

SCREENING EFFICIENCY TESTER

Model 271

Measures the screening efficiency of conductive suits worn by live working maintenance personnel on power transmission lines.

Features:

- 3 screening efficiency indicators:
results presented as POOR, MARGINAL EFFECTIVE or GOOD
bar-graph
digital reading in -db
- 5kHz, 400VAC transmitter
- Simple, quick self-calibrating process
- Field and laboratory use
Battery powered
Rugged construction
Dust/waterproof carrying case



Applications:

Conductive suits are worn by service personnel while performing live working maintenance on power transmission lines and in substations. The suits are designed to shield personnel from low frequency electric fields emitted by the live parts. During the life of the suit the conductive fibers woven into the fabric begin to breakdown due to repeated laundering, and wear and tear in areas such as the seat, knees and elbows, thus slowly reducing the effective protection afforded to the wearer. The ability of the suit fabric to provide a shield for the wearer from these electric fields is a fabric property commonly referred to as "screening efficiency".

The ETS Model 271 Screening Efficiency Tester is a portable, battery-powered, instrument designed to accurately measure the screening efficiency in decibels (-db) in both field and laboratory environments. It performs nondestructive testing on any section of suit or test fabric that is at least 4" (10cm) in diameter. The higher the absolute reading the better the screening efficiency or conductivity of the fabric and thus lower the magnitude of the electric field on the wearer side of the fabric.



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Description:

The Model 271 Screening Efficiency Tester is a completely integrated, microcomputer-based instrument for laboratory and field use. The Tester consists of a 5 kHz, 400VAC transmitter plus a nesting receiver that contains the control, detection, processing, and display functions plus batteries. Both transmitter and receiver are contained in rugged aluminum housings, 4" (10cm) in diameter x 1.5" (3.8cm) and x 3.375" (8.6cm) respectively. The two units are connected by a 24" (60cm) cable. Measurements can be taken at virtually any non-seam location on the suit.

The Model 271 has better than -70db, of dynamic range (-18.1db to -91.9db). A 2-line alpha-numeric LCD display indicates the electric field strength with a bar-graph and interpretation of the signal as to whether the material is a POOR, MARGINAL, EFFECTIVE or GOOD shield. After approximately 2 sec. the actual screening efficiency is then displayed in -db. The instrument is self-calibrating. Prior to each test session the CAL button is momentarily depressed which calibrates the system. Performance is easily checked by first taking a measurement without fabric between the transmitter/receiver (-18db) and then with aluminum foil between the transmitter/receiver (-90db).

To measure a suit or test fabric, the desired section is placed between the transmitter/receiver. Prompts on the display walk the user through the measurement process. Each time the TEST button is depressed the triple indication will appear on the LCD display. The system is defaulted to define a fabric that has a screening efficiency greater than -50db to be considered GOOD, between -40 and -50db, EFFECTIVE, between -30 and -40db, MARGINAL and below -30db, POOR. Other default settings can be programmed as an option. The Model 271 may also be used for other applications where the screening efficiency of conductive fabric or thin films need to be evaluated.

The Model 271 Screening Efficiency Tester comes complete with transmitter/receiver, 2 spare 9V alkaline batteries, operating manual plus a dust/waterproof ABS carrying case.

Specifications:

Transmitter:

Frequency: 5 kHz
Voltage: 400VAC, p-p
Electrode: Concentric ring

Dimensions:

Case: 10.8"x9.85"x4.5"
(27.5x25x11.5cm)
Weight: 5 lbs (2.2kg)

Receiver:

Dynamic range: <-18.1 to-91.9db
Controls: ON/OFF, TEST, CAL
Display: 2-line, LCD alpha-numeric
Calibration: Direct injection of xmitter
signal attenuated by 20±.5db

Power:

Batteries: 2x9V Alkaline
Life: Approx. 500 tests
Indication: "Low Battery"

Warranty:

One (1) Year

Specifications are subject to change.