ESD Association Standard Test Method

ANSI/ESD STM97.1-2015

ANSI/ESD STM97.1-2015

Revision of ANSI/ESD STM97.1-2006

For the Protection of Electrostatic Discharge Susceptible Items

Footwear/Flooring System – Resistance Measurement in Combination with a Person

Electrostatic Discharge Association
7900 Turin Road, Bldg. 3
Rome, NY 13440

An American National Standard
Approved July 8, 2015

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

Footwear/Flooring System – Resistance Measurement in Combination with a Person

Approved July 1, 2015
ESD Association

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Published by:

Electrostatic Discharge Association
7900 Turin Road, Bldg. 3
Rome, NY 13440

Printed in the United States of America

ISBN: 1-58537-281-1

(This foreword is not part of ESD Association standard test method ANSI/ESD STM97.1-2015.)

FOREWORD

This standard test method[1] is intended to provide test methods for measuring the resistance of floor materials, footwear and personnel, together as a system. This standard test method covers all floor materials used to control electrostatic discharge (ESD) including floor mats, floor coverings, coatings, paints, and floor finishes, together with footwear.

This standard test method is limited to defining procedures for measuring electrical resistance through personnel in combination with floor materials and footwear. This standard test method provides data that is relevant during qualification testing or for testing on installed or applied material.

Electrical resistance is one property that can be used to evaluate the electrostatic characteristics of floor materials. However, resistance does not fully characterize these materials. An additional property to be considered in the selection and use of floor materials includes charge accumulation. Refer also to ANSI/ESD STM97.2, Footwear/Flooring System - Voltage Measurement in Combination with a Person.

A common source of electrostatic charge in a work environment is the separation of foot or caster from the floor, resulting in the generation of electrostatic charge that can accumulate on personnel and equipment. The effect of this generation and accumulation of electrostatic charge can be minimized with appropriate selection or treatment of the floor material. To effectively control electrostatic discharge on personnel and equipment, floor materials shall be used in combination with ESD controlled footwear or other grounding devices.

A floor material which is conductive enough to discharge an object may also pose a safety hazard. The work performed on the floor material often entails the use of tools and test instruments which operate at voltages high enough to cause electrical shock. The presence of a floor material tested using the methods described in this document will not guarantee personnel safety.

This document was originally designated ESD STM97.1-1999 and approved on February 7, 1999. ANSI/ESD STM97.1-2006 is a reaffirmation and re-designation of ESD STM97.1-1999 and was approved on February 26, 2006. ANSI/ESD STM97.1-2015 is a revision of ANSI/ESD STM97.1-2006 and was approved on September 2, 2012.

[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 **reproducible test** results.

At the time ANSI/ESD STM97.1-2015 was prepared the 97.0 Floor Materials and Footwear Subcommittee had the following members:

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Seagate Technology

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The following individuals contributed to the development of ESD STM97.1-1999:

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Chuck Miller Tinker Air Force Base		Fred Pfaff Stonhard Inc.

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1.0 PURPOSE, SCOPE, AND APPLICATION

1.1 Purpose

This document provides test methods for measuring the electrical system resistance of a person wearing static control footwear while standing on a floor sample or installed floor.

1.2 Scope

This document establishes test methods for measuring the electrical system resistance of floor materials in combination with a person wearing static control footwear, shoes or other methods where protection of ESD susceptible items is required.

1.3 Application

This document provides test methods for resistance measurements of systems prior to installation or application, and test methods for evaluating and monitoring systems after installation or application. This test method may also be used when there are any changes to the footwear/floor system components. Uses in connection with Electromagnetic Interference (EMI), ordnance, flammables or explosives are excluded along with protection from other sources of damage.

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:

ESD ADV1.0, Glossary of Terms[2]

TR20.20, ESD Handbook[2]

ANSI/ESD S6.1, Grounding[2]

ANSI/ESD S7.1, Resistive Characterization of Materials – Floor Materials[2]

AATCC 171, Carpets: Cleaning of Hot Water Extraction Method[3]

ANSI/IICRC S100, Standard and Reference Guide for Professional Carpet Cleaning[4]

3.0 DEFINITIONS

The terms used in the body of this document are in accordance with the definitions found in ESD ADV1.0, ESD Association Glossary of Terms available for complimentary download at www.esda.org. The following definitions are in addition to those found in ESD ADV 1.0:

Groundable Point, Static Control Floor Material. A point on the floor material that accommodates an electrical connection from the floor material to an appropriate ground.

Hardboard (Standard or Tempered). Heavy sheet material of fibers matted and pressed or rolled to form a strong board. (*Masonite*, of the *Masonite Corp*[5]., or the equivalent, is one of several commonly available board products that will serve the purpose.)

[2] ESD Association, 7900 Turin Road, Bldg. 3, Rome, NY 13440; Ph: 315-339-6937; Fax: 315-339-6793; www.esda.org

[3] American Society of Textile Colorists and Chemists, P.O. Box 12215, Research Triangle Park, NC 27709-2215; 919-549-8141

[4] The Institute of Inspection, Cleaning and Restoration Certification, 2715 E. Mill Plain Blvd, Vancouver, WA 98661; 360-693-5675