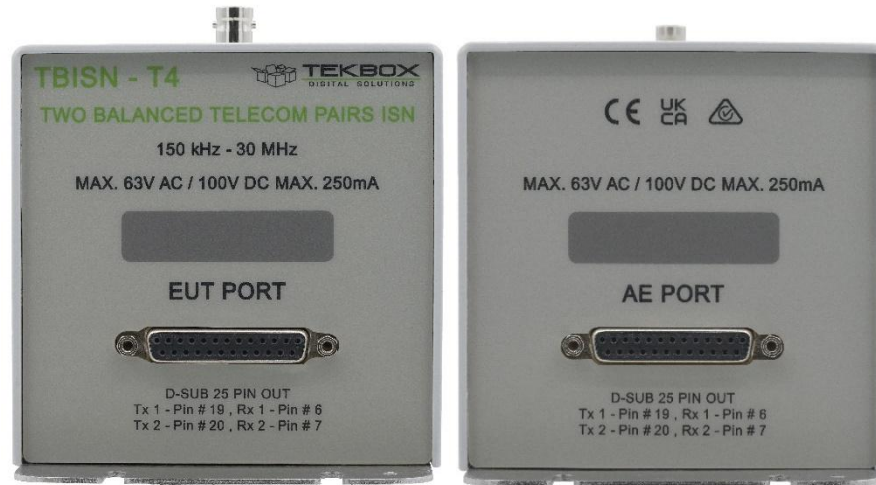


TBISN-T4 TWO BALANCED PAIRS ISN

Per CISPR 22 (2005), ISN's are specialized coupling decoupling devices used for measuring the conducted asymmetric common mode radio interference voltages of ITE. TBISN-T4 has been designed to perform conducted emissions test per CISPR 22 on two balanced pair telecom lines. It meets the requirements for Longitudinal Conversion Loss defined in CISPR 22 item 9.6.2.c)1) page 24 accepted by CISPR.

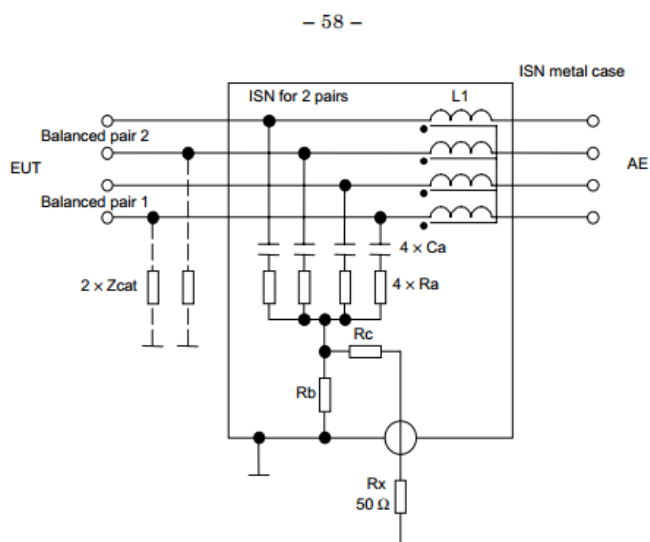


TBISN-T4 TWO BALANCED PAIRS ISN

1 Technical Data :

Technical data	Specifications
Frequency Range:	150 kHz - 30 MHz
Impedance (asymmetric):	150 $\Omega \pm 20 \Omega$
Phase (asymmetric):	0° $\pm$ 20°
Longitudinal Conversion Loss (LCL):	CISPR 22 item 9.6.2.c)1) page 24
Voltage Division Ratio (VDF) for asymmetrical voltage:	10 dB +/- 1 dB
EuT, AE Terminals:	D-SUB 25
Measuring Port:	50 Ω BNC
Max. Voltage:	63V AC / 100V DC
Max. Current:	250mA
Insertion Loss (Differential Mode):	< 3dB
Decoupling AE-EuT:	150kHz to 1.5 MHz > (35dB to 55dB); > 1.5MHz (> 55dB)
Outer dimensions (W x H x D):	100 x 100 x 235 mm
Weight approx.:	1.0 kg
According to standards:	CISPR 16-1-2,CISPR 22,CISPR 32 & CISPR 15
Operating Temperature:	+5° C to 40°
Relative humidity:	up to 80%

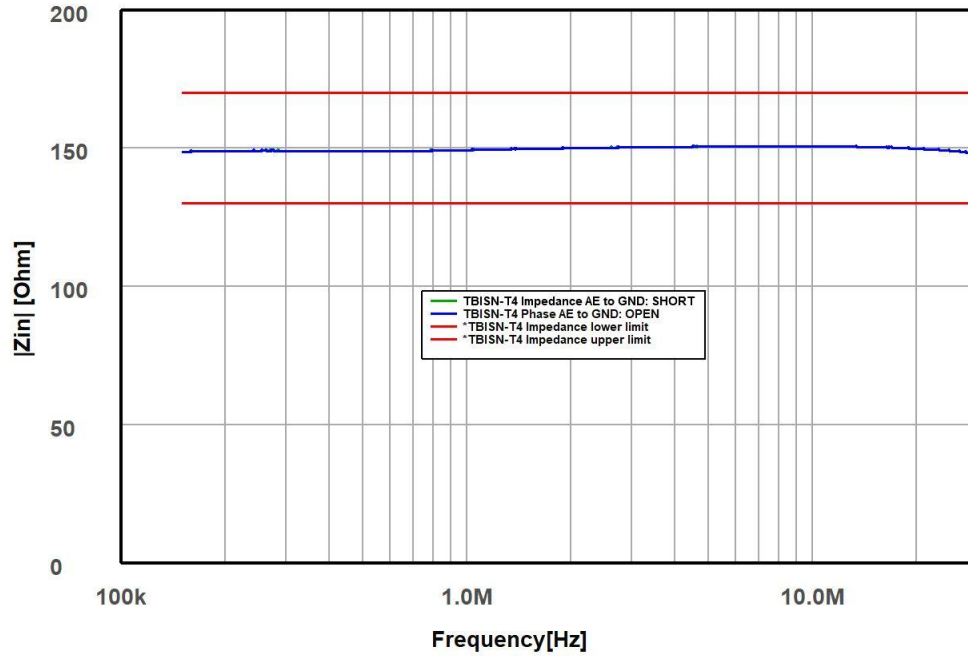
1.1 Informative schematic :



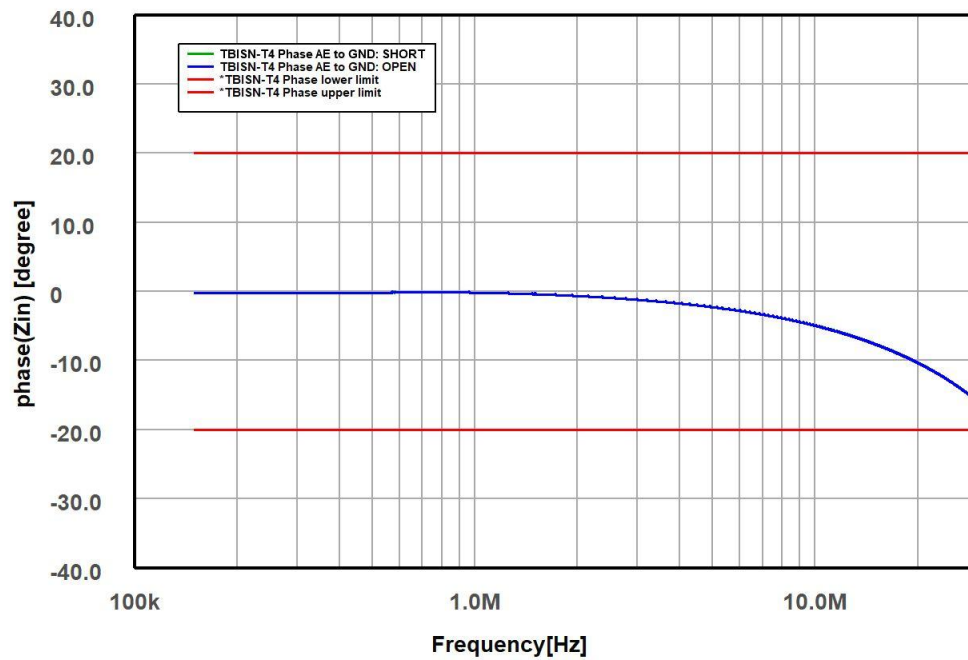
TBISN-T4 TWO BALANCED PAIRS ISN

1.2 Common mode impedance and phase angle :

TBISN-T4 IMPEDANCE

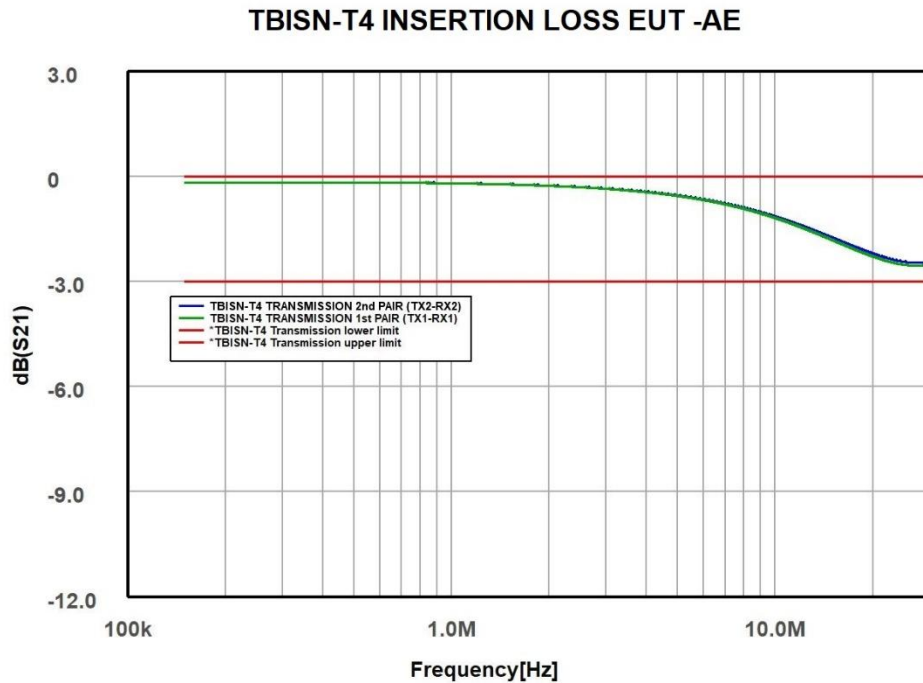


TBISN-T4 PHASE

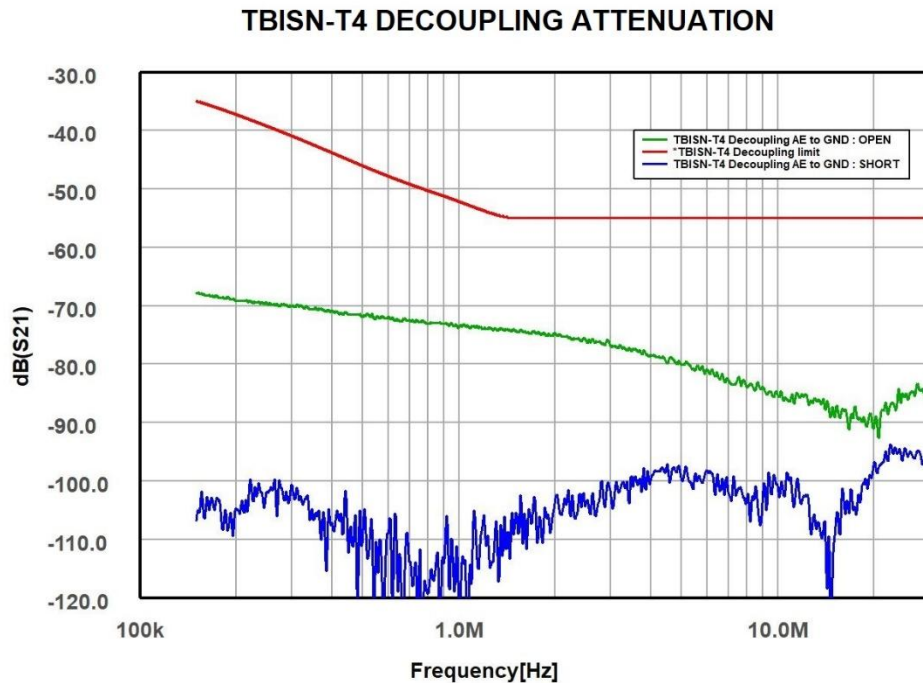


TBISN-T4 TWO BALANCED PAIRS ISN

1.3 Insertion Loss (Symmetrical Signal) EUT-AE :



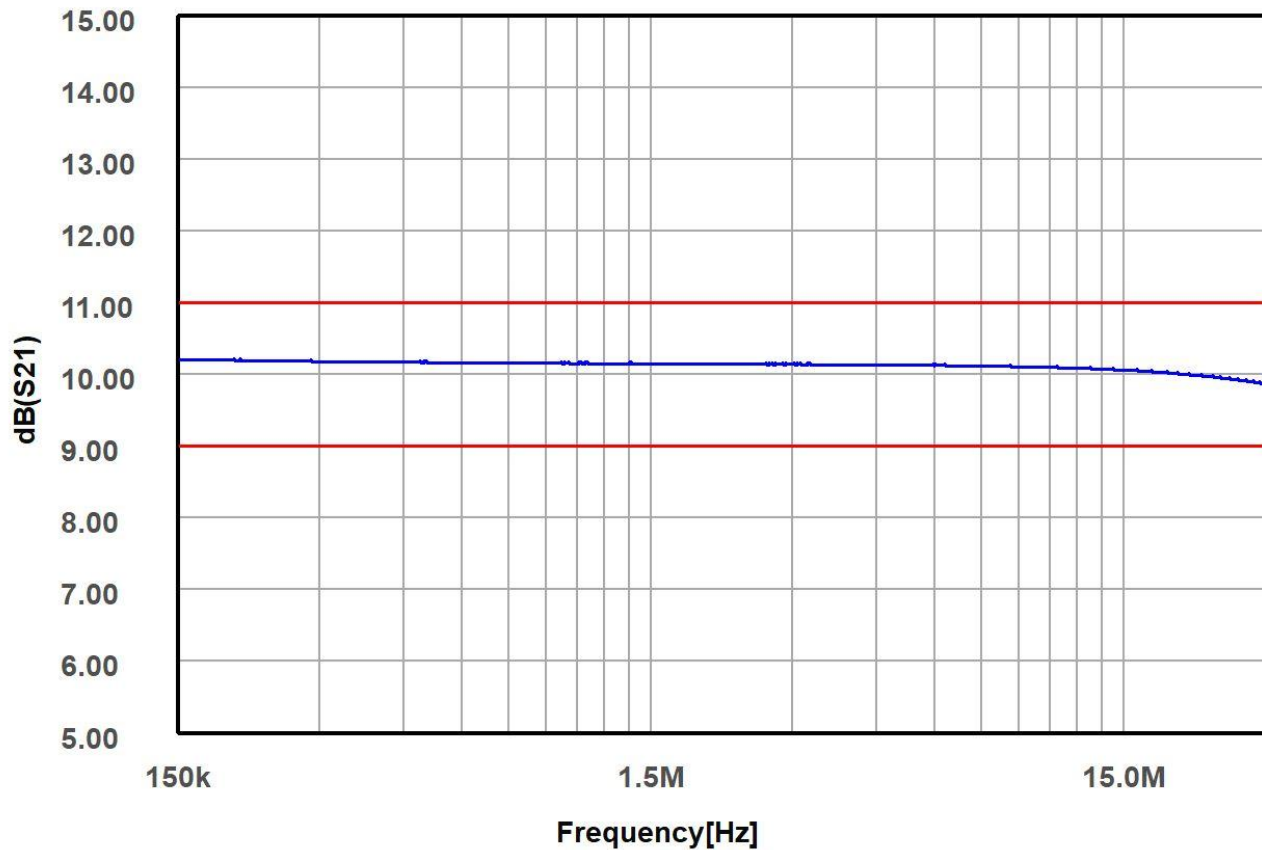
1.4 Decoupling Attenuation (Isolation – AE to EUT Port):



TBISN-T4 TWO BALANCED PAIRS ISN

1.5 Voltage Division Factor (VDF) :

TBISN-T4 Voltage Division Factor



1.6 Longitudinal Conversion Loss (LCL) EUT :

According to CISPR 22 item 9.6.2.c)1) page 24 :

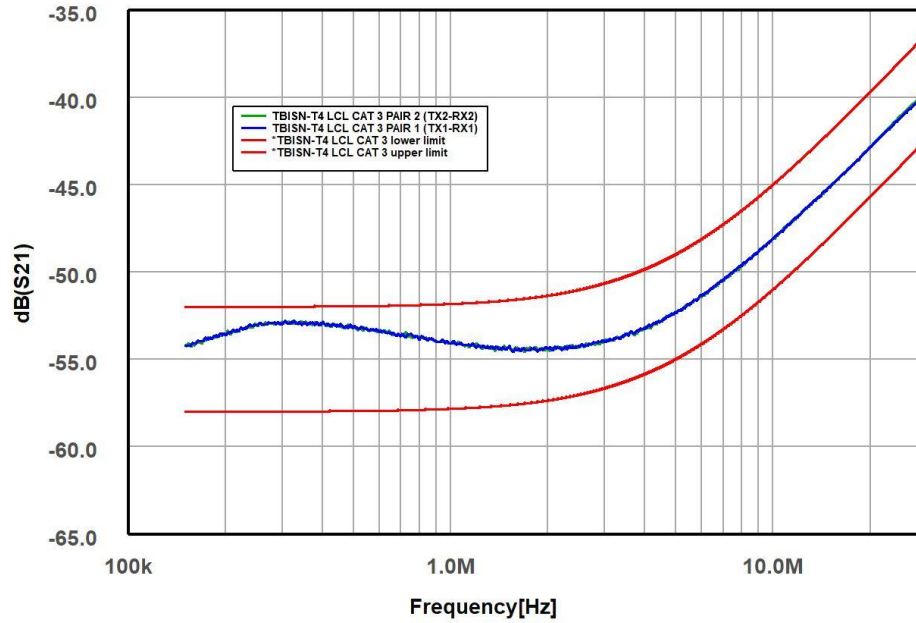
Frequency 150 kHz – 30 MHz

CAT 5: $LCL (dB) = 65 - 10 \log_{10}[1 + (f/5)^2]$ dB
 ± 3 dB for $f < 2$ MHz; -3dB / +4.5 dB for f between 2 MHz and 30 MHz)

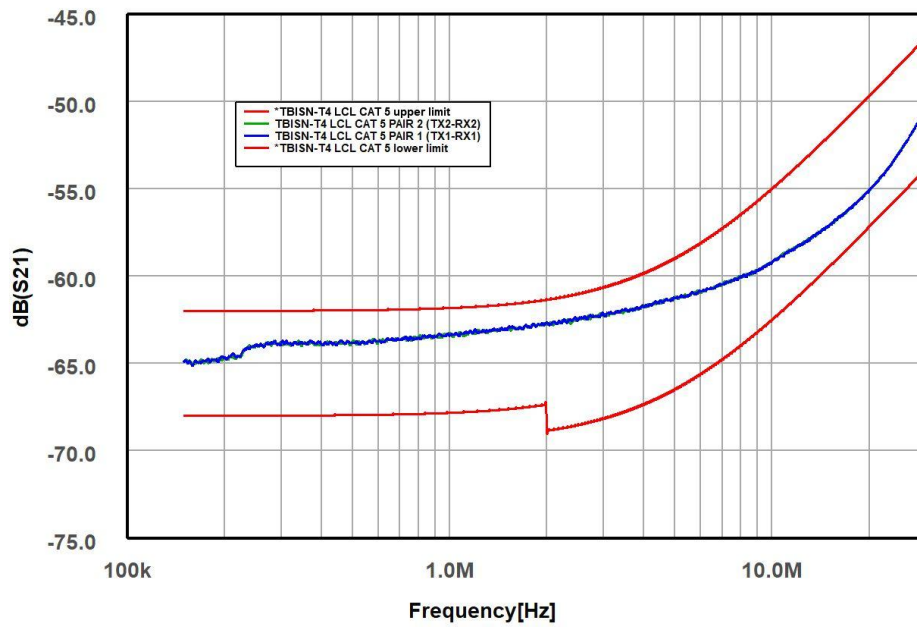
CAT 3: $LCL (dB) = 55 - 10 \log_{10}[1 + (f/5)^2]$ dB (± 3 dB)

TBISN-T4 TWO BALANCED PAIRS ISN

TBISN-T4 LCL CAT 3



TBISN-T4 LCL CAT 5



TBISN-T4 TWO BALANCED PAIRS ISN

2 Ordering Information

Part Number	Description
TBISN-T4	TWO BALANCED PAIRS ISN; 1 pcs 75 cm BNC-male to N-male RG223 cable; 2 adapters : D-SUB 25 male to RJ45

Table 1– Ordering Information

3 History

Version	Date	Author	Changes
V1.0	19.08.2024	Van Tieu	Creation of the document
V1.1	03.10.2024	Van Tieu	Updated technical data & plots
V1.2	05.10.2024	Van Tieu	Updated plots

Table 2– History

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