



**Ensure that your shielded bags protect the sensitive devices they exist to serve.** Electro-Tech Systems' 4431 provides a reliable measure of how well a bag shields its contents from an external ESD event. This turnkey system administers a HBM pulse to the outside of the bag and makes a calibrated measurement of energy detected inside the bag. User-friendly 4431 Test Manager software schedules multiple tests on multiple samples and provides both printed and graphical reports of the results. The 4431T allows you to verify that bags are accomplishing their stated purpose, choose between bag materials and design, as well as monitor production variation and overall shielding effectiveness.

### Standards Satisfied

ANSI/ESDA S11.31, MIL-PRF-81705E, ESD S11.4, EIA 541

### Effectiveness testing of:

- Static Shielded Bags and Film
- Conductive Bags
- Moisture Barrier Bags

### Key Features

- Automated testing provides ease of use, efficiency and eliminates human errors.
- Pre-test discharge event validates HBM waveform conforms to industry standards
- Test Voltage: 1kV HBM Pulse applied to bag
- Measures bag internal energy in nJ
- Test data compiled into easy to read report

For accuracy and specification compliance, the model 4431T should be operated inside a controlled humidity environment, Please contact ETS for more information

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electro-tech systems, inc.

## Shielded Bag Test System: Model 4431T

### Specifications

#### **Discharge Unit**

##### **Power:**

Voltage: 90-260VAC, 50/60Hz; 0.75 Amps max

Input: IEC Socket with 6' (2m) cable with NA plug (Std)

##### **High Voltage Power Supply:**

Adjustable  $\pm 800$ - $\pm 1,200$ V

##### **Discharge Network:**

STM11.31: 100pF & 1500 $\Omega$

EIA 541: 200pF & 1.5 or 400k $\Omega$

##### **Discharge Waveform STM11.3**

Rise time @ 0 $\Omega$ : <10 nsec

@ 500 $\Omega$ : <20 nsec

Fall time @ 0 $\Omega$ : 150 $\pm$ 15 nsec

@ 500 $\Omega$ : 200 $\pm$ 20 nsec

Ringing: <15%

##### **Signal Output:**

Voltage output: 100:1 Attenuated signal into 1 meg $\Omega$ :

Current output: Tektronix CT-1: 5mV/mA @ 500 $\Omega$ :

##### **Capacitive Sensor:**

Electrodes: 0.875" (22mm) stainless steel

Dielectric: 0.5" (12mm)

Capacitance: 6pF

##### **Dimensions:**

4"W x 12"D x 6"H (102x305x152mm)

#### **Oscilloscope**

Tektronix TDS2022C:

Voltage: 90-260VAC

Communication Signal input/output to computer: USB

Communication Signal input/output to oscilloscope: USB

#### **Computer**

A compute with Windows 10 & ETS Test manager software installed.

The system uses folder C:\ETS\ as a destination for all test results

**Warranty:** One (1) Year Parts & Labor

**To ensure consistent and valid results annual calibration is required**

**Contact: [service@ets2.com](mailto:service@ets2.com) for assistance**



*Specifications subject to change without notice*

