# UWB*Tracer/Trainer*™
## WiMedia Ultrawideband
## Protocol Analyzer and Exerciser
### *Getting Started*

**Before Getting Started**
Use this document for quick installation and setup. If you experience problems or need more information, see the *UWBTracer/Trainer User Manual* on the Installation CD or at the LeCroy web site. For details about the latest software version, see the **Readme** file on the Installation CD.

## 1 Host Machine PC Requirements

The UWB*Tracer/Trainer* system is controlled and operated through a software application that you must install and run on a Windows-based PC (the host machine). The requirements for the host machine are:

**Operating System:** Microsoft® Windows® 2000, XP, or Vista.

**Browser:** Microsoft Internet Explorer, version 5 or newer.

**Processor:** Intel® Pentium® 4, AMD Athlon™/AMD Duron™, or newer compatible processors with clock speed of at least 2 GHz.

**Memory:** Minimum is 512MB of RAM. For best performance, use physical RAM at least as large as the size of the recording buffer, up to 2 GB. To find and set the size, see the Recording Options section.

**Hard Disk:** 25 MB of free hard disk space is required for installation. Additional disk space is needed for operation of applications and for storing recorded data in files, each of which can be as much as 2 GB. Hard disks with fast access times are recommended.

**Display:** Resolution of at least 1024 x 768 with 24-bit color depth is recommended (resolution of 800 × 600 with 16-bit color is a minimum).

**Connectivity:** For high-speed uploads, a USB 2.0 interface is recommended (USB 1.1 is a minimum). Not required if the application is used only to view pre-recorded traces.

Please see the **Readme** file on the installation CD for the latest information on PC requirements.

## 2 Components

The UWB*Tracer/Trainer* basic components are:
- Installation CD-ROM [not shown]
- CATC 5K Platform [1] shown with the UWB Analyzer Plug-in Module and the UWB Exerciser Plug-in Module installed
- Power Supply [not shown]
- Vertical Stand [2]
- UWB*Tracer* Analyzer Plug-in Module [3]
- UWB*Trainer* Exerciser Plug-in Module [15]
- Antenna [4]
- RF Coaxial Cable (SMA) [5]
- Synchronization Cable [6]
- Trigger Cable [7]
- USB Cable [not shown]
- Carrying Case (optional) [not shown]

The optional MPI Kit includes:
- Adapter Cable (SCSI) [8]
- Probe Cable for IDE 40-pin Connectors and Hirose 68-pin Connectors [9]
- Probe Cable for IDE 40-pin Connectors and Hirose 68-pin Connectors [10]
- Cable Adapter for Hirose 68-pin or IDE 40-pin Connectors [11]
- Board Adapter for IDE 40-pin Connectors [12]
- Board Adapter for Hirose 68-pin Connectors [13]
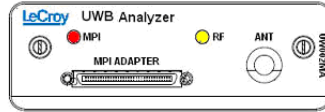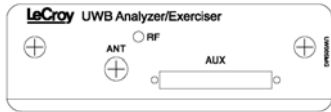- Board Adapter for Hirose 60-pin Connectors [14]

**CATC 5K and Stand**



**UWB*Tracer* Plug-in Module**



**Standard Cables**



**UWB*Trainer* Plug-in Module**



**MPI Kit**
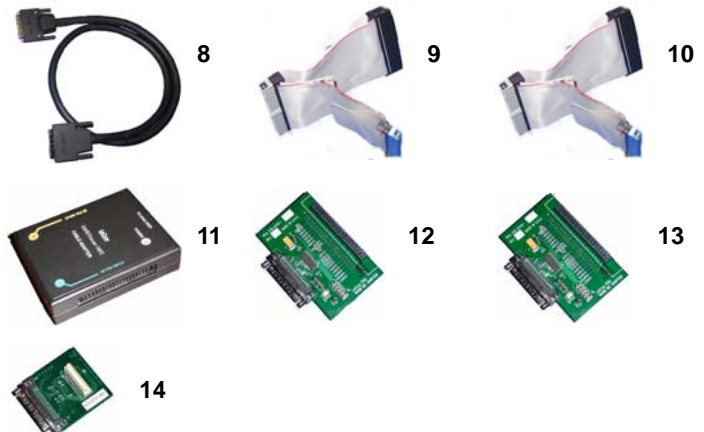


Please see the *UWBTracer/Trainer User Manual* on the installation CD for component specifications.

# 3 Front Panel Description

**FPO only**   **RF CH 1**          **RF CH 0**

## STATUS (status of the platform)

| LED | Description |
|---|---|
| ⬤ No light | System is not powered on |
| 🟢 Green Blink Slow | Initializing |
| 🔵 Blue | System is operational |
| 🔴 Red Blink Fast | System fault (contact Support) |

## MPI/RF (status of the MPI or RF Analyzer channel)

| LED | MPI Channel | RF Channel |
|---|---|---|
| ⬤ No light | Does not detect PCLK or PHY_ACTIVE | Does not detect wireless frames |
| 🟡 Yellow Blink Fast | Trying to synchronize to MPI traffic and waiting for PCLK and PHY_ACTIVE | Trying to synchronize to RF traffic and waiting for wireless traffic |
| 🟡 Yellow | Synchronized: Capturing MPI traffic with PHY_ACTIVE signal high | Synchronized: Capturing wireless frames |
| 🔴 Red Blink Slow | Recording Pre-Trigger traffic | Recording Pre-Trigger traffic |
| 🔴 Red | Recording Post-Trigger MPI traffic | Recording Post-Trigger wireless traffic |

# Rear Panel Description

## SYNC IN / OUT
For synchronized multi-analyzer operation, the analyzers must be connected in a daisy-chain topology to each other using the Green/Purple cable.

## EXT DATA
For attaching the TRIG-IN/TRIG-OUT BNC Y-cable to external instruments

## HOST
For connecting the analyzer through USB to the host machine

## POWER 12VDC
For connecting the external power supply to the analyzer.
**Note:** There is no power switch on the analyzer.

**Warning**:   Do not open the CATC 5K enclosure. No operator serviceable parts are inside. Refer servicing to LeCroy.

## MPI ADAPTER
Connector to MPI Adapter
## ANT
SMA connector for antenna

# 4 Installing the Software

1.  If you have the Installation CD, put it in the CD drive on the host machine. The installation software should run automatically. Select the **Install** software window, then select  **UWBTracer**.
    **OR**
    If you install from the LeCroy web site, download the **setup.exe** file. Go to the directory where you saved the file and open the file to run the installation program.
2.  Follow the on-screen instructions. The UWB*Tracer/Trainer* software installs on the PC hard disk.

# 5 Setting Up the Analyzer

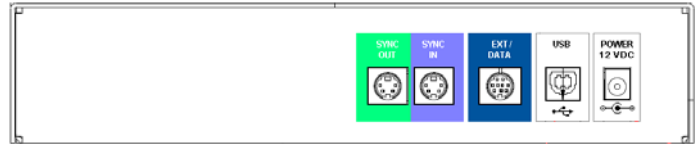**Note:** You must install the software before connecting the analyzer to the host machine for the first time.

To set up the analyzer:
1.  Remove the UWB*Tracer/Trainer* analyzer, external power supply, and power cord from the shipping container or carrying case.
2.  Ensure that the analyzer plug-in is in the right-hand slot and the exerciser plug-in is in the left-hand slot (as seen with the front panel facing you).
3.  Connect the analyzer to the power supply. Connect the power cord to the power supply. Connect the power cord to a 100V–240V, 50Hz–60Hz, power outlet  to turn on the analyzer (the power supply and the analyzer have no switch).
    **Note:** It is not recommended to connect the analyzer to the power supply after connecting the power supply cord to a power outlet.
    At power on, the Status LED of the CATC 5K platform turns green and remains on 20 seconds while the analyzer performs self-diagnosis.

If the diagnostics pass, the Status LED turns blue.
If the diagnostics fail, the Status LED blinks red to indicate hardware failure (call Customer Support).
4.  Connect the USB cable between the **HOST** USB port on the back of the analyzer and a USB port on the PC. The host operating system detects the analyzer and begins to install the USB driver.
5.  Step through the Microsoft® Windows® hardware wizard. The wizard automatically installs UWB*Tracer/Trainer* as a USB device on the PC. The required USB driver files **catc5k.sys** and **uwb5k.sys** were placed in the correct directory during software installation.
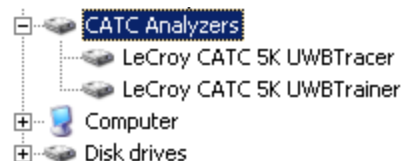
For synchronized multi-analyzer operation, the analyzers must be connected in a daisy-chain topology to each other using the Green/Purple cable.
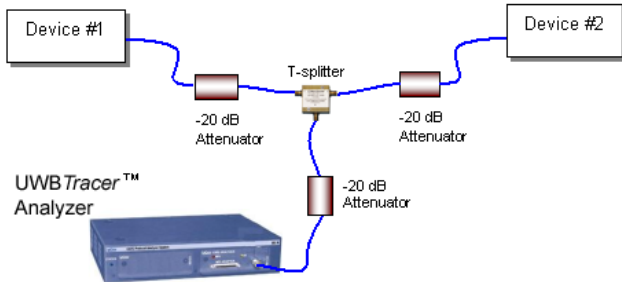
# 6 Preparing for Wireless Recording

**For wireless recording:**

1. Make sure the antenna provided with the UWB*Tracer/Trainer* analyzer is tightly connected to the connector marked ANT.

2. Position the analyzer and devices under test at an equal distance from each other, 10 inches apart.
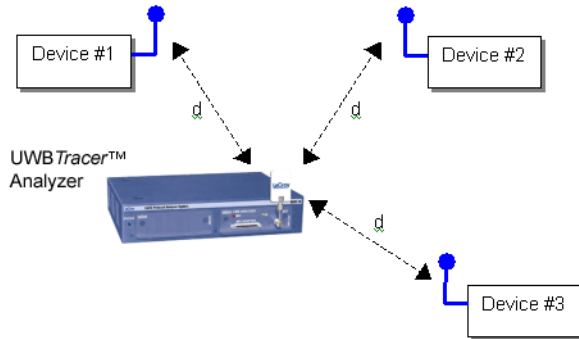


**Note:** RF signals and noise from external devices might affect wireless recording, as might the transmit and receive patterns of antennas. If the recorded trace has many corrupted UWB frames, try different positions of the devices and analyzer and place the devices and analyzer as close as possible to each other (but not less than 10 inches apart).

**Wired Recording:** You can use coaxial cabling to connect the wireless device and analyzer, as illustrated below. Because antennas are not used, external interference should not affect the recording.



**Note:** The attenuator values shown are only examples. You may need to use different values according to the PHYs used, their signal strengths, and your setup.

# Preparing for Wireless Traffic Generation

**For wireless recording:**

1. Make sure the antenna provided with the UWB*Tracer/Trainer* analyzer is tightly connected to the connector marked ANT.

   **Note:** To meet FCC Part B requirements, UWB*Trainer* is equipped with reverse polarity radio and antenna connectors. This configuration does not affect RF behavior in any way but does require that all customer-supplied antennas have reverse polarity connectors.

2. Position the UWB*Tracer/Trainer* system facing the devices under test (at least 10 inches apart).



**Wired Traffic Generation:** You can use coaxial cabling to connect the wireless device directly to the UWB*Trainer* generator. Because antennas are not used, external interference should not affect the recording.
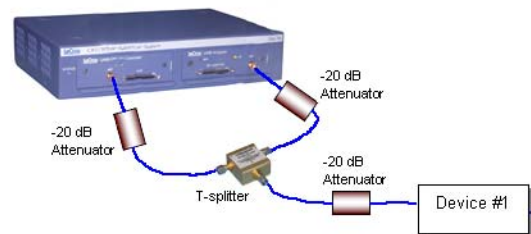


# 7 Starting the Application

To start the application, launch the **LeCroy UWBTracer/Trainer** program:

> **Start > Programs > LeCroy > UWBTracer/Trainer > LeCroy UWBTracer**

> The UWB*Tracer/Trainer* program opens.

**Note:** You can use the software with or without the UWB*Tracer/Trainer* connected to the host. Without the analyzer, the program functions as a trace viewer to view, analyze, and print trace files.

# 8 Recording Traffic Generation with Analyzer

After installation, the software defaults to 16-MB Snapshot recording and TFC-1 (CH: 9), a common setup. To change the default settings, refer to the "Recording Options" chapter of the *UWBTracer/Trainer User Manual*.
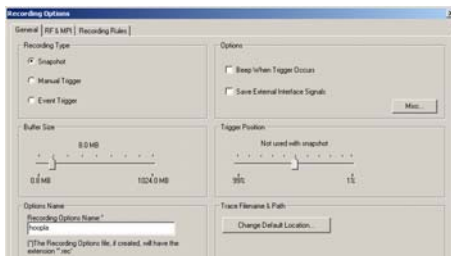
## Open Sample Generation File

Open the sample Traffic Generation script by selecting **File > Open** and navigating to the Exerciser example script folder: **C:\Program Files\LeCroy\UWBTracer\ Generation/Compliance\WiMedia_Platform_Tests\ WiMedia_Test_Case_01a.uwbg**.

The exerciser sample file is designed to loop simple WiMedia beacon and data frames and is configured to transmit on TFC 1 (CH: 9).



RF



## Set Recording Options for RF Recording

1.  Check that the analyzer is properly positioned near the (optional) DUTs and that the DUTs are operational.
2.  Open the UWB *Tracer/Trainer* application and select **Setup > Recording Options** to display the Recording Options window.
3.  In the RF & MPI tab (see left), select the **RF** checkbox.
4.  Select the **Sync to Channel** checkbox. Leave the other checkboxes unselected.
5.  Click the **Set** button, then verify that the selected channel is TFC 1 (CH: 9).
6.  Select the **General** tab (see left) to display the General page. The Recording Type box options determine when a recording ends. Verify that the Recording Type is Snapshot.
7.  Close the Recording options window.

**Note:** Systems configured with the UWB *Trainer* module can alternately use the UWB *Trainer* as a second RF recording channel (RF0 and RF1). Enable the second RF recording channel by selecting the checkboxes in both the RF0 and RF1 tabs.

## Start Recording

Click the **Start Recording** button [●] on the Tool bar or select the **Record > Start** command.

## Start Generation (UWB *Trainer*)

Click the **Run** button [▶ Run] on the Tool bar or select the **Generation > Run** command. LED shows yellow (scenario running = yellow blink fast, waiting for condition = yellow blink slow, paused = yellow solid) or red (scenario error). After 16 MB of traffic has been recorded, the trace automatically uploads from the analyzer to the PC, and the software displays the frames.

## Stop Recording

You may also choose to stop the recording by pressing the **Stop** button [■] on the Tool bar or selecting the **Record > Stop** command. The trace automatically uploads from the analyzer to the PC.

**Interrupting the Upload Process:** During upload, you can interrupt the upload process by pressing the **Stop** button to display the Abort or Continue Uploading dialog box with the following options: Stop upload but keep the data that has been uploaded already, Stop upload and discard (Flush) any data that has been uploaded, Continue upload, or Reupload part (Partial) of the recorded buffer.

## Save the Trace

After upload finishes, the software saves the recorded traffic data in the **LeCroy\UWBTracer** directory in a file named **data[sn].uwb,** where [sn] is the serial number of the CATC 5K chassis. You can change the default directory and file name by clicking the **Change Default Location** button in the Trace Filename & Path section of the General tab.

## LeCroy Customer Support

### Online Download

Periodically check the LeCroy Protocol Solutions Group web site for software updates and other support related to this product. Software updates are available to users with a current Maintenance Agreement.

## Trademarks and Servicemarks

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