

RF CURRENT MONITORING PROBE

1 Introduction

The TBCP4-250 is a fixed aperture 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 300 MHz and is characterized and usable over the frequency range from 1kHz to 400 MHz.



Picture 1: TBCP4-250 RF current monitoring probe

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is 13 dB Ohm in the flat region with a typical 3 dB bandwidth of 200 kHz - 300 MHz.

RF CURRENT MONITORING PROBE

2 Specification

Characterized frequency range: 1 kHz to 400 MHz
Aperture diameter: 32 mm
Outside diameter: 73 mm
Height: 20 mm
Weight: 320 g
Connector type: N female
Transfer impedance: 13 dB Ω in the flat region, typ.
3 dB bandwidth: 200 kHz – 300 MHz, typ.
Max. primary current (DC - 400 Hz): 80 A
Max. primary current (RF): 3 A
Max. core temperature: 125 °C



3 Transfer impedance

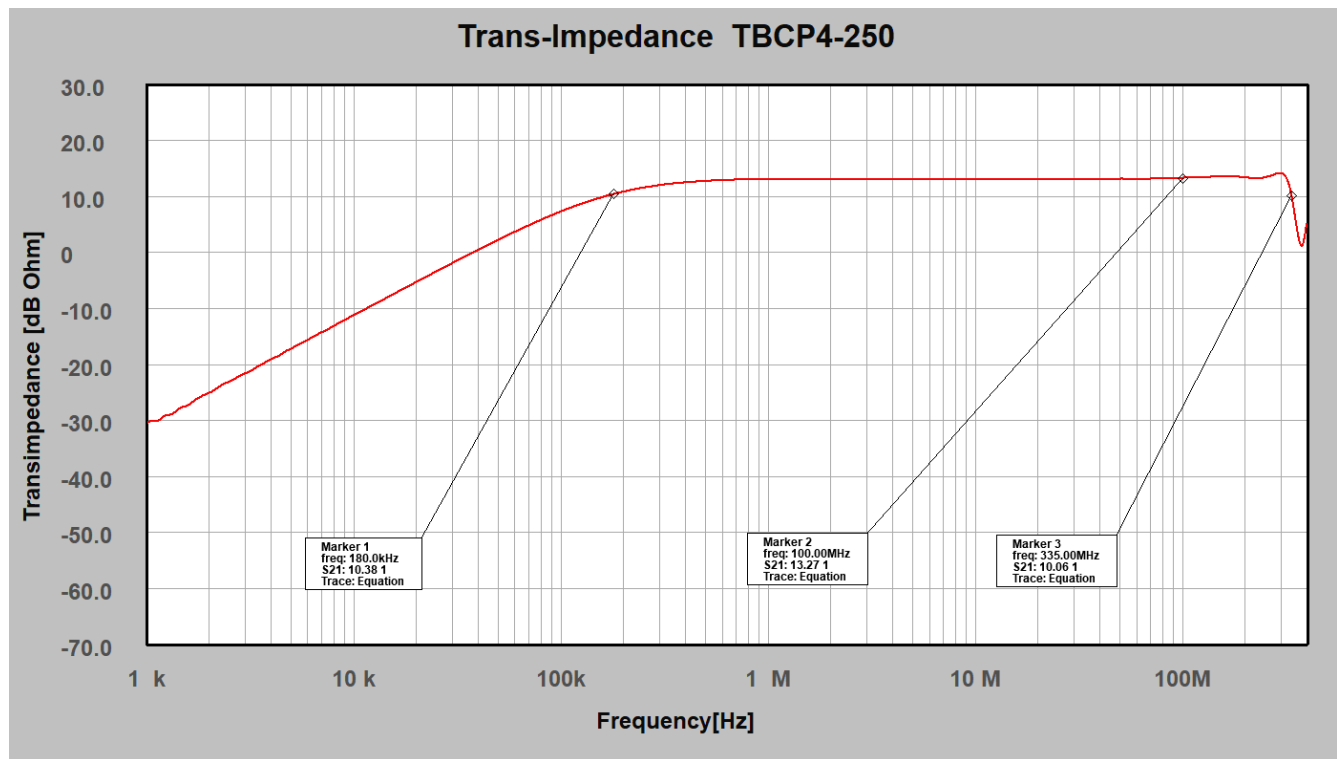


Figure2: typical transfer impedance: 1 kHz to 400 MHz

RF CURRENT MONITORING PROBE

4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP4-250 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 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]
0.001	-30,59	25	13,05
0.0025	-23,17	50	13,10
0.005	-17,24	75	13,13
0.0075	-13,80	100	13,27
0.01	-11,27	125	13,40
0.0125	-9,37	150	13,49
0.015	-7,81	175	13,48
0.0175	-6,49	200	13,32
0.02	-5,37	225	13,19
0.025	-3,47	250	13,35
0.05	2,22	260	13,51
0.075	5,29	270	13,70
0.1	7,25	280	13,94
0.125	8,60	290	14,11
0.15	10,26	300	14,07
0.175	10,78	310	13,69
0.2	11,96	320	12,82
0.25	12,46	330	11,21
0.5	12,72	340	8,73
0.75	12,98	350	5,81
1	13,06	360	3,05
2.5	12,99	370	1,28
5	12,99	380	1,40
7.5	13,01	390	3,39
10	13,04	400	6,34

Table1: Transfer impedance: 1 kHz to 400 MHz, typical data

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5 Accessory

Tekbox supplies a calibration fixture corresponding with the TBCP4 RF current probe series:



Picture 2: TBCP4-CAL RF current probe calibration fixture

6 Ordering Information

Part Number	Description
TBCP4-250	TBCP4 RF current monitoring probe, beech-wood box, calibration protocol
TBCP4-CAL	Calibration fixture for TBCP4 current probe series

7 History

Version	Date	Author	Changes
V 1.0	11.12.2020	Mayerhofer	Creation of the preliminary document
V 1.1	15.01.2021	Mayerhofer	Photo update
V 1.2	28.1.2021	Mayerhofer	Chapter 5 updated
V 1.3	26.3.2024	Mayerhofer	Extended frequency range to 1 kHz – 400 MHz

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RF CURRENT MONITORING PROBE

1 Introduction

The TBCP4-500 is a fixed aperture RF current monitoring probe, expanding the Tekbox product range of affordable EMC pre-compliance test equipment.

The probe has a flat response with a 3dB bandwidth of 500 MHz and is characterized and usable over the frequency range from 1kHz to 600 MHz.



Picture 1: TBCP4-500 RF current monitoring probe

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is 16 dB Ohm in the flat region, with a 3 dB bandwidth from 400 kHz to 500 MHz.

RF CURRENT MONITORING PROBE

2 Specification

Characterized frequency range: 1 kHz to 600 MHz
Aperture diameter: 32 mm
Outside diameter: 73 mm
Height: 20 mm
Weight: 320 g
Connector type: N female
Transfer impedance: 16 dB Ω in the flat region, typ.
3 dB bandwidth: 400 kHz – 500 MHz, typ.
Max. primary current (DC - 400 Hz): 80 A
Max. primary current (RF): 3 A
Max. core temperature: 125 °C



3 Transfer impedance

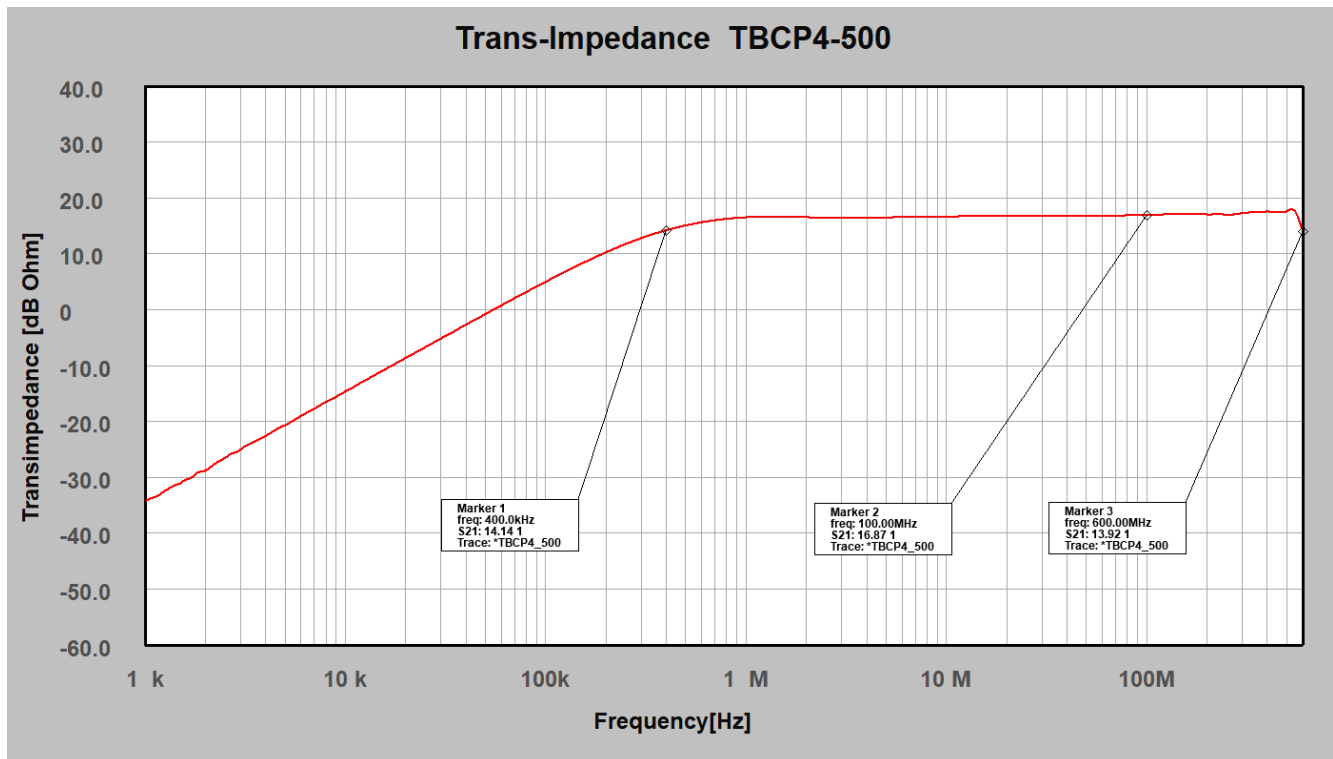


Figure1: typical transfer impedance: 1 kHz to 600 MHz

RF CURRENT MONITORING PROBE

4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP4-500 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]
0.001	-34,33	100	16,87
0.0025	-26,64	125	16,98
0.005	-20,75	150	17,09
0.0075	-17,16	175	17,10
0.01	-14,70	200	16,96
0.0125	-12,80	225	16,98
0.015	-11,20	250	16,95
0.0175	-9,87	275	16,98
0.02	-8,72	300	17,22
0.025	-6,82	325	17,31
0.05	-0,88	350	17,46
0.075	2,53	375	17,41
0.1	4,90	400	17,50
0.125	6,70	425	17,33
0.15	9,23	450	17,41
0.175	10,19	475	17,41
0.2	12,73	500	17,52
0.25	14,14	510	17,70
0.5	15,01	520	17,86
0.75	16,06	530	17,90
1	16,45	540	17,77
2.5	16,42	550	17,47
5	16,44	560	17,01
7.5	16,51	570	16,39
10	16,59	580	15,64
25	16,73	590	14,80
50	16,74	600	13,92
75	16,77		

Table1: Transfer impedance: 1 kHz to 600 MHz, typical data

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5 Accessory

Tekbox supplies a calibration fixture corresponding with the TBCP4 RF current probe series:



Picture 2: TBCP4-CAL RF current probe calibration fixture

6 Ordering Information

Part Number	Description
TBCP4-500	Snap on RF current monitoring probe, beech-wood box, calibration protocol
TBCP4-CAL	Calibration fixture for TBCP4 RF current probe series

7 History

Version	Date	Author	Changes
V 1.0	11.12.2020	Mayerhofer	Creation of the preliminary document
V 1.1	15.01.2021	Mayerhofer	Photo update
V 1.2	28.01.2021	Mayerhofer	Chapter 5 updated
V 1.3	4.08.2021	Mayerhofer	Correction in table 1
V 1.4	26.03.2024	Mayerhofer	Extended data to 1 kHz – 600 MHz

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RF CURRENT MONITORING PROBE

1 Introduction

The TBCP4-750 is a fixed aperture 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 850 MHz and is characterized and usable in the frequency range from 1kHz to 1 GHz.



Picture 1: TBCP4-750 RF current monitoring probe

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is 20 dB Ohm with a 3 dB bandwidth from 1.5 MHz to 850 MHz.

RF CURRENT MONITORING PROBE

2 Specification

Characterized frequency range: 1 kHz to 1 GHz
Aperture diameter: 32 mm
Outside diameter: 73 mm
Height: 20 mm
Weight: 320 g
Connector type: N female
Transfer impedance: 20 dBΩ in the flat region, typ.
3 dB bandwidth: 1.5 MHz – 850 MHz, typ.
Max. primary current (DC - 400 Hz): 80 A
Max. primary current (RF): 3 A
Max. core temperature: 125 °C



3 Transfer impedance

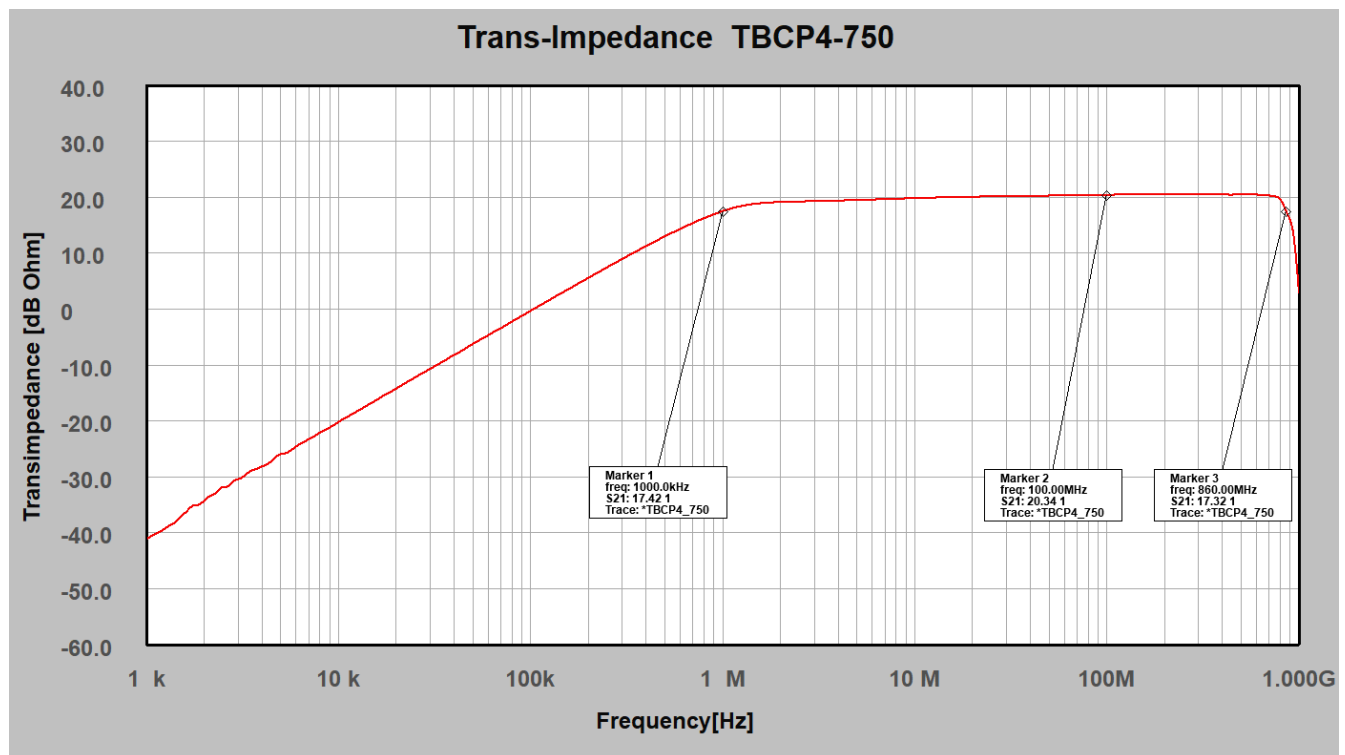


Figure1: typical transfer impedance: 1 kHz to 1 GHz

RF CURRENT MONITORING PROBE

4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP4-750 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]
0.001	-41,24	325	20,53
0.0025	-31,92	350	20,53
0.005	-26,03	375	20,50
0.0075	-22,79	400	20,50
0.01	-20,26	425	20,40
0.025	-12,33	450	20,37
0.05	-6,33	475	20,45
0.075	-2,90	500	20,46
0.1	-0,40	525	20,42
0.25	7,38	550	20,45
0.5	12,91	575	20,49
0.75	15,76	600	20,40
1	17,42	625	20,31
2.5	19,16	650	20,28
5	19,41	675	20,26
7.5	19,60	700	20,21
10	19,74	725	20,15
25	20,07	750	20,06
50	20,21	775	19,90
75	20,28	800	19,54
100	20,34	825	18,80
125	20,41	850	17,74
150	20,48	875	16,74
175	20,49	900	15,84
200	20,44	925	14,35
225	20,44	950	11,55
250	20,45	975	7,52
275	20,44	1000	2,87
300	20,48		

Table1: Transfer impedance: 1 kHz to 1 GHz, typical data

RF CURRENT MONITORING PROBE

5 Accessory

Tekbox supplies a calibration fixture corresponding with the TBCP4 RF current probe series:



Picture 2: TBCP4-CAL RF current probe calibrator

6 Ordering Information

Part Number	Description
TBCP4-750	TBCP4 RF current monitoring probe, wooden box, calibration protocol 1 kHz – 1 GHz
TBCP4-CAL	Calibration fixture for TBCP4 RF current probe series

7 History

Version	Date	Author	Changes
V 1.0	11.12.2020	Mayerhofer	Creation of the preliminary document
V 1.1	15.01.2021	Mayerhofer	Photo update
V 1.2	28.01.2021	Mayerhofer	Chapter 5 updated
V 1.3	26.03.2024	Mayerhofer	Extended data to 1 kHz – 1 GHz

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