

MODEL NUMBER:

**LISN-CISPR25-800**

**Single path high voltage AMN (LISN)**



### Application:

The main application of the unsymmetrical single path AMN (artificial mains network) LISN-CISPR25-800 is the measurement of inter-ference voltage for electromobility purposes according to CISPR 25 edition 4 or BMW GS 95025-1 in the HF-VHF range 0.1 MHz – 150 MHz utilizing shielded cables. It can also be used for BCI tests using an external 50 Ω termination.

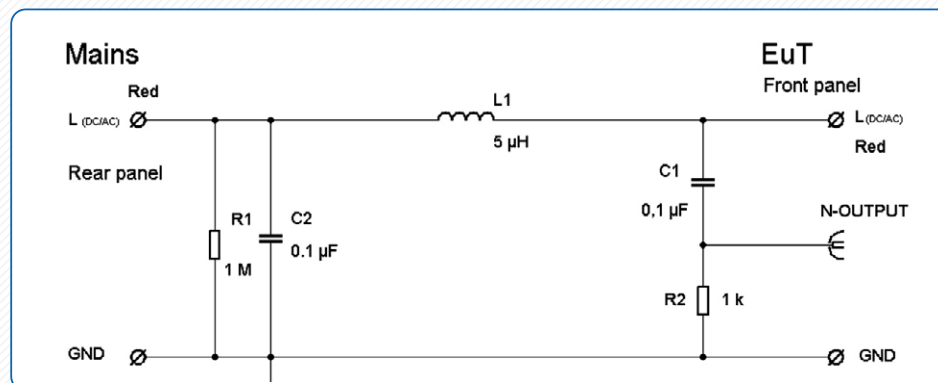
The impedance characteristics are basically realized by connecting an inductor in parallel with the input impedance of the measurement receiver:  $5 \mu\text{H} \parallel 50 \Omega$ .

The LISN has been designed to be installed into a shielded housing HVSE 8601 in pairs. Each LISN-CISPR25-800 can be used to measure one single path. To be able to measure HV+ and HV- 2 units are required. The device under test has to be connected to the terminal at the front panel. The supply voltage has to be connected at the back panel. The shield is connected to the HVSE 8601 feed through.

### Specifications:

Frequency Range	0.1 – 150 MHz
Max. cont. current	500 A
Max. current (limited time)	800 A
Max voltage (DC)	1000 V
Max. voltage (AC 50/60 Hz)	700 V <sub>rms</sub>
Max. voltage (AC 400 Hz)	300 V <sub>rms</sub>
Impedance	$5 \mu\text{H} \parallel 50 \Omega$ (+/- 10%)
DC-Resistance mains-EuT	< 1.3 mΩ
Impedance (50 Hz)	2 mΩ
Impedance (400 Hz)	12.6 mΩ
EuT connectors:	screw terminal, see foto
Clamping range HV-cable	0,15 - 0,59 in
Measuring port:	N-connector
Dimensions (W x H x D)	8,8 x 9,4 x 16 in
Weight	26,8 lb

### Principle circuit diagram of the LISN-CISPR25-800



## Interference voltage measurements acc. to CISPR 25

Mains are connected at the back side. The 0.1  $\mu\text{F}$  capacitor located at the backside is connected to ground. The device under test has to be connected to the front panel. The RF-interference voltage emitted by the equipment under test can be measured at the N-connector using an EMI receiver.

One LISN (that fits into a shielding enclosure HVSE 8601) has to be used for each path. The supply line has to be connected to the red terminal of one LISN and the return line has to be connected to the red terminal of the other LISN. The measurement port that is not being used at the moment has to be terminated with 50  $\Omega$ .

The RF-ground of both LISNs has to be connected to the GND-terminals. The GND connection with the massive brass wing terminals provides the mechanical and electrical connection to the housing HVSE 8601. To connect the inner conductor of the shielded cables with the red terminal of LISN-CISPR25-800 it is required to duct it through the outer housing at first. When the cable end is inside the housing the screw terminals are attached and the cables can be connected to LISN-CISPR25-800. Two pieces of screw terminals are within the scope of delivery of the LISN-CISPR25-800 series. The short RF-cables to connect the measurement outputs with the housing are within the scope of delivery of the shielded enclosure HVSE 8601.

## Immunity tests with bulk current injection (BCI-tests):

The LISN-CISPR25-800 can be used for bulk current injection tests using suitable current injection clamps.

A sufficient air-circulation must be provided to avoid overheating of the LISN. Do not cover the LISN and the shielded enclosure! The external 50  $\Omega$  dummy load must be placed outside of the HVSE 8601 allowing good air circulation.

A light smell of coating and insulating material may appear in the first hours of operation, take care for not inhaling the emitted gas. The smell will disappear after some hours of operation at high temperature.

During bulk current injection tests danger may arise by high field strengths and temperatures (fire hazard!), therefore these tests must be performed by qualified personnel only! The relevant safety precautions must be considered!

The power injected at the EuT-terminals is being converted to heat inside the external 50  $\Omega$  terminating resistor. **Please choose the power rating of the resistor according to the expected maximum of the RF-power!**

*Please note: The injected RF-power passes from the EuT-terminals directly to the N-connector without any attenuation. Eventually connected RF-measuring equipment may be damaged!*





## Calibration Certificate SS230515812380000326

**Equipment under Calibration:** LISN-CISPR25-800

**Manufacturer:** The EMC Shop 7401 Galilee Rd. #160  
Roseville, CA 95678, USA  
Phone: 844.423.7435 | 916.918.2975

**Serial Number:** 8123-800 00326

**Calibration Method:** CISPR 25 Ed. 4

**Measurement Uncertainty:** < + / - 0.2 dB (Insertion Loss)  
< + / - 5 % (Impedance/Magnitude)

**Date of calibration:** 15-MAY-2023

**Date of issue:** 15-MAY-2023

**Operator:** Brendon Berg

**Calibration Results:** Data compliant to specification (see calibration data)

*This calibration certificate confirms that the referenced equipment under calibration was measured according to well defined procedures. Unless stated elsewhere, the measurement results are within the specified measurement uncertainty, assuming a confidence interval of 95.5% probability (k=2).*

*The test equipment used for calibration purposes is either directly or indirectly traceable to national or international standards, applying worldwide approved techniques and the International System of Units (SI). In cases where no national or international standards exist, the traceability was based on The EMC Shop laboratory standards.*

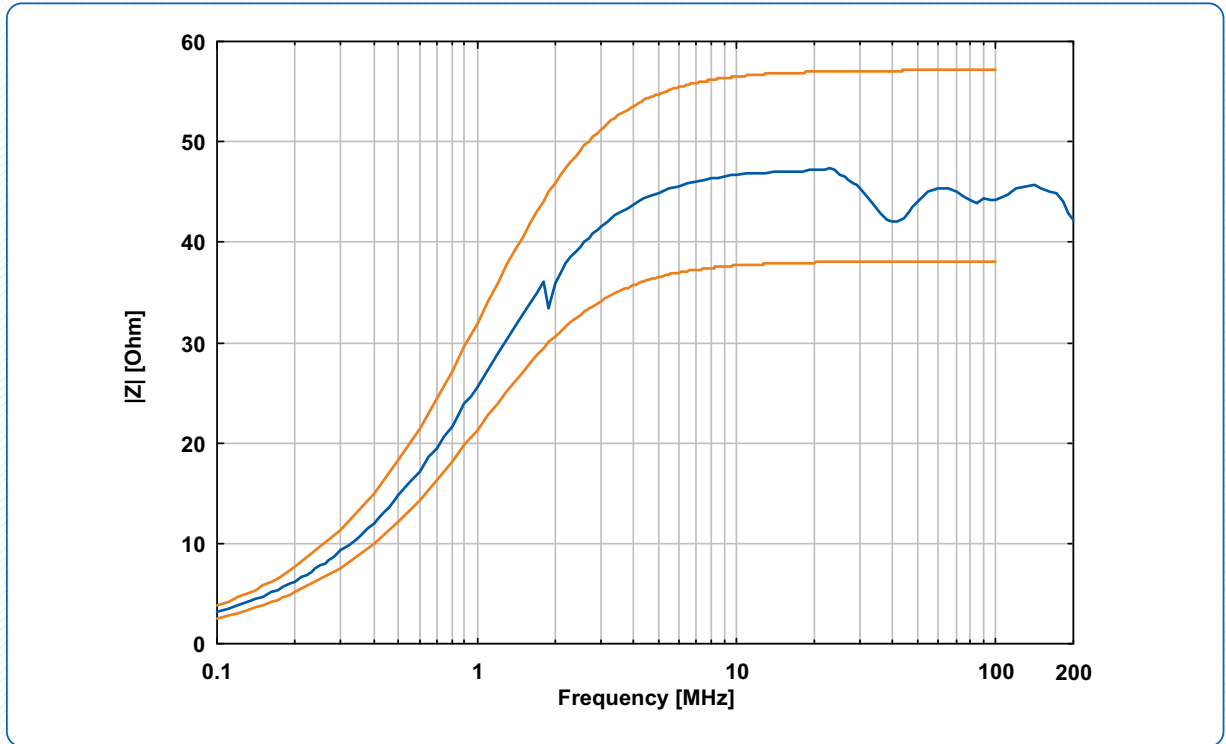
*The procedures and methods applied for calibration and quality management are in accordance with EN ISO/IEC 1 7025 and DIN EN ISO 9001.*

Managing Director: \_\_\_\_\_

A handwritten signature in blue ink, appearing to read "Brendon Berg", written over a horizontal line.



**Measured Impedance at EuT Terminals, N Port is with 50 Ω Termination**



FREQUENCY [MHZ]	VDF [DB]
0.1000	0.533
0.1100	0.477
0.1200	0.421
0.1300	0.382
0.1400	0.348
0.1500	0.325
0.1600	0.297
0.1700	0.279
0.1800	0.264
0.1900	0.250
0.2000	0.242
0.2100	0.230
0.2200	0.222
0.2300	0.212
0.2400	0.207
0.2500	0.202
0.2600	0.197
0.2700	0.192
0.2800	0.187
0.2900	0.183
0.3000	0.180
0.3200	0.175
0.3400	0.172
0.3600	0.167

FREQUENCY [MHZ]	VDF [DB]
0.3800	0.162
0.4000	0.159
0.4200	0.156
0.4400	0.154
0.4600	0.152
0.4800	0.150
0.5000	0.149
0.5500	0.146
0.6000	0.145
0.6500	0.143
0.7000	0.142
0.7500	0.140
0.8000	0.140
0.8500	0.138
0.9000	0.138
0.9500	0.138
1.0000	0.137
1.1000	0.137
1.2000	0.136
1.3000	0.136
1.4000	0.136
1.5000	0.135
1.6000	0.134
1.7000	0.134

### Environmental Conditions:

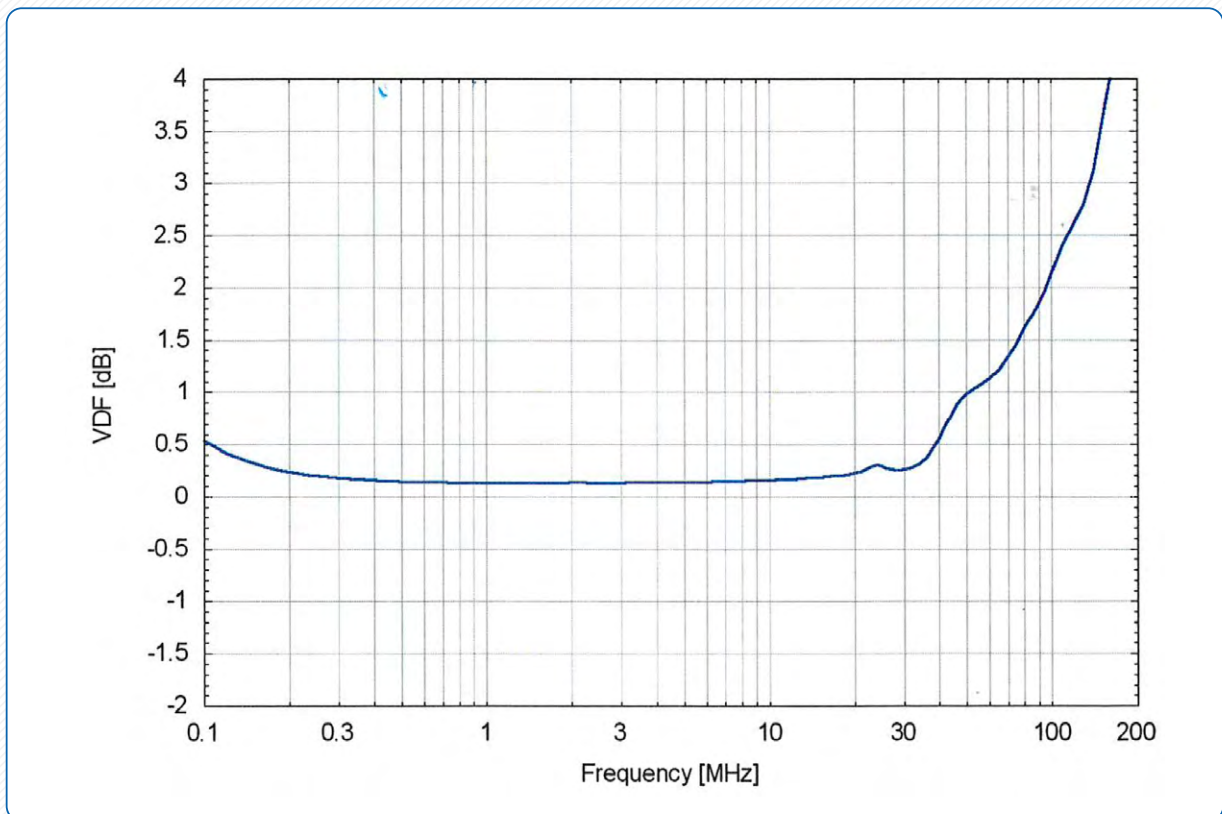
Temperature: **23° +1- 3° C**

Relative Humidity: **20% - 60%**

This calibration includes a normalisation of the voltage at the EuT terminals of the LISN with terminated LISN output. Then the measurement of the insertion loss from the EuT terminals to the N terminals of the LISN is made.

The Impedance at the EuT terminals is determined with the EMC receiver-connector terminated with 50 Ω. The use of an appropriate calibration adapter is mandatory to get accurate results.

### Voltage Division Factor, EuT-Terminals to N (Adapter required)



[WWW.THEEMCSHOP.COM](http://WWW.THEEMCSHOP.COM)



[SALES@THEEMCSHOP.COM](mailto:SALES@THEEMCSHOP.COM)



844.423.7435



THE EMC SHOP, 7401 GALILEE RD. #160 ROSEVILLE, CA 95678