

## Product information 2016

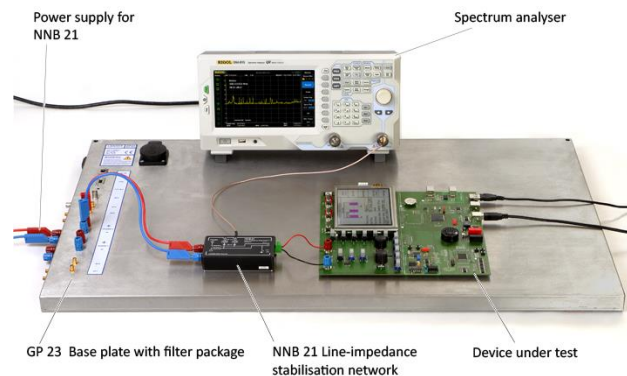
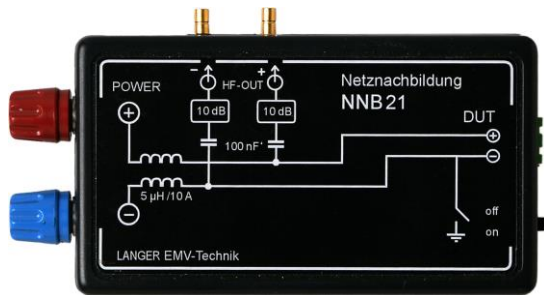
### NNB 21 set, Line-impedance stabilisation network

The NNB 21 line impedance stabilization network is designed for measuring of grid bound interferences of a device under test according to the standard CISPR 25/ISO 7637.

It measures the RF interference, which couples into the vehicle electrical system. Measurements during the development in a frequency range from 100 kHz to 1GHz can be carried out.

The NNB 21 line- impedance stabilisation network is designed for the measurement of grid bound interference emissions in wiring systems (automotive sector) and also for general use. Two circuits can be measured at the same time or seperately.

The measurement setup does not need to be changed. Measurement errors are minimised. If there are measurements on just one signal line, the second signal path can be grounded via a side switch of NNB 21. With the internal permanently installed 10 dB attenuation the supply of one source  $\neq 50$  Ohm (common case) achieves a significantly improved adaptation and more reliable measuring results.



NNB 21 set, Line-impedance stabilisation network

Application of NNB 21 on the working place of the developer



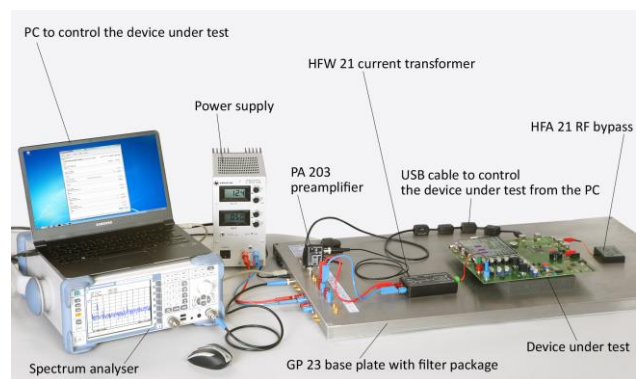
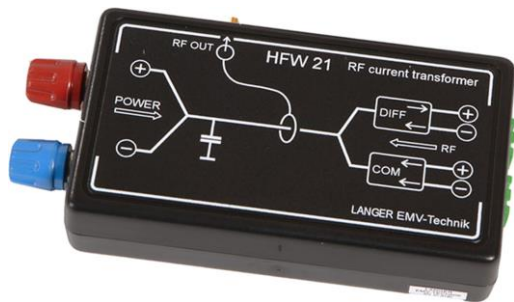
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### HFW 21 set, HF-Stromwandler

The RF current transformer measures high frequent currents on the device under test's lines. For reproducible measurements a metallic ground plane is needed as a reference surface . The small scale measurement setup on the developer`s working place allows for fast determinations of the EMC measuring impacts. The HFW 21 allows for a separate measurement of common mode- and differential mode currents.

The RF current transformer discharges the currents on the ground plane and allows the separate measurement of common mode and differential mode current. This can be helpful for the improvement of switching power supplies.

The HFW21 RF current transformer is connected to the power supply of the device under test. Interferences along the power supply lines are measured by HFW21. The measuring signal is transmitted to a spectrum analyzer. For measurements the current transformer`s contact surface is connected to the GP 23 basis plate.



### Stromwandler HFW 21

Application of HFW 21 on the working place of the developer



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### Software CS-ESA

The ChipScan-ESA analysis software from Langer EMV-Technik GmbH has been designed for the clear and comparable recording of a spectrum analyzer's measurement curves (system requirements: Windows XP and later).

It allows the user to visualize measuring curves quickly and interactively, perform complex analyses and export the curves easily.

The screenshot displays the CS-ESA software interface with several key components labeled:

- Diagram showing all selected measurement curves:** The main plot area shows multiple overlapping frequency spectra curves in various colors (green, blue, red, orange, purple).
- Annotation that can be activated for each measurement curve with a mouse click:** A callout box points to a specific curve with the text "Curve 42: 3.04 GHz: -56.1 dBm".
- Window for the annotations of all selected measurement curves:** A "Spectrum Analyzer Manager" window on the right side of the interface contains a list of curves and various control parameters like "Attenuation (dB)", "Sweep Time (s)", and "Resolution (Hz)".
- Assigned annotation:** A callout points to a specific entry in the "Trace Manager" table at the bottom, which lists curve names, units, and descriptions.
- Log:** A callout points to the "Log" column in the Trace Manager table.
- Icons to activate the application on the measurement curves:** A callout points to a set of small icons at the bottom of the interface used for interacting with the curves.
- Control of the spectrum analyzer:** A callout points to the "Spectrum Analyzer Manager" window, which provides controls for the analyzer's settings.

The user interface provides a clear overview of measurement curves of a spectrum analyzer. The Trace Manager allows the user to annotate, colour or offset the measurement curves. The Spectrum Analyzer Manager enables the user to control the most important spectrum analyzer functions via the user interface.

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The ChipScan-ESA software has been custom-developed for measurements in the field of electromagnetic compatibility (EMC). EMC emissions from a device under test can be analyzed using the ESA1 emissions development system from Langer EMV-Technik GmbH. ESA1 has been designed for the developer's workplace. The ChipScan-ESA software allows the developer to record the type and properties of any number of near-field emission measurements and compare the curves quickly and easily.

ChipScan-ESA has been tailored to suit the needs of the development process. The developer is particularly interested in pre- and post measurements during the EMC optimization of the device under test. Since the ChipScan-ESA software enables an easy comparison of several measurement curves, the developer can assess EMC measures taken in the device under test efficiently and quickly.

The following software features are particularly helpful for the developer in this respect:

- A random number of measurement curves can be recorded at any one time and shown in one diagram for a precise analysis of several measurements.
- Individual measurement curves can be shown and hidden and each curve can be assigned a certain colour or an extensive annotation. The annotation can be used to provide information about the measurement conditions that led to the respective curve.
- The LiveTrace feature allows a continuous display of the spectrum analyzer's measurement in the relevant window. During the live transmission, a random number of measurement curves that have been recorded beforehand can be shown for comparison. The developer can use this feature to check and further optimize the effect of an EMC countermeasure directly during its implementation.

The ChipScan-ESA software can be used to record any number of measurements of a spectrum analyzer and store them in a file. The following features are available for handling the recorded measurement curves:

- A random number of measurement curves can be compared directly.
- User-defined correction curves can be created.
- Existing correction curves can be imported into the ChipScan-ESA software and applied to the recorded measurement curve.
- Measurement curves can be added and subtracted.
- Maximum or minimum curves of selected measurement curves can be calculated.
- Selected measurement curves can be smoothed and trimmed.

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These features help greatly reduce the time and money spent analyzing measurement curves.

The ChipScan-ESA software can also be used to generate and export image data that may be required for a documentation or presentation, for example. In addition, all measurement curves can be exported to R, Matlab or Excel as a comma separated value (.csv) list for further processing.

Nevertheless ChipScan-ESA is not limited to EMC problem analysis or work with the ESA1 system. It is also a versatile tool for acquiring and processing data from measurement curves of a spectrum analyzer.

To receive the ChipScan-ESA viewer free of charge, please contact [mail@langer-emv.de](mailto:mail@langer-emv.de).