

# TES1000 ELECTRIC FIELD SENSOR



## PURPOSE

TES1000 is a frequency selective electric field sensor covering a broad frequency range. Originally designed for pulsed military applications, it has been easily adapted for the measurement of the electric fields generated by RF transmitters.

The main usage is the acquisition of the fields outdoors for health and safety related applications.

Another application is the shielding effectiveness test of cabinets or small conductive enclosures.

## MEASUREMENT TECHNIQUE

The relatively high level of the field in the proximity of radio, TV or mobile base stations is often sniffed with a broad band field probe. Due to the inaccuracy of the instrument and its inability to discriminate between the various sources, very often a second more precise measurement follows utilizing a traditional antenna, biconical, dipole or log-periodic type. Typically the field is not uniform over an area corresponding to the vertical section of the human body and the repetition of the measurements in many locations close to each other requires an antenna with limited dimensions, possibly of the same order of magnitude as the broad band probe. TES1000 allows to measure the field with accuracy and frequency discrimination in just one go.

Not only its size is comparable with that of the broad band probes, but also the connection to the receiving instrument ( a spectrum analyzer in this case) is obtained by the use of a fiber cable as with the broadband probe.

The probe performs a single axis measurement. A three position mechanical adapter for a standard dielectric tripod permits to orient the probe in three orthogonal directions. If the analyzer is connected to a PC the optional software guides the operator in the acquisition of the field components in one or more locations and calculates the total field.

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## TECHNICAL SPECIFICATIONS

### ■ GENERAL

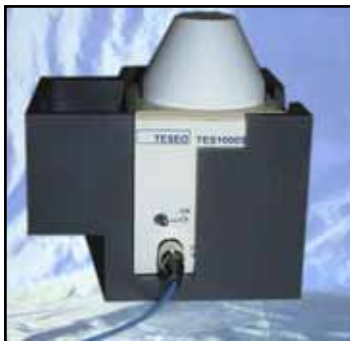
- bandwidth : 3 dB 100 kHz ÷ 1 GHz
- flatness : ± 2 dB
- max field level : 200 V/m
- full scale range : 30 V/m standard (other ranges on request)
- linearity : ± 0.5 dB
- noise floor (RBW=10kHz) : from 100 kHz to 1 MHz see diagram below  
from 1 MHz to 1 GHz less than -86 dBm

### ■ TES1000S

- power supply : 9 V battery PP3 style
- operating life : 8 hours continuous
- optical connector : FC, 9 μm fiber
- size (W x D x H) : 65 x 65 x 103 mm
- weight : 380 g
- temperature range : 0 ÷ 40 °C
- mechanical I/F : 1/4" 20 UNC

### ■ TES1000R-B

- power supply : rechargeable battery
- charging life : 8 hours continuous
- recharge time : 2 hours
- output impedance : 50 Ohm
- output full scale range : -6 dBm
- output connector : SMA (f)
- optical connector : FC
- size (W x D x H) : 89 x 190 x 69 mm
- weight : 1000 g
- temperature range : 0 ÷ 40 °C



Dielectric support for 3 orientations tripod mount

## SYSTEM PARTS

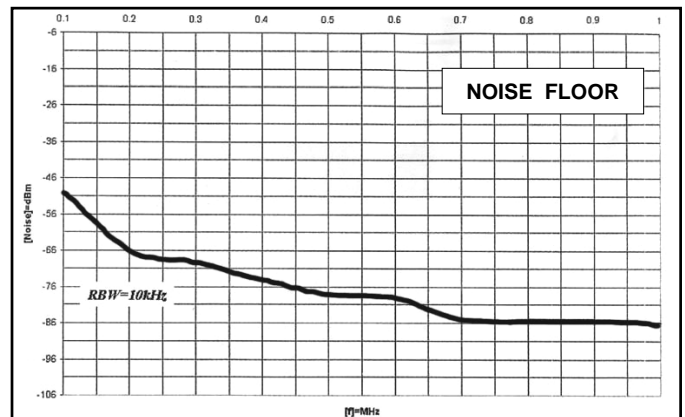
The TES1000 base configuration is formed of:

- **TES1000S** : field sensor
- **FD010** : 10 meters fiber cable
- **TES1000R-B** : optical transducer
- **CB2** : TES1000R-B battery charger

**TES1000S** is an accurate, frequency selective, one-axis electric field probe. It is powered from a non-rechargeable battery, with a rechargeable battery as option. The output is taken to a spectrum analyzer for display/analysis purposes via a fiber cable

The **FD** type fiber cable is a single monomode 9 μm fiber cable connecting the probe to the electro-optical receiver. It offers electrical isolation to the probe and full independence of the field acquisition from the geometry of the connection (it would not be so with a copper connection). The part number of the cable is FDxxx with xxx the length expressed in meters. The standard length is 10 meters.

**TES1000R-B** converts the optical signal back into an electrical signal for evaluation by the spectrum analyzer to which connects via a coaxial cable. It is powered from a rechargeable battery.



## OPTIONS

- CB6** : charger for rechargeable batteries
- FDxxx** : fiber cable xxx meters long
- SUD3** : dielectric support for 3 orientations tripod mount
- CAV-SMA-N-20** : 20 cm coaxial cable for spectrum analyzer connection to TES1000R
- TES1000S-xxxV** : Modification of standard f.s. range to xxx V/m
- VAL** : carry case
- WIN-MF** : PC software for remote control of analyzer. (Presently in Italian language)

For more informations and quotes contact TESEO



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