

V<sub>1.0</sub>

TBFL1

## TBFL1 TRANSIENT LIMITER



The TBFL1 is a combined transient limiter / attenuator / high pass filter, designed to provide optimum protection of spectrum analyzer or measurement receiver inputs when carrying out conducted noise measurements or other measurements where the input levels cannot be predicted with certainty or where accidental overloads may occur.



## CONTENTS

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<b>1 INTRODUCTION</b>	<b>3</b>	<b>3 ORDERING INFORMATION</b>	<b>7</b>
<b>1.1 APPLICATION</b>	<b>3</b>	<b>4 HISTORY</b>	<b>7</b>
<b>2 ELECTRICAL SPECIFICATIONS</b>	<b>4</b>		

## TABLES

---

Table 2 – Ordering Information	7
Table 3 – History	7

## PICTURES

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Picture 1 – TBFL1 transient limiter, top view	3
Picture 2 – TBFL1 transient limiter, bottom view	3
Picture 3 – TBFL1, attenuation, 9 kHz – 600 MHz	4
Picture 4 – TBFL1, high pass filter response 1 – 20 kHz	5
Picture 5 – TBFL1, input return loss, IS111,, 30 kHz – 600 MHz	5
Picture 6 – TBFL1, output return loss, IS111, 30 kHz – 1.5 GHz	6
Picture 7 – TBFL1, attenuation, IS211, 30 kHz – 1.5 GHz	6

## 1. INTRODUCTION

The TBFL1 is a combined transient limiter / attenuator / high pass filter, designed to provide optimum protection of spectrum analyzer or measurement receiver inputs when carrying out conducted noise measurements or other measurements where the input levels cannot be predicted with certainty or where accidental overloads may occur.

Pin- and schottky diodes combined with a multi-stage 10dB attenuator result in a device which can withstand a continuous RF input level of up

to 5W (37 dBm). A gas discharge tube provides additional protection against high voltage transients. Furthermore, a 9 kHz high pass filter suppresses harmonics of the mains supply voltage.

With a limiting threshold of +11dBm and a flat frequency response from 9 kHz to 600 MHz, the TBFL1 limiter can be used as protective device for the complete range of conducted noise measurements and in many other applications.

### 1.1 APPLICATION

- General purpose RF transient limiter
- Transient limiter for conducted noise measurement set ups



Picture 1 – TBFL1 transient limiter, top view

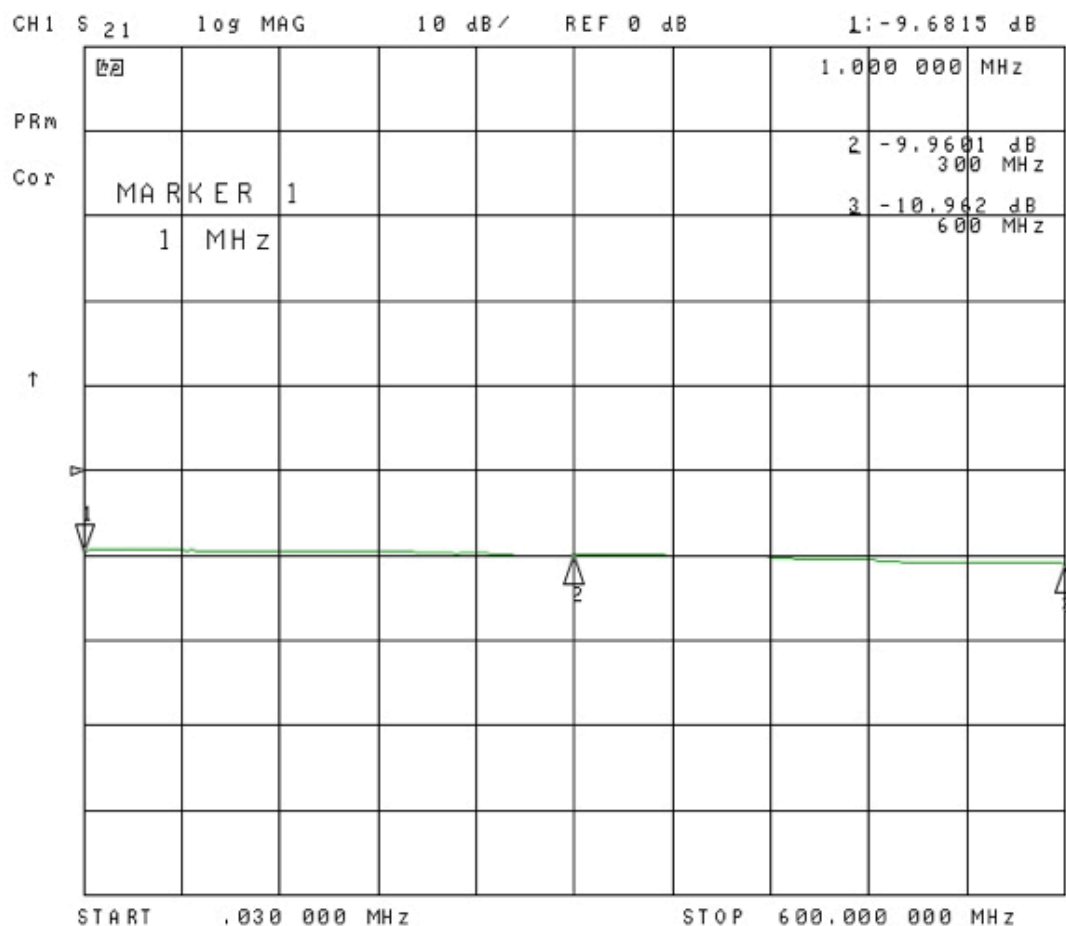


Picture 2 – TBFL1 transient limiter, bottom view

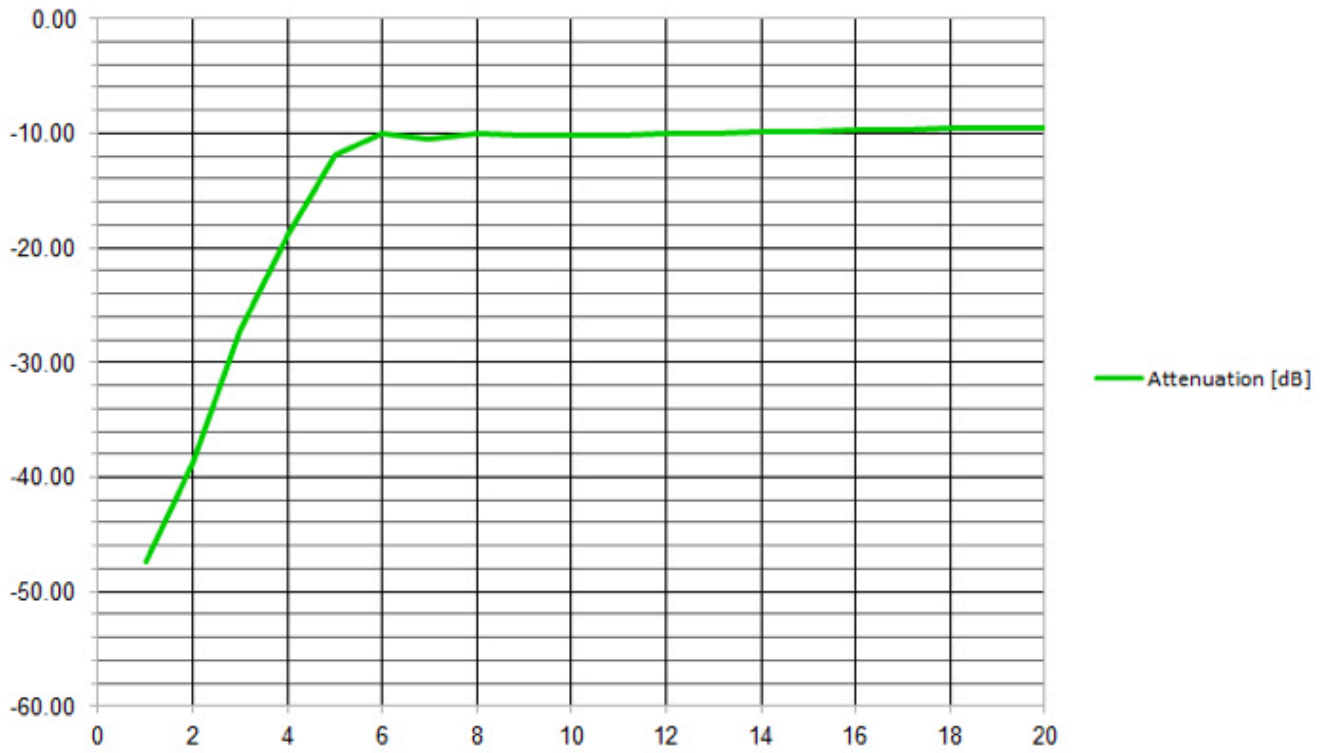
## 2. ELECTRICAL SPECIFICATIONS

**Technical Data:**

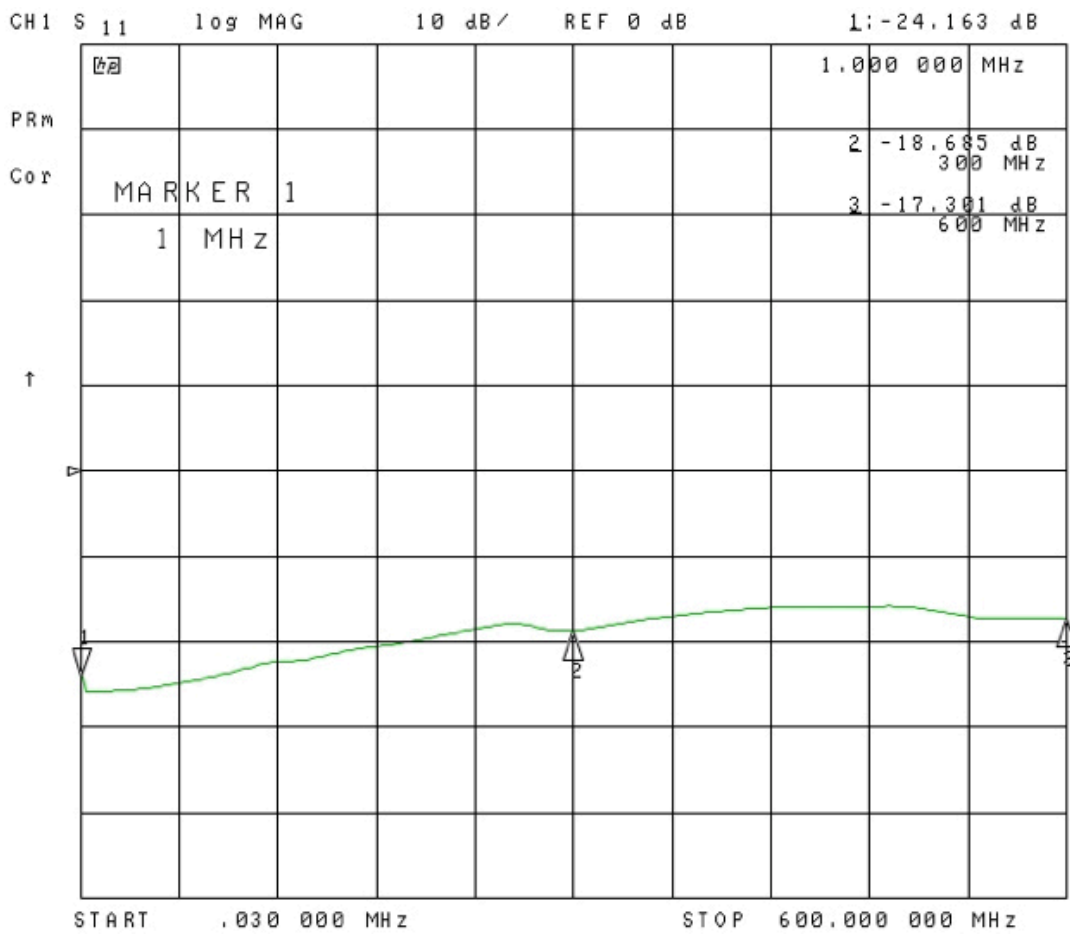
- Frequency range: 9 kHz – 600 MHz
- Attenuation: 10 dB – 0.5/+1.2 dB in-band (9 kHz to 600 MHz)
- Attenuation HP-filter: > 30 dB @ 2kHz
- Maximum continuous RF input power: 5W (+37 dBm) in-band
- Maximum DC input voltage: ± 20V
- Input matching, linear operating range: 9 kHz - 600 MHz < - 16 dB
- Output matching, linear operating range: 9 kHz - 600 MHz < - 23 dB
- Linear operating range: up to 0 dBm input level, in-band
- Limiting threshold: +11 dBm (@ 37dBm input level)
- Input connector: N-female
- Output connector: N-male
- Dimensions: 156 mm x 26 mm x 26mm
- Weight: 170 g



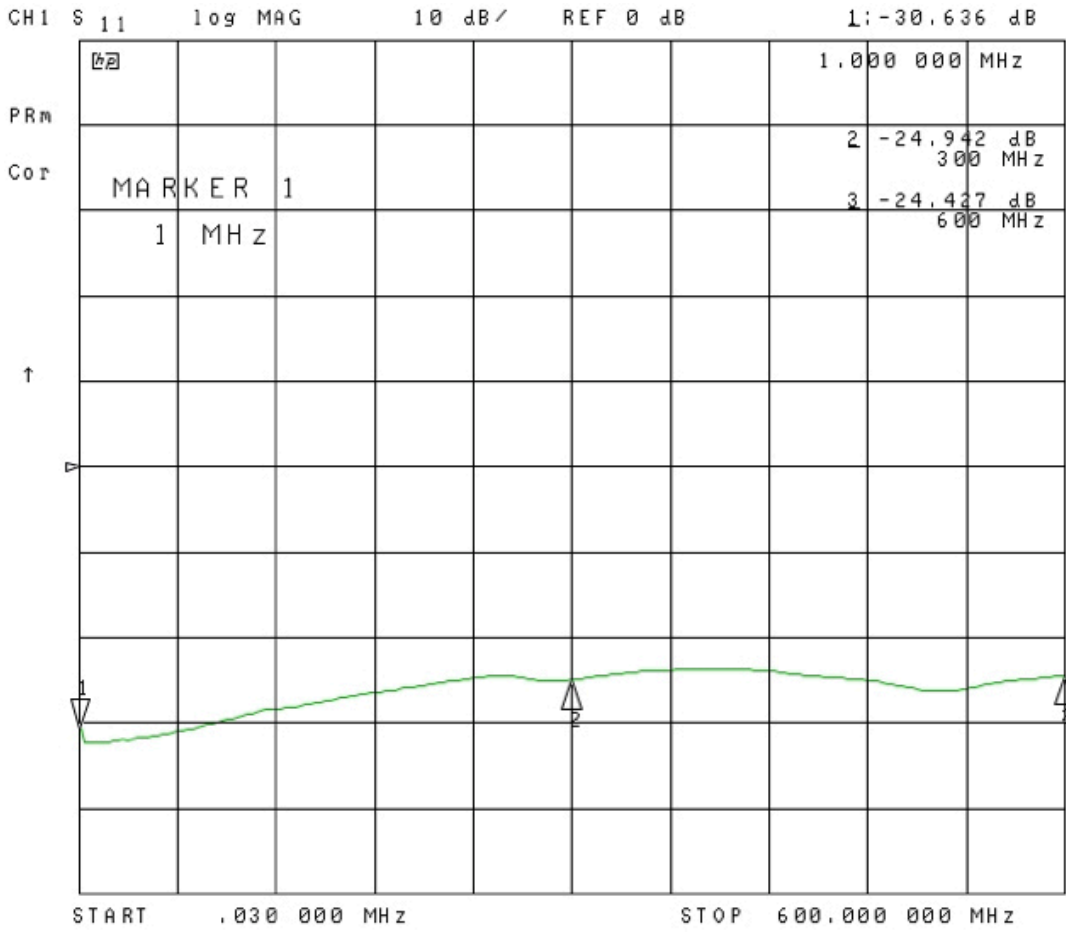
Picture 3 – TBFL1, attenuation, 9 kHz – 600 MHz



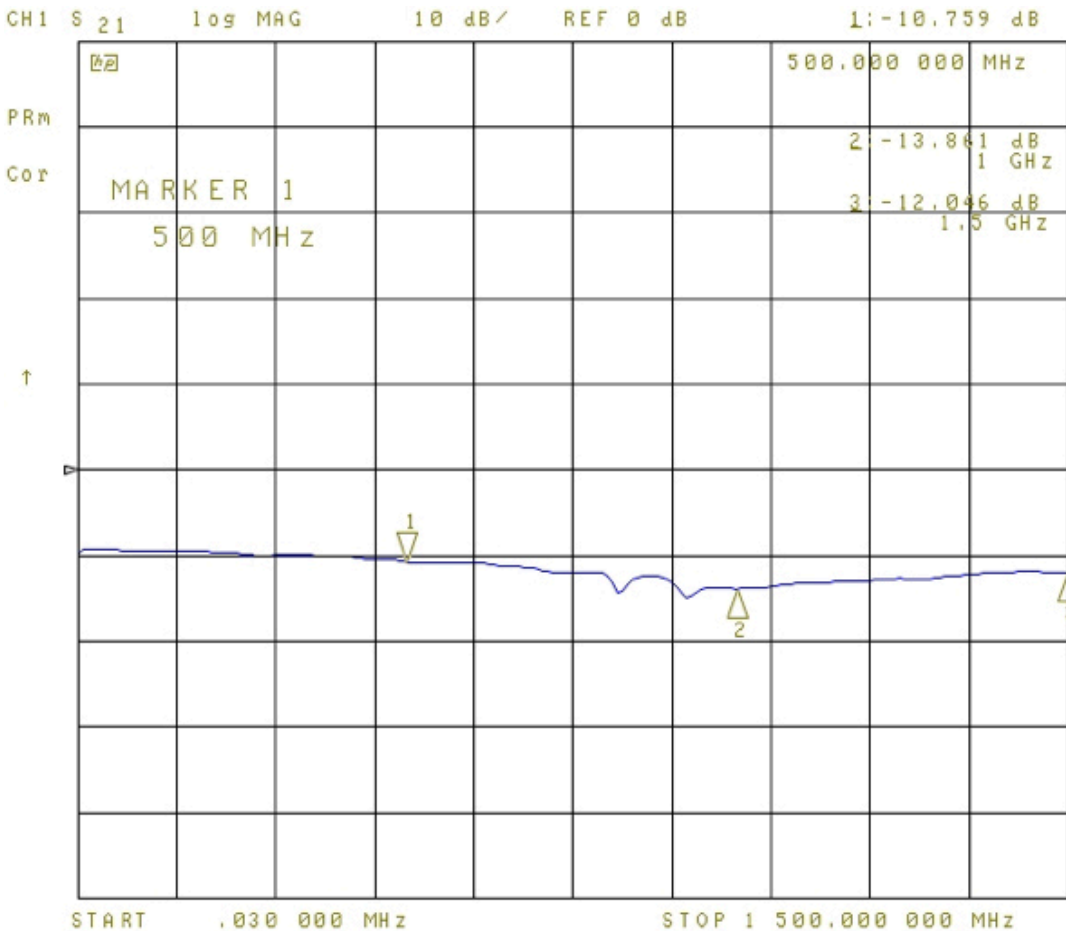
Picture 4 – TBFL1, high pass filter response 1 – 20 kHz



Picture 5 – TBFL1, input return loss, IS11,, 30 kHz – 600 MHz



Picture 6 – TBFL1, output return loss, IS11I, 30 kHz – 1.5 GHz



Picture 7 – TBFL1, attenuation, IS21I, 30 kHz – 1.5 GHz

### 3. ORDERING INFORMATION

PART NUMBER	DESCRIPTION
TBFL1	9 kHz – 600 MHz transient limiter / attenuator / high pass filter, beech-wood box

*Table 1 – Ordering Information*

### 4. HISTORY

VERSION	DATE	AUTHOR	CHANGES
V1.0	30.8.2017	Mayerhofer	Creation of the document

*Table 2 – History*