

## ANSI/ESD S20.20-2014

### Electrostatic Discharge Control Program for Protection of Electrical and Electronic Parts, Assemblies and Equipment (Excluding Electrically Initiated Explosive Devices)

Developed by Electrostatic Discharge Association (USA), this standard provides administrative and technical requirements for establishing, implementing, and maintaining an ESD (Electrostatic Discharge) Control Program to protect electrical or electronic parts, assemblies, and equipment susceptible to damage by electrostatic discharges, hence reducing product failure rate on the plant floor and in the field.

The standard defines the technical requirements for ESD Control Items for use in ESD Protected Area (EPA):

Technical Requirement	ESD Control Item	Product Qualification		Compliance Verification		
		Test Method	Required Limit(s)	Test Method	Required Limit(s)	
EPA	Worksurface (Qualification can be done by either Test Method)	ANSI/ESD S4.1	Point to Point < $1 \times 10^9$ ohms	ESD TR53 Worksurface Section	Point to Ground < $1 \times 10^9$ ohms	
			Point to Groundable Point < $1 \times 10^9$ ohms			
		ANSI/ESD STM4.2	< 200 volts			
	Wrist Strap	ANSI/ESD S1.1	$0.8 \times 10^6$ to $1.2 \times 10^6$ ohms	For compliance verification of a Wrist Strap System	ESD TR53 Grounding Bonding Systems	Point to Ground < 2 ohms
	Wristband	ANSI/ESD S1.1	Interior < $1 \times 10^5$ ohms Exterior > $1 \times 10^7$ ohms			
	Personnel Ground wrist strap Connection (non-monitored)	ANSI/ESD S6.1	Point to Ground < 2 ohms			
	Footwear	ANSI/ESD STM9.1	Point to Groundable Point < $1 \times 10^9$ ohms			
	Foot Grounders	ESD SP9.2	Point to Groundable Point < $1 \times 10^9$ ohms	For compliance verification of Footwear / Flooring System	ESD TR53 Seating Section	Point to Ground < $1 \times 10^9$ ohms
	Flooring	ANSI/ESD STM7.1	Point to Point < $1 \times 10^9$ ohms			
			Point to Groundable Point < $1 \times 10^9$ ohms			
Seating	ANSI/ESD STM12.1	Point to Groundable Point < $1 \times 10^9$ ohms				

Technical Requirement	ESD Control Item	Product Qualification		Compliance Verification	
		Test Method	Required Limit(s)	Test Method	Required Limit(s)
EPA	Ionization	ANSI/ESD STM3.1	Discharge Time User defined  Offset Voltage $-35 < V_{\text{offset}} < 35$	ESD TR53 Ionization Section	Discharge Time User defined Offset Voltage $-35 < V_{\text{offset}} < 35$
	Shelving (When used to store unprotected ESDS)	ANSI/ESD S4.1	Point to Point $< 1 \times 10^9$ ohms  Point to Groundable Point $< 1 \times 10^9$ ohms	ESD TR53 Worksurface Section	Point to Ground $< 1 \times 10^9$ ohms
	Mobile Equipment (Working Surfaces)	ANSI/ESD S4.1	Point to Point $< 1 \times 10^9$ ohms  Point to Groundable Point $< 1 \times 10^9$ ohms	ESD TR53 Worksurface Section	Point to Ground $< 1 \times 10^9$ ohms
	Electrical Soldering / Desoldering Hand Tools	ANSI/ESD S13.1	Tip to Ground $< 2.0$ ohms Tip $< 20$ millivolts Tip Leakage $< 10$ milliamps	ESD TR53 Soldering Iron Section Or ANSI/ESD S13.1 Section 6.1	Tip to Ground $< 10$ ohms
	Continuous Monitors	User defined	User defined	ESD TR53 Continuous Monitors Section	Manufacturer defined
	Static Control Garment	ANSI/ESD STM2.1	Point to Point $< 1 \times 10^{11}$ ohms	ESD TR53 Garments Section	Resistance Point to Point $< 1 \times 10^{11}$ ohms
	Groundable Static Control Garment	ANSI/ESD STM2.1	Point to Groundable Point $< 1 \times 10^9$ ohms	ESD TR53 Garments Section	Resistance to Groundable Point $< 1 \times 10^9$ ohms
	Groundable Static Control Garment System	ANSI/ESD STM2.1	$< 3.5 \times 10^7$ ohms	ESD TR53 Personal Grounding with Garments Section	$< 3.5 \times 10^7$ ohms

Though ANSI/ESD 20.20 is a voluntary standard, some US buyers have made it a compulsory requirement for their contract manufacturers and suppliers to adopt the standard. Manufacturers of ESD control items who actively demonstrate their product's compliance with the requirements specified in ANSI/ESD 20.20 is able to stand out from competition.

As an independent testing laboratory, STC offers testing and verification services for a wide range of ESD control products. For more information, please feel free to contact our Electrical Products Division at

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