

2 μ H Line Impedance Stabilisation Network

1 Introduction

The TBL0225-2B is a two-paths 50 Ω // 2 μ H LISN characterized from 10 Hz – 200 MHz . It is based on the standard ECSS-E-ST-20-07C Rev 1. The standard provides the general schematic of the LISN and allows for some flexibility in component values. The TBL0225-2B implementation aims for use in EMC measurements of satellites and spacecraft. The LISN does not have an output for conducted emission measurements; instead, it merely functions as a network for line impedance stabilisation. An RF current monitoring probe is used to measure conducted emissions, according to the standard.

The 2 μ H inductor mimics the typical inductance of the supply wire harness in spacecraft or satellites. The LISN is inserted into the power line and power return line of the EUT.

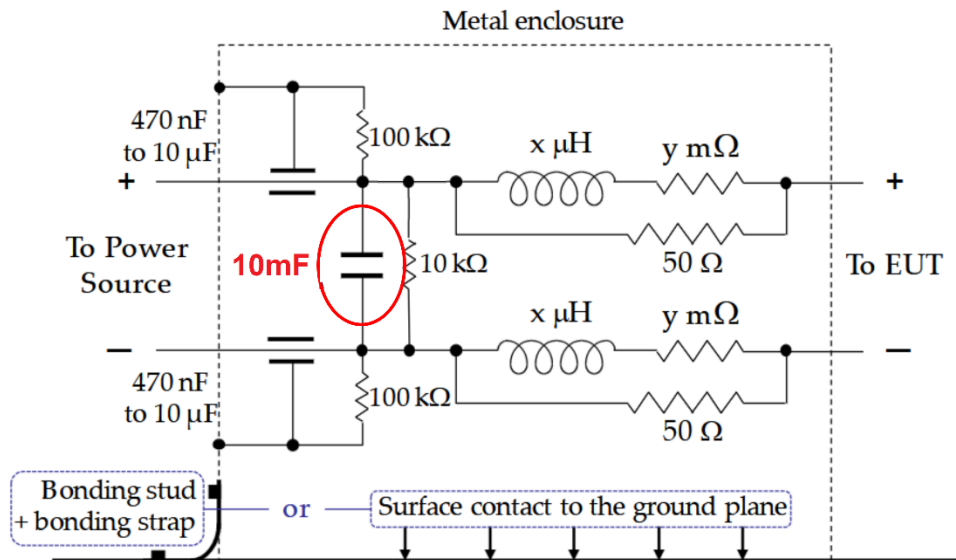


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2 Parameters

LISN type:	V-AMN, 50 Ω // 2 μ H
Characterized frequency range:	10 Hz – 200 MHz
DC Resistance:	100 m Ω per path
Internal capacitor:	10000 μ F between “+” path and “-” path; polarized
Maximum current:	25 A continuous
Operating voltage range:	0 – 100V DC
EUT / SOURCE terminals:	4 mm banana sockets
Dimensions:	W 260 mm x L 140 mm x H 150 mm
Weight:	4.1 kg

3 Principle Schematics



Picture 1: Principle schematic

$$X = 2 \mu\text{H} \quad Y = 100 \text{ m}\Omega$$

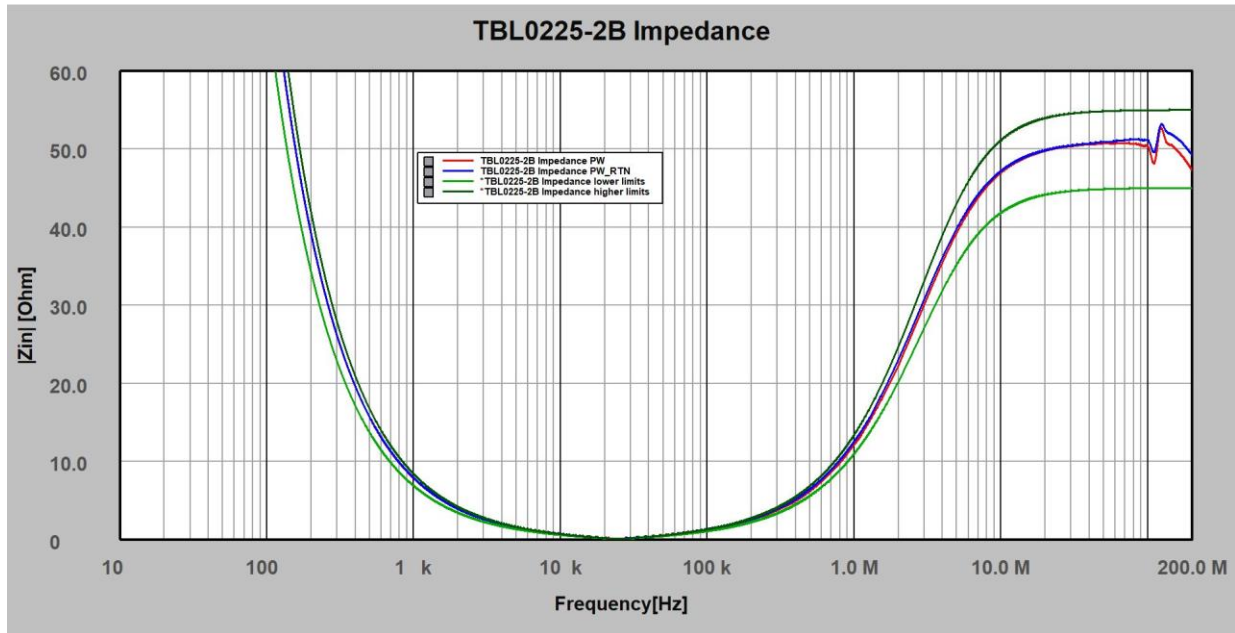
The TBL0225-2B is equipped with an internal 10000 μ F electrolytic capacitor

Ensure that the polarity of the connected power source matches with the polarity marked at the LISN housing
Reversed polarity will damage the electrolytic capacitor!

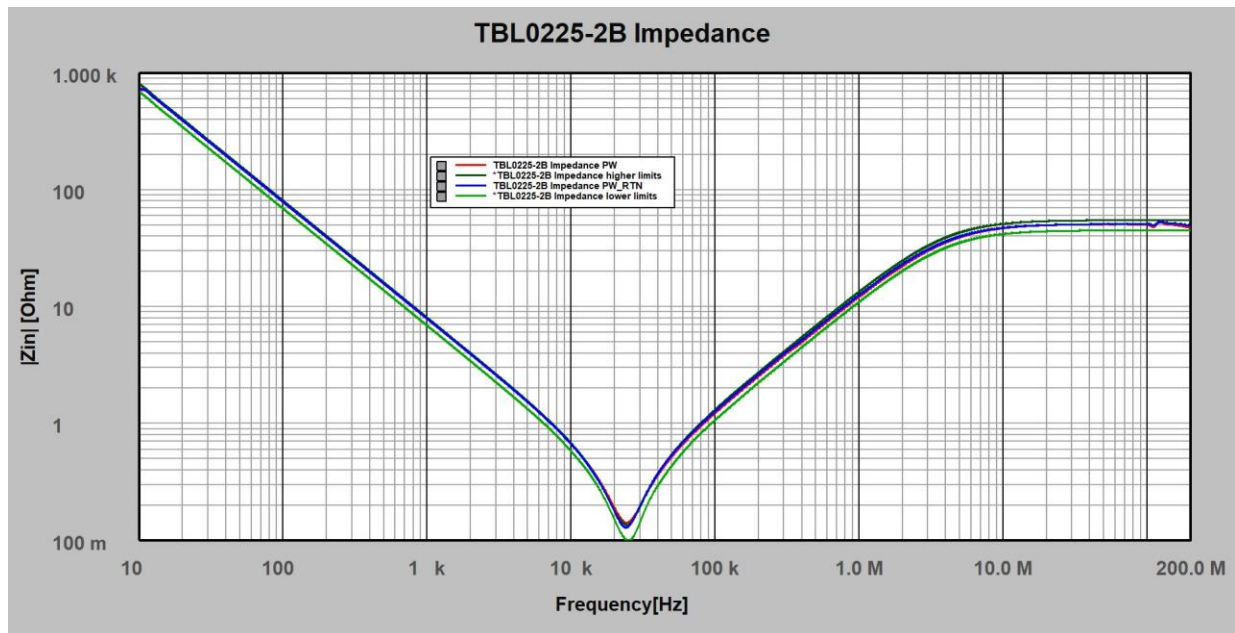
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4 Impedance

The standard does not specify impedance limits. The green traces represent a $\pm 10\%$ tolerance band of the simulated impedance (ideal components / no parasitic).

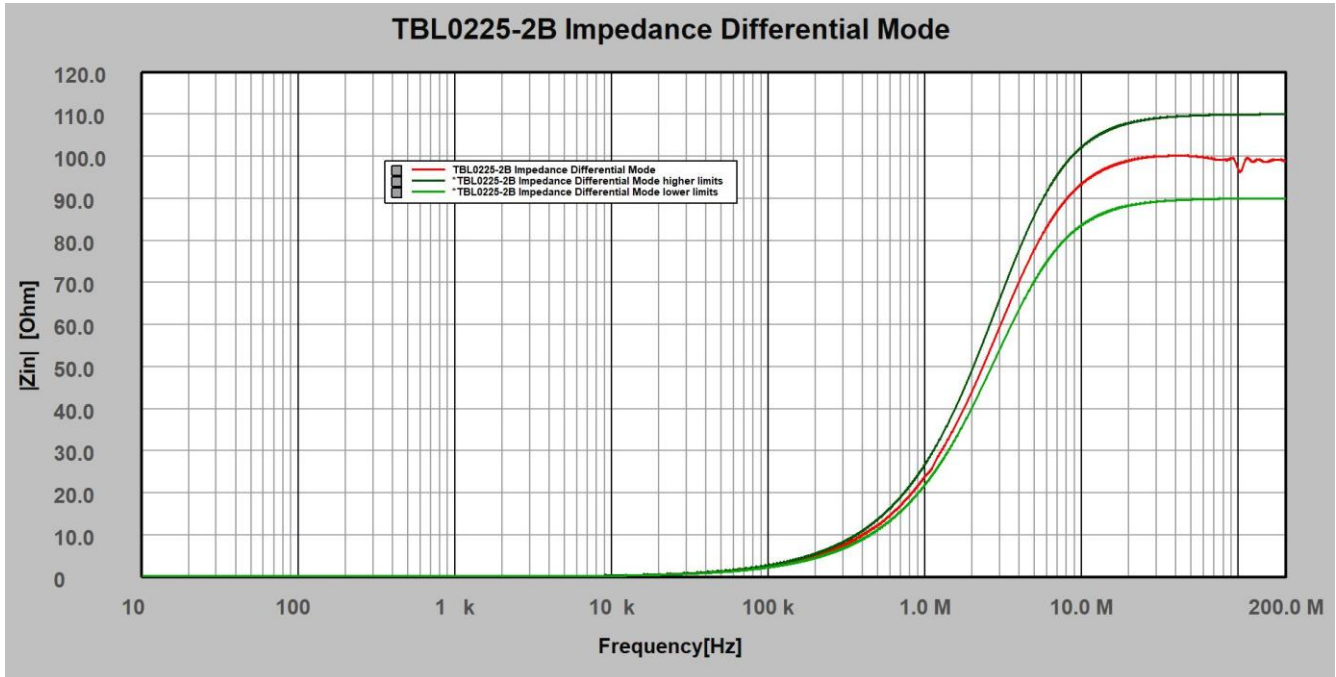


Picture 2 : Impedance 10 Hz – 200 MHz between plus/minus EUT-Terminal and the metal enclosure of the LISN; source terminals open, typical data

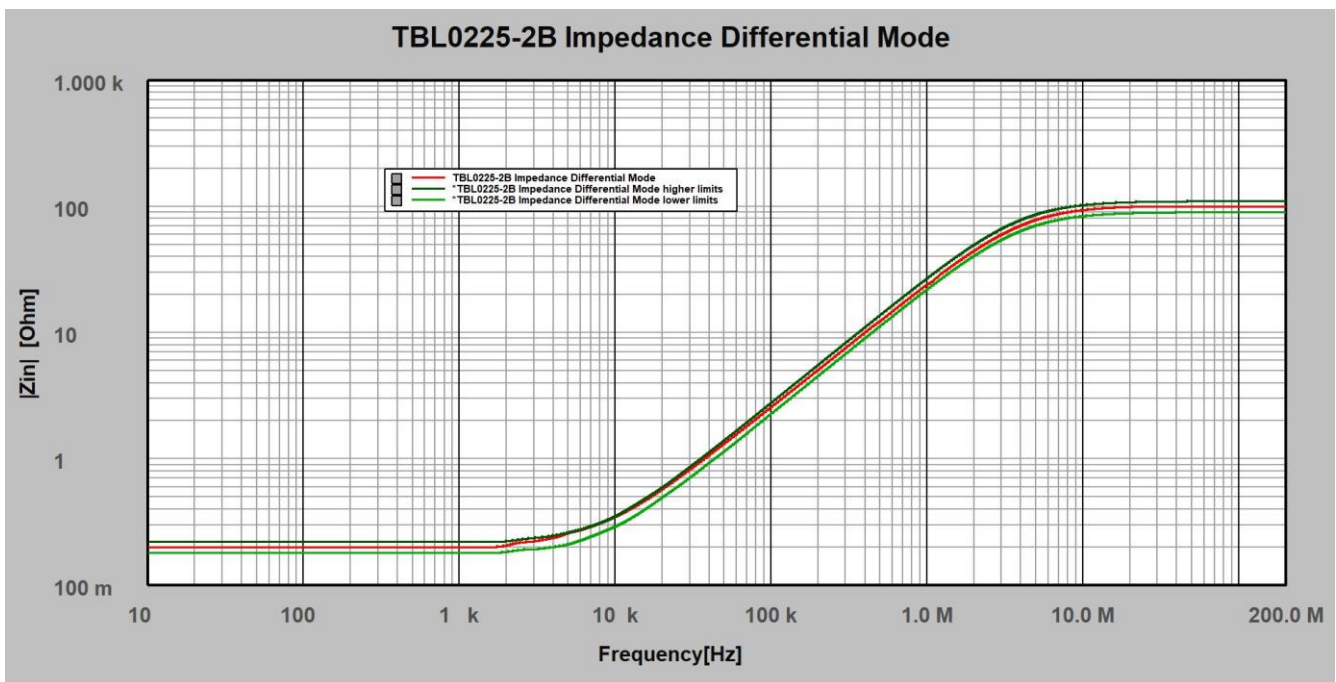


Picture 3 : Impedance 10 Hz – 200 MHz between plus/minus EUT-Terminal and the metal enclosure of the LISN; logarithmic impedance axis, source terminals open, typical data

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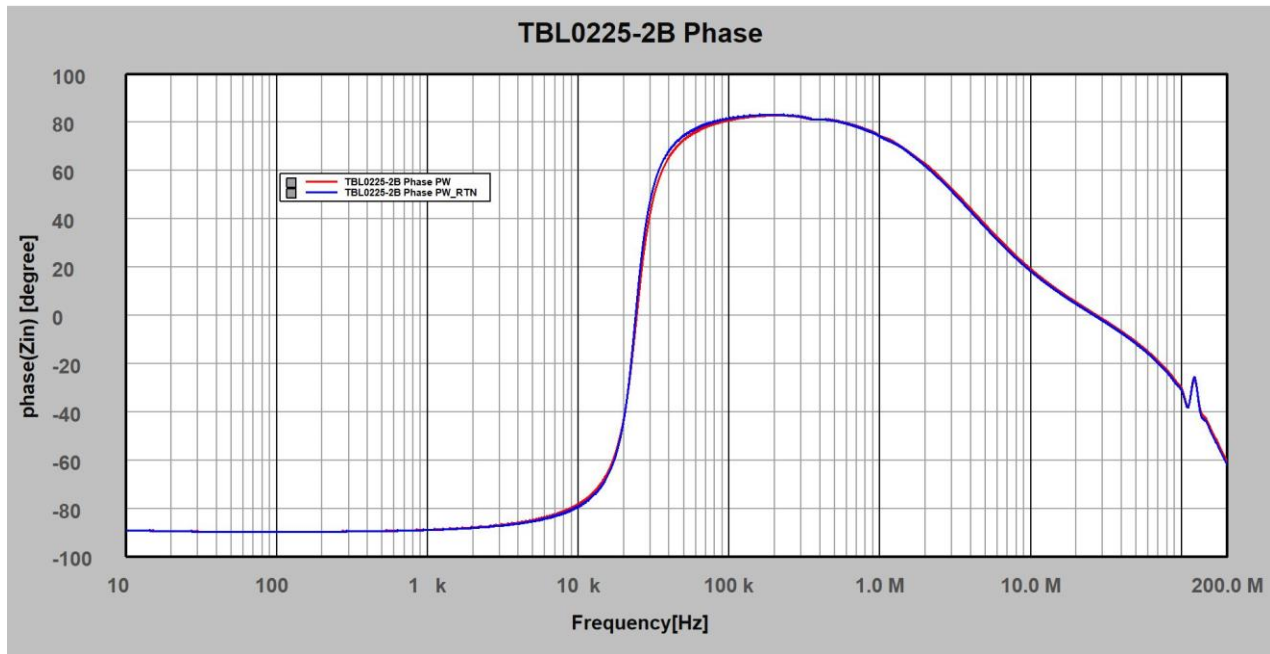
Picture 4 : Impedance 10 Hz – 200 MHz between plus/minus EUT terminals; source terminals short, typical data



Picture 5 : Impedance 10 Hz – 200 MHz between plus/minus EUT terminals; source terminals short, typical data

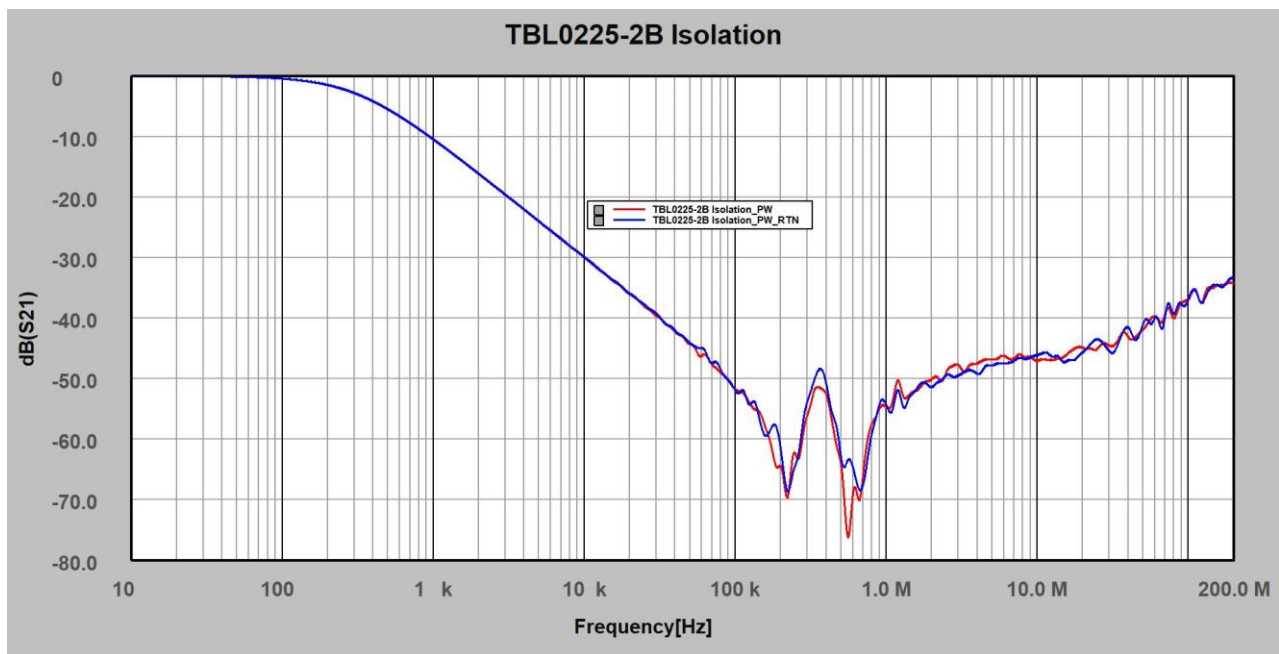
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5 Phase



Picture 6 : Input phase: 10 Hz – 200 MHz between plus/minus EUT-Terminal and the metal enclosure of the LISN; source terminals open, typical data

6 Isolation



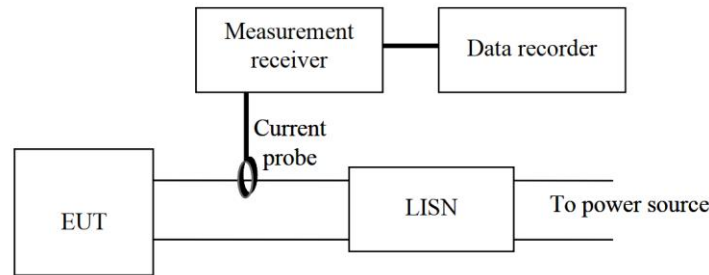
Picture 7 : Isolation from SOURCE terminals to EUT terminals: 10 Hz – 200 MHz, typical data

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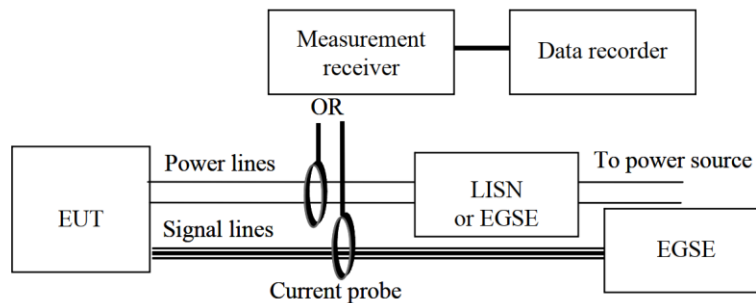
7 Measurement of conducted emissions

ECSSEST2007C specifies differential mode conducted emission measurements on power leads in the frequency range of 10 Hz to 150 MHz.

Furthermore, ECSSEST2007C specifies common mode and differential mode conducted emission measurements on power and signal leads in the frequency range of 10 Hz to 150 MHz.



Picture 8 : Conducted emission, differential mode, measurement setup



Picture 9 : Conducted emission, common mode, measurement setup

*) EGSE: electrical ground support equipment

Tekbox also provides suitable RF current monitoring probes, such as the TBCP2-30K400.

LISN are also required in other ECSSEST2007C measuring setups:

Radiated emission – electric field; inrush current; conducted susceptibility – signal injection; conducted susceptibility – bulk cable injection; conducted susceptibility – transients; conducted susceptibility – spike series / parallel injection; radiated susceptibility – magnetic field; radiated susceptibility – electric field;

8 References

ECSS-E-ST-20-07C Rev. 1

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9 Ordering Information

Part Number	Description
TBL0225-2B	2 μ H ECSS LISN, two path
TBCP2-30K400	Optional accessory: RF current monitoring probe for CE measurements

10 History

Version	Date	Author	Changes
V1.0	28.08.2026	Van Tieu	Creation of the document