

RF CURRENT MONITORING PROBE

1 Introduction

The TBCP2-250 is a snap-on 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 250 MHz and is characterized over the frequency range from 30kHz to 300 MHz. Upon request, it can also be supplied with a test protocol covering the frequency range 1 kHz to 350 MHz.



Picture 1: TBCP2-250 RF current monitoring probe

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is > 12 dB Ohm in the range from 700 kHz to 300 MHz.

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2 Specification

Characterized frequency range: 30 kHz to 250 MHz
Aperture diameter: 32 mm
Outside diameter: 73 mm
Height: 20 mm
Weight: 320 g
Connector type: N female
Transfer impedance: 0 to 14 dBΩ between 100 kHz and 250 MHz
Max. primary current (DC - 400 Hz): 80 A
Max. primary current (RF): 3 A
Max. core temperature: 125 °C

3 Transfer impedance

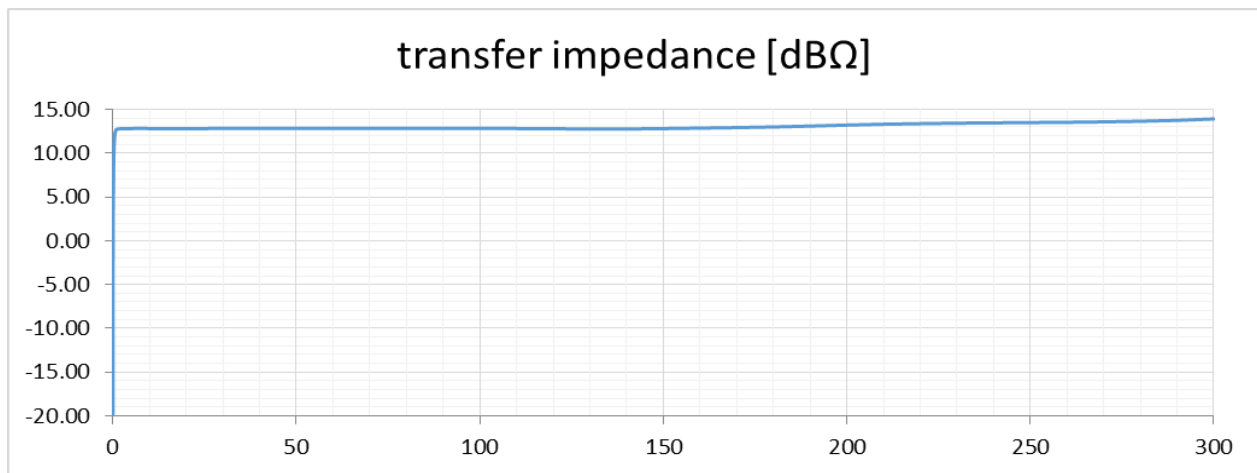


Figure1: typical transfer impedance: 10 kHz to 300 MHz, linear

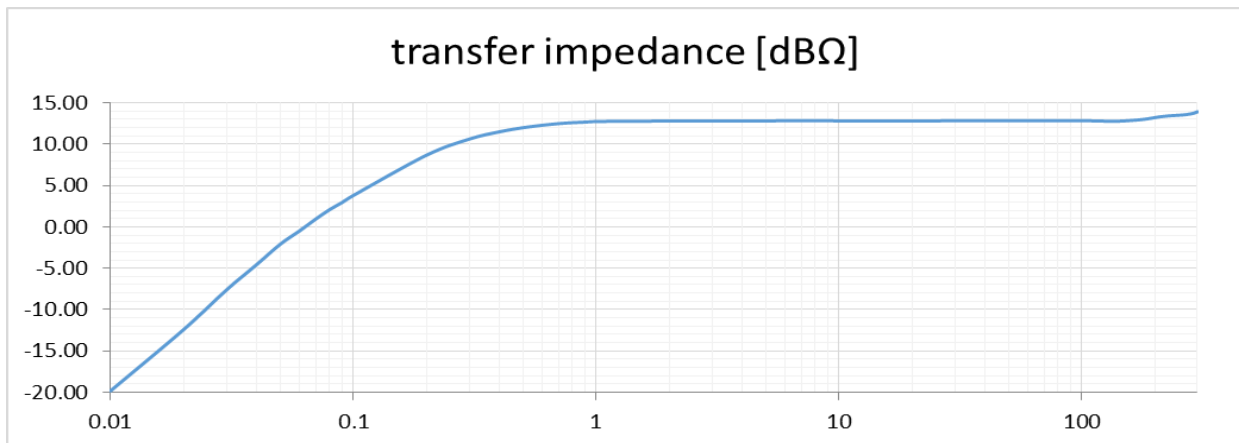


Figure2: typical transfer impedance: 10 kHz to 300 MHz, logarithmic

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4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP2-250 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 $\text{dB}\Omega$ subtracted from the analyzer reading in $\text{dB}\mu\text{V}$ gives the corrected reading in $\text{dB}\mu\text{A}$.

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

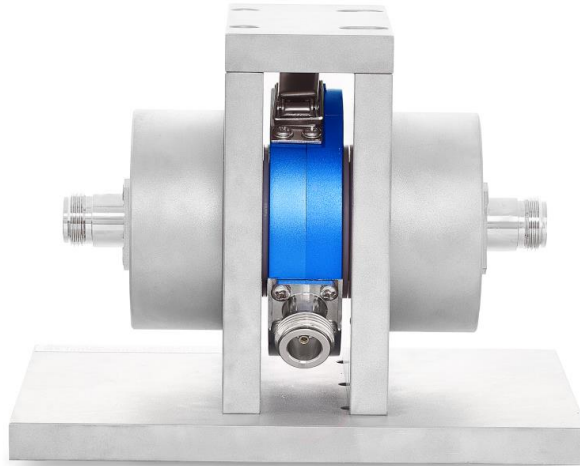
Frequency [MHz]	transfer impedance [$\text{dB}\Omega$]	Frequency [MHz]	transfer impedance [$\text{dB}\Omega$]
0.01	-19.84	30	12.85
0.02	-12.42	40	12.85
0.03	-7.63	50	12.86
0.04	-4.55	60	12.86
0.05	-2.09	70	12.86
0.06	-0.49	80	12.87
0.07	0.96	90	12.85
0.08	2.11	100	12.85
0.09	2.97	110	12.83
0.1	3.81	120	12.81
0.2	8.67	130	12.79
0.3	10.62	140	12.79
0.4	11.51	150	12.83
0.5	12.01	160	12.88
0.6	12.31	170	12.94
0.7	12.50	180	13.02
0.8	12.61	190	13.12
0.9	12.68	200	13.22
1	12.75	210	13.32
2	12.82	220	13.39
3	12.80	230	13.45
4	12.82	240	13.48
5	12.83	250	13.52
6	12.84	260	13.55
7	12.84	270	13.59
8	12.85	280	13.67
9	12.86	290	13.77
10	12.82	300	13.93
20	12.81		

Table1: Transfer impedance: 10 kHz to 300 MHz, typical data

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5 Accessory

Tekbox supplies a calibrator corresponding with the TBCP2 series of snap on current probes:



Picture 2: TBCP2-CAL RF current probe calibration fixture

6 Ordering Information

Part Number	Description
TBCP2-250	Snap on RF current monitoring probe, beech-wood box, calibration protocol 30kHz – 300 MHz
TBCP2-CAL	Calibration fixture for TBCP2 current probe series

7 History

Version	Date	Author	Changes
V 1.0	7.12.2020	Mayerhofer	Creation of the preliminary document
V 1.1	28.1.2021	Mayerhofer	Photo update
V 1.2	2.6.2021	Mayerhofer	data update after mechanical modification

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