# Frontline X700 Protocol Analyzer Quick Start Guide

## 1 Introduction

Use this document for quick installation and setup.

The Frontline X700 is designed to capture Bluetooth in 2.4 and 5/6 GHz bands, Wi-Fi, 802.15.4, logic signals, and various wired technologies such as HCI-UART, USB, SPI and I2S. This quick start guide provides sufficient information to begin Bluetooth data capture in 2.4 GHz band. Detailed hardware and software information is contained in the Wireless Protocol Suite Hardware and Software User Manual. The manual is also available on www.teledynelecroy.com/protocolanalyzer/solutions-wireless.aspx.




**Frontline X700 Wireless Protocol Analyzer**

## 2 Components

Inspect the received shipping container for any damage. Unpack the container and account for each of the system components listed on the accompanying packing list. Visually inspect each component for any damage. In the event of damage, notify Teledyne LeCroy. Retain all shipping materials for shipper's inspection. The X700 hardware does not contain any user serviceable items. Any repairs and maintenance must be performed by a service technician that has been trained and approved by Teledyne LeCroy.

The analyzer package includes the following components in addition to the X700:

| Qty | Description | Qty | Description |
|---|---|---|---|
| 1 | 7.5’ 10A-125V AC/DC Power Cable | 8 | RF 2.4/5/6 GHz Dipole SMA Antenna |
| 1 | 3' USB 3.1 Type C to C Cable | 2 | Logic Pods (Advanced and Elite License) |
| 1 | 6' Cat6 Ethernet Cable | 1 | Quick Start Guide |

# 3 Computer System Requirements

### Supported Systems

- Operating System:
  Windows 10 and 11
  macOS 14 (Sonoma) or higher
  Linux (Ubuntu 2024.04 LTS)
- USB: USB 2.0, USB 3.1 Gen 1

### Minimum Requirements

- Processor: Core i5 at 2.7 GHz / AMD Ryzen 5 / Apple M1 (8-core CPU)
- RAM: 4 GB (Win/Linux) / 8 GB (macOS)
- Hard Disk Space: 20 GB

### Install Software

Download the latest Wireless Protocol Suite installer from TeledyneLecroy.com.

https://go.teledynelecroy.com/x700-software.

Once downloaded, double-click the installer, and follow the directions.

When the installation is complete pin the Wireless Protocol Suite icon to your taskbar.

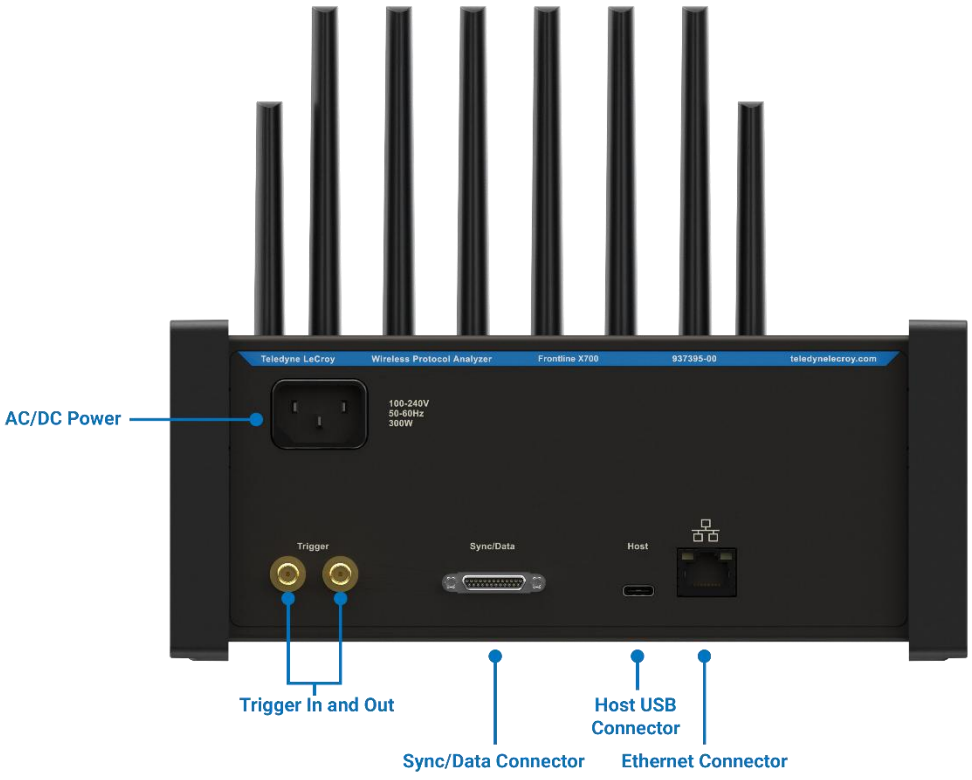
# 4 Set Up Hardware

Follow the steps below to set up the hardware.

### 1. Connect Cables

**Power Connector:** Remove the Frontline X700 hardware from the box and connect the AC/DC power cable included with the product to the “Power Connector” on the back of the unit.

**Connect to Host PC:** Connect one end of the USB C-C 3.0 cable to the “Host” port on the X700 and connect another end to the 3.0 port on the host computer. This will allow sending data from the hardware to the PC for analysis. For Ethernet connection, refer to the Wireless Protocol Suite User Manual.




**Frontline X700 Rear Panel Connections**

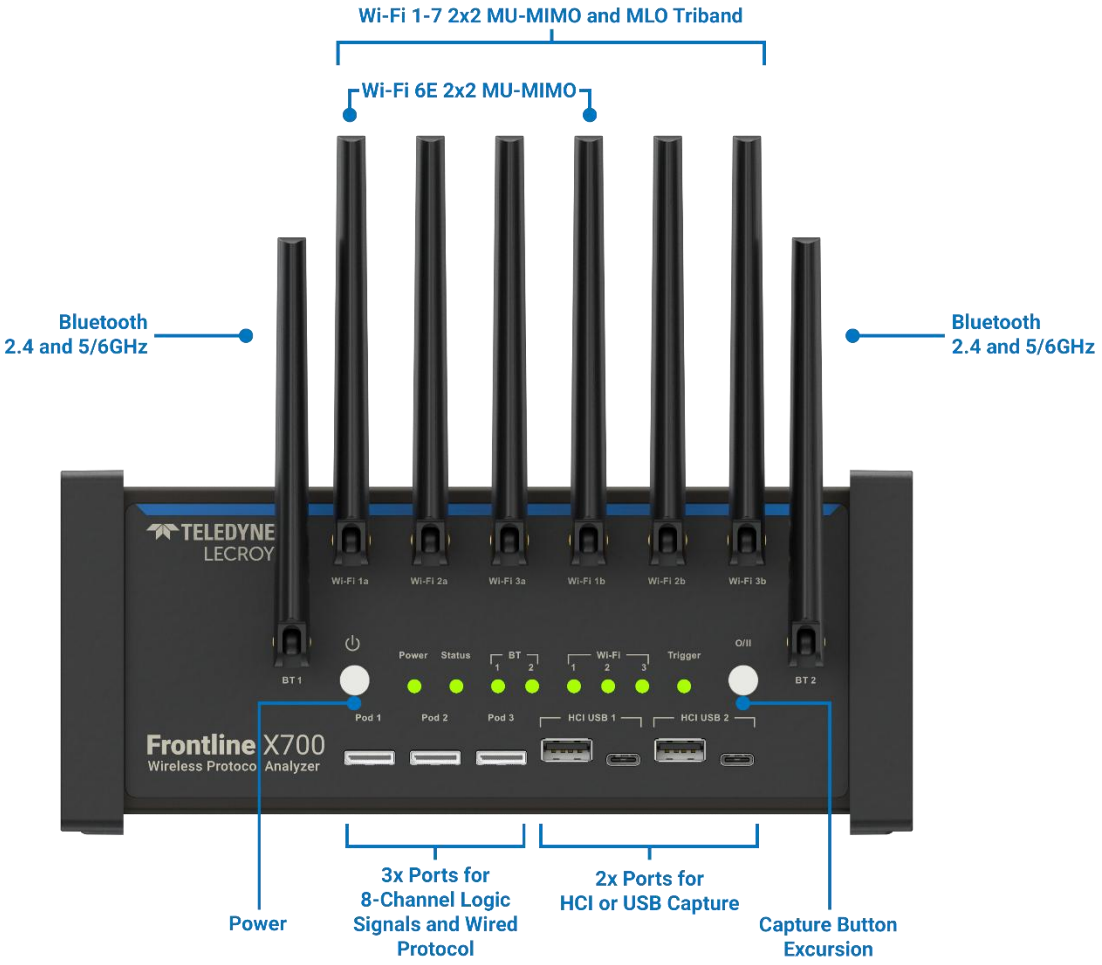
## 2. Attach Antennas

To capture Bluetooth in 2.4 GHz, connect antennas to the BT 1 and BT 2 SMA connectors on the front panel.

The nuts for RF Antenna SMA connections should not be tightened beyond 1 in-lb of torque. The base of the antennas can be carefully rotated by 90 degrees so that the antenna points upward.

The X700 Elite Configuration uses Wi-Fi 1a and 1b antenna to capture Wi-Fi 6/6E 2x2 MUMO. Wi-Fi 7 MLO Triband uses three Wi-Fi 1a and 1b, 2a and 2b, 3a and 3b Wi-Fi 7 2x2 MU-MIMO and MLO.

For Wi-Fi setup and capture details, refer to Wireless Protocol Suite Hardware and Software User Manual.




**Frontline X700 Front Panel Controls**

### 3. Power-up Hardware

**Power Button: Press** and release the button to power on/off the system.

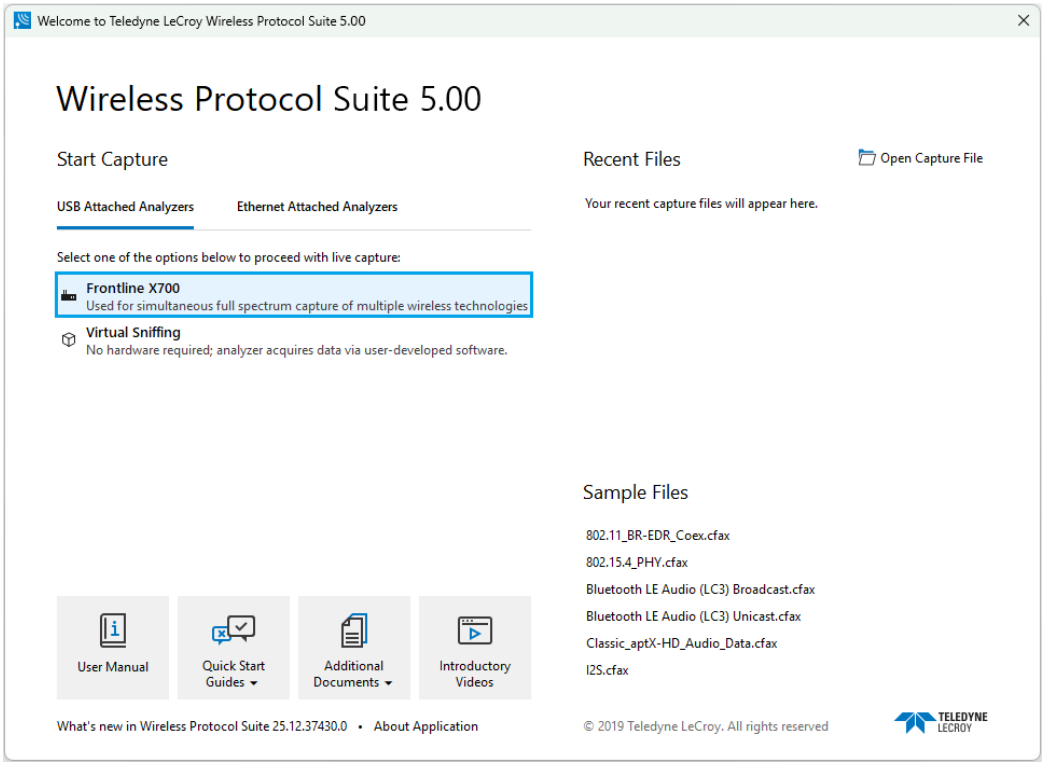
**Status Indicators:** Colored LEDs show the status of power, capture, and RF Status.

**Frontline X700 Front Panel Status Indicators**

| Indicator | Color | State | Status Indicated |
|---|---|---|---|
| **Power** | None | Off | Unit is powered off. |
| | Green | Constant | Unit is ON and ready. |
| | Red | Fast Flash | Thermal warning threshold reached. |
| | | Constant | System reaches thermal overload. Unit has started a controlled/sequenced power down. |
| **Status** | None | Off | No status. |
| | Green | Constant | Initialized and Ready (Not capturing). |
| | Blue | Constant | Actively capturing. |
| | Yellow | Slow Flash | Initializing. |
| | | Fast Flash | Shutting down. |
| | Red | Constant | Unit failed to initialize or has a System Error. |
| | Purple | Constant | Recovery Mode. |
| **BT Link 1** | None | Off | Antenna not in use. |
| | Green | Constant | Antenna in use and capturing. |
| | Red | Constant | Signal strength is too strong. |
| **BT Link 2** | None | Off | Antenna not in use. |
| | Green | Constant | Antenna in use and capturing. |
| | Red | Constant | Signal strength is too strong. |
| **Wi-Fi Link 1** | None | Off | Antenna not in use. |
| | Green | Constant | Antenna in use and capturing. |
| **Wi-Fi Link 2** | None | Off | Antenna not in use. |
| | Green | Constant | Antenna in use and capturing. |
| **Wi-Fi Link 3** | None | Off | Antenna not in use. |
| | Green | Constant | Antenna in use and capturing. |
| **Trigger** | Blue | Slow flash | Waiting for Trigger. |
| | | Constant | Triggered. |
| | Red | Constant | Error detected. |
| | None | Off | No activity. |

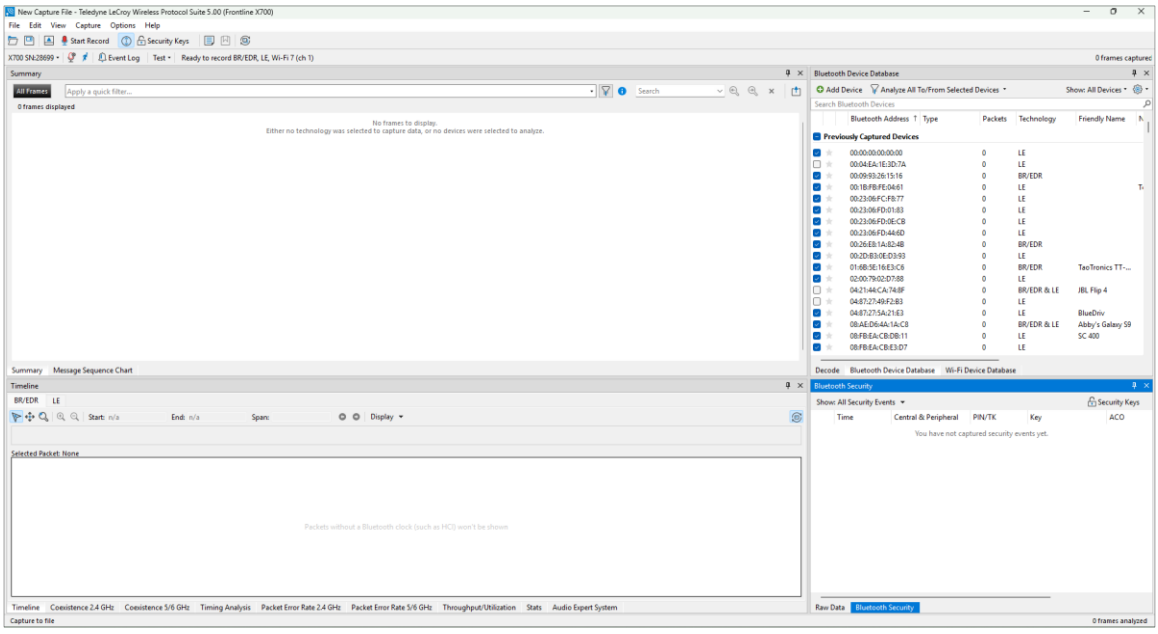
# 5 Configuration

Start the Wireless Protocol Suite software. The Start Page window displays the Frontline X700 option. Point to “Frontline X700” and click to select.




**Wireless Protocol Suite - Start Page**

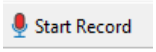
When the Wireless Protocol Suite window pops up, you will see the following display with the Analyzer Toolbar that controls hardware record and configuration options. Your unit is preconfigured with licensed features.



**Wireless Protocol Suite software with Analyzer Toolbar**

# 6 Begin Capture

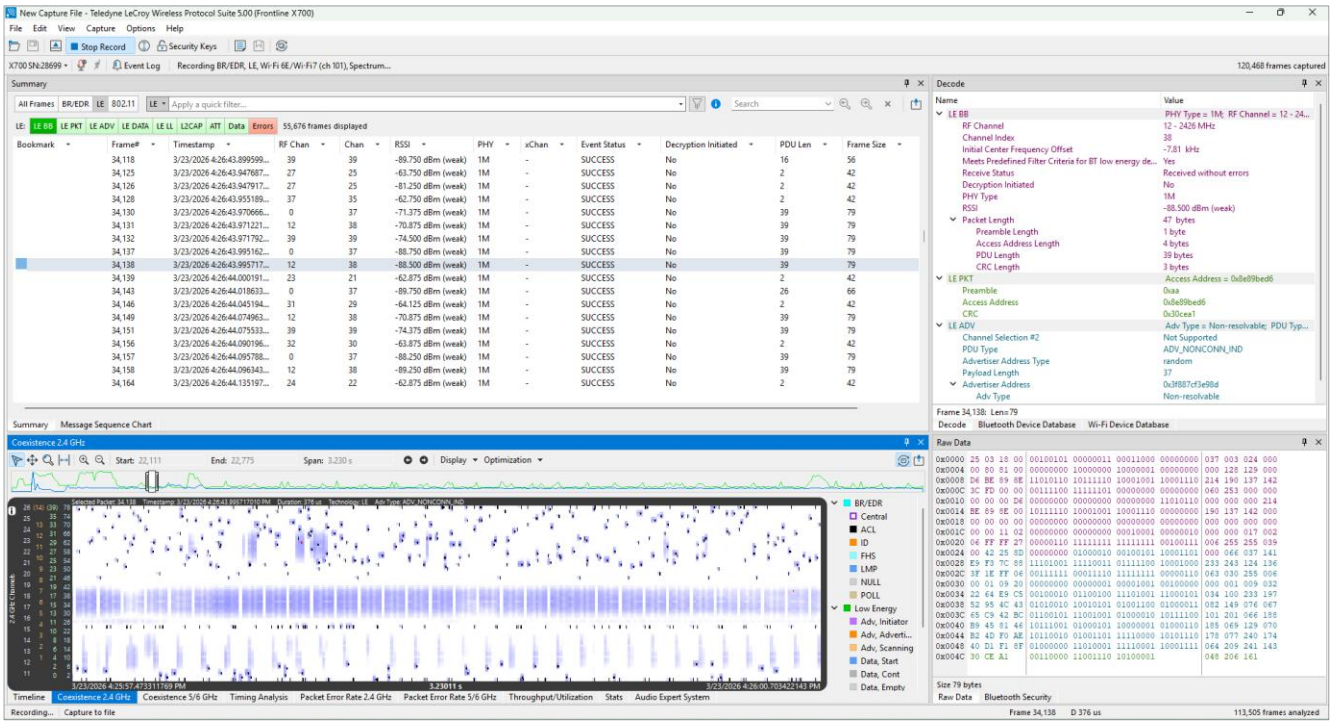
## Start Record



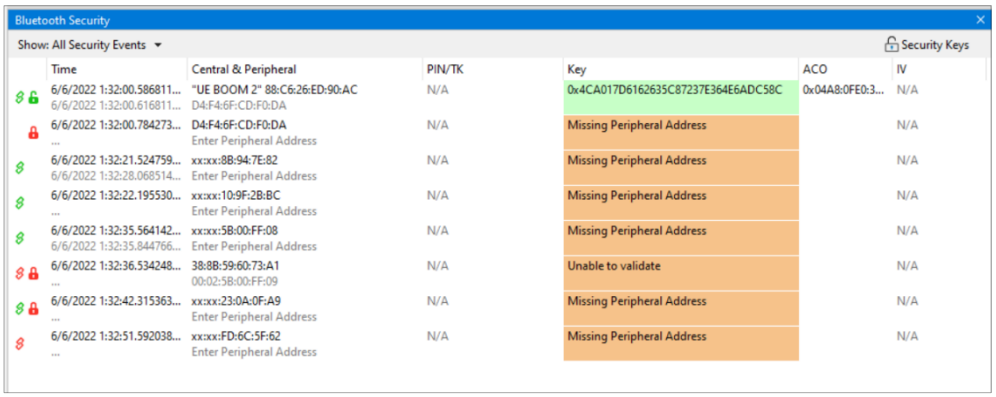

On the Wireless Protocol Suite toolbar, click Start Record, or select Start Record from the Capture menu. When the button changes to Stop Record, the X700 hardware begins capturing data from all active Bluetooth devices within range. Data is displayed based on the selected analysis mode and device selection in the Device Database.

The Device Database pane populates with newly discovered devices, and device selection can be changed while recording. When Analyze All Devices is selected, traffic from all captured devices is displayed. When using Analyze To/From Selected Devices or Analyze Only Between Selected Devices, you must select one or more devices to display traffic. The Bluetooth Security pane (under the View menu) shows encrypted Bluetooth links, and security keys can be entered while recording. Captured data appears in the Summary Pane, Message Sequence Chart, Coexistence View, Bluetooth Timeline, Low Energy Bluetooth Timeline, PER Stats, and other views. The Analyzer Bar shows the total packets captured, and the Status Bar shows the total packets analyzed.

If no data appears, verify the selected analysis mode and confirm that one or more devices are selected in the Bluetooth or Wi-Fi Device Database.



Wireless Protocol Suite software




Bluetooth Security Pane

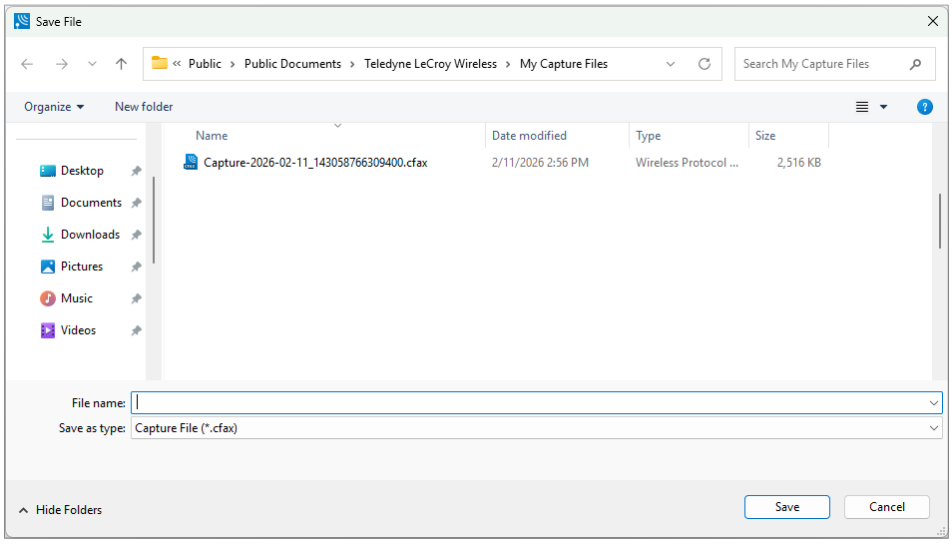
# 7 Saving Analyzed Data to Disk

### Stop Record

Stop Record Click the Stop Record button to stop recording.

### Save File

Click the Save As icon to save the file in the selected location.

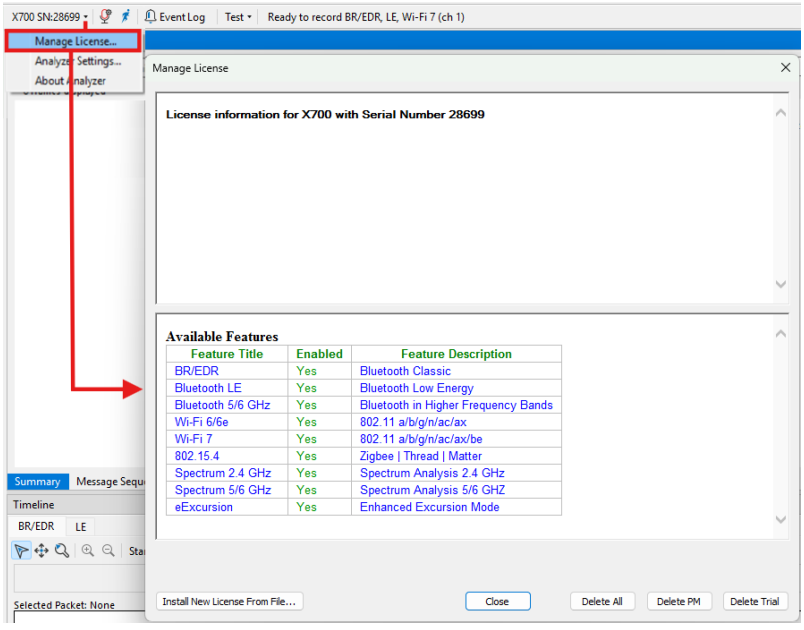



**Saving Analyzed Data**

# 8 License Manager

The user can find out the status of the license by selecting Manage License from the X700 Analyzer Toolbar.

Every new analyzer comes with a complimentary two-week full-feature trial, so you can explore all capabilities and try out the latest features with no limitations.




**License Manager**

# 9 Environmental Conditions

## Other Specifications

- Dimensions: 198 mm x 227 mm x 96 mm (7.8 in x 8.9 in x 3.8 in)
- Weight: 2.35 kg (5.18 lbs)
- AC 110V/230V
- Temperature: Operating 0° to 35°C (32° to 95°F)
- Humidity: Operating 10% to 90% RH (non-condensing)

## Teledyne LeCroy Customer Support

Online Download

Periodically check the Teledyne LeCroy Protocol Solutions Group web site for software updates and other support related to this product.

Web: www.teledynelecroy.com/protocolanalyzer/solutions-wireless.aspx
Sales: Frontline_OnlineSales@Teledyne.com
Support: Frontline_Techsupport@Teledyne.com

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## Changes

Product specifications are subject to change without notice.
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