



# Personnel Grounding

## Wrist Strap and ESD Footwear Testers

- EMIT SmartLog X3 is the industry's foremost personnel grounding tester
- Even when utilizing Continuous Monitors, testers must be used for ESD footwear
- SmartLog X3 checks wrist straps and ESD footwear while worn
- Smartlog X3 provides electronic verification records
- Smartlog X3 e-mails supervisors when failures occur
- Smartlog X3 meet S20.20 requirement that Compliance Verification records are maintained

## Wrist Strap and ESD Footwear Testers

The industry's foremost personnel grounding tester is the EMIT SmartLog X3; see Data Acquisition information on page 21. Even when utilizing Continuous Monitors, testers must be used for ESD footwear.

The EMIT SmartLog X3 is the premium product for performing periodic checks of wrist straps and ESD footwear while worn, providing electronic verification records and features such as e-mailing supervisors when failures occur. This is the effective way to conform to the ANSI/ESDS20.20-2007 section 7.3 requirement that "Compliance verification records shall be established and maintained to provide evidence of conformity to the technical requirements."

## Static Electricity - A Costly Problem

- Humans are a major source of ElectroStatic Discharge (ESD)
- Latent defects are not detected by normal inspection equipment
- Latent defects cause significant re-work, scrap and warranty costs
- 25% of electronics' failure may be due to ESD
- ESD control programs return on investment is typically 10 to 1

Humans are still a major source of ESD events, so it is very important that "All personnel shall be bonded or electrically connected to the grounding / equipotential bonding system when handling ESDS (ESD sensitive) items." (ANSI/ESDS20.20-2007 section 8.1)



50407 Dual Independent Footwear and Wrist Strap Tester





Where manual logging is acceptable, EMIT offers Dual Independent Footwear and Wrist Strap Testers. "Typical test programs recommend that wrist straps that are used daily should be tested daily." (Handbook ESD TR20.20 section 5.3.2.4.4) "Compliance verification should be performed prior to each use (daily, shift change, etc.)." (ESD SP9.2 APPENDIX B - Foot Grounder Usage Guidance)

What percentage of electronic failures are latent defects? What's the cost to industry? According to the ESD Association "It is relatively easy with the proper equipment to confirm that a device has experienced catastrophic failure. Basic performance tests will substantiate device damage. However, latent defects are extremely difficult to prove or detect using current technology, especially after the device is assembled into a finished product." So there is the view that, by definition, it is impossible to quantify the amount of latent damage. However, for most companies, the cost of customer returns and field service warranty expense greatly exceeds in-house scrap and re-work expense.

Per the ESD Association: "The age of electronics brought with it new problems associated with static electricity and electrostatic discharge. And, as electronic devices became faster and smaller, their sensitivity to ESD increased. Today, ESD impacts productivity and product reliability in virtually every aspect of today's electronics environment. Industry experts have estimated average product losses due to static to range (up to) 33%. Others estimate the actual cost of ESD damage to the electronics industry as running into the billions of dollars annually." (From ESD Association web site at <http://www.esda.org/basics/part1.cfm>)

Some major companies report that 25% of all identified electronic part failure is due to ESD. As an ESD Control Program improves, a resulting decrease in unidentified field failures and "no problem found" returns should occur. Reducing latent defect field failures is what allows companies to report return on investments of 10:1 from their ESD Control Programs.

