

# 150 MHz – 3000 MHz Log Periodic Measurement Antenna

## 1 Introduction

The TBMA7 is an affordable logarithmic-periodic measurement antenna, targeting radiated noise EMC pre-compliance testing.

The TBMA7 is characterized from 150 MHz to 3000 MHz and has VSWR and antenna factor values typical for logarithmic-periodic measurement antennas.



## 2 Product overview

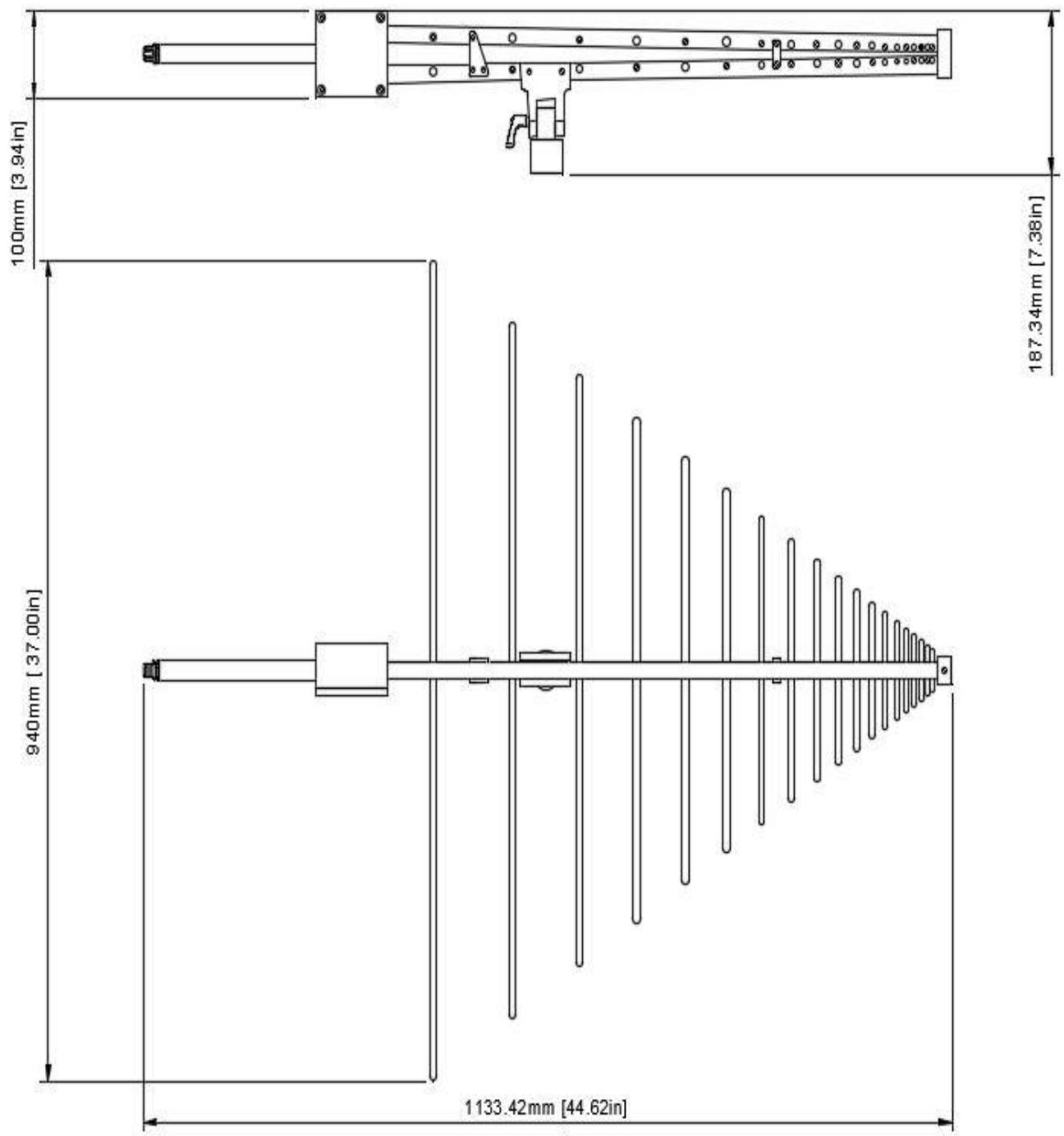
The TBMA7 is an average sized logarithmic-periodic antenna, with its radiating elements and supporting booms made from aluminum alloy. It is equipped with a standard female N-connector and comes together with an antenna bracket and a mounting adapter. A standard ¼" thread on the bottom of the mounting adapter makes it easy to connect it to most standard tripods.

The TBMA7 is shipped in a robust carrying case, as pictured above.

## 2 Technical Specifications

|                                   |                                                                                                      |
|-----------------------------------|------------------------------------------------------------------------------------------------------|
| Type                              | logarithmic periodic                                                                                 |
| Frequency range                   | 150 MHz– 3000 MHz                                                                                    |
| VSWR                              | < 2.1:1 over the entire frequency range ; 1.3:1 average                                              |
| Isotropic gain at 3m spacing      | 1.5 .... 8 dBi                                                                                       |
| Antenna factor at 3m spacing      | 10 ... 34 dB/m                                                                                       |
| Maximum continuous input RF power | 130W                                                                                                 |
| Nominal impedance                 | 50 Ω                                                                                                 |
| RF Connector                      | N type female                                                                                        |
| Mounting                          | Tilttable adapter at center of gravity with ¼" tripod thread<br>22 mm diameter mounting shaft (tube) |
| Mechanical Dimensions             | L x W x H: 1133 mm x 940 mm x 100 mm (44,6" x 37" x 3.94")                                           |
| Weight                            | 2.9 kg (6.39 lbs)                                                                                    |

## 150 MHz – 3000 MHz Log Periodic Measurement Antenna



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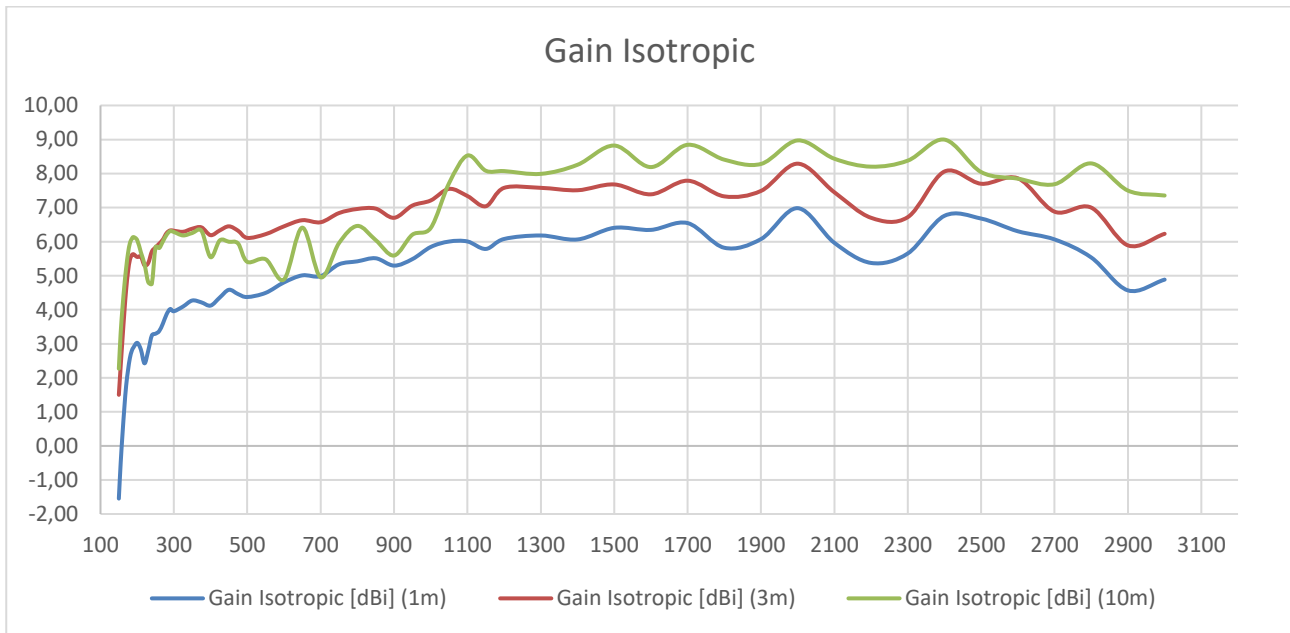
## 3 TBMA7 Antenna Characterisation

### 3.1 Gain & Antenna Factor versus frequency

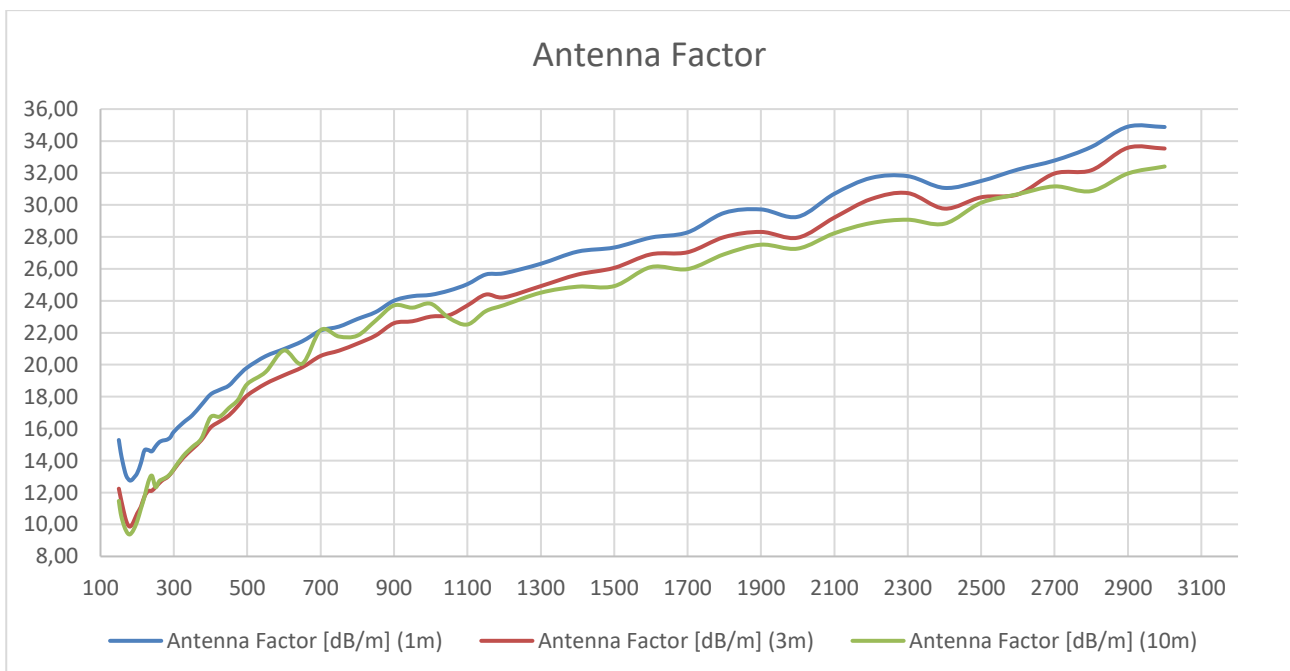
| Frequency | Gain Isotropic<br>(10m_Antenna Center) | Antenna Factor<br>(10m_Antenna Center) | Gain Isotropic<br>(3m_Antenna Center) | Antenna Factor<br>(3m_Antenna Center) | Gain Isotropic<br>(1m_Antenna Tip) | Antenna Factor<br>(1m_Antenna Tip) |
|-----------|----------------------------------------|----------------------------------------|---------------------------------------|---------------------------------------|------------------------------------|------------------------------------|
| MHz       | dBi                                    | dB/m                                   | dBi                                   | dB/m                                  | dBi                                | dB/m                               |
| 150       | 2.27                                   | 11.47                                  | 1.50                                  | 12.24                                 | -1.55                              | 15.29                              |
| 155       | 3.33                                   | 10.70                                  | 2.34                                  | 11.68                                 | -0.50                              | 14.53                              |
| 160       | 4.07                                   | 10.23                                  | 3.15                                  | 11.15                                 | 0.35                               | 13.95                              |
| 165       | 4.70                                   | 9.87                                   | 3.92                                  | 10.65                                 | 1.12                               | 13.45                              |
| 170       | 5.23                                   | 9.60                                   | 4.60                                  | 10.23                                 | 1.78                               | 13.05                              |
| 175       | 5.66                                   | 9.42                                   | 5.12                                  | 9.96                                  | 2.22                               | 12.86                              |
| 180       | 5.95                                   | 9.38                                   | 5.46                                  | 9.87                                  | 2.57                               | 12.75                              |
| 185       | 6.08                                   | 9.49                                   | 5.60                                  | 9.96                                  | 2.78                               | 12.78                              |
| 190       | 6.13                                   | 9.66                                   | 5.63                                  | 10.16                                 | 2.89                               | 12.90                              |
| 200       | 6.05                                   | 10.19                                  | 5.55                                  | 10.69                                 | 3.03                               | 13.21                              |
| 210       | 5.69                                   | 10.98                                  | 5.56                                  | 11.10                                 | 2.83                               | 13.83                              |
| 220       | 5.34                                   | 11.73                                  | 5.30                                  | 11.76                                 | 2.42                               | 14.64                              |
| 230       | 4.81                                   | 12.64                                  | 5.37                                  | 12.09                                 | 2.79                               | 14.66                              |
| 240       | 4.77                                   | 13.06                                  | 5.71                                  | 12.11                                 | 3.25                               | 14.58                              |
| 250       | 5.84                                   | 12.34                                  | 5.83                                  | 12.34                                 | 3.30                               | 14.88                              |
| 260       | 5.81                                   | 12.71                                  | 5.94                                  | 12.58                                 | 3.37                               | 15.15                              |
| 270       | 6.00                                   | 12.84                                  | 6.06                                  | 12.79                                 | 3.59                               | 15.26                              |
| 280       | 6.20                                   | 12.96                                  | 6.25                                  | 12.92                                 | 3.86                               | 15.30                              |
| 290       | 6.31                                   | 13.16                                  | 6.33                                  | 13.14                                 | 4.02                               | 15.45                              |
| 300       | 6.28                                   | 13.48                                  | 6.32                                  | 13.44                                 | 3.96                               | 15.81                              |
| 325       | 6.18                                   | 14.28                                  | 6.29                                  | 14.17                                 | 4.09                               | 16.36                              |
| 350       | 6.25                                   | 14.85                                  | 6.38                                  | 14.72                                 | 4.27                               | 16.83                              |
| 375       | 6.32                                   | 15.38                                  | 6.42                                  | 15.28                                 | 4.22                               | 17.48                              |
| 400       | 5.54                                   | 16.72                                  | 6.19                                  | 16.07                                 | 4.12                               | 18.14                              |
| 425       | 6.04                                   | 16.75                                  | 6.33                                  | 16.45                                 | 4.36                               | 18.43                              |
| 450       | 6.00                                   | 17.29                                  | 6.45                                  | 16.83                                 | 4.59                               | 18.70                              |
| 475       | 5.94                                   | 17.81                                  | 6.32                                  | 17.43                                 | 4.46                               | 19.29                              |
| 500       | 5.41                                   | 18.79                                  | 6.11                                  | 18.08                                 | 4.37                               | 19.83                              |
| 550       | 5.48                                   | 19.54                                  | 6.22                                  | 18.81                                 | 4.49                               | 20.53                              |
| 600       | 4.89                                   | 20.89                                  | 6.45                                  | 19.34                                 | 4.80                               | 20.98                              |
| 650       | 6.41                                   | 20.07                                  | 6.63                                  | 19.84                                 | 5.01                               | 21.47                              |
| 700       | 4.95                                   | 22.17                                  | 6.57                                  | 20.55                                 | 4.99                               | 22.13                              |
| 750       | 5.96                                   | 21.76                                  | 6.84                                  | 20.88                                 | 5.33                               | 22.39                              |
| 800       | 6.46                                   | 21.82                                  | 6.96                                  | 21.32                                 | 5.42                               | 22.86                              |
| 850       | 6.04                                   | 22.76                                  | 6.97                                  | 21.83                                 | 5.51                               | 23.30                              |
| 900       | 5.59                                   | 23.71                                  | 6.70                                  | 22.60                                 | 5.30                               | 24.01                              |
| 950       | 6.20                                   | 23.57                                  | 7.06                                  | 22.72                                 | 5.49                               | 24.29                              |
| 1000      | 6.40                                   | 23.82                                  | 7.21                                  | 23.01                                 | 5.84                               | 24.38                              |
| 1050      | 7.72                                   | 22.92                                  | 7.55                                  | 23.10                                 | 6.00                               | 24.64                              |
| 1100      | 8.53                                   | 22.52                                  | 7.34                                  | 23.71                                 | 6.01                               | 25.04                              |
| 1150      | 8.08                                   | 23.35                                  | 7.04                                  | 24.39                                 | 5.79                               | 25.65                              |
| 1200      | 8.07                                   | 23.73                                  | 7.58                                  | 24.22                                 | 6.08                               | 25.73                              |
| 1300      | 7.99                                   | 24.51                                  | 7.58                                  | 24.92                                 | 6.18                               | 26.32                              |
| 1400      | 8.26                                   | 24.88                                  | 7.51                                  | 25.64                                 | 6.06                               | 27.08                              |
| 1500      | 8.82                                   | 24.92                                  | 7.68                                  | 26.06                                 | 6.41                               | 27.34                              |
| 1600      | 8.19                                   | 26.11                                  | 7.39                                  | 26.91                                 | 6.35                               | 27.96                              |
| 1700      | 8.84                                   | 25.98                                  | 7.79                                  | 27.04                                 | 6.55                               | 28.28                              |
| 1800      | 8.41                                   | 26.92                                  | 7.33                                  | 27.99                                 | 5.82                               | 29.51                              |
| 1900      | 8.28                                   | 27.51                                  | 7.49                                  | 28.31                                 | 6.08                               | 29.72                              |
| 2000      | 8.97                                   | 27.27                                  | 8.29                                  | 27.95                                 | 6.98                               | 29.26                              |
| 2100      | 8.44                                   | 28.23                                  | 7.45                                  | 29.21                                 | 5.96                               | 30.70                              |

## 150 MHz – 3000 MHz Log Periodic Measurement Antenna

|      |      |       |      |       |      |       |
|------|------|-------|------|-------|------|-------|
| 2200 | 8.20 | 28.87 | 6.70 | 30.37 | 5.37 | 31.69 |
| 2300 | 8.38 | 29.07 | 6.72 | 30.74 | 5.65 | 31.80 |
| 2400 | 9.00 | 28.83 | 8.06 | 29.77 | 6.76 | 31.07 |
| 2500 | 8.04 | 30.14 | 7.70 | 30.48 | 6.68 | 31.50 |
| 2600 | 7.85 | 30.67 | 7.86 | 30.66 | 6.30 | 32.21 |
| 2700 | 7.69 | 31.16 | 6.88 | 31.97 | 6.06 | 32.78 |
| 2800 | 8.30 | 30.86 | 7.00 | 32.17 | 5.54 | 33.63 |
| 2900 | 7.50 | 31.97 | 5.89 | 33.58 | 4.57 | 34.90 |
| 3000 | 7.36 | 32.41 | 6.23 | 33.53 | 4.89 | 34.88 |



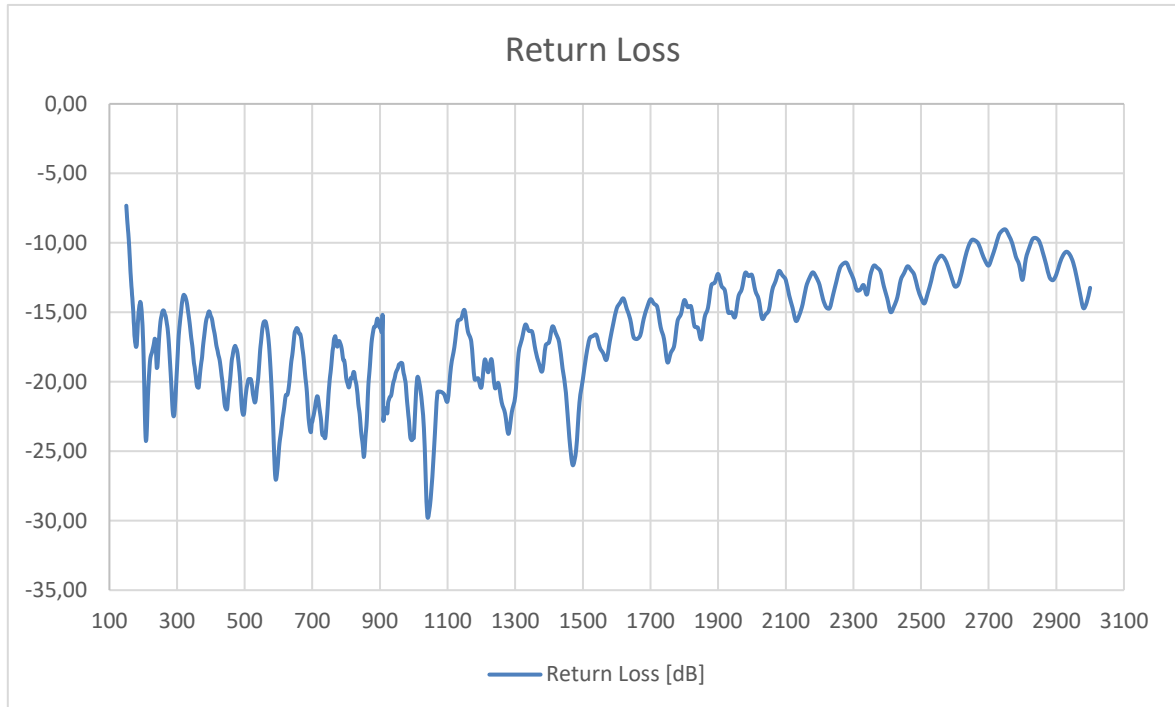
150 MHz ... 3000 MHz, Isotropic Gain of TBMA7



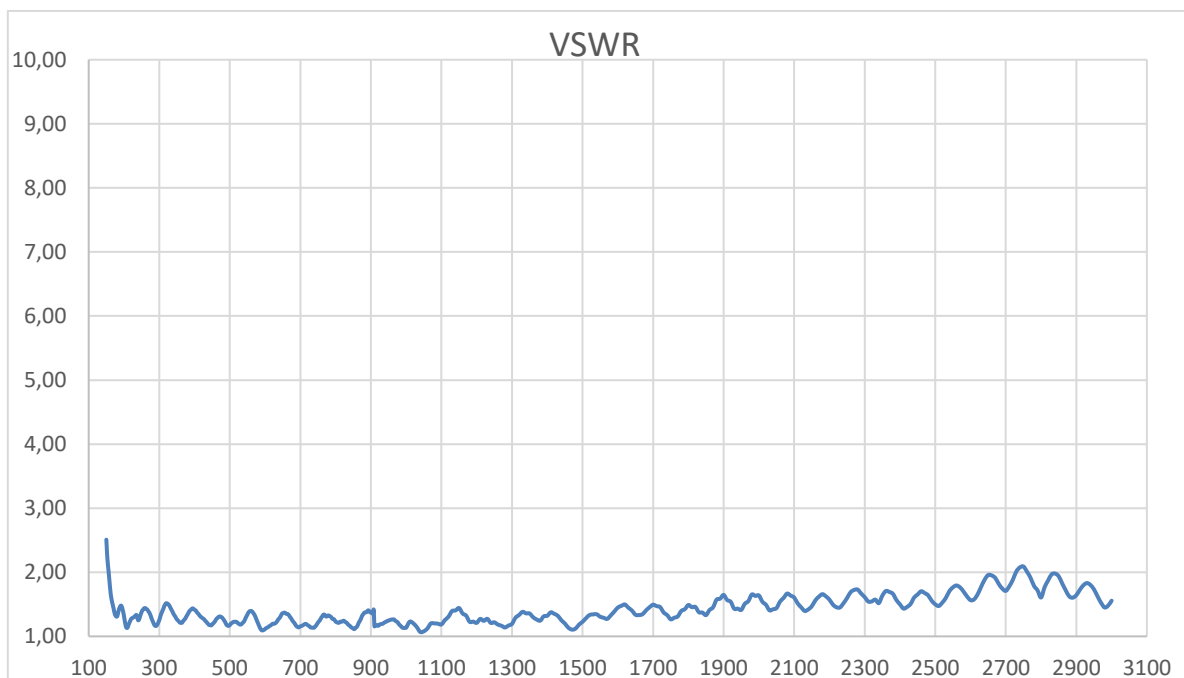
## 150 MHz – 3000 MHz Log Periodic Measurement Antenna

*150 MHz ... 3000 MHz, Antenna Factor of TBMA7*

### 3.2 TBMA7 Return Loss / VSWR



*TBMA7, S11, 150 MHz ... 3000 MHz*



*TBMA7, VSWR, 150 MHz ... 3000 MHz*

Detailed test reports from Seibersdorf Laboratories can be downloaded from our website

## 150 MHz – 3000 MHz Log Periodic Measurement Antenna

### 4 Ordering Information

| Part Number | Description                                                                              |
|-------------|------------------------------------------------------------------------------------------|
| TBMA7       | 150 – 3000 MHz logarithmic-periodic measurement antenna; mounting adapter, carrying case |

### 5 History

| Version | Date       | Author     | Changes                  |
|---------|------------|------------|--------------------------|
| V1.0    | 04.11.2024 | Mayerhofer | Creation of the document |
|         |            |            |                          |
|         |            |            |                          |