NFPKit
Comprehensive Setup Guide

Disclaimer

Warranty

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Caution

A **CAUTION** notice denotes a hazard. It calls attention to operating procedure, practice, or similar that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

Warning

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Components

Box Contents

NFPKit

Camera	The camera provided can be manually adjusted to compensate for lighting conditions in your lab.	
Camera Extension Arm	Holds the camera in place from another surface.	
Probe Handle	The probe handle connects the NFPs to the RF out	
NFP Hxy 10A02	10 MHz – 300 MHz	
NFP Hxy 20A02	100 MHz – 1.4 GHz	
NFP Hz 40A02	1 GHz – 14 GHz	
NFP Hxy 60A01	1 GHz – 14 GHz	
NFP E 00A02	1.6 GHz – 18 GHz	

User-Supplied Components

1. **Spectrum Analyzer:** This device measures the radio frequency (RF) signal received from the scanner - generated by the very-near-field emissions of an adjacent activated PCB (Printed Circuit Board) - and it outputs the data to the PC.

2. **PC:** A PC running Windows 11 or Windows 10 on an x86-64 processor is required. It is recommended the PC also meet the minimum system requirements to prevent graphical bugs, scanning slowdown and crashes.

Minimum System Requirements

Operating System: Windows 11 / Windows 10 (latest update)
CPU: 1 GHz or faster with two or more cores, on a compatible 64-bit processor
Memory: 8 GB or more
Storage: 200 MB for installation, and 1 GB for project saves
Graphics card: Compatible with OpenGL 4.2

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Installation and Hardware Setup

Please refer closely to the following information regarding the full installation process.

1. **Install communication software for the spectrum analyzer:** You must determine which software to install from the manufacturer's website. For SCPI controlled spectrum analyzers, any software which installs NI-VISA can be used. This includes NI MAX, Keysight Connection Expert and RIGOL UltraSigma. It is recommended to install **one** of the following:

   a. ![ni] **NI-MAX**

   Recommended for most SCPI-controlled spectrum analyzers. Download from the National Instruments website: **www.ni.com**. When "Additional items you may wish to install" is shown, you must have **at least** NI Measurement & Automation Explorer selected. Other items do not affect the EMViewer runtime and can be enabled at the user's discretion.
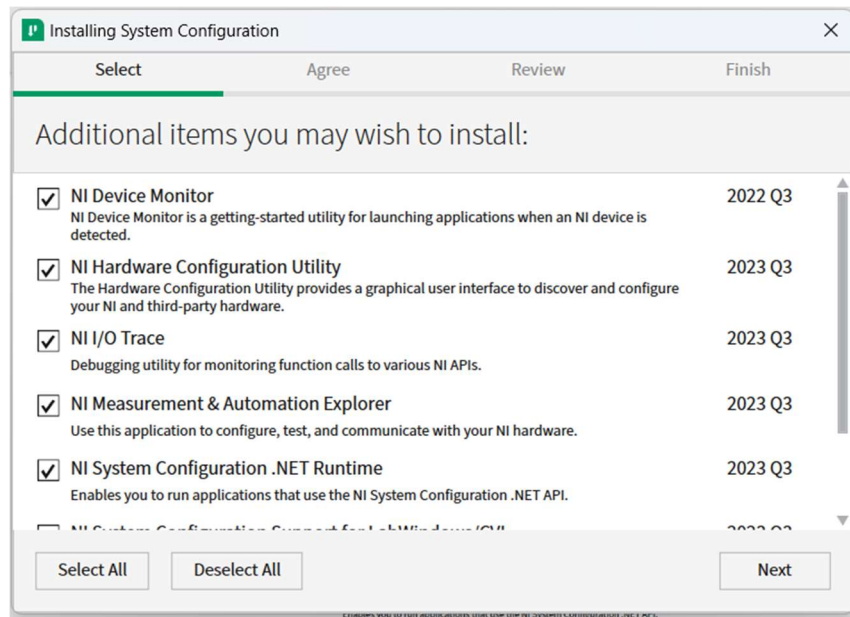
   b. ![IO] **Keysight Connection Expert**

   Recommended to use with Keysight spectrum analyzers.
   Go to **www.keysight.com** and search for 'IO Libraries Suite', or **click here** to open the website to download the latest version. On the website, click on the 'Download' button and follow the steps as instructed.

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c. ![Σ] **RIGOL UltraSigma**

    Recommended to use with RIGOL spectrum analyzers. Some RIGOL analyzers (such as the RSA5000) require additional downloads to use with this software. Please refer to the user manual for your spectrum analyzer.

2. **Install the EMViewer software application:**

    You can download the **EM**Viewer software by going to the following linked page: https://yictechnologies.com/emviewer/

    Install the **EM**Viewer software by running the downloaded setup application. The application should be installed on the C: drive.

    A license is required to use the **EM**Viewer software. All licenses are provided by YIC Technologies. To obtain your license file, please email your PC's unique hash code (found in the menu Help->About in the **EM**Viewer software) to support@yictechnologies.com.
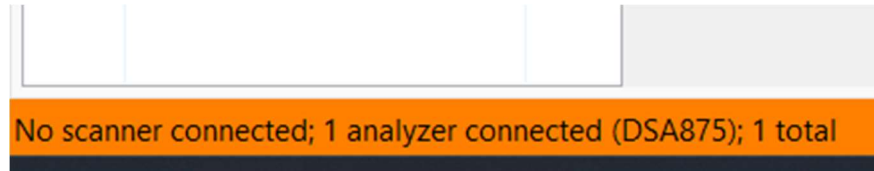
3. **Setup the kit:**

    Setup your PC, analyzer and camera as described in the relevant diagram below.
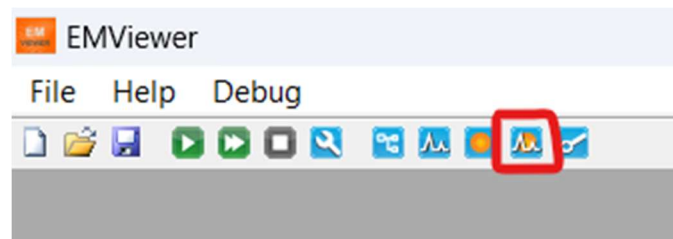
Establish a Connection

Spectrum Analyzer

Once connected and is visible in your analyzer control software (e.g., NI-MAX or Keysight Connection Expert) it will automatically be detected by the EMViewer software:

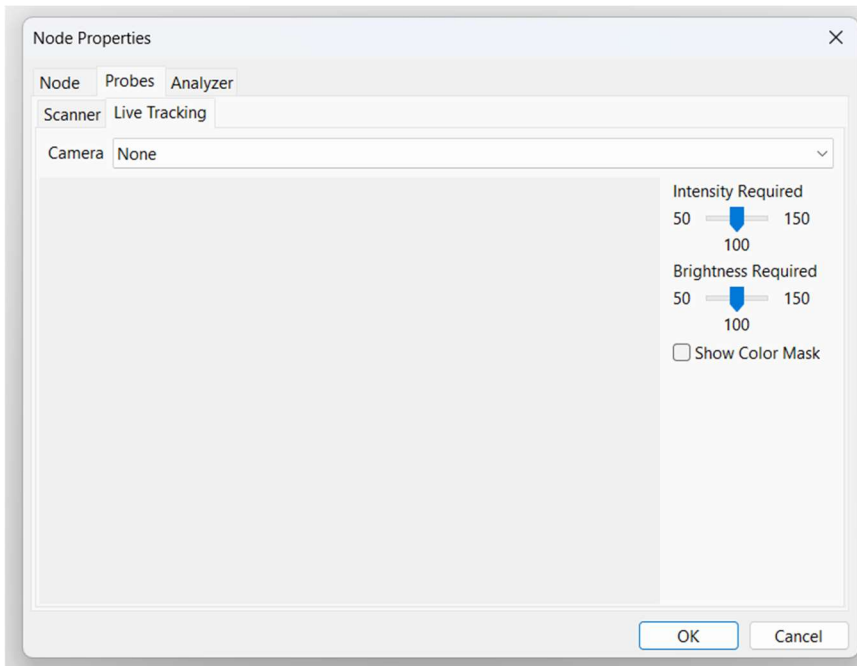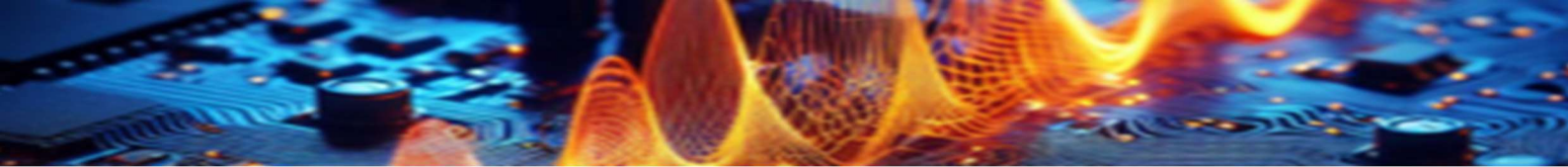No scanner connected; 1 analyzer connected (DSA875); 1 total

Live Tracking

We will describe how to confirm the live tracking functionality using the EMViewer software. For full explanations on how to use the EMViewer software, refer to the NFPKit **user manual**.

- Launch the software.
- Either from a blank project or with no project open, click the **combined node** button.

EMViewer

File   Help   Debug

- In the Node Properties window, select the Probes tab, and the Live Tracking tab under that.

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- Select your camera from the camera dropdown.
- If your camera does not appear, try closing the node properties window, and opening it again. (Right click on the Combined Node and click Properties)
- If you cannot see any video from the camera, your device may be in use by another application.
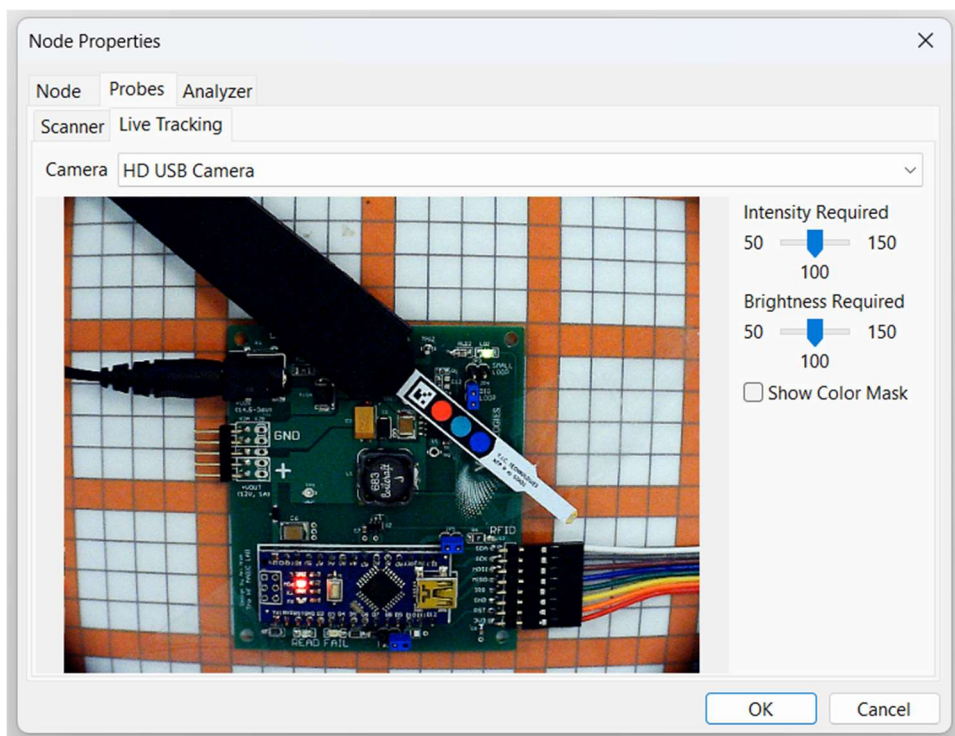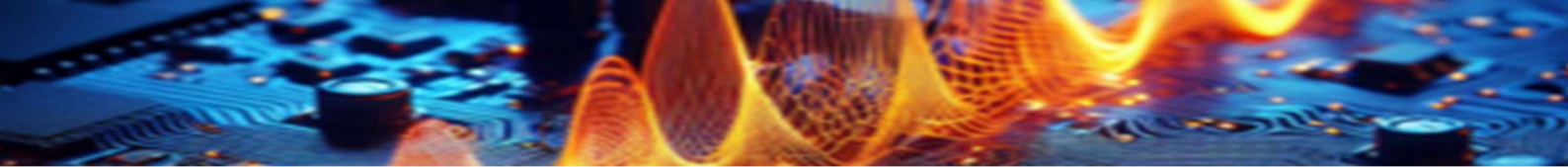
- You must see the 3 colored circles, the marker and the tip of the probe on camera. There must be adequate lighting and they must be in focus. Adjust the aperture on the provided camera if there is not enough light.
- The tracking is stable if squares appear on the colored circles and the tip of the probe.
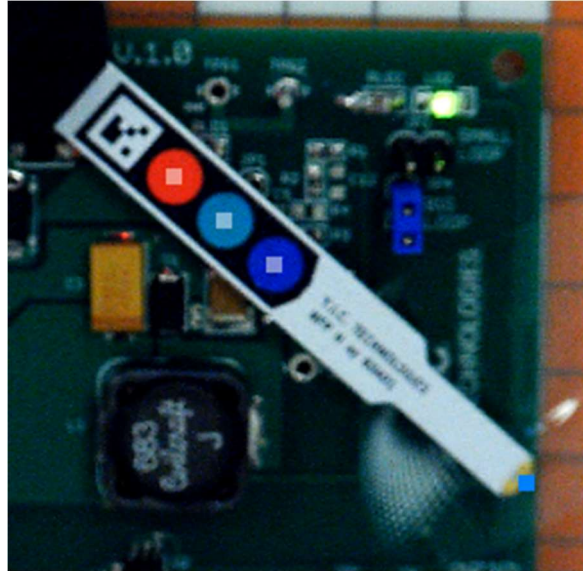
- **NOTE:** Only two circles are required to be tracked. For example, EMViewer may not recognize the green circle if the DUT is also green. This is to prevent false positives for the live tracking.

- If there are problems with the detection, try the following:

- Enable the ☑ Show Color Mask feature:
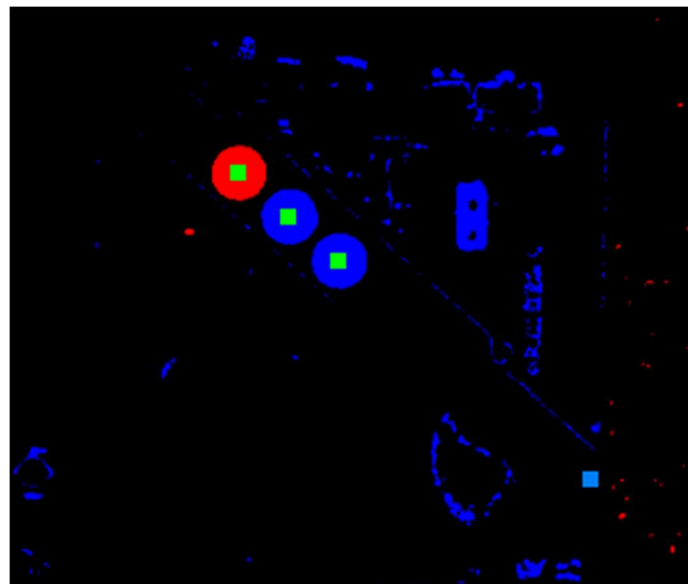
The color mask shows what EMViewer is looking for. We want to see 3 distinct colored circles. If there is too much noise or the circles have holes, EMViewer will fail to recognize them.

Left: the image is too dark, and we fail to recognize the green and blue circles.

Right: the image is too bright and noisy, so the shapes cannot be identified.
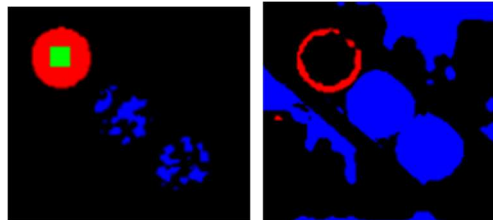
- Try adjusting the manual camera settings:
    - Adjust the focus of the camera until the marker appears sharp
    - Adjust the zoom of the camera so the colored markers appear larger
    - Adjust the aperture of the camera to make the image brighter/darker
- Adjust the brightness and intensity required sliders in the software:
    - Intensity required increases how colorful the circles must appear. If the circles appear washed out on video, decrease this slider.
    - Brightness required increases how light the circles must appear. If the circles appear dark, decrease this slider. (It is recommended to adjust the aperture instead.

Technical Support

For fast and seamless technical support, please gather the following information and contact Y.I.C. Technologies technical support as instructed further below:

1. *Serial number of your unit (Shown in the device list).*
2. *Software version (Menu: Help -> About).*
3. *Your analyzer control software (e.g., NI-MAX or Keysight Connection Expert)*
4. *Spectrum Analyzer model and manufacturer (or *IDN)*
5. *The log file stored in %appdata%/YIC Technologies/EMViewer2/log.txt*
6. *A detailed description of the problem, including screenshots and video footage.*

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