

## RF CURRENT MONITORING PROBE

### 1 Introduction

The TBCP2-250 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 250 MHz and is characterized and usable over the frequency range from 10kHz to 250 MHz.



*Picture 1: TBCP2-250 RF current monitoring probe*

The aperture of the RF current monitoring probe is 32 mm. Its transfer impedance is  $> 13$  dB Ohm in the range from 700 kHz to 250 MHz.

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## 2 Specification

Characterized frequency range: 10 kHz to 250 MHz  
Aperture diameter: 32 mm  
Outside diameter: 73 mm  
Height: 20 mm  
Weight: 320 g  
Connector type: N female  
Transfer impedance: 0 to 16 dBΩ between 100 kHz and 250 MHz  
Max. primary current (DC - 400 Hz): 80 A  
Max. primary current (RF): 3 A  
Max. core temperature: 125 °C

## 3 Transfer impedance

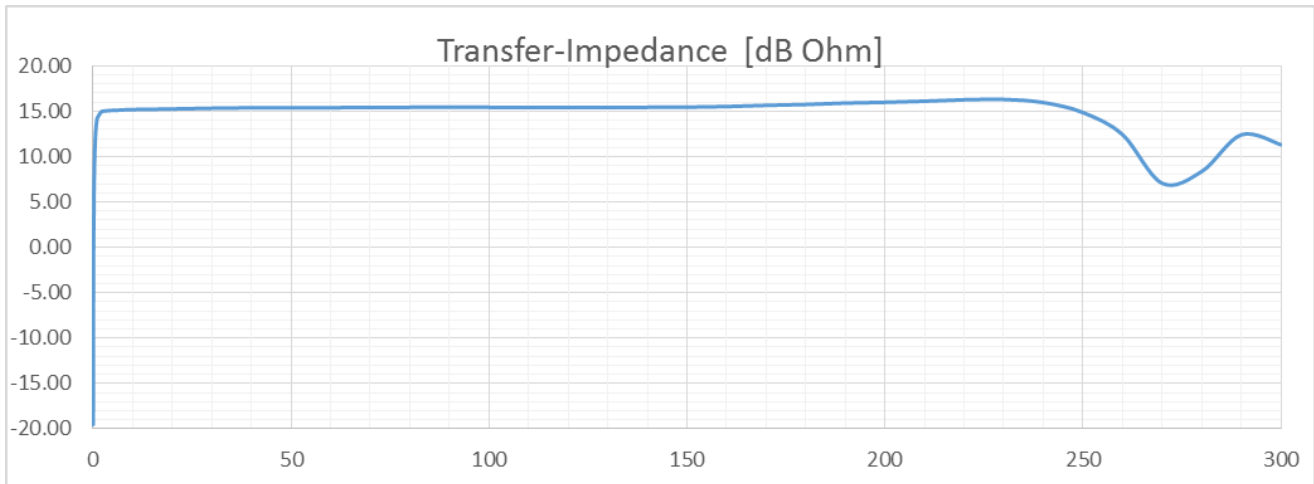


Figure1: typical transfer impedance: 10 kHz to 300 MHz, linear

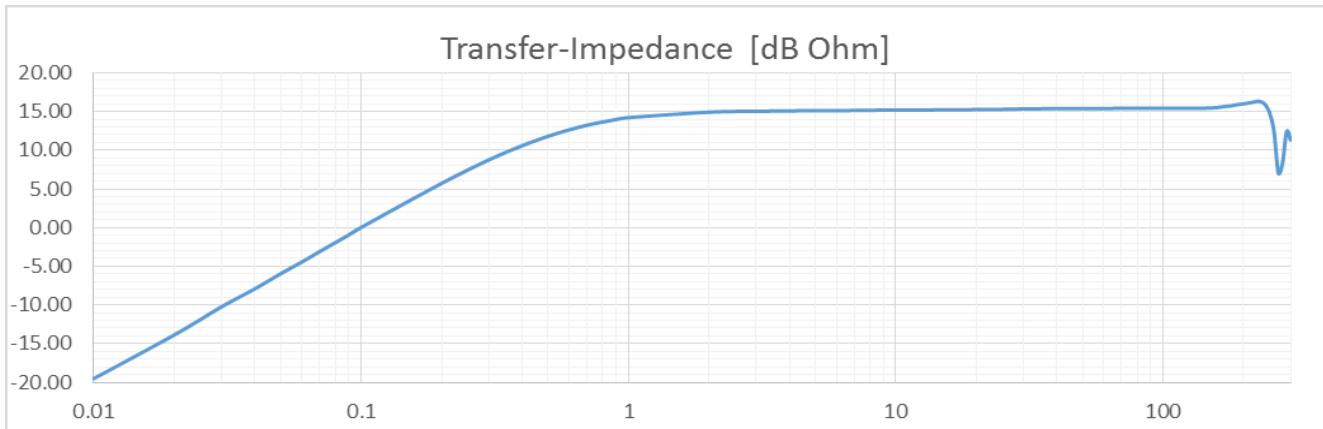


Figure2: typical transfer impedance: 10 kHz to 300 MHz, logarithmic

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### 4 Typical transfer impedance table

The table below shows typical transfer impedance data of a TBCP2-250 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.

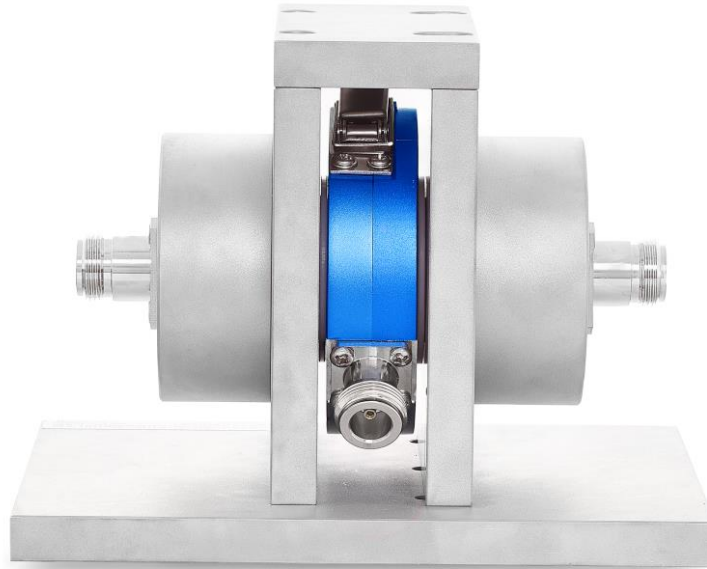
| Frequency [MHz] | transfer impedance [dBΩ] | Frequency [MHz] | transfer impedance [dBΩ] |
|-----------------|--------------------------|-----------------|--------------------------|
| 0.01            | -19.50                   | 30              | 15.34                    |
| 0.02            | -13.86                   | 40              | 15.39                    |
| 0.03            | -10.24                   | 50              | 15.37                    |
| 0.04            | -7.91                    | 60              | 15.40                    |
| 0.05            | -5.95                    | 70              | 15.43                    |
| 0.06            | -4.43                    | 80              | 15.44                    |
| 0.07            | -3.08                    | 90              | 15.45                    |
| 0.08            | -1.94                    | 100             | 15.44                    |
| 0.09            | -0.93                    | 110             | 15.42                    |
| 0.1             | 0.03                     | 120             | 15.41                    |
| 0.2             | 5.73                     | 130             | 15.42                    |
| 0.3             | 8.75                     | 140             | 15.44                    |
| 0.4             | 10.59                    | 150             | 15.46                    |
| 0.5             | 11.81                    | 160             | 15.53                    |
| 0.6             | 12.65                    | 170             | 15.66                    |
| 0.7             | 13.24                    | 180             | 15.75                    |
| 0.8             | 13.66                    | 190             | 15.91                    |
| 0.9             | 13.99                    | 200             | 16.00                    |
| 1               | 14.23                    | 210             | 16.12                    |
| 2               | 14.93                    | 220             | 16.27                    |
| 3               | 15.04                    | 230             | 16.31                    |
| 4               | 15.09                    | 240             | 15.97                    |
| 5               | 15.11                    | 250             | 14.87                    |
| 6               | 15.12                    | 260             | 12.44                    |
| 7               | 15.15                    | 270             | 7.07                     |
| 8               | 15.17                    | 280             | 8.37                     |
| 9               | 15.19                    | 290             | 12.42                    |
| 10              | 15.19                    | 300             | 11.33                    |
| 20              | 15.26                    |                 |                          |

Table1: Transfer impedance: 10 kHz to 300 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   |
|-------------|---|
| TBCP2-250   | 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 1.1   | 28.1.2021 | Mayerhofer | Photo update                         |

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