

ANSI/ESD STM11.13-2021

ESD Association Standard Test Method

ANSI/ESD STM11.13-2021
Revision of ANSI/ESD STM11.13-2018



*For the Protection of Electrostatic
Discharge Susceptible Items*

Two-Point Resistance Measurement

*Electrostatic Discharge Association
218 West Court Street
Rome, NY 13440*

*An American National Standard
Approved October 28, 2021*

*ESD Association Standard Test Method for
the Protection of Electrostatic Discharge
Susceptible Items*

Two-Point Resistance Measurement

Approved July 7, 2021
EOS/ESD Association, Inc.



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FOREWORD

This standard test method¹ has been developed to establish the instrumentation and procedure for measuring resistance where the concentric ring electrodes of ANSI/ESD STM11.11 cannot be used. This method measures the resistance between two points on a material's surface without considering the material's means of achieving conductivity. Constant voltage instrumentation was used to collect the data used to validate this standard test method. Other instrumentation using an open circuit rated voltage supply is represented in this document as guidance.

This standard test method was originally designated ANSI/ESD STM11.13-2004 and approved on September 19, 2004. ANSI/ESD STM11.13-2015 was a revision of ANSI/ESD STM11.13-2004 and was approved on February 10, 2015. ANSI/ESD STM11.13-2018 was a limited revision of ANSI/ESD STM11.13-2015 and was approved on November 8, 2017. ANSI/ESD STM11.13-2021 is a revision of ANSI/ESD STM11.13-2018 and was approved on July 7, 2021.

¹ **ESD Association Standard Test Method (STM):** A definitive procedure for the identification, measurement and evaluation of one or more qualities, characteristics or properties of a material, product, system or process that yield a **reproducible test** result.

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ESD Association Standard Test Method for the Protection of Electrostatic Discharge Susceptible Items – Two-Point Resistance Measurement

1.0 PURPOSE AND SCOPE

1.1 Purpose

This document provides a test method for measuring the resistance between two points on the surface of an item.

1.2 Scope

This document is intended for measuring materials with a resistance of greater than or equal to 1.0×10^4 ohms and less than 1.0×10^{11} ohms.

2.0 REFERENCED PUBLICATIONS

Unless otherwise specified, the following documents of the latest issue, revision, or amendment form a part of this standard to the extent specified herein:

ANSI/ESD STM11.11, Surface Resistance Measurement of Planar Materials²

ESD ADV1.0, Glossary²

ASTM D257, Standard Test Method for DC Resistance or Conductance of Insulating Materials³

ASTM D2240, Standard Test Method for Rubber Property—Durometer Hardness³

3.0 DEFINITIONS

The terms used in the body of this document are in accordance with the definitions found in ESD ADV1.0, Glossary, available for complimentary download at www.esda.org.

4.0 PERSONNEL SAFETY

THE PROCEDURES AND EQUIPMENT DESCRIBED IN THIS DOCUMENT MAY EXPOSE PERSONNEL TO HAZARDOUS ELECTRICAL CONDITIONS. USERS OF THIS DOCUMENT ARE RESPONSIBLE FOR SELECTING EQUIPMENT THAT COMPLIES WITH APPLICABLE LAWS, REGULATORY CODES, AND BOTH EXTERNAL AND INTERNAL POLICIES. USERS ARE CAUTIONED THAT THIS DOCUMENT CANNOT REPLACE OR SUPERSEDE ANY REQUIREMENTS FOR PERSONNEL SAFETY.

GROUND FAULT CIRCUIT INTERRUPTERS (GFCI) AND OTHER SAFETY PROTECTION SHOULD BE CONSIDERED WHEREVER PERSONNEL MIGHT COME INTO CONTACT WITH ELECTRICAL SOURCES.

ELECTRICAL HAZARD REDUCTION PRACTICES SHOULD BE EXERCISED, AND PROPER GROUNDING INSTRUCTIONS FOR EQUIPMENT SHOULD BE FOLLOWED.

THE RESISTANCE MEASUREMENTS OBTAINED THROUGH THE USE OF THIS TEST METHOD SHALL NOT BE USED TO DETERMINE THE RELATIVE SAFETY OF PERSONNEL EXPOSED TO HIGH AC OR DC VOLTAGES.

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