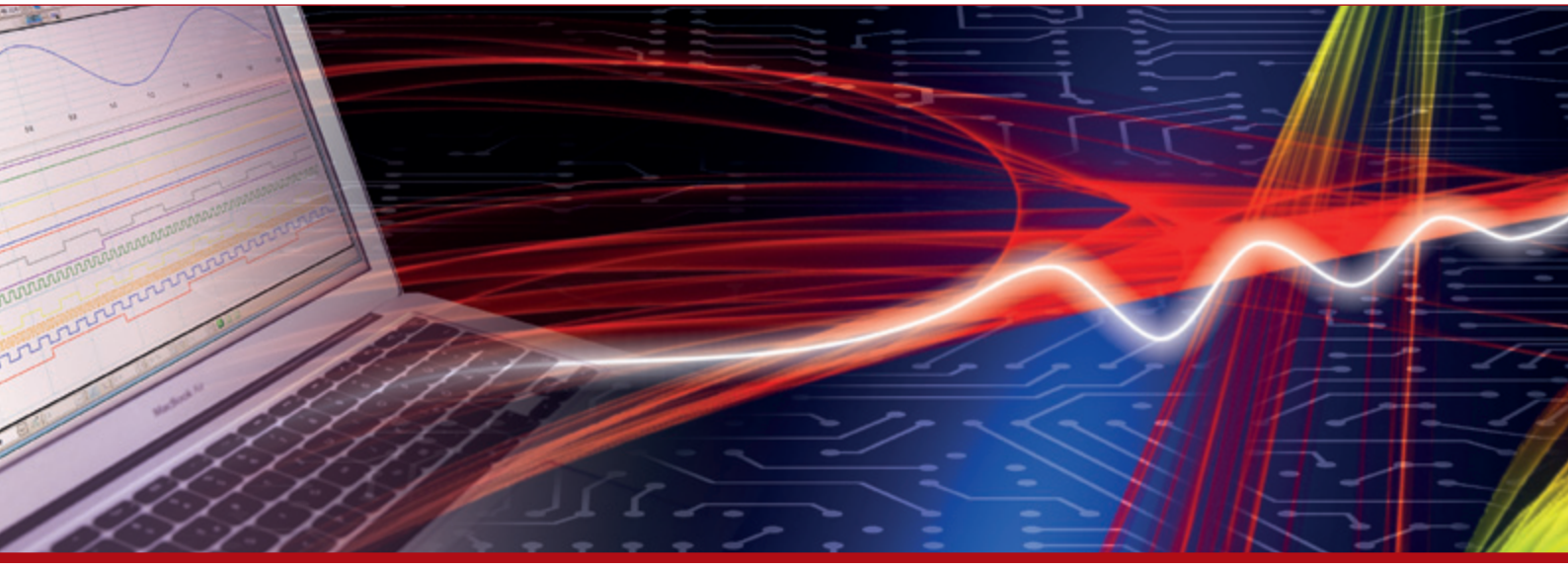
Product Datasheet - Technical Specifications



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RF CURRENT MONITORING PROBE

1 Introduction

The TBCP1-500 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 500 MHz and is characterized and usable over the frequency range from 30kHz to 500 MHz.

Picture 1: TBCP1-500 RF current monitoring probe

The aperture of the RF current monitoring probe is 25 mm. Its transfer impedance is > 15 dB Ohm in the range from 300 kHz to 500 MHz.

RF CURRENT MONITORING PROBE

2 Specification

Characterized frequency range: 30 kHz to 500 MHz
Aperture diameter: 25 mm
Outside diameter: 76 mm
Height: 31 mm
Weight: 320 g
Connector type: N female
Transfer impedance: -6 to 20 dBΩ
Max. primary current (DC - 400 Hz): 80 A
Max. primary current (RF): 3 A
Max. core temperature: 125 °C

3 Transfer impedance

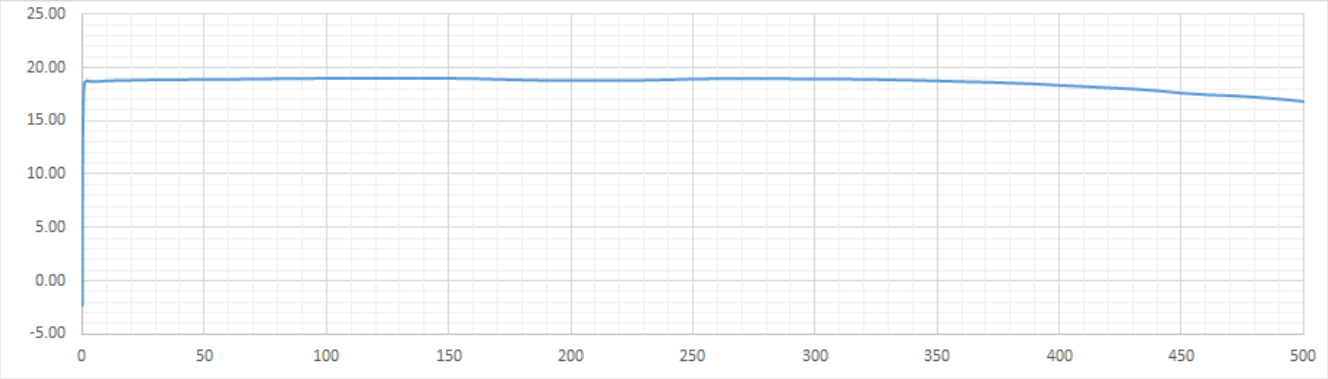

Figure1: typical transfer impedance: 30 kHz to 500 MHz, linear

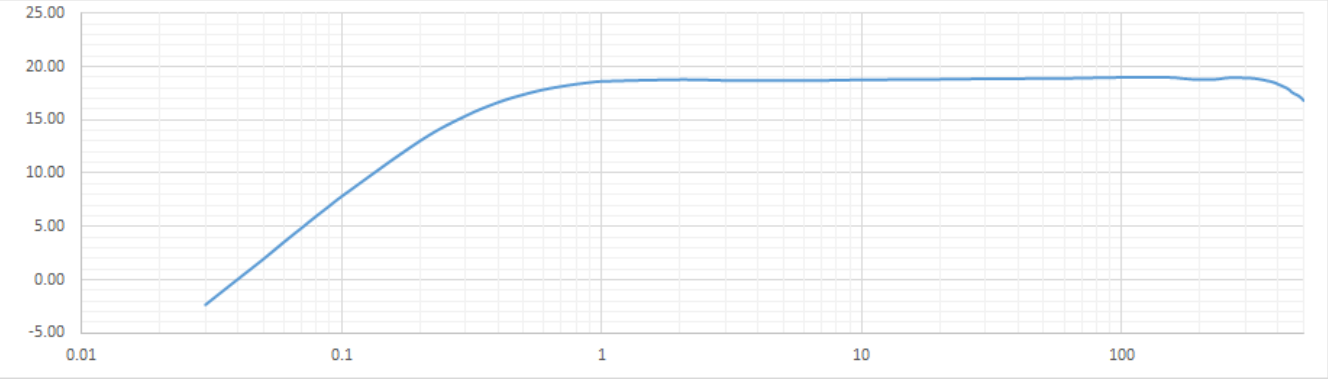

Figure2: typical transfer impedance: 30 kHz to 500 MHz, logarithmic

4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP-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]
0.03	-2.34	140	19.00
0.04	0.07	150	18.99
0.05	1.93	160	18.96
0.06	3.53	170	18.89
0.07	4.83	180	18.84
0.08	5.97	190	18.79
0.09	6.94	200	18.79
0.1	7.81	210	18.79
0.2	13.02	220	18.79
0.3	15.37	230	18.81
0.4	16.64	240	18.86
0.5	17.37	250	18.93
0.6	17.85	260	18.95
0.7	18.14	270	18.94
0.8	18.36	280	18.94
0.9	18.51	290	18.94
1	18.61	300	18.93
2	18.77	310	18.92
3	18.70	320	18.90
4	18.68	330	18.86
5	18.69	340	18.81
6	18.69	350	18.75
7	18.70	360	18.68
8	18.72	370	18.63
9	18.74	380	18.55
10	18.76	390	18.46
20	18.81	400	18.33
30	18.86	410	18.22
40	18.87	420	18.10
50	18.89	430	17.99
60	18.90	440	17.83
70	18.92	450	17.61
80	18.95	460	17.46
90	18.97	470	17.36
100	18.99	480	17.23
110	19.00	490	17.06
120	19.00	500	16.82
130	19.01		

Table1: Transfer impedance: 30 kHz to 500 MHz

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
TBCP1-500	Fixed aperture RF current monitoring probe, beech-wood box, calibration protocol
TBCP1-CAL	Calibration fixture for TBCP1 series

7 History

Version	Date	Author	Changes
V 1.0	31.05.2020	Mayerhofer	Creation of the document
V 1.1	5.06.2020	Mayerhofer	Correction, chapter 1
V 1.2	19.06.2020	Mayerhofer	Correction, chapter 2
V 1.3	28.1.2021	Mayerhofer	Chapter 5 added