

## RF CURRENT MONITORING PROBE

### 1 Introduction

The TBCP1-200 is a fixed aperture RF current monitoring probe, expanding the Tekbox product range of affordable EMC pre-compliance test equipment.

The probe has a 3dB bandwidth of approximately 200 MHz and is characterized and usable over the frequency range from 10kHz to 500 MHz.



*Picture 1: TBCP1-200 RF current monitoring probe*

The aperture of the RF current monitoring probe is 25 mm. Its transfer impedance is  $> 14$  dB Ohm in the range from 40 kHz to 200 MHz.

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## 2 Specification

Characterized frequency range: 10 kHz to 500 MHz  
Aperture diameter: 25 mm  
Outside diameter: 76 mm  
Height: 31 mm  
Weight: 320 g  
Connector type: N female  
Transfer impedance: 3 to 17 dBΩ  
Max. primary current (DC - 400 Hz): 80 A  
Max. primary current (RF): 3 A  
Max. core temperature: 125 °C

## 3 Typical transfer impedance

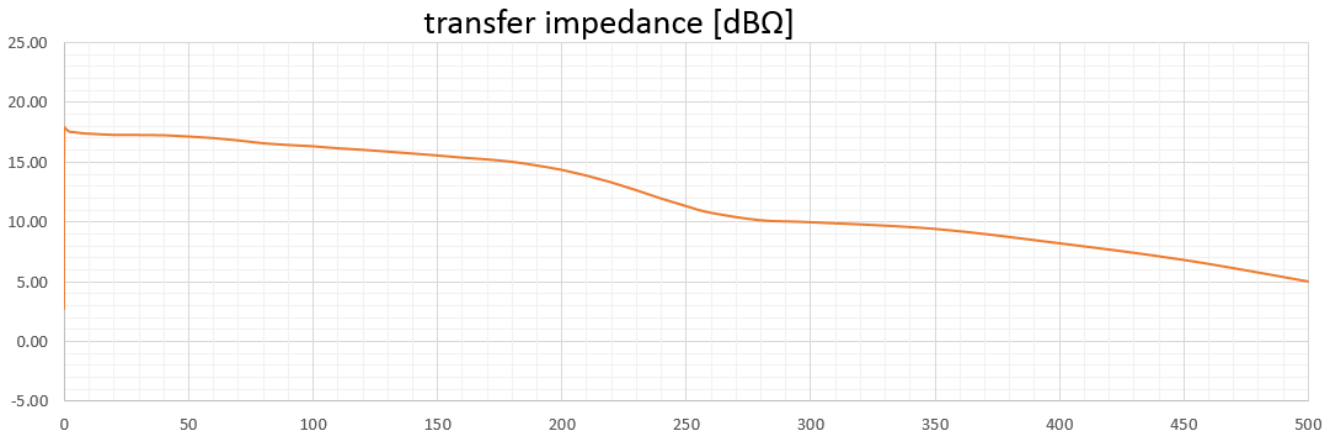


Figure1: Transfer impedance: 10 kHz to 500 MHz, linear

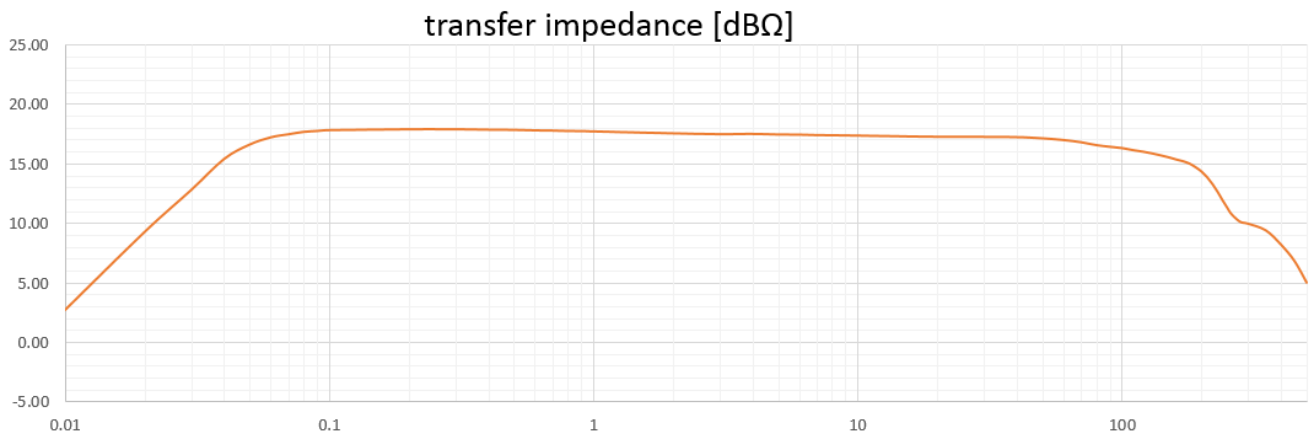


Figure2: Transfer impedance: 10 kHz to 500 MHz, logarithmic

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### 4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP-200 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	2.79	40	17.30
0.02	9.34	50	17.20
0.03	12.86	60	17.06
0.04	15.47	70	16.87
0.05	16.68	80	16.63
0.06	17.28	90	16.49
0.07	17.54	100	16.38
0.08	17.74	110	16.21
0.09	17.82	120	16.08
0.1	17.89	130	15.93
0.2	17.96	140	15.77
0.3	17.96	150	15.61
0.4	17.93	160	15.43
0.5	17.91	170	15.28
0.6	17.87	180	15.08
0.7	17.85	190	14.77
0.8	17.82	200	14.41
0.9	17.81	210	13.93
1	17.78	220	13.36
2	17.62	230	12.71
3	17.55	240	12.01
4	17.57	250	11.38
5	17.52	260	10.82
6	17.51	280	10.19
7	17.47	300	10.03
8	17.46	350	9.47
9	17.44	400	8.27
10	17.43	450	6.88
20	17.33	500	5.08
30	17.32		

Table1: Transfer impedance: 10 kHz to 500 MHz

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### 5 Accessory

Tekbox supplies a calibration fixture corresponding with the TBCP1 current probe series:



Picture 2: TBCP1-CAL RF current probe calibration fixture

### 6 Ordering Information

Part Number	Description
TBCP1-200	Fixed aperture RF current monitoring probe, beech-wood box, calibration protocol
TBCP1-CAL	Calibration fixture for the TBCP1 series

### 7 History

Version	Date	Author	Changes
V 1.0	5.05.2019	Mayerhofer	Creation of the document
V 1.1	28.1.2021	Mayerhofer	Chapter 5 added

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