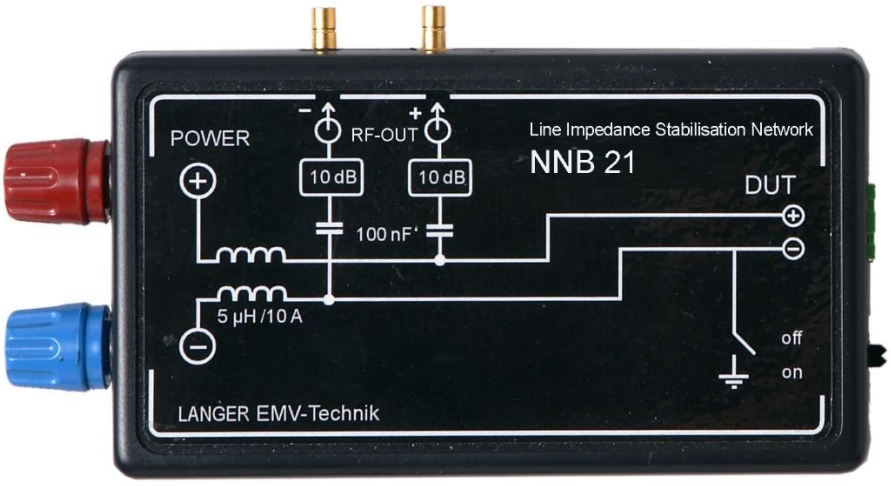
LANGER
EMV-Technik

User Manual

Line Impedance Stabilization Network
NNB 21 set



Measurement of conducted disturbance emissions

Content

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1 Declaration of Conformity

Manufacturer:

Langer EMV-Technik GmbH
Nöthnitzer Hang 31
01728 Bannewitz
Germany

Langer EMV-Technik GmbH herewith declares that the

NNB 21 set, Line Impedance Stabilisation Network

conforms with the following relevant regulations:

- Restriction of certain Hazardous Substances 2011/65/EU

The following applicable standards were used to implement the requirements specified by the aforementioned directives:

- DIN EN IEC 63000:2019-05 (Restriction of hazardous substances)

Note: This product does not fall within the scope of CE marking requirements, as it has no independent electrical function.

Name of the person authorized to compile the technical documentation:

Katja Langer

Bannewitz, 2025-12-18

Signature:

K. Langer, Managing Director

2 General Information

2.1 Storage of the User Manual

This user manual enables the safe and efficient use of the NNB 21 set. It must be kept close at hand and accessible to the use.

2.2 Reading and Understanding the User Manual

Read the user manual carefully, observe the safety information (Chapter 3) and follow the instructions given in this manual before putting the device into service.

2.3 Local Safety and Accident Prevention Regulations

The local accident prevention and general safety regulations also apply to ensure that the NNB 21 set is used for its intended purpose.

2.4 Images

Figures and images have been included in this user manual to assist the reader's understanding but may differ from the device's actual version.

2.5 Limitation of Liability

In the following cases, Langer EMV-Technik GmbH can assume no liability for damage to property and personal injury if:

- The information given in this user manual has not been observed.
- NNB 21 set was operated by staff not qualified in the field of EMC.
- NNB 21 set was subjected to unauthorized modifications or technical changes.
- NNB 21 set was not used according to its intended purpose.
- Spare parts or accessories were used that had not been approved by Langer EMV-Technik GmbH.

The actual scope of delivery may deviate from the illustrations and texts in this user manual due to the customization of orders or due to technical changes and innovations.

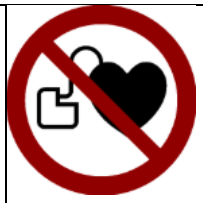
2.6 Errors and Omissions

The information in this manual has been carefully checked and is believed to be accurate; however, the Langer EMV-Technik GmbH assumes no responsibility for any clerical, typographical, or proofreading errors, or omissions.

2.7 Copyright

3 Safety

3.1 Labels and Signs

		
General warning sign	Warning; Electricity	Prohibition sign; No access for people with active implanted cardiac devices.
Table 1: Safety signs		

Safety instructions in this user manual are marked by symbols (**Table** 1). Observe the safety precautions and act cautiously to avoid accidents as well as personal and material damages.

3.2 Intended Use

The NNB 21 set (LISN - line impedance stabilisation network) is designed for the measurement of conducted interference emissions in wiring systems (automotive sector) and also for general use. The NNB 21 set can measure two circuits separately or simultaneously.

Measuring the circuits simultaneously or separately does not impact the measurement setup. This minimizes measurement errors. If there are measurements on just one signal line, the second signal path can be grounded via a side switch of NNB 21 set.

3.3 Reasonably foreseeable Misuse

	**Danger resulting from misuse!** **Misuse of the NNB 21 set can lead to dangerous situations!**
Warning!	

Incorrect applications of the sets include:

- Use of the product outside of the given specifications.
- Modification or changes to the product without the consent of Langer EMV Technik GmbH.
- Operation of the product with a technical defect.

3.4 Staff Requisition

Only qualified staff with training, knowledge, and experience in the field of EMC is allowed to operate the NNB 21 set.

Persons whose ability to perform is influenced or impaired by alcohol, drugs, or pharmaceuticals, are not allowed to operate the NNB 21 set.

4 Scope of Delivery

Item	Designation	Type	Qty.
01	Line impedance stabilisation network	**NNB 21**	1
02	Measurement cable	SMB-BNC 1 m	1
03	Terminal block, 2-polie	AK 2 pole	4
04	User manual	NNB 21 m	1
05	System Case	NNB 21 case	1

Important: The scope of delivery may differ depending on the respective order.

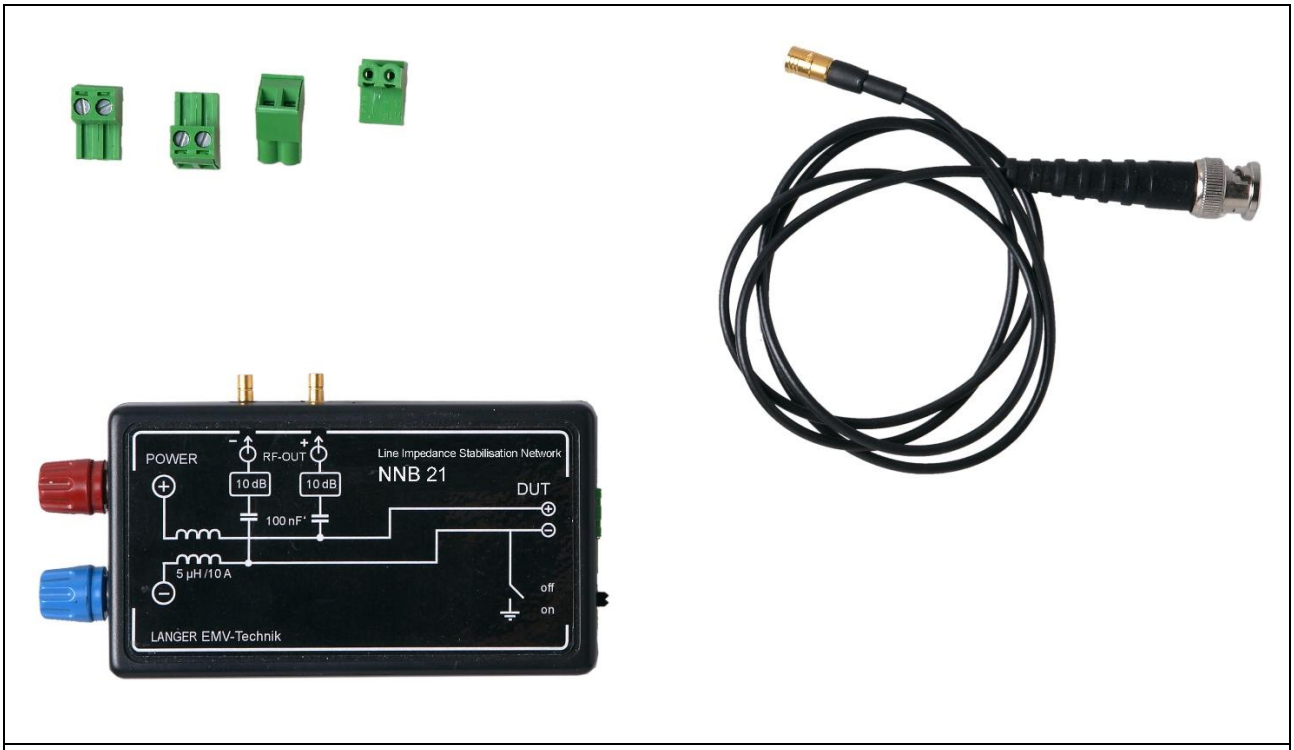


Figure 1: NNB 21 set case

5 Application

The measurement set-up should be configured as follows:

- Place the DUT and line-impedance stabilization network on a ground plane,
- Insert the NNB 21 into the supply line between the DUT and power source,
- Use cables that are as short as possible and lay them as straight as possible between the DUT and the NNB 21
  → for frequencies up to 100 MHz less than 30 cm,
  → for measurements with an upper limit frequency of 1 GHz less than 5 cm,
- If both connections of the NNB 21 are used to supply the DUT and the GND switch is open, the NNB 21 measures the total current (common mode) of both lines.
- For a separate measurement of the HF current in the positive line (⊕ \ Kl 30), the negative DUT connection must be connected to ground via the ground switch (switch closed). For this operating mode, the NNB 21 must be placed directly on the ground plate and the DUT ground must be connected to the ground plate.

  Alternatively, the DUT can also be supplied via a single line of the NNB 21. The second line must be laid separately.
- To measure the negative line (⊖ \ Kl 31), switch off the GND switch.

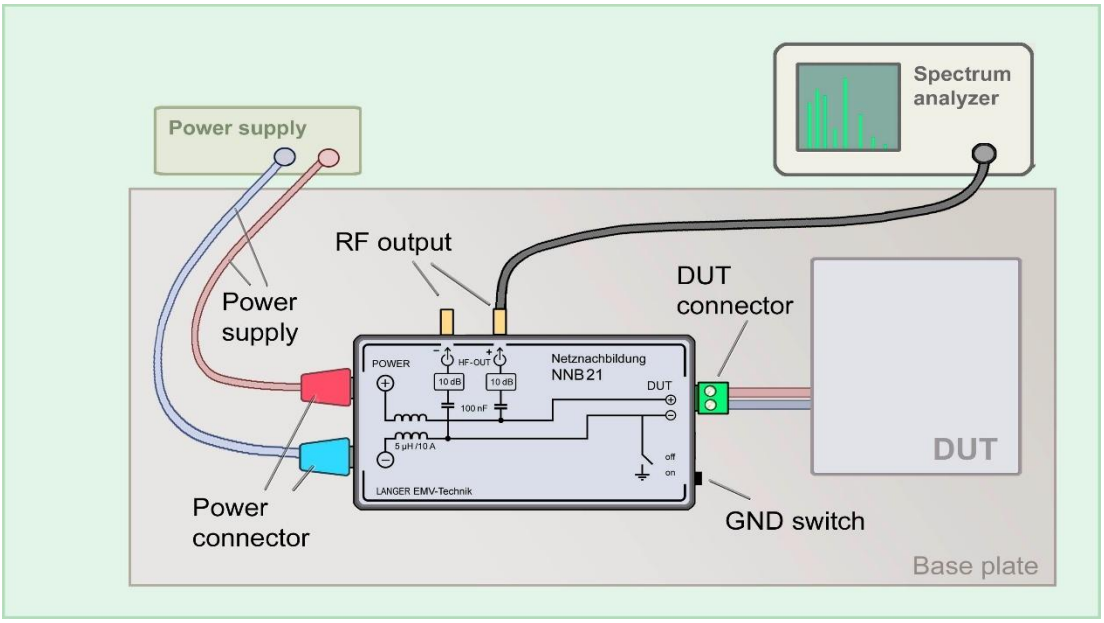


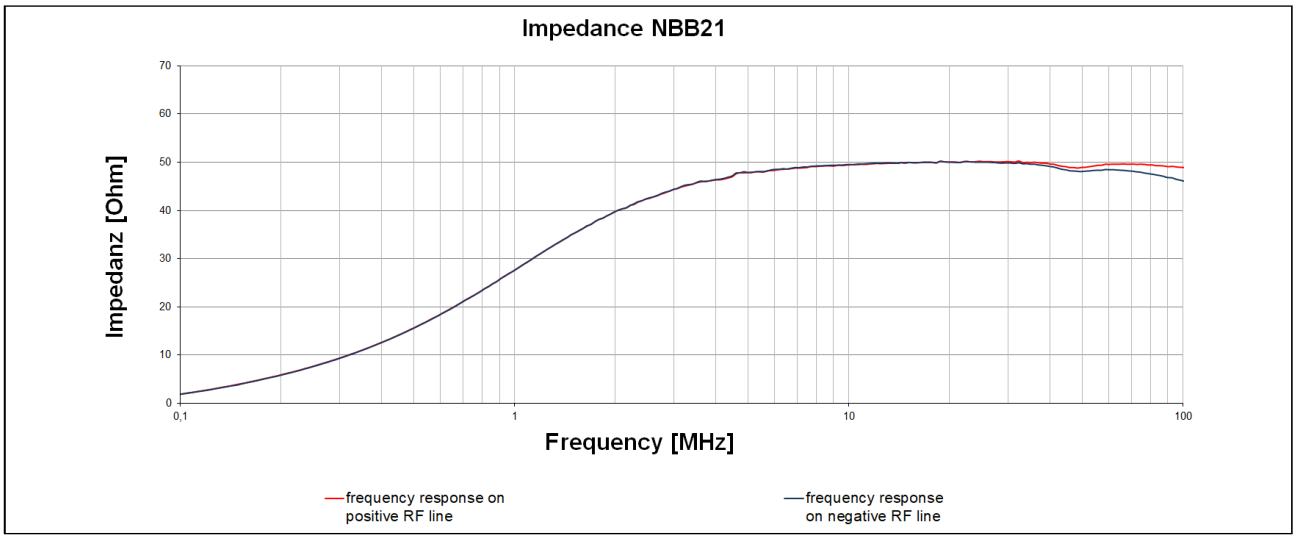
Figure 2: Measurement setup

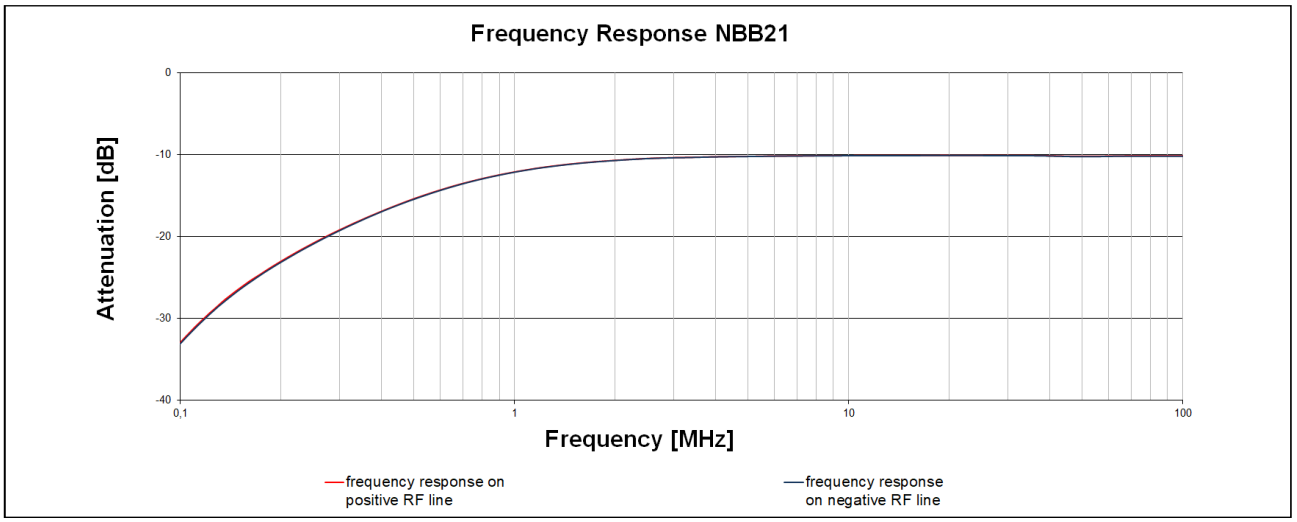
6 Technical Parameters

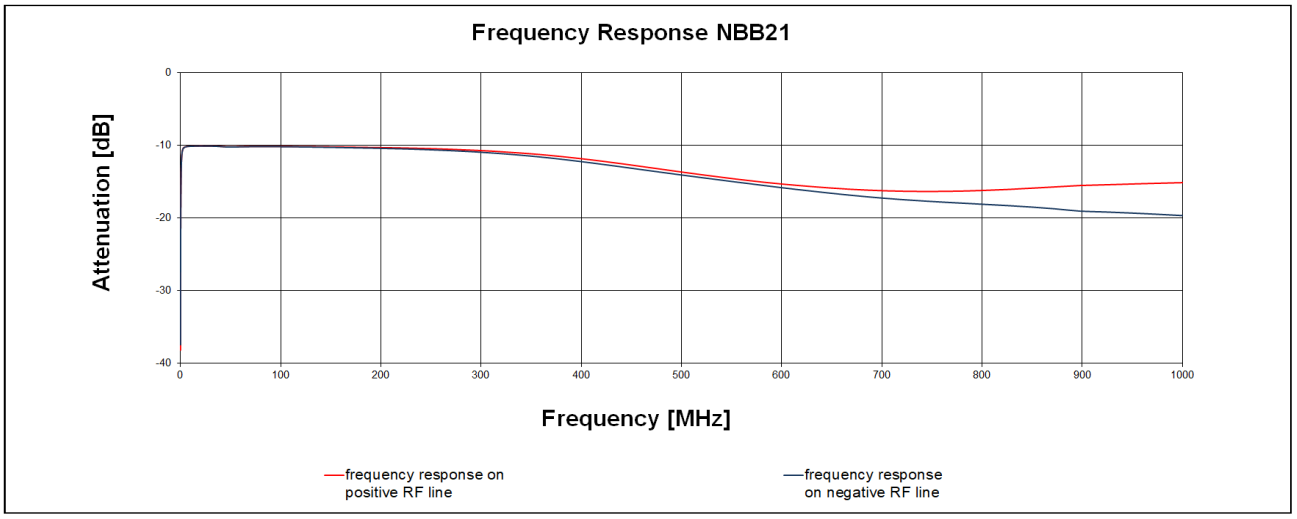
RF-Path	
Measuring channels	2, one path can be deactivated
Frequency range	100 kHz – 1 GHz
Internal damping	10 dB

Board networks path	
Max. continuous current	10 A
Max. operating voltage	50 V
DC resistance	< 20 mΩ

Typical frequency response:



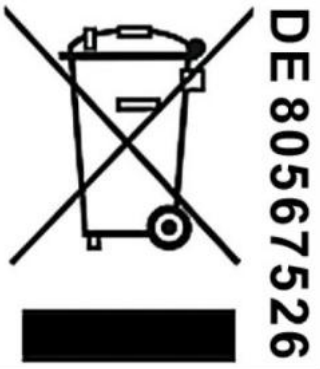




7 Information on Recycling and Disposal

In accordance with the WEEE Directive 2012/19/EU (Waste of Electrical and Electronic Equipment), the following must be observed:

At the end of its service life, this product should be taken to a suitable disposal facility for recycling and disposal. Do not dispose of with household waste.



8 Customer service

Please contact us if you have any questions, comments or suggestions.

You can contact us:

Monday – Friday
8:00 Uhr bis 15 Uhr (CET)

Contact us at:

Address: Langer EMV-Technik GmbH
Nöthnitzer Hang 31
01728 Bannewitz
Germany

Internet: https://www.langer-emv.com/
E-mail: sales@langer-emv.de
Phone: +49 (0) 351-430093-0
Fax: +49 (0) 351-430093-22

Calibration

We recommend having the product calibrated every two years by the manufacturer Langer EMV-Technik GmbH or by a certified distributor.

9 Warranty

Langer EMV-Technik GmbH shall remedy all defects attributable to material or manufacturing faults within the statutory warranty period by repairing the product or supplying replacement parts.

This guarantee is only granted on condition that:

- the information and instructions in the operating instructions are observed.

The guarantee expires if:

- an unauthorized repair is carried out on the product
- the product is modified
- the product is not used as intended

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