

RF CURRENT MONITORING PROBE

1 Introduction

The TBCP4-750 is a fixed aperture RF current monitoring probe, expanding the Tekbox product range of affordable EMC pre-compliance test equipment.

The probe has a very flat response with a 3dB bandwidth of 750 MHz and is characterized and usable over the frequency range from 10kHz to 800 MHz.



Picture 1: TBCP4-750 RF current monitoring probe

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is close to 20 dB Ohm in the range from 400 kHz to 750 MHz.

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2 Specification

Characterized frequency range: 10 kHz to 750 MHz

Aperture diameter: 32 mm

Outside diameter: 73 mm

Height: 20 mm

Weight: 320 g

Connector type: N female

Transfer impedance: 20 dBΩ

Max. primary current (DC - 400 Hz): 80 A

Max. primary current (RF): 3 A

Max. core temperature: 125 °C

3 Transfer impedance

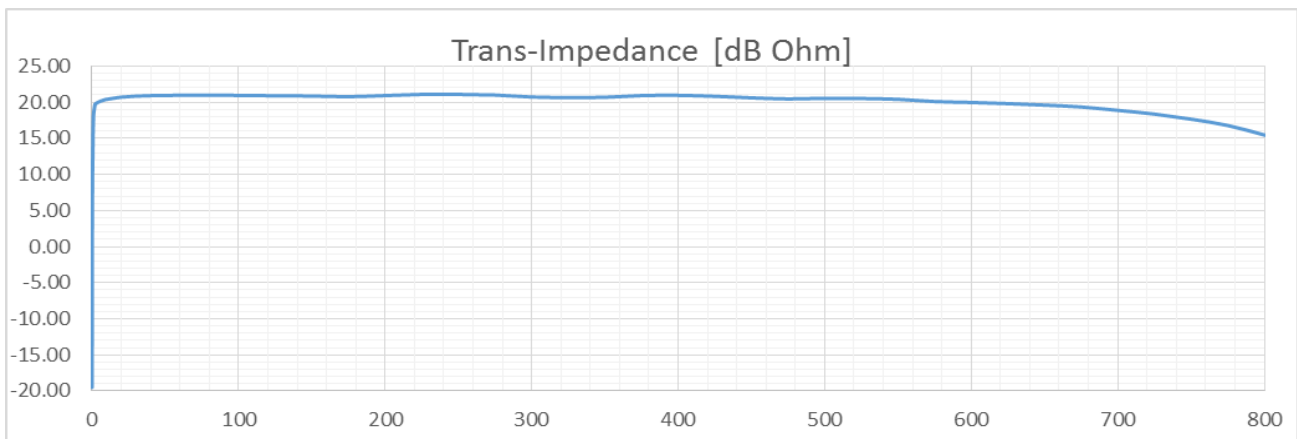


Figure1: typical transfer impedance: 10 kHz to 800 MHz, linear

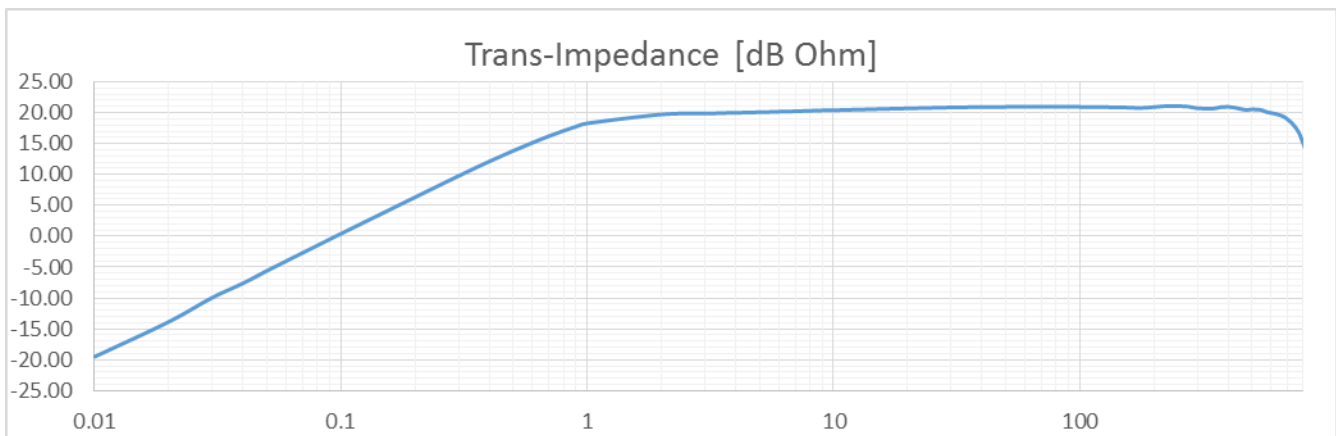


Figure2: typical transfer impedance: 10 kHz to 800 MHz, logarithmic

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4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP4-750 current probe. Each current probe is delivered with its corresponding measurement protocol. This data can be used for the creation of a correction file for EMCview or similar EMC measurement software. The transfer impedance in dBΩ subtracted from the analyzer reading in dBμV gives the corrected reading in dBμA.

Refer to the application notes of EMCview on how to create a current probe correction file.

Frequency [MHz]	transfer impedance [dBΩ]	Frequency [MHz]	transfer impedance [dBΩ]
0.01	-19.50	70	20.97
0.02	-13.84	80	20.97
0.03	-9.93	90	20.97
0.04	-7.61	100	20.95
0.05	-5.59	125	20.91
0.06	-4.00	150	20.87
0.07	-2.67	175	20.77
0.08	-1.51	200	20.93
0.09	-0.48	225	21.09
0.1	0.42	250	21.09
0.2	6.33	275	21.00
0.3	9.77	300	20.73
0.4	12.11	325	20.66
0.5	13.83	350	20.69
0.6	15.16	375	20.93
0.7	16.23	400	20.96
0.8	17.07	425	20.83
0.9	17.76	450	20.61
1	18.29	475	20.46
2	19.72	500	20.55
3	19.87	525	20.52
4	20.00	550	20.41
5	20.08	575	20.10
6	20.17	600	19.97
7	20.24	625	19.81
8	20.31	650	19.61
9	20.38	675	19.35
10	20.41	700	18.88
20	20.71	725	18.36
30	20.86	750	17.66
40	20.92	775	16.79
50	20.95	800	15.47
60	20.97		

Table1: Transfer impedance: 10 kHz to 800 MHz

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5 Accessory

Tekbox supplies a calibration fixture corresponding with the TBCP4 RF current probe series:



Picture 2: TBCP4-CAL RF current probe calibrator

6 Ordering Information

Part Number	Description
TBCP4-750	TBCP4 RF current monitoring probe, beech-wood box, calibration protocol
TBCP4-CAL	Calibration fixture for TBCP4 RF current probe series

7 History

Version	Date	Author	Changes
V 1.0	11.12.2020	Mayerhofer	Creation of the preliminary document
V 1.1	15.01.2021	Mayerhofer	Photo update
V 1.2	28.01.2021	Mayerhofer	Chapter 5 updated

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