



## Perytons™ 802.15.4/ZigBee/6LoWPAN Protocol Analyzers

IEEE802.15.4 and ZigBee are the leading standards for smart energy networks, home automation, sensor networks, and many other exciting applications. 6LoWPAN is also used for transmitting IP traffic on top of the IEEE802.15.4 standard.

The variety of players in this evolving arena — combined with the assortment of features and options proposed by the standard — can turn the development, debugging, and rollout of 802.15.4/ZigBee/6LoWPAN solutions under demanding time-to-market constraints into a big challenge.



Overcoming this challenge, Perytons™ Protocol Analyzers are an indispensable tool for IEEE802.15.4/ZigBee/6LoWPAN development, integration, installation, monitoring, and troubleshooting. Perytons™ Protocol Analyzers combine full coverage of the 2.4GHz and Sub 1 GHz bands with a rich and user-friendly analysis toolbox. Perytons™ are the only analyzers on the market today that support multi-antenna operation combined with data capture through diversity algorithms and special mechanism to ensure inter-channel messages time synchronization.

The Perytons™ Protocol Analyzers are built from basic models and Add-Ons than can run on top of them.

The basic models for IEEE802.15.4/ZigBee/6LoWPAN are distinguished by capture capabilities (e.g. single channel, single channel with diversity, multi-channel) and application adapted for Tablet PC use (PeryTAB).

The Add-Ons include the Peryton-Traffic Generator (TG), the Peryton-Monitoring and the Peryton-Software Development Kit (SDK).

The Perytons™ Protocol Analyzer portfolio for IEEE802.15.4/ZigBee/6LoWPAN include the following models:

**Peryton-V** back office view and analysis tool without data capturing capabilities. This software-only analyzer allows the user to analyze existing data capture files previously captured with other Perytons™ Protocol Analyzer models. A variety of intuitive viewing options make analyzing network topology and system-level transactions a breeze. The tool provides, as well, the ability to easily dive deeper into the value and meaning of each field and bit. The Peryton-V is best suited for back office engineers analyzing and resolving scenarios captured in the QA lab or in the field.

**PeryTAB-V** back office view and analysis tool without data capturing capabilities adapted to work on a Tablet PC. Installed and provided in a Tablet PC running Windows 7 Premium (32bit) <sup>(1)</sup>

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<sup>(1)</sup> Depends on stock availability and on Perytons™ policy

**Peryton-S** single-channel 802.15.4/ZigBee/6LoWPAN analyzer. Capable of identifying the RF environment for potential interference and active networks. The Peryton-S records and analyzes traffic from any channel within the 2.4GHz band. This tool is most effective for capturing simple networks and scenarios.

**PeryTAB-S** single-channel 802.15.4/ZigBee/6LoWPAN analyzer for the 2.4GHz band adapted to work on a Tablet PC. Installed and provided in a Tablet PC running Windows 7 Premium (32bit) <sup>(1)</sup>

**Peryton-SG** single-channel 802.15.4/ZigBee/6LoWPAN analyzer. Capable of identifying the RF environment for potential interference and active networks. The Peryton-SG records and analyzes traffic from any IEEE802.15.4 standard channel within the 800-900Mhz band. This tool is most effective for capturing simple networks and scenarios.

**PeryTAB-SG** single-channel 802.15.4/ZigBee/6LoWPAN analyzer for the SubGHz band adapted to work on a Tablet PC. Installed and provided in a Tablet PC running Windows 7 Premium (32bit) <sup>(1)</sup>

**Peryton-S&SG** single-channel 802.15.4/ZigBee/6LoWPAN analyzer. Capable of identifying the RF environment for potential interference and active networks. The Peryton-S&SG records and analyzes traffic from any channel within the 2.4GHz band or SubGHz - not concurrently. This tool is most effective for capturing simple networks and scenarios of 2.4GHz or SubGHz based networks.

**PeryTAB-S&SG** single-channel 802.15.4/ZigBee/6LoWPAN analyzer for the 2.4GHz or SubGHz band (not concurrent) adapted to work on a Tablet PC. Installed and provided in a Tablet PC running Windows 7 Premium (32bit) <sup>(1)</sup>

**Peryton-D** single-channel 802.15.4/ZigBee/6LoWPAN analyzer for 2.4GHz bands with multiple antennas. Thanks to the use of antenna diversity techniques, the Peryton-D guarantees very low packet loss rates. This is the best tool for capturing simple network traffic in a tough RF environment with reflections, multi-path, and interference.

**PeryTAB-D** single-channel 802.15.4/ZigBee/6LoWPAN analyzer for the 2.4GHz with multiple antennas adapted to work on a Tablet PC. Installed and provided in a Tablet PC running Windows 7 Premium (32bit) <sup>(1)</sup>

**Peryton-M** multi-channel 802.15.4/ZigBee/6LoWPAN analyzer. Capable of recording 4 (M4), 7 (M7) or all the 16 (M16) channels of the 2.4GHz band simultaneously, recording all 802.15.4 traffic within the full 2.4Ghz band with no preliminary assumption on the target networks channel settings. This is the essential tool for analyzing multiple coexisting networks and frequency related processes. The Peryton-Mx is also the best tool for analysis of frequency hopping 802.15.4 networks.

<sup>(1)</sup> Depends on stock availability and on Perytons™ policy

**Peryton-TG Add-On** The Traffic Generator Add-On can be used on top of any of the Perytons™ Protocol Analyzer models and allows the user to edit, add, duplicate, delete and modify messages, save a single message as template to use for future edited messages or modified messages into a 'modified' capture (.ANL) file or message templates (.MTPL), generate traffic based on pre-defined .ANL files or triggered by an Open Source Rule.

Traffic Generated messages are marked and can be easily differentiated from the system under test messages while in real-time capture.

**Peryton-SDK Add-On** customizable Software Development Kit. This Add-On can be used on top of any of the Perytons™ Protocol Analyzer models, allows the user to add his own protocol on top of the supported protocol layers. This is the tool of choice for customers who develop their own protocols or applications on top of the 802.15.4/ZigBee or PLC.

**Peryton-Monitoring Add-On** real time monitoring, statistics and Open Source Rules tool. This Add-On can be used on top of any of the Perytons™ Protocol Analyzer models, allows the user to define, write and sign Open Source Rules that will generate events & alarms, accumulate related parameters for customized statistics charts, send selected messages to an external application through a UDP channel and more. This is an essential tool for system integrators, field engineers and operators looking to identify problems and measure performance in operational networks while increasing flexibility with an integrated tool that does not require any external development environment.

The profiles and protocols supported by the Perytons™ Protocol Analyzer portfolio for IEEE802.15.4/ZigBee/6LoWPAN are:

- IEEE 802.15.4

Capture and analyze IEEE 802.15.4 2003 and IEEE 802.15.4 2006 MAC traffic in the 2.4GHz and SubGHz bands. Allowing for simultaneous multiple channel capture, use of antenna diversity, beacon slot display etc.

- ZigBee

Decoding and analyzing ZigBee and ZigBeePRO NWL (Network Layer), APS (Application support), ZDP (Device Profile) and various profiles (Smart Energy, Health Care, Home Automation, Telecom Services, Light Link, Building Automation), including auto-discovering of the network topology.

- 6LoWPAN

Decoding and analyzing 6LoWPAN packets, with IP, ICMP, UDP, TCP and HTTP layers. Export the IP payload to external tools (e.g. WireShark) for further analysis.

- IEEE 802.15.4a

Decode and analyze 802.15.4a MAC. Interface the customer hardware for proprietary PHY support.