

## RF CURRENT MONITORING PROBE

### 1 Introduction

The TBCP2-500 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 500 MHz and is characterized and usable over the frequency range from 10kHz to 500 MHz.



*Picture 1: TBCP2-500 RF current monitoring probe*

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is  $> 17$  dB Ohm in the range from 1 MHz to 500 MHz.

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## 2 Specification

Characterized frequency range: 10 kHz to 500 MHz  
Aperture diameter: 32 mm  
Outside diameter: 73 mm  
Height: 20 mm  
Weight: 320 g  
Connector type: N female  
Transfer impedance: 0 to 20 dBΩ between 150 kHz and 500 MHz  
Max. primary current (DC - 400 Hz): 80 A  
Max. primary current (RF): 3 A  
Max. core temperature: 125 °C

## 3 Transfer impedance

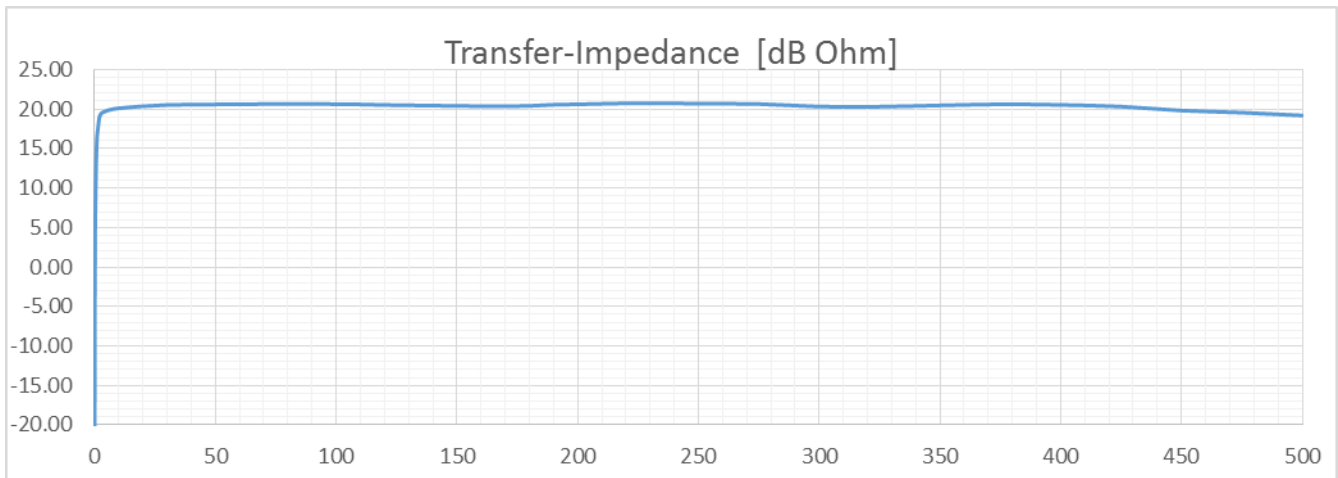


Figure1: typical transfer impedance: 10 kHz to 500 MHz, linear

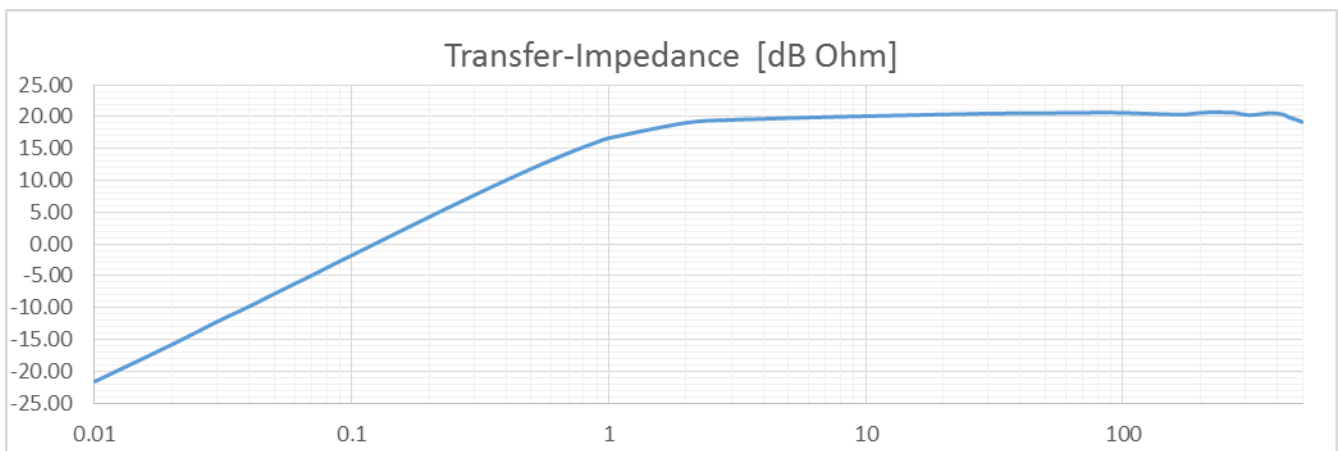


Figure2: typical transfer impedance: 10 kHz to 500 MHz, logarithmic

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### 4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP2-500 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.

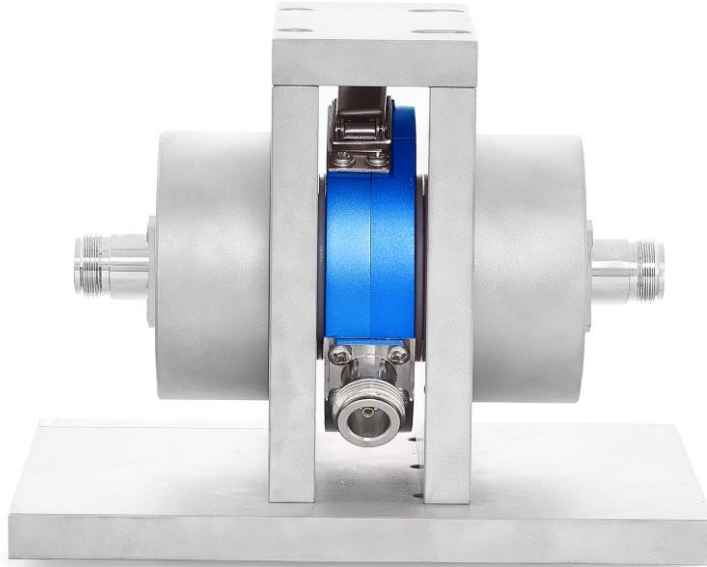
Frequency [MHz]	transfer impedance [dBΩ]	Frequency [MHz]	transfer impedance [dBΩ]
0.01	-21.61	40	20.57
0.02	-15.78	50	20.59
0.03	-12.18	60	20.60
0.04	-9.79	70	20.64
0.05	-7.81	80	20.66
0.06	-6.24	90	20.66
0.07	-4.91	100	20.62
0.08	-3.73	110	20.59
0.09	-2.68	120	20.52
0.1	-1.77	130	20.48
0.2	4.25	140	20.44
0.3	7.69	150	20.41
0.4	10.06	160	20.37
0.5	11.84	170	20.36
0.6	13.23	180	20.41
0.7	14.35	190	20.55
0.8	15.27	200	20.61
0.9	16.02	225	20.75
1	16.65	250	20.69
2	19.06	275	20.64
3	19.51	300	20.32
4	19.68	325	20.31
5	19.80	350	20.47
6	19.89	375	20.61
7	19.96	400	20.53
8	20.02	425	20.32
9	20.07	450	19.82
10	20.11	475	19.55
20	20.37	500	19.19
30	20.52		

Table1: Transfer impedance: 10 kHz to 500 MHz

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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
TBCP2-500	Snap on RF current monitoring probe, beech-wood box, calibration protocol
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 1.0	28.1.2021	Mayerhofer	Photo update

[www.tekbox.com](http://www.tekbox.com)

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