frontline

SODERA le

Bluetooth® low energy Protocol Analyzer

THIS PRODUCT SUPPORTS
Bluetooth® 5
SPECIFICATION

OVERLOAD POWER

frontline
SODERA le

ANTENNA   WIRED   EXT CLOCK

TELEDYNE LECROY

Key Benefits

- Captures data concurrently from multiple Bluetooth low energy devices for focused Internet of Things debugging

- Software defined radio architecture is ready for future Bluetooth updates

- Intuitive analysis of multiple wireless devices and connections

- All low energy profiles and protocols supported through the current Bluetooth specification

- Small footprint for portability into field applications

- Frontline software and familiar data views

- Built-in attenuation for conducted (wired) sniffing in noisy environments

- Automatic gain control and user configurable gain settings

- Support for CSRMesh and Bluetooth mesh technology

- Support for latest important LE features like 2Mbps, advertising extensions, long range and other key updates

Key Features

- Decoding support for Bluetooth core, protocol and profile specifications, including many upcoming and proposed low energy features

- Wideband radio captures the entire 2402-2480 MHz band simultaneously

- Software-defined radio architecture ready for the constantly evolving and changing Bluetooth specifications

The Frontline Sodera le Protocol Analyzer is designed to help developers debug Bluetooth low energy data communications problems, e.g. insufficient throughput, power consumption, timing issues and management of 802.11 traffic.

Bluetooth low energy is the wireless technology of choice for engineers and developers creating "Internet of Things" devices. But since changes to the Bluetooth specification, particularly relating to low energy, are coming practically every day, it is critical to be able to debug the latest adopted and emerging profiles and protocols to take advantage of the ongoing advances in wireless communications.

The Frontline Sodera LE Wideband Bluetooth Low Energy Protocol Analyzer is designed with these users in mind. It is tuned to capture Bluetooth low energy packets in the 2.4GHz band, which allows Internet of Things developers to focus only on the data they need.

Predictable, reliable and competitive operation in this rapidly evolving wireless band requires that the technology employed is as current as the Bluetooth

spec. Technologies that can take advantage of the improved speed, range, interference avoidance and lower latency of the latest Bluetooth innovations, as well as support for specific low energy technologies and applications, will have a decided advantage in the Internet of Things marketplace.

View data captured by the Frontline Sodera LE in the Frontline software you already use for Bluetooth protocol analysis. Sort, search and drill down to decode each low energy frame.
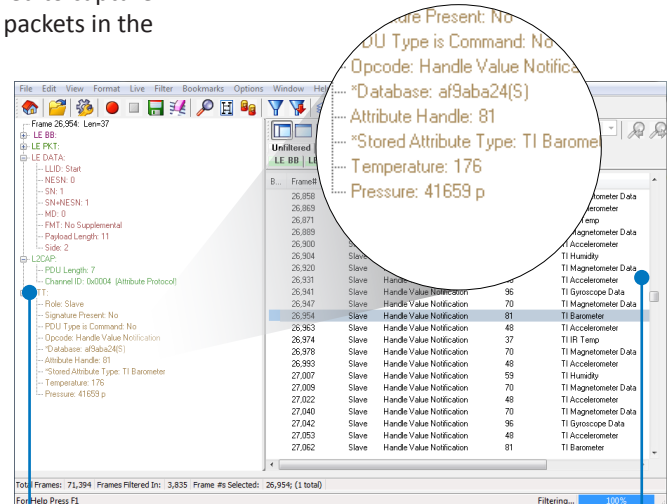
Decode Pane shows comprehensive layered decoders of each frame/message with clear, concise descriptions.

Summary Pane displays a one line overview of each data frame/message.

Supported Systems
- Operating System: Windows 7/8/10
- USB: USB 2 and 3.0 High Speed

Minimum Requirements
- Processor: Core i5 at 2.7 GHz
- RAM: 4GB
- Free Hard Disk Space: 20 GB

Hardware Specifications
- Dimensions: 160 mm W x47 mm H x159 mm L (6.3" X 1.9" X 6.3")
- Weight: 0.998 kg (2.2 lb)
- Humidity: Operating: 0% - 90% (0 °C – 35 °C), non-condensing
- Temperature: 0 °C to +40 °C (32 °F to +104 °F)
- Power Input: 9 VDC (tip positive)
- Max Power: 12 W
- Timestamp resolution: 250ns

RF Input	Radiated	Conducted
Max input signal	27 dBm	27 dBm
Max usable signal	-10 dBm	27 dBm
Frequency range	2401 - 2481 MHz	2401 - 2481 MHz
Impedence	50Ω	50Ω

Receiver Sensitivity

Data Rate	Sensitivity
2 Mbps	-96.9 dBm
1 Mbps	-99.3 dBm
500 Kbps	-103.0 dBm
125 Kbps	-106.8 dBm

Gain Control
- AGC or programmable from 0 to 31.5dB in 0.5dB steps

- **Core Specifications Supported:**
  1.0; 1.1; 2.0+EDR; 2.1+EDR; 3.0; 4.0; 4.1; 4.2; 5

Supported LE Profiles (above core spec):
- ATT

Supported LE Protocols (above core spec):
- Alert Notification
- Automation IO
- Battery
- Blood Pressure Monitor
- Current Time
- Cycling Speed and Cadence
- Device Information
- DST Change
- Find Me
- Generic Access Profile
- Generic Attribute Profile
- Glucose
- Health Thermometer
- Heart Rate Monitor
- HID over GATT
- Immediate Alert
- Link Loss Alert
- Network Availability
- Notification
- Phone Alert Status
- Proximity
- Pulse Oximiter
- Reference Time Update
- Runners Speed and Cadence
- Scan Parameters
- Time
- Tx Power
- Watchdog

Frontline Sodera LE is the best solution for Bluetooth developers who want the power of wideband captures and post-capture decryption with up-to-the-moment spec support, but don't need the BR/EDR capabilities of the Frontline Sodera Protocol Analyzer.

|	Frontline Sodera	Frontline Sodera LE	Frontline BPA low energy
Dimensions (W x H x L)	6.25 x 2.125 x 6.5 inches	6.3 x 1.9 x 6.3 inches	5 x 1.75 x .71 inches
Decode all application layers	●	●	●
Supports low energy features through Bluetooth 4.2	●	●	●
Supports Bluetooth 5 / new low energy features (long range, extended packet length, advertising extensions, 2Mbps LE, etc.)	●	●	
Wideband for easy device selection and data capture	●	●	
Capture and decode unlimited complex topologies	●	●	
Post-capture decryption	●	●	
Full mesh support	●	●	
Software defined radio (evolves with spec changes)	●	●	
BR/EDR support	●		
Low energy/BR/EDR and Wi-Fi coexistence analysis	●**		
On-board battery	●		
Excursion mode for captures without attached PC	●		
Spectrum analysis	●		
UART HCI support	●		
Optional Audio Expert System	●		

** with Frontline 802.11 Protocol Analyzer
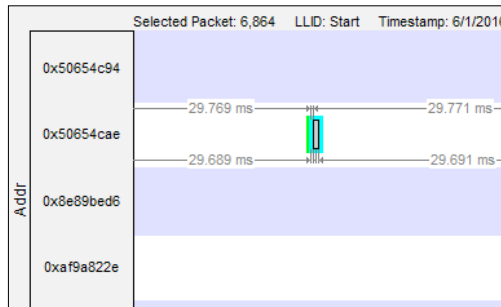
Bluetooth Timeline gives the details on packet size, frequency and interframe spacing to help developers resolve issues related to throughput, power consumption and timing that may be adversely impacting Bluetooth data communications.
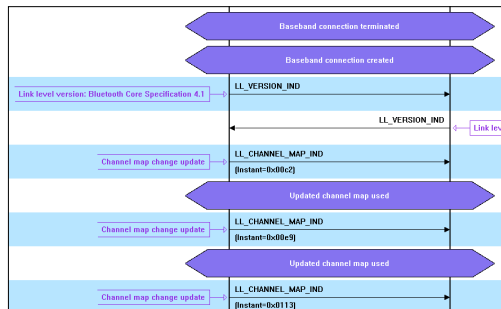
Message Sequence Charts tell the complete story of the Bluetooth connection, but in clear and descriptive terms that give the developer a clear linear sense of what actually happens and in what order. This view helps to bring clarity to what can be and otherwise overwhelming flood of granular data.
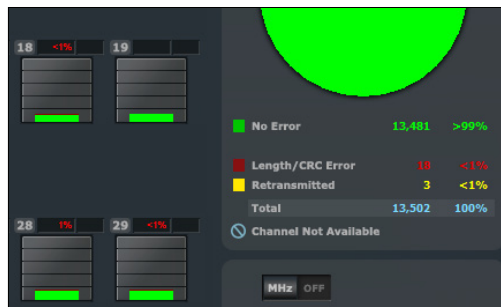
Packet Error Rate Statistics help developers ensure that their Bluetooth devices under test are communicating effectively and have sufficient throughput in noisy environments as well as quite ones, and can even provide indicators of 802.11 coexistence issues.

To order or for more information:

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