

ESD Facility Certification Newsletter

sponsored by the EOS/ESD Association

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Put ESD S20.20 on record with CNCA

by Lisa Pimpinella
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The Certification & Accreditation Administration of People's Republic of China (CNCA) is approved by the State Council and charged with administering the conformity assessment system under the supervision of the General Administration of Quality Supervision, Inspection and Quarantine (AQSIQ). AQSIQ is the ministry under which the Standardization Administration of China (SAC) falls, so altogether the Ministry is responsible for most of the standards and conformity assessment infrastructure in China. http://www.standardsportal.org/usa_en/prc_standards_system/conformity_assessment/key_organizations.aspx

CNCA coordinates certification and accreditation activities in China and participates in international conformity assessment activities. CNCA directs Chinese policies and requirements for certification and testing related to conformity assessment including certification and accreditation. Additionally, CNCA officially designates guidelines and certification bodies that operate in China. Certification bodies operating in China must get permission from CNCA to conduct conformity assessment activities.

All Certification Bodies (CB's) that issue certificates in China should ensure that they have ANSI/ESD S20.20 and IEC 61340-5-1 standards in the scope of their paperwork with CNCA.

ANSI/ESD S20.20-2007 Document Status

The next revision of S20.20 is targeted to be published in April. The assessor training associated with this new release is being planned for June. All assessors wishing to retain their credentials must take this online training. The fee is \$195 per assessor. Further, we will make the training available on demand after the initial class is held, so it can be taken at the assessors' convenience.

We are aware that some assessors have had their credentials expire during our development process. This retraining will cover the five-year training requirement and the expiration dates of the assessor training will be refreshed to expire five years from the date of the training. Further, new assessors that were trained last year will receive a complimentary link to this training and retain their original expiration dates.

Training information will be distributed as it is finalized. Certification Bodies will have 12 months to implement assessments to the new version of the document.

Observations from Witness Audits-Periodic Verification

by Lisa Pimpinella
Director of Operations, EOS/ESD Association

Some recent witness audits have revealed an opportunity to provide additional information concerning periodic verification of control plan elements. Measurement techniques are an integral part of the control plan program and a clear understanding of the proper measurements is important for each assessor. The compliance verification information provided below should assist in your understanding and can be a tool you use when conducting audits.

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Compliance Verification Training for Certifying Bodies

Contributed by Ron Gibson

ANSI/ESD S20.20 requires that the ESD controls used in a compliant program be periodically verified;

- Frequency of verification is determined by the user
- The technical limits for most items are defined in the various tables of the standard

The ESDA Technical Report- **ESD TR53-01-06 Compliance Verification of ESD Protective Equipment and Materials** describes each of the required compliance verification methods which can be reduced to (6) basic procedures.

Procedure #1 – Resistance to Ground

Equipment:

Resistance meter:

Test voltages:

- 10 volts for readings $< 1.0 \times 10^6$ ohms
- 100 volts for readings $\geq 1.0 \times 10^6$ ohms

Upper resistance range:

- At least 1.0×10^{10} ohms

Electrode:

Total mass – 5 pounds \pm 2 ounces

2.5 inch diameter conductive contact surface

Basic Procedure:

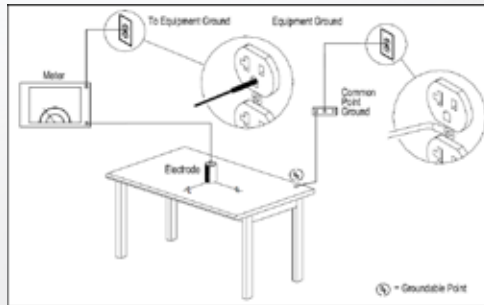
1. Attach lead #1 to the high resistance meter and the other end to the measuring electrode.
2. Attach lead #2 to the high resistance meter and the other end to ground.
3. Place the electrode onto the surface to be measured and start the measurement process at a test voltage of 10 volts.
4. If the reading is $< 1.0 \times 10^6$ ohms accept the reading.
5. If the reading is $\geq 1.0 \times 10^6$ ohms switch to 100 volts and repeat the measurement.

•Note 1 – “test as found” - The surface being measured should not be cleaned

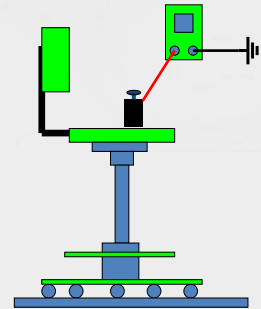
•Note 2 – If the user knows, through experience, that the item being measured has a resistance greater than or equal to 1.0×10^6 ohms it is not necessary to make the 10 volt measurement.



Resistance to Ground (Work surfaces/Seating)



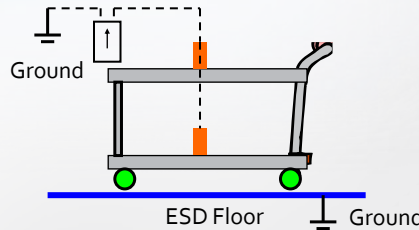
Applies to Work surfaces / Shelving / Conveyors



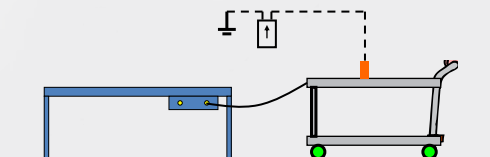
ESD Seating

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Resistance to Ground (Mobile Equipment)



- Cart grounded through ESD flooring
- Each shelf to be tested



- Cart grounded by a wire
- Resistance measurement started after ground connection is made
- Each shelf to be tested

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Resistance to Ground (ESD Flooring)



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Procedure #2 – Garment Resistance Point to Point

Equipment:

Resistance meter:

Test voltages:

–10 volts for readings $< 1.0 \times 10^6$ ohms

–100 volts for readings $\geq 1.0 \times 10^6$ ohms

Upper resistance range:

–At least 1.0×10^{12} ohms

Electrodes:

Total mass – 5 pounds \pm 2 ounces

2.5 inch diameter conductive contact surface

Garment Clamps: (alternate method)

Basic Procedure:

1. Attach lead #1 to the high resistance meter and the other end to the measuring electrode (or clamp).

2. Attach lead #2 to the high resistance meter and the other end to the second electrode (or clamp).

3. Place the garment onto a high resistance surface.

4. Place an electrode/clamp onto each garment sleeve and start the measurement process at a test voltage of 10 volts.

5. If the reading is $< 1.0 \times 10^6$ ohms accept the reading.

6. If the reading is $\geq 1.0 \times 10^6$ ohms switch to 100 volts and repeat the measurement.

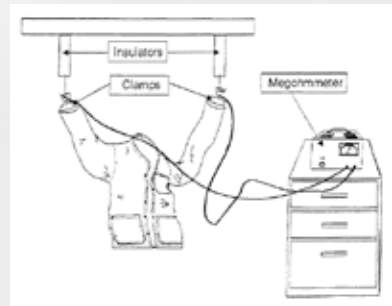
Note 1 – If the user knows, through experience, that the item being measured has a resistance greater than or equal to 1.0×10^6 ohms it is not necessary to make the 10 volt measurement.



Garment Point to Point Resistance



Garment on flat surface



Garment hanging via clamps

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Procedure #3 – Air Ionization

Equipment:

Charged Plate monitor:

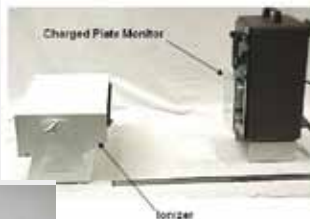
6 Inch Plate used for Product Qualification.

Portable Device Consisting of:

–Electrostatic Field Meter

–Charged plate fixture

–Charging unit



Basic Procedure:

There are two required tests for air ionizers:

Offset Voltage (Balance) Limits are established in ANSI/ESD S20.20.

1. Ground the CPM plate to remove charge and ensure that the display reads “0” voltage.

2. Disconnect the CPM plate from ground and place the plate into the ionized air stream at the point where the devices are being handled.

3. If the plate voltage equals or exceeds ± 50 volts (non-room system) or ± 150 volts (room system) the ionizer requires maintenance or replacement.

Decay Time: limits are established by the user based on their processes.

1. Turn on the ionizer.

2. Zero the CPM while the metal plate is grounded.

3. Disconnect the metal plate from ground.

4. Charge the plate to greater than (+) 1,000 volts.

5. Place the CPM into the ionized air stream at the point where the ESD sensitive devices are handled and monitor the plate voltage decay to the lower limit cut-off value (user defined).

6. Repeat steps 2-5 for (-) 1,000 volts.

7. If the decay time exceeds the established limit the unit may require maintenance.



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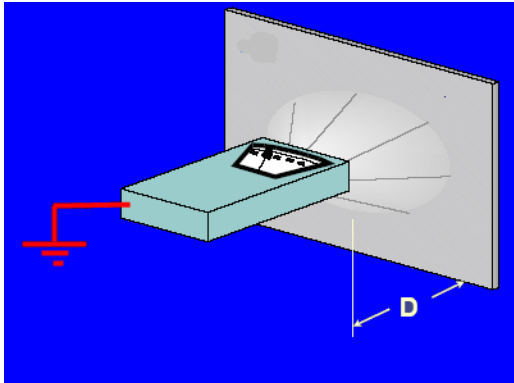
Procedure #4 – Static Fields

Equipment:

Electrostatic Fieldmeter

Basic Procedure:

1. Connect the field meter to ground.
2. Turn on and adjust the display to zero volts.
3. Scan the area where unprotected ESD sensitive devices (ESDS) are being handled.
4. If the reading exceeds 2,000 volts/inch the material must be:
 - a) Moved at least 12 inches from the ESDS
 - b) Removed from the area
 - c) Exposed to ionized air or some other method to reduce the field to acceptable levels



Note: Each field meter is designed to operate at a specific distance (D) from the item being measured

Procedure #5 – Personnel Grounding

Equipment:

Integrated Resistance Tester

Wrist Strap and Cord

ESD Footwear and Metal Foot Plate

Basic Procedure:

Wrist Strap Testing Procedure:

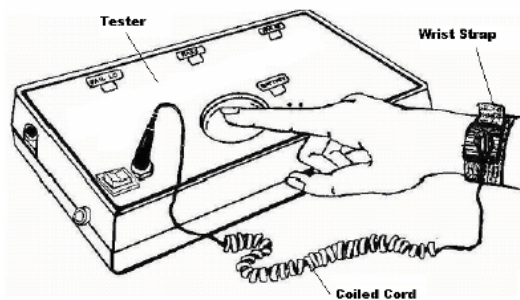
1. Operator puts on the wrist band.
2. The operator attaches a wrist cord to the wrist band.
3. The operator attaches the loose end of the wrist cord into the integrated tester.
4. The operator presses and holds the test button until the pass/fail result is displayed.

For programs where the operator is grounded through the ESD garment:

1. Operator puts on the garment.
2. Operator attaches one end of the wrist cord to the garment's groundable point.
3. The operator attaches the loose end of the wrist cord into the integrated tester.
4. The operator presses and holds the test button until the pass/fail result is displayed.

ESD Footwear Testing Procedure:

1. The operator places the ESD footwear onto their feet per company procedure.
2. The operator stands with one foot on the metal plate.
3. The operator presses and holds the test button until the pass/fail result is displayed.
4. The operator repeats the test with the other foot.



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Procedure #6 – Protective Packaging

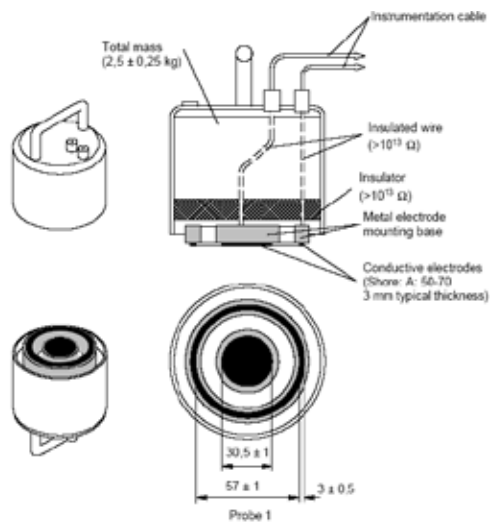
Equipment:

High resistance meter

- Upper resistance limit – 1.0×10^{12} ohms
- Test voltages:
 - 10 volts for readings $< 1.0 \times 10^6$ ohms
 - 100 volts for readings $\geq 1.0 \times 10^6$ ohms
- Electrode:

Basic Procedure:

1. Attach one lead to the high resistance meter's voltage source. The other end is attached to the electrode's outer ring.
2. Attach the second lead to the meter's sense terminal and the electrode's center disk.
3. Place the electrode onto the package surface.
4. Start the measurement at 10 volts. If the reading is less than 1×10^6 ohms accept the reading.
5. If the resistance is greater than or equal to 1.0×10^6 ohms switch to 100 volts and repeat the measurement.



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• Some organizations might use a meter that incorporates a different electrode configuration. An example of such a meter is shown above. Readings obtained with this type of meter are considered to be acceptable for the purposes of compliance verification testing once the organization establishes a correlation to the lab level meter.

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