TELEDYNE TEST TOOLS
Everywhereyoulook™

T3SA3000-NFP

Near Field Probe

User Manual

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OPERATING ENVIRONMENT

Before using the T3SA3000-NFP Probe kit, ensure that its operating environment will be maintained within these parameters:

Temperature: 5 to 40 ^{O}C
Humidity: ≤ 80% RH (non-condensing)

SAFETY REQUIREMENTS

CAUTION

To avoid personal injury or damage to the probes or any equipment connected to it, review and comply with the following safety precautions.

- **Use only as intended.** The T3SA3000-NFP Probe kit is intended to be used only with the compatible LeCroy instruments. Use of the probe kit and/or the equipment it is connected to in a manner other than specified may impair the protection mechanisms.
- **Connect and disconnect properly.** Avoid damage to cables through excessive bending.
- **Do not use in wet/damp or explosive atmospheres.**
- **For indoor use only.** The test fixture is intended for indoor use and should be operated in a clean, dry, environment.
- **Do not operate with suspected failures.**
  Do not use the product if any part is damaged.All maintenance should be referred to qualified service personnel.
- **Keep product surfaces clean and dry**

Product Description

The T3SA3000-NFP probe set comprises of a set of four magnetic field probes for precompliance tests of printed circuit boards and other devices including components, connectors, wiring, power supplies, etc.

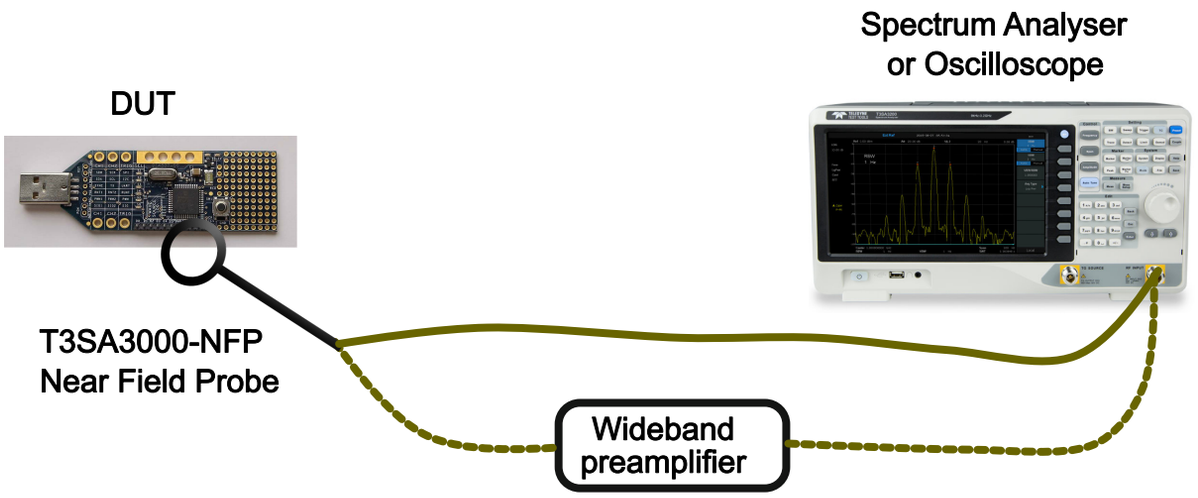
The T3SA3000-NFP probe set is used to measure the magnetic fields in the area of the device to determine the source and level of disturbance emissions.

The passive near field probes are connected to the 50 Ohm input of a spectrum analyser such as the Teledyne Test Tools T3SA3200 or T3SA3100, or to the input of a high sensitivity oscilloscope such as the Teledyne LeCroy high definition 12 bit HDO and WavePro HD families, or to a regular oscilloscope such as the Teledyne Test Tools T3DSO range. The probes can also be used with other brands of spectrum analyser or oscilloscope.

The probes can then make comparative measurements of magnetic fields and disturbance currents in the frequency range from 30 MHz to 3 GHz.

Application

The probes are used to detect magnetic field intensity and detect disturbance emissions sources.



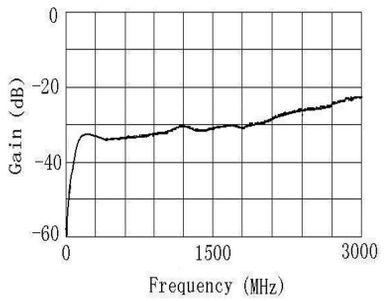
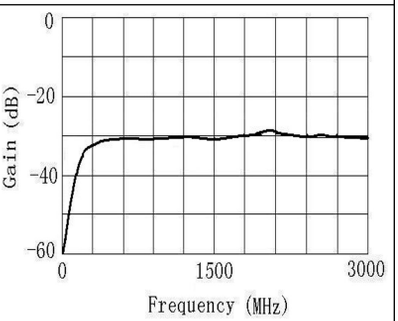
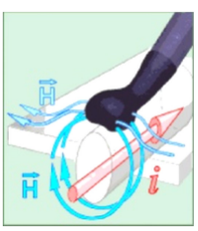
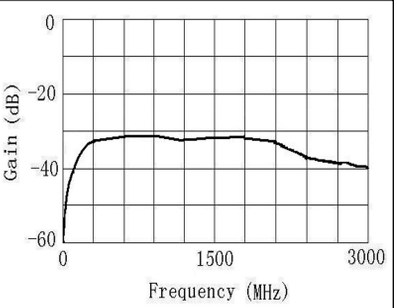
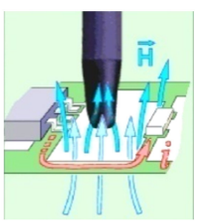
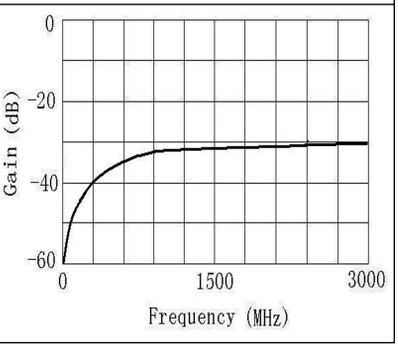
There are two methods of connecting the probes to the spectrum analyser or oscilloscope, either directly or via a wideband preamplifier (not supplied) as shown above. If a wideband preamplifier is used then ensure that the model chosen covers the 30 MHz to 3 GHz bandwidth.

If the probes are used without a wideband preamplifier, then set the spectrum analyser input attenuation to 0dB and turn on the internal preamplifier, if available on your spectrum analyzer. Furthermore you can increase the dynamic range and sensitivity by reducing frequency span, resolution bandwidth and video bandwidth.

If the probes are used with an oscilloscope then adjust the oscilloscopes' input sensitivity to give a suitable waveform amplitude on the oscilloscope display.

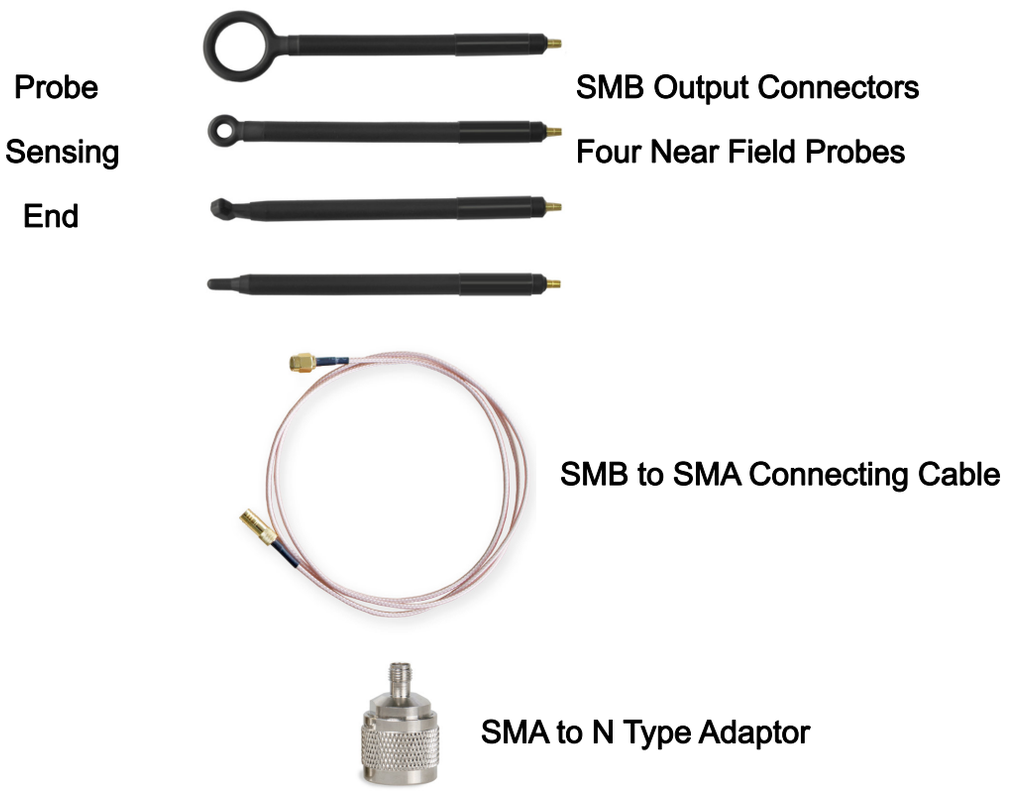
Note that if the spectrum analyser or oscilloscope does not cover the entire 3 GHz bandwidth then the results will be limited by the bandwidth limit of the spectrum analyser or oscilloscope.

Description of the individual probes

Model	Description	Characteristics
 T3SA3000-NFP-1	The T3SA3000-NFP-1 can be used at a distance of up to 10 cm from the DUT. The probe detects the spatial distribution of HF magnetic fields in devices and assemblies and allows the user to draw conclusions with regard to disturbance emissions. Frequency Range: 30 MHz to 3 GHz.	
 T3SA3000-NFP-2	The T3SA3000-NFP-2 can be used at a distance of up to 3 cm from the DUT. Interference sources can be localised by detecting the distribution and orientation of the field, therefore enabling a more precise interference source measurement and location. Frequency Range: 30 MHz to 3 GHz.	
 T3SA3000-NFP-3	The T3SA3000-NFP-3 detects the current which generates the field via the magnetic field circulating around a single conductor or multiple conductors. It is used for wide conductor runs. Resolution is approximately 5 mm. Frequency Range: 30 MHz to 3 GHz.	
 T3SA3000-NFP-4	The T3SA3000-NFP-4 is designed for the detection of magnetic fields which are emitted vertically from the surface of the DUT and is ideal for investigating current loops. The probe can measure in confined board areas Resolution is approximately 3 mm. Frequency Range: 30 MHz to 3 GHz.	

The T3SA3000-NFP kit comprises of:

1. Four Near Field Probes with SMB output connectors.
2. An SMB to SMA connecting cable.
3. An SMA to N Type adaptor.



If the probes are to be used with an oscilloscope then a SMA to BNC adaptor may be required (not supplied) since most oscilloscopes below 4 GHz use BNC input connectors.

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ABOUT TELEDYNE TEST TOOLS

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Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand extends the Teledyne LeCroy product portfolio with a comprehensive range of test equipment solutions. This new range of products delivers a broad range of quality test solutions that enable engineers to rapidly validate product and design and reduce time-to-market. Designers, engineers and educators rely on Teledyne Test Tools solutions to meet their most challenging needs for testing, education and electronics validation.

Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy has sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

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T3 stands for Teledyne Test Tools.

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