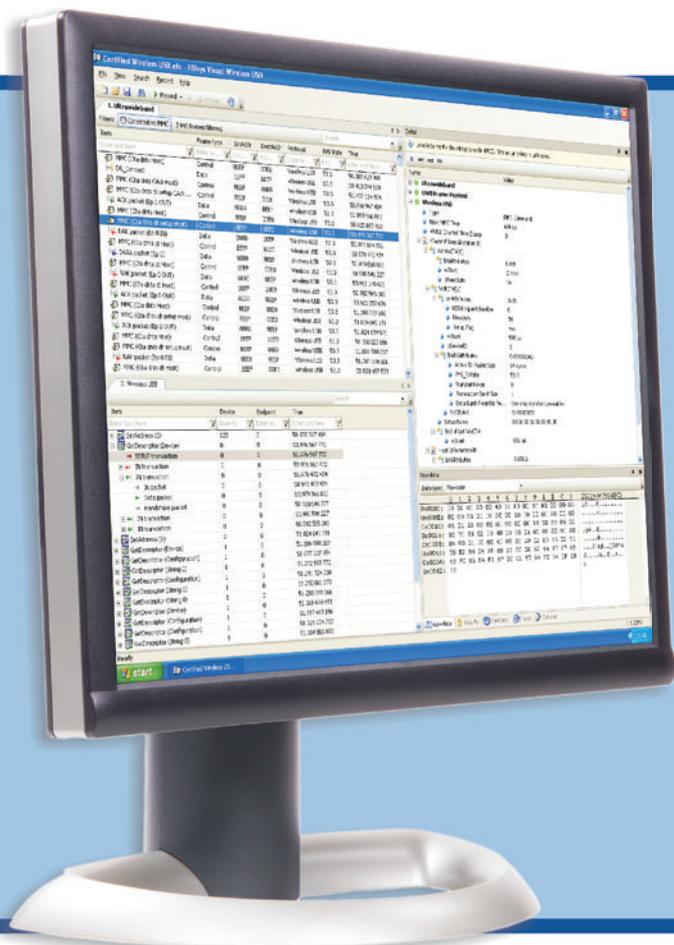


WIRELESS USB EXPLORER 300

UWB Protocol Analyzer for Certified Wireless USB



**Protocol Analysis and Verification for
Certified Wireless USB and WiMedia
Ultrawideband Systems**



Powerful Protocol Analyzer Speeds Up Development of Wireless USB Devices

Overview

The Wireless USB Explorer 300 is the world's first over-the-air MB-OFDM protocol analyzer for WiMedia Alliance's Ultrawideband common radio platform and Certified Wireless USB protocol.

Loaded with productivity-boosting features for hardware and software engineers, the Ellisys Wireless USB Explorer 300 is ideal for peripheral development, protocol stacks verification, communication optimization, and other intricate development tasks. Its high-quality UWB RF front-end records traffic exchanged over the air between devices so you can display the resulting decoded information in your choice of several convenient formats.

Designed to evolve with specification updates, the Ellisys Wireless USB Explorer 300 protocol analyzer will help you solve current and future WiMedia and Certified Wireless USB challenges. Improving your time-to-market has never been so efficient!

Over the Air Analysis

The figure below shows the simple setup used with the Wireless USB Explorer 300 to easily analyze the behavior of a Wireless USB network. The analyzer is placed between wireless devices and records all traffic exchanged over the air. Analyzed data is then transmitted in real time for display on the Analysis Computer. This is the preferred method of assessing a device's wireless behavior.



Typical Applications

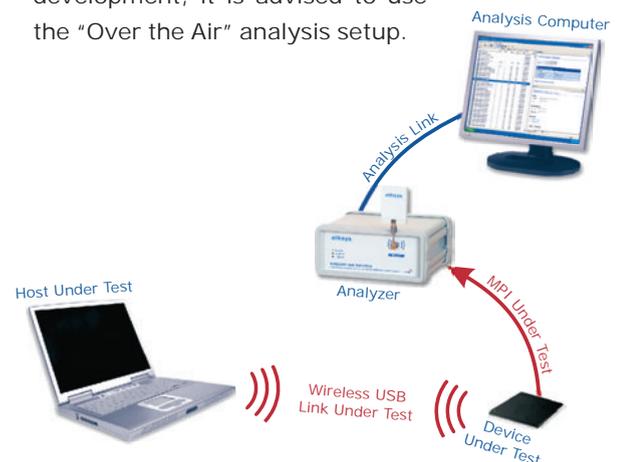
- ✓ Capture UWB traffic over the air to assist development of Wireless USB devices
- ✓ Verify wireless encryption and 4-way handshake session key exchange
- ✓ Monitor wireless communication reliability and efficiency

Key Features

- ✓ Displays UWB and Wireless USB protocols in an easy-to-use hierarchical view
- ✓ Extensive protocol verification helps debug interoperability issues
- ✓ Displays traffic in real time with no need to set up complex triggers

MAC-PHY Interface Analysis

The figure below shows a setup for analyzing signals exchanged between a MAC and a PHY. The protocol analyzer records all information sent over the MAC/PHY Interface (MPI). This setup helps you optimize RF quality and prevent interoperability issues by providing access to low-level information. At later stages in development, it is advised to use the "Over the Air" analysis setup.



Market Leadership

Ellisys is committed to the design and marketing of leading protocol analysis solutions for USB, Wireless USB and Ultrawideband. Devoted to these technologies, Ellisys is known to push markets toward success with innovative products and solutions. Building on Ellisys' proven success,

the Wireless USB Explorer 300 is the world's first over-the-air WiMedia protocol analyzer for Certified Wireless USB protocol. By providing early adopters with the right tool at the right time, Ellisys helps ensure a rapid and wide acceptance of new interface technology.

User-friendly contextual filters

Contextual filters automatically appear when the software detects redundant protocol information that can be safely filtered out. These filters are convenient and simple to use.

All information within easy reach

Instant search enables you to find specific elements with power and ease by using simple text syntax.

High-level decoding of numeric values helps developers achieve intricate tasks

The analysis software decodes numerical values and clearly translates them for you. Bit fields are outlined to illustrate their relevant information contents.

The screenshot displays the 'Wireless USB PDK enumeration.efo - Ellisys Visual Wireless USB' application. The main window is divided into several panes:

- Filters:** Shows 'Invalid frames' and 'Consecutive MMC' with '5112 frames filtered'.
- Item List (1. Ultrawideband):** A table listing protocol items with columns for Item, Frame type, SrcAddr, DestAddr, and Time. The selected item is 'MMC (Cta dnst dt setup CAck Host)' with a time of 44.071 342 712.
- Item List (2. Wireless USB):** A table listing device-related items with columns for Item, Device, Endpoint, Status, and Time. The selected item is 'GetDescriptor (Configuration)' with a time of 0.321 930 099.
- Detail Panel:** Shows a tree view of the selected item's structure, including 'Type', 'Next MMC Time', 'WUSB Channel Time Stamp', 'Channel Time Allocation IE', 'WdntCTA[0]', 'WdntCTA[1]', 'Setup Bytes', 'End of List WxCTA', 'Connect Acknowledge IE', and 'Host Information IE'. The 'Setup Bytes' field is highlighted with a value of '00 05 00 00 00 00...'. The 'End of List WxCTA' field is highlighted with a value of '0xFE029600'.
- Raw data Panel:** Shows the raw data for the selected item, with a data type of 'Raw data'. The data is displayed in hexadecimal and ASCII format, with the value '0xFE029600' highlighted in the ASCII column.

Protocol levels are clearly defined on screen

Transfers, transactions and packets are visualized simultaneously. Useful information is available in a clear and concise fashion on screen. Within a split second you will grasp precisely what is happening on the bus.

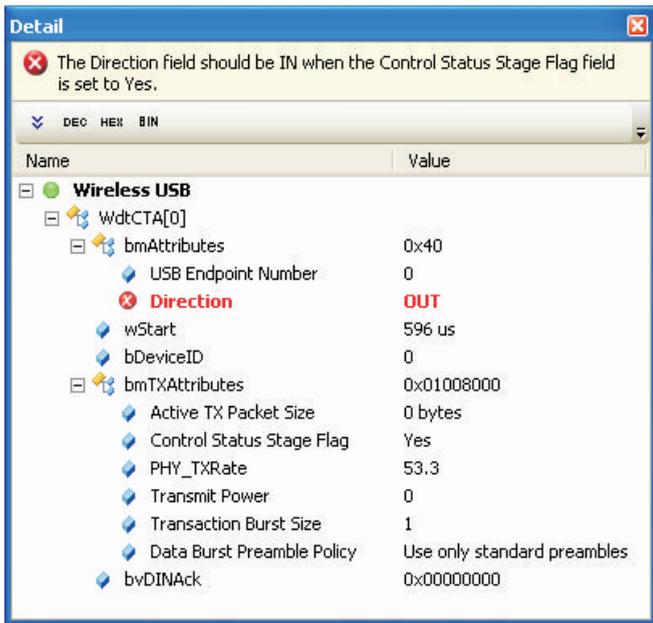
All relevant information displayed without overloading the screen

The overview pane offers an intuitive overview of the protocol. There is no chance of missing vital information, which would otherwise be drowned in a mass of data. Every element detail remains available at hand.

Numerical values of each field are available at a mouse click

Numerical values are concealed by default in order to simplify presentation but are available in different formats with a mouse click.

WiMedia Ultra Wideband Protocol Analyzer for Certified Wireless USB



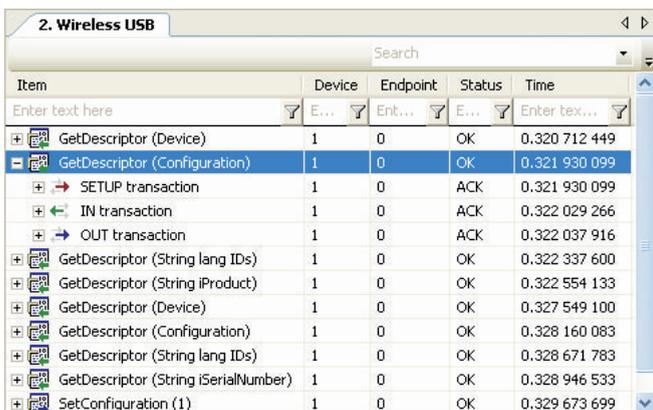
All protocol layers are analyzed for interoperability issues. Values, fields and structures are verified, and errors are clearly reported to the user.

Compliance Verification

The analysis software verifies interoperability issues on all protocol layers. Protocol elements are checked for validity and compliance against the specifications. Potential issues are clearly reported to the user and can thus be resolved at an early stage of the development project.

Protocol Layer Display

The Ultrawideband and Wireless USB protocol layers are clearly defined on screen. Each protocol has a dedicated

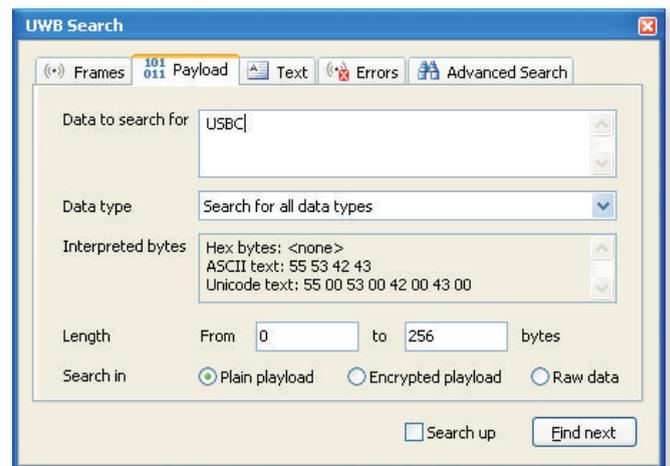


Users who already know wired USB can focus on the Wireless USB window that contains only high-level protocol elements. With this familiar context, users easily master the WiMedia and the Wireless USB protocols.

window to help you focus on your area of interest. Users who already know wired USB can view a Wireless USB window containing only high-level protocol elements. Others may prefer the Ultrawideband window to find low-level UWB protocol elements. For easier navigation, Wireless USB packets are automatically deduced from their equivalent WiMedia frames. Users easily master the WiMedia and Wireless USB protocols by using this convenient graphical interface.

Post-Analysis Capabilities

Post-analysis capabilities enable developers to take full advantage of the recorded data. The search functionality helps when seeking data patterns, discovering errors or finding sought information fast. With a straightforward syntax, textual filters enable users to filter out unwanted



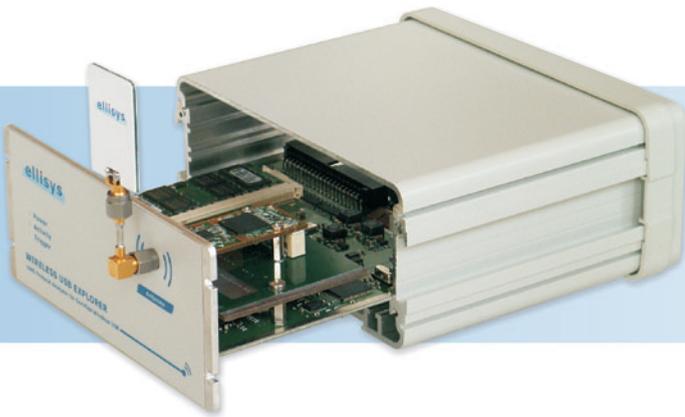
With the many user-friendly search modes, the comprehensive search dialog allows developers to find any sought information fast.

data to display only useful items. Ellisys software also includes a traffic summary pane offering a quick overview of the protocol data exchanged between devices. Users can check recorded traffic and quickly catch potential problems. With these user-friendly capabilities, navigating through large quantities of data is quick and efficient.

WiMedia Ultra Wideband Protocol Analyzer for Certified Wireless USB

Upgradeable as Specifications Evolve

The modular analyzer's hardware architecture is engineered to be upgradeable as the specifications evolve. The main board hardware is fully programmable and can effortlessly accommodate change in specifications.



The Ultrawideband radio analysis hardware module plugs into the main board and can be replaced with future hardware modules to support new features such as higher data rates, international compliance or new services. Furthermore, the analyzer's Auxiliary Equipment connector can host additional external extensions to preserve your investment.

Non-Intrusive analysis

The Ellisys Wireless USB Explorer 300 protocol analyzer silently listens to WiMedia Ultrawideband and Wireless USB communications for capturing, assembling, analyzing and verifying traffic transmitted between a host and multiple devices. This non-intrusive design enables developers to seamlessly integrate the protocol analyzer in their development environment without perturbing the devices participating in the cluster under test.

Worldwide Solution for Ultrawideband Analysis

Wireless information is transmitted over the air between devices through electromagnetic fields. These fields must stay within certain limits that have already been defined and accepted in some countries but regulations are still in progress in many other countries.

The modular analyzer's hardware architecture accommodates change in the specifications. The front end can be replaced to support future PHY evolution.

By connecting UWB devices to the Wireless USB Explorer 300 using the Wired Ultrawideband Kit, Ellisys eliminates emissions to ensure governmental regulations are met. The kit can also be used to avoid interferences between unrelated nearby UWB systems, for example in development labs or trade shows.

Wired USB Analysis

Wireless USB devices often use a classical wired USB connection for charging their batteries, first time association or backward compatibility with wired USB. In addition to Wireless USB challenges, developers also face wired and wireless USB integration issues. Ellisys anticipates developers' needs and suggests that you consider Ellisys complete wired and wireless USB protocol analysis solution. This solution bundles a wired and a wireless USB analyzer unit so that developers can analyze their devices from all perspectives.

WiMedia Ultra Wideband Protocol Analyzer for Certified Wireless USB

Features

General

- ☒ Displays UWB and Wireless USB protocols in an easy-to-use hierarchical view
- ☒ Non-intrusively captures traffic from any MB-OFDM UWB link
- ☒ Automatically determines the speed of each UWB frame and decodes it accordingly
- ☒ Displays traffic in real time with no need to set up complex triggers
- ☒ Records traffic to the hard disk for virtually unlimited recording time

Software

- ☒ Highlights protocol errors and interoperability issues
- ☒ Efficiently decodes all standard requests and data structures
- ☒ Hides redundant fields to reduce information burden
- ☒ Automatically deciphers encrypted data payload
- ☒ Supports the latest WiMedia and Wireless USB specifications
- ☒ Free viewer software to exchange recorded traffic with others
- ☒ Free lifetime software maintenance

Hardware

- ☒ Engineered to evolve as specifications change
- ☒ Powered by USB, no need for a bulky external power supply
- ☒ Communication over USB 2.0 allows the use of a notebook computer
- ☒ Scalable hardware design helps adding new features when needed
- ☒ Instant-on
- ☒ Small, portable and robust enclosure
- ☒ No fan for noiseless operation

Technical Specifications

Over The Air Analysis

- ☒ UWB Multiband OFDM based on WiMedia PHY specification
- ☒ Frequency band 3.1 - 4.8 GHz
- ☒ Supports speeds up to 480 Mbps
- ☒ External omnidirectional antenna

MAC/PHY Interface Analysis

- ☒ Based on WiMedia MAC/PHY Interface specification
- ☒ IDE type and optional Hirose type connectors

Memory

- ☒ 1 GByte of FIFO memory
- ☒ Memory is downloaded in real time

Indicators

- ☒ Power: analyzer powered on
- ☒ Activity: traffic detected
- ☒ Trigger: trigger event detected

Power Supply

- ☒ No external power supply needed (USB bus powered)
- ☒ 500 mA during normal operation
- ☒ 500 mA when suspended

Enclosure

- ☒ 150 x 120 x 65 mm (5.91 x 4.72 x 2.56")
- ☒ 850 g (1.9 lbs)

Analysis Computer Connector

- ☒ USB 2.0 high speed (480 Mbps)

Auxiliary Equipment Connector

- ☒ Supports connection of an extension board for future expansion

Hardware Upgrade

- ☒ The decoding engine is automatically updated with each software release

Product Warranty

- ☒ Two years warranty

Ordering Information

Description

Code

Wireless USB Explorer 300 (includes 1 hardware unit, 1 ultrawideband antenna, 1 software and documentation CD-ROM, 1 USB cable and 1 convenient carrying case) WUSBEX300

Wired Ultrawideband Kit option (eliminates unauthorized Ultrawideband emissions in countries where the regulation process is still pending) UWBWIREKIT

MAC/PHY Interface Analysis Kit option (external probe to enable MPI analysis) WUSBEX300MPI

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