Synchronous Ethernet applications.	• Requires the PTP test option or the SyncE test option.

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixes the bug in GOOSE and SV protocol analysis that prevented generation of FTD and FDV statistics for these protocols	-
2	Fixes the issue related with incorrect MAC address generation in some PTP messages for peer-to-peer protocol profiles.	-
3	The PTP implementation has been modified so that packets containing unsupported TLV are not discarded. Unsupported TLVs are now ignored.	-
4	Solves miscellaneous issues related with contra-directional analysis including inconsistent LOC alarm declaration in some setups. The unit now provides independent frequency measurement of TC and RD circuits.	-
5	Fixes the bug that prevented some port modes to be displayed in certain Ethernet and IP operation modes.	-
6	Enables transition to holdover state when the unit is initially locked to a ToD clock reference.	-

Date	21/01/2024
Software version	2.10.6
Firmware versions	XGbE-006C / E1-596E

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixes the issue that disabled all PTP message transmission in links operating at 10 Gb/s.	-
2	Line results are now enabled in G.703 contra-directional tests when the test configuration is loaded from a file.	-
3	The bug that prevented event logs to be generated when the factory defaults were restored and the unit was restored is now fixed.	-

Date	28/02/2024
Software version	2.10.9
Firmware versions	XGbE-006E / E1-596E

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixes the issue related with generation of latency results in asymmetric (upstream and downstream) eSAM tests	-
2	Fixes an issue related with the boot up process in certain units with specific hardware versions.	-

Date	26/04/2024
Software version	2.10.11
Firmware versions	XGbE-006E / E1-596E

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixes the issue related with exporting long trace files generated by the event logger function.	-
2	Includes the solution for local bidirectional RFC 6349 test.	-

3. Software 2.8.X

Date	29/03/2023
Software version	2.8.1
Firmware versions	XGbE-0068 / E1-596E

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	Supports IRIG-B analysis through the new PHM 25 module.	• Requires the IRIG-B monitor option.
2	Includes enhanced generation and analysis in contra-directional interfaces through a new version of the PHM 22 module.	• Requires the G.703/E0 test option.
3	Improved detection of IEEE C37.94 alarms (AIS, ALL 1s)	• Requires the IEEE C37.94 test option.
4	New implementation of the IEEE C37.94, T1 and E1 bidirectional pass-through monitoring function with improved jitter tolerance.	• Requires at leas one of the IEEE C37.94, E1 or T1 test options. For E1 and E1 options the "dual TDM" test option is also required.
5	The event logger has been modified to add more events (C37.94 events). Some other events have been moved to a different location to increase their availability (clock reference events).	
6	New unified system menu to enable or disable services. This service allows to improve security by disabling unnecessary services.	
7	New PTP implementation based on firmware fixed all issues related with CPU performance and PTP message rates.	• Requires the PTP test option.
8	German language is now supported in the GUI.	
9	Includes new Power Management firmware to minimize power consumption when the unit is powered off. The Power Management version is now upgradable by any user.	
10	The GOOSE and SV results menu is modified to display the filter which is currently applied to received traffic.	• Requires the ISO/IEC 61850 monitoring option.
11	The system stability is improved when a long sequence of configuration files is loaded to the unit.	
12	The RFC 6349 test is improved to improve the accuracy in lossy channels.	• Requires the RFC 6349 test option.
13	Implements the latest MIB library including the new RFC 2544 MIB and Ethernet link status reports.	• Requires the SNMP management option.

Date	04/04/2023

Software version	2.8.2
Firmware versions	XGbE-0069 / E1-596E

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixes time-stamp generation error in peer-to-peer one-step PTP profiles.	-

4. Software 2.6.X

Date	30/07/2021
Software version	2.6.1
Firmware versions	XGbE-0066 / E1-54BA

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	Includes new local one-way delay test in E1, T1 and IEEE C37.94 modes to enable measurement of forward and backward latency with a single unit and without the need for an external clock reference.	• Requires at least one of the E1, T1 or IEEE C37.94 testing modes and the one-way delay software options
2	Provides configuration of synthesized clock source in pass-through mode for E1, T1 and IEEE C37.94 operation modes. This configuration is useful to interconnect two devices without the ability to generate a clock.	• Requires at least one of the E1, T1 or IEEE C37.94 software options
3	Includes IRIG-B detailed clock reference input analysis and provides details about ToD clock reference status.These functions provide diagnostic resources to help users detecting issues that could degrade test results in synchronization and latency tests.	• Requires a unit equipped with a clock references board with support for IRIG-B. It also requires the IRIG-B clock reference software option.
4	Provides a more flexible and advanced delay generation function for E1, T1 and IEEE C37.94 in pass-through and loopback modes. The new modes include both symmetric and asymmetric delay generation.	• Requires at least one of the E1, T1 or IEEE C37.94 software options.
5	Includes support for forwardable and non-forwardable destination addresses in multicast PTP modes with Ethernet payloads.	• Requires software options related with PTP clock emulation.
6	Adds the settings required to configure PTP clock accuracy and clock variance when the unit is configured as a grandmaster or an ordinary clock.	• Requires software options related with PTP clock emulation.
10	Improves interoperability of NMEA clock references received from third party devices	• Requires a unit equipped with a clock references board.
11	Increases time resolution in service disruption time tests and improves the operation with some triggers.	• Requires at least one of the E1, T1 or IEEE C37.94, datacom, VF or G.703/E0 software options together with their requirements.
12	Includes mulit-language support in PDF reports for languages with latin characters	

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Solves random failure starting the GUI on boot up with the VNC remote control enabled.	-
2	Miscellaneous fixes related with file management, including importing and exporting functions.	-
3	Miscellaneous fixes related with PDF report generation in languages different to English.	-

Date	29/11/2021
Software version	2.6.4
Firmware versions	XGbE-0067 / E1-54BA

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixed random incorrect FDV results in multi-stream configurations when the analysis runs in Port B.	
2	The unexpected "Error waiting PPS" message displayed at the beginning of a ToD NMEA test (clock monitor mode) has been corrected.	
3	The GNSS fixed mode now goes to *manual* once the position survey finishes. With this change it is avoided to run unnecessary position surveys every time the tester boots up.	
4	Management of long file names in the file manager has been improved. Operations over files with long names are now not ignored. The maximum file name size has been increased too.	
5	SDT results are now included in all reports.	
6	The ITU-T G.821 test for datacom interfaces has been fixed.	

5. Software 2.4.X

Date	15/01/2021
Software version	2.4.1
Firmware versions	XGbE-0063 / E1-5157

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	Improved protocol analysis function with built in packet dissectors for many common protocols including PTP, NTP, DNS, DHCP, ARP, GOOSE and SV. Packet-by-packet delay estimates for time critical protocols.	• Requires the latest application board. • Requires the new *Packet capture* software option.
2	NTP client and server emulation and NTP test mode including delay and time error measurements.	• References board rand OCXO hardware options recommended.
3	New family of filters for NTP. Includes different filtering rules to select and classify NTP messages.	• Requires the new NTP test license.
4	More accurate and simple terminology for PTP latency statistics. Now delay standard deviations and ranges are classified as PDV (jitter) rather that PTD (delay) statistics.	• Requires that the PTP licenses are unlocked.
5	Units in Ethernet and IP bandwidth statistics are now user configurable: b/s, kb/s and Mb/s.	
6	Support transmission speeds up to 10 Mb/s in synchronous data communications interfaces: X.21 / V.11, V.35, V.36 (RS-449), EIA-530, EIA-530A.	• Requires the E1 or T1 test together with the Datacom test licenses to be unlocked
7	More accurate terminology for data communications frequency results.Now the unit displays the clock circuit where the frequency was measured.	• Requires the E1 or T1 test together with the Datacom test licenses to be unlocked
8	Generation of custom phase between data and clock circuits (0º, 90º, 180º, 270º) in synchronous data communication interfaces. Measurement of data-to-clock phase in synchronous data communication circuits.	• Requires the E1 or T1 test together with the Datacom test licenses to be unlocked

#	Description	Remarks
9	Adds support for the new PHM-24 module supporting an additional E1 or T1 interface in the unit.	• Available only in modular xGenius platforms.
10	More attractive and advanced format for PDF reports. Support for MTIE and TDEV charts and tables in reports.	
11	Graphical export of charts generated from the Event logger function in PDF format.	
12	New Power Management version with more advanced shut b down and reboot features	

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
0	-	-

Date	08/04/2021
Software version	2.4.6
Firmware versions	XGbE-0066 / E1-5157

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Fixed wrong PPS detection in ToD interfaces	
2	Fixed incorrect packet dissection of NTP packets (protocol analysis function)	
3	Fixed problem related with simultaneous analysis of PTP and oversized background traffic	
4	Phase of IRIG-B and ToD references is now correctly decoded	
5	Includes interoperability improvements of NMEA RMC telegrams	
6	Fixes the problem related with decoding of long MPLS frames	
7	Includes improvements of the position hold function of GNSS receivers	
8	Fixes a bug related with loading of configuration profiles from SNMP	
9	Fixes a bug related with RFC 2544 results inconsistency in certain configurations.	

6. Software 2.2.X

Date	20/12/2019
Software version	2.2.1
Firmware versions	XGbE-005C / E1-4D7B

Improvements included in this software / firmware release are listed in the following table:

#	Description	Remarks
1	Input level and input impedance controls for unbalanced 1PPS clock reference inputs.	• Requires the latest references board.
2	IRIG-B clock reference inputs. IRIG-B00X, B12X, B13X, B14X, B15X, B22X unbalanced (REF IN port). 50 Ω or high impedance modes. Up to 25 Vpp. AC or DC coupling. IRIG-B00X, B22X balanced (REF IN/OUT port). ITU-T V.11 electrical characteristics.	• Requires the latest references board. • Requires the new *IRIG-B Clock reference* software option

#	Description	Remarks
3	IRIBG-B clock reference outputs. IRIG-B00X, B12X, B13X, B14X, B15X, B22X unbalanced (REF OUT port). 50 Ω or high impedance modes. 5 Vpp. AC or DC coupling. IRIG-B00X, B22X balanced (REF IN/OUT port). ITU-T V.11 electrical characteristics.	• Requires the latest references board. • Requires the new *IRIG-B Clock reference* software option
4	Antenna detection and DC power switch for external GNSS antennas.	• Requires the latest references board.
5	Duty cycle measurement in PPS clocks in clock monitor mode.	
6	Attenuation measurement in dB for frequency clocks in clock monitor mode.	
7	Miscellaneous improvements in the E1 and T1 menu structure: A "Match RX" has been added to many transmitter settings to enable coupling with the receiver. The "Tributary interface" now enables more simple configuration of E1 / T1 add / drop and mux / demux modes.	
8	Miscellaneous improvements in the RFC 2544 test: Flexible throughput configuration in the latency test, statistic to be displayed in latency results (average, maximum, minimum).	
9	Real time event tracing. The event logger plots are generated as new data is processed. Users are allowed to pause and restart real-time traces to check results collected previously. Users are allowed to load traces from measurements other than the current test.	
10	IEEE 1588v2 / PTP filter to select and classify PTP flows by Domain, Port Identity and Message Type (*Sync*, *Delay Request*, *Delay Response*, *Peer Delay Request*, *Peer Delay Response*, *Follow up*, *Peer Delay Follow up*, *Announce*, *Signaling*, *Management*) when the selected protocol is IEEE-1588.	
11	GOOSE and SV filters to classify IEC 61850 traffic flows by APPID.	• Requires the new *IEC 61850* software option.
12	Improvements in the fixed offset filter that now enables users to configure eight fully independent filters by port.	
13	Decoding and analysis of IEC 61850 GOOSE and SV protocols. Including GOOSE / SV protocol scan, frame count and latency analysis.	• Requires the new *IEC 61850* software option.
14	The mask selection menu in MTIE / TDEV tests has been improved. Latest masks from the standards are now available including the ePRC, ePRTC, PRTC-B and BC Class C masks.	
15	Protocol analysis function with storage capacity of 256 MB, wrap around mode for continuous captures, export to PCAP and PCAPNG	• Requires the latest application board. • Requires the new *Packet capture* software option.
16	Adds compatibility with the latest ATSL SNMP MIB library (atsl-mibs-2019-12)	

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
0	-	-

Date	07/02/2020
Software version	2.2.2
Firmware versions	XGbE-005D / E1-4D7B

The most important bug corrections included in this software / firmware release are listed below:

#	Description	Remarks
1	Ethernet packet capture now works for streams 2 to 7	
2	GOOSE and SV values are now included in PDF / TXT reports	
3	Miscellaneous improvements in the GUI	