

*ANSI/ESD S13.1-2019*  
*Reaffirmation of ANSI/ESD S13.1-2015*



*ANSI/ESD S13.1-2019*

# *ESD Association Standard*



*For the Protection of Electrostatic  
Discharge Susceptible Items*

*Electrical Soldering/Desoldering  
Hand Tools*

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

*An American National Standard  
Approved January 14, 2020*

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

*Electrical Soldering/Desoldering Hand Tools*

Approved September 23, 2019  
EOS/ESD Association, Inc.



**ANSI/ESD S13.1-2019**

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## **FOREWORD**

Electrical overstress (EOS), and electrostatic discharge (ESD) can damage or degrade certain electronic components and assemblies. The intent of this standard is to provide test requirements for soldering/desoldering hand tools used in ESD Safe work areas or on materials that are deemed to be ESD sensitive. The methods described herein can be used during procurement, qualification, and verification of soldering/desoldering hand tools to verify that electrical integrity has not been compromised that could result in EOS/ESD damage. There has been no attempt to define how the soldering irons are to be used.

This standard<sup>1</sup> was originally approved on May 21, 2000, and was designated ESD STM13.1-2000. ANSI/ESD S13.1-2015 is a revision and redesignation of ESD STM13.1-2000 and was approved on June 23, 2015. ANSI/ESD S13.1-2019 is a reaffirmation of ANSI/ESD S13.1-2015 and was approved on September 23, 2019.

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<sup>1</sup> **ESD Association Standard (S):** A precise statement of a set of requirements to be satisfied by a material, product, system or process that also specifies the procedures for determining whether each of the requirements is satisfied.

**ANSI/ESD S13.1-2019**

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**ESD Association Standard for the Protection of Electrostatic Discharge Susceptible Items – Electrical Soldering/Desoldering Hand Tools**

**1.0 PURPOSE AND SCOPE**

**1.1 Purpose**

This standard provides electrical soldering/desoldering hand tool test methods for measuring current leakage, tip to ground reference point resistance, and tip voltage.

**1.2 Scope**

This standard establishes test procedures to (1) qualify, (2) perform testing of, and (3) test repaired three-wire AC, soldering/desoldering hand tools.

**2.0 REFERENCES**

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, ESD Association's Glossary of Terms<sup>2</sup>

ANSI/ESD S6.1, Grounding<sup>2</sup>

ESD TR53, Compliance Verification of ESD Protective Equipment and Materials<sup>2</sup>

**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's Glossary of Terms available for complimentary download at [www.esda.org](http://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 POLICY. 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 SHALL 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.**

**5.0 TEST METHODS**

This standard describes the resistance measurement of the tip-to-ground reference point, the tip voltage measurement, and the measurement of current leakage from the tip of the electrical soldering/desoldering hand tools to the grounding conductor of the power cord. EOS/ESD safe soldering parameters for these measurements are specified.

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