

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 flat response with a 3dB bandwidth of 500 MHz and is characterized over the frequency range from 30kHz to 600 MHz. Upon request, the test protocol can be extended to frequencies down to 1 kHz.



Picture 1: TBCP2-500 RF current monitoring probe

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is > 15 dB Ohm in the range from 1 MHz to 500 MHz.

RF CURRENT MONITORING PROBE

2 Specification

Characterized frequency range: 30 kHz to 600 MHz
Aperture diameter: 32 mm
Outside diameter: 73 mm
Height: 20 mm
Weight: 320 g
Connector type: N female
Transfer impedance: 0 to 18 dBΩ between 100 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

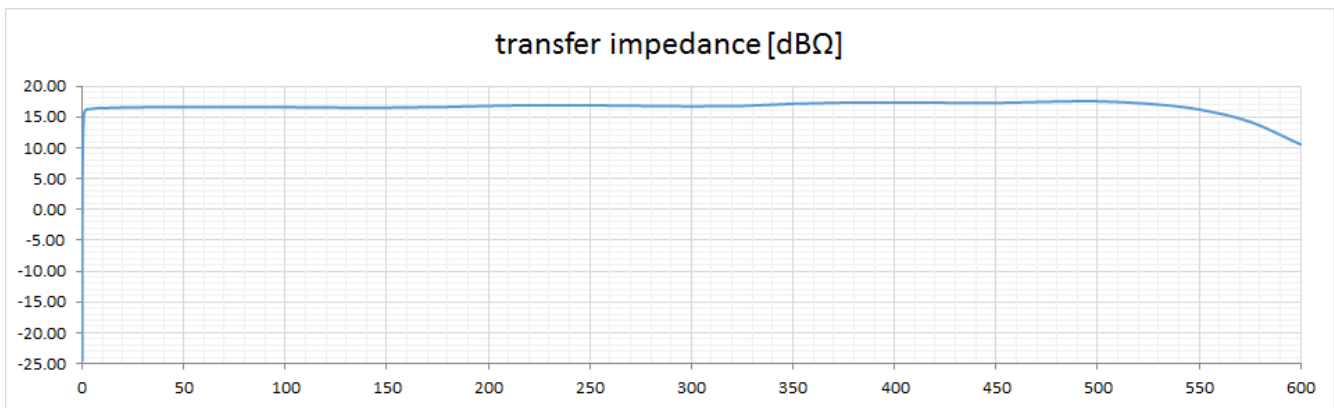


Figure1: typical transfer impedance: 10 kHz to 600 MHz, linear

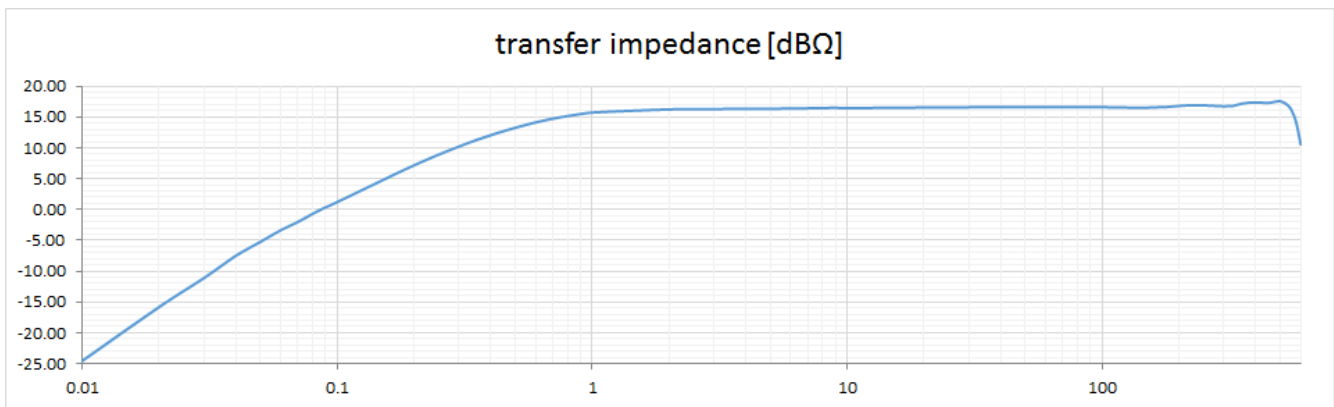


Figure2: typical transfer impedance: 10 kHz to 600 MHz, logarithmic

RF CURRENT MONITORING PROBE

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.

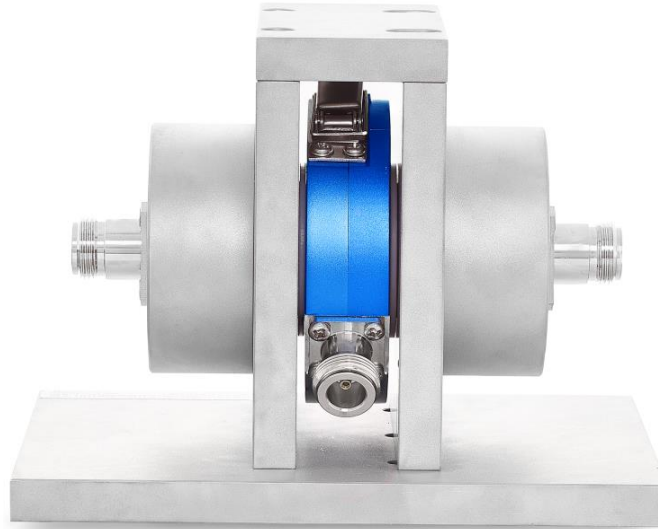
Frequency [MHz]	transfer impedance [dBΩ]	Frequency [MHz]	transfer impedance [dBΩ]
0.01	-24.54	60	16.63
0.02	-15.82	70	16.63
0.03	-11.11	80	16.63
0.04	-7.51	90	16.59
0.05	-5.23	100	16.61
0.06	-3.34	110	16.56
0.07	-2.02	120	16.59
0.08	-0.69	130	16.50
0.09	0.36	140	16.52
0.1	1.22	150	16.52
0.2	7.17	160	16.58
0.3	10.22	170	16.61
0.4	12.06	180	16.64
0.5	13.28	190	16.73
0.6	14.14	200	16.80
0.7	14.74	225	16.93
0.8	15.17	250	16.90
0.9	15.49	275	16.82
1	15.72	300	16.75
2	16.24	325	16.81
3	16.29	350	17.15
4	16.32	375	17.34
5	16.34	400	17.38
6	16.40	425	17.32
7	16.42	450	17.29
8	16.46	475	17.49
9	16.49	500	17.55
10	16.45	525	17.33
20	16.54	550	16.43
30	16.59	575	14.24
40	16.62	600	10.55
50	16.61		

Table1: Transfer impedance: 10 kHz to 600 MHz, typical data

RF CURRENT MONITORING PROBE

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 30 kHz to 600 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
V 1.3	4.8.2021	Mayerhofer	Taqble 1 corrected

www.tekbox.com

TekBox Digital Solutions Vietnam Pte. Ltd.

RF CURRENT MONITORING PROBE

Factory 4, F5, Lot I-3B-1, Saigon Hi-Tech Park, Tan Phu Ward, District 9, Ho Chi Minh City, Vietnam