

## 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.

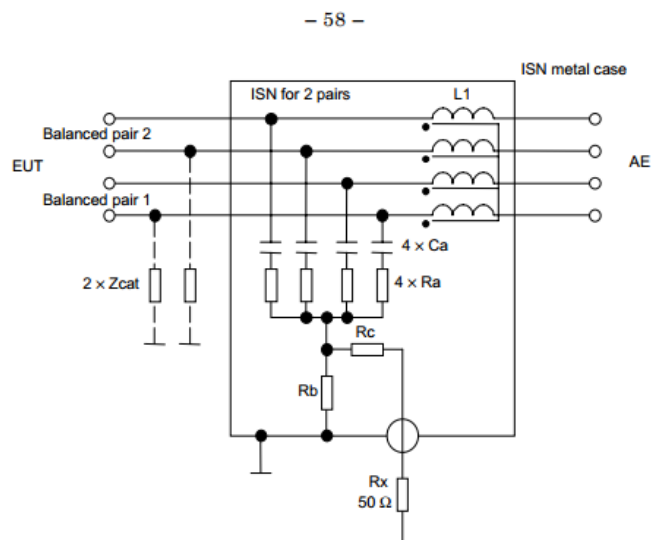


## TBISN-T4 TWO BALANCED PAIRS ISN

### 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)<br>for asymmetrical voltage: | 10 dB +/- 1 dB                                            |
| EuT, AE Terminals:                                        | D-SUB 25                                                  |
| Measuring Port:                                           | 50 $\Omega$ 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);<br>> 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%                                                 |

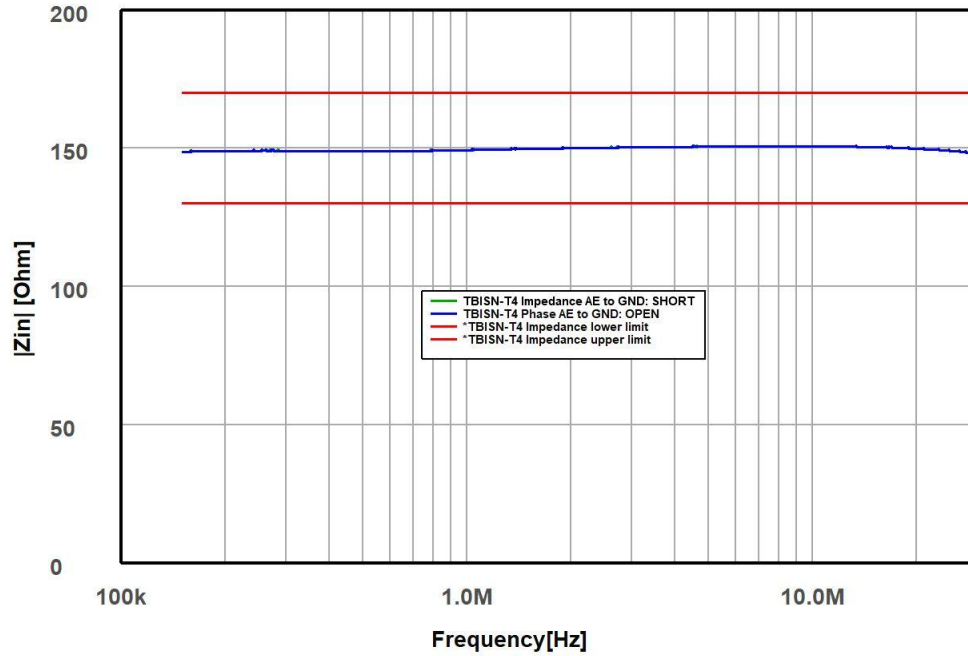
#### 1.1 Informative schematic :



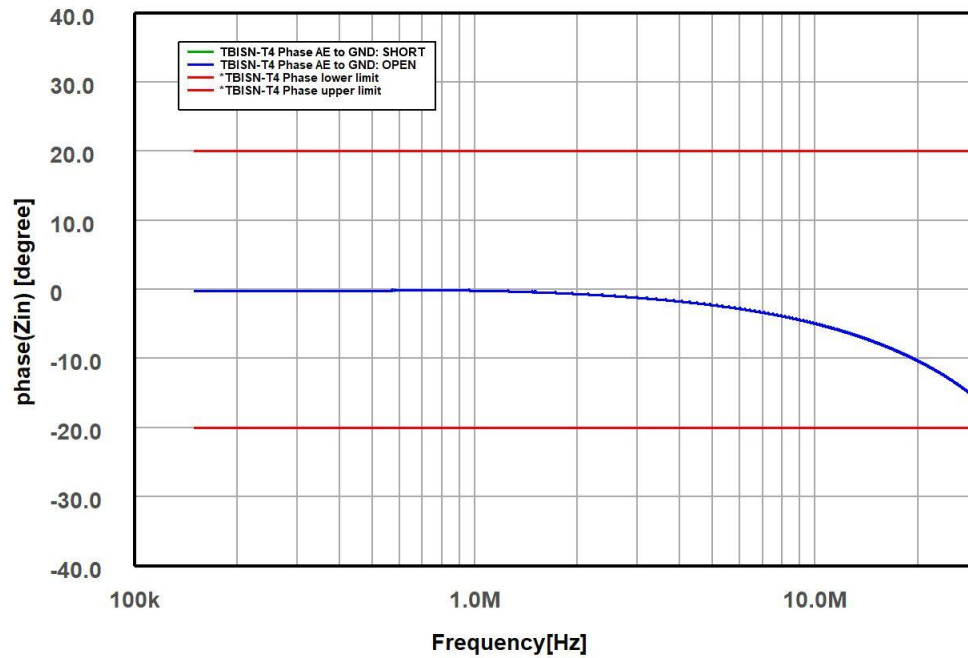
## TBISN-T4 TWO BALANCED PAIRS ISN

### 1.2 Common mode impedance and phase angle :

**TBISN-T4 IMPEDANCE**

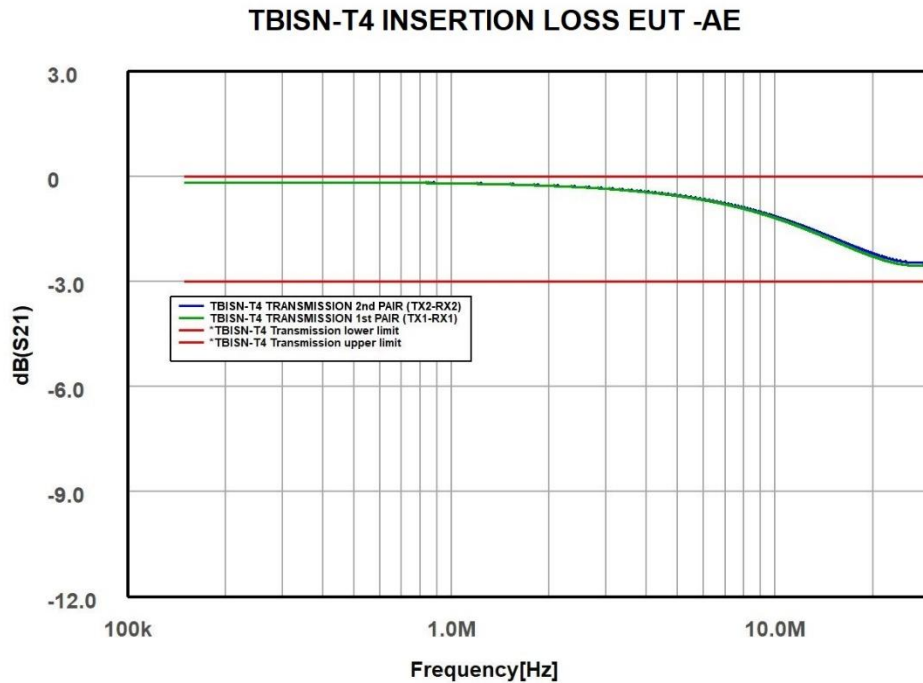


**TBISN-T4 PHASE**

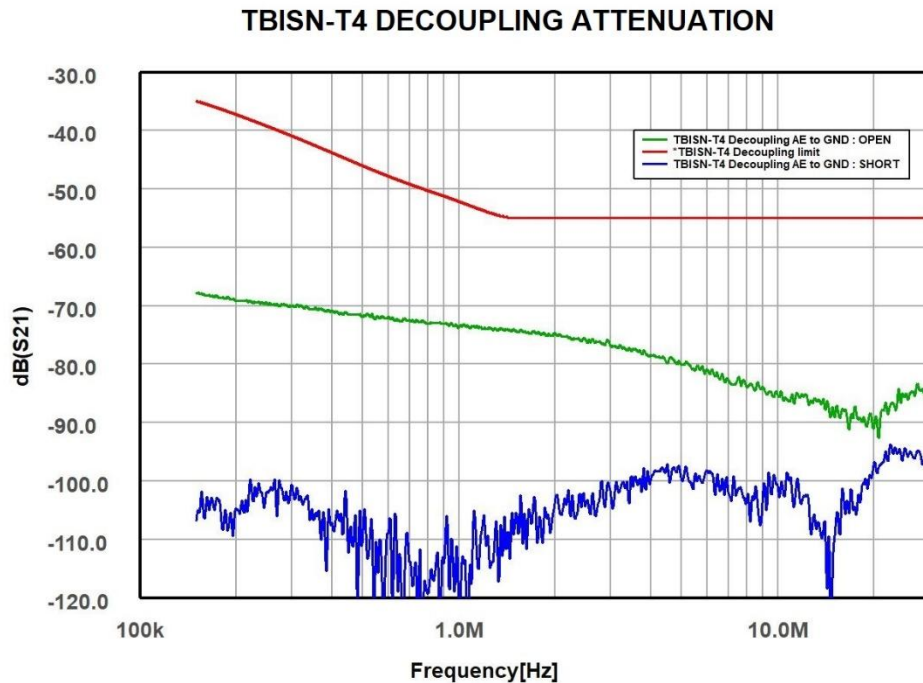


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### 1.3 Insertion Loss (Symmetrical Signal) EUT-AE :



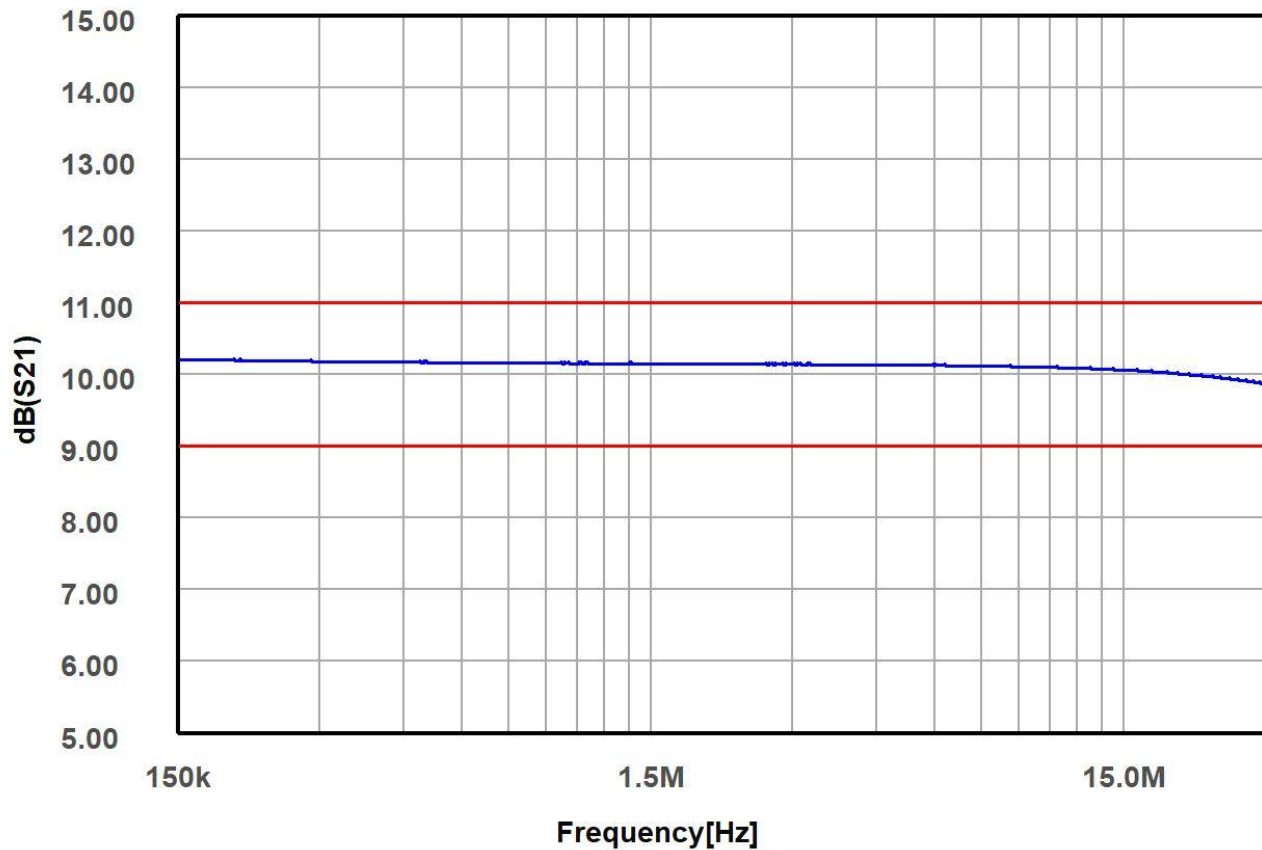
### 1.4 Decoupling Attenuation (Isolation – AE to EUT Port):



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### 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 :

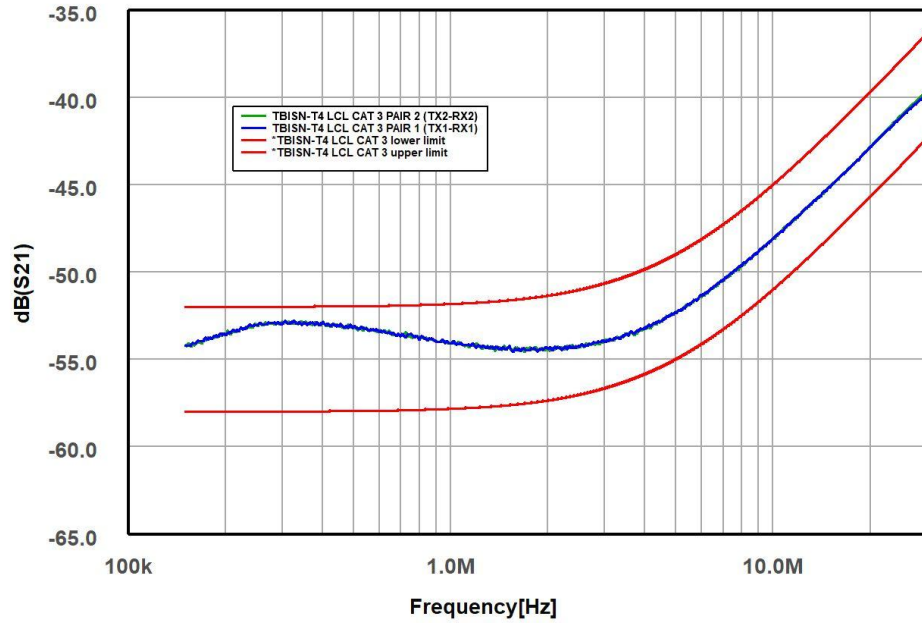
Frequency 150 kHz – 30 MHz

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

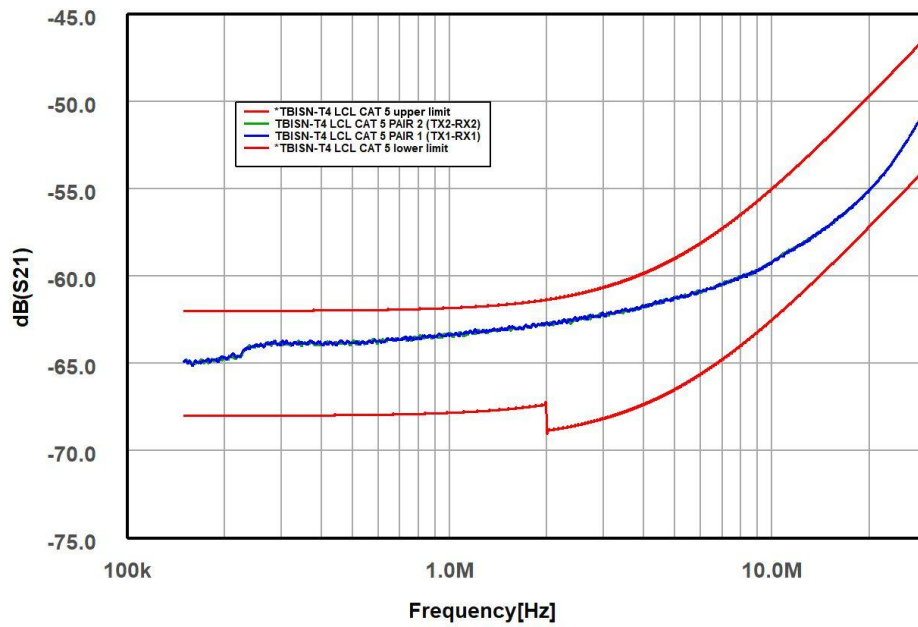
CAT 3:  $LCL (dB) = 55 - 10 \log_{10}[1 + (f/5)^2]$  dB ( $\pm 3$  dB)

## 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;<br>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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