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Tips for Preventing Damage to Communication Test Set

Popular Agilent models: E5515A/B/C/T



1. Ensure proper grounding

- Always use the three-prong AC power cord supplied with the instrument.
- Proper grounding of the instrument will prevent a build-up of electrostatic charge which may be harmful to the instrument and the operator.
- Do not damage the earth-grounding protection by using an extension cable, power cable or autotransformer without a protective ground conductor.
- Check AC power quality and polarity; typical AC voltage required is 100,120,220 volt +/-10% or 240 volt +5%/-10%. Typical expected grounding wire resistance is <1 ohm, the voltage between neutral & ground line is < 1 volt. Install uninterruptible power supply [UPS] if necessary.
  For more information, visit
  http://metrologyforum.tm.agilent.com/grounding.shtml

2. Read the warning labels and specifications

- Do not exceed the values provided in the specifications guide or as indicated by the yellow warning labels on the instrument.
- Refer to the specification guide for conditions required to meet the listed specification. Note information regarding stabilization time, instrument settings and calibration/alignment requirements.

For example,
E5515 RF OUT ONLY (Max Pwr 250mW peak),
RF IN/OUT (Max pwr 5W peak),
Audio Input (30V peak), Audio Output (12V peak)

3. Avoid overpowering the test set

- Avoid front end damage by having some idea of the signal level to be measured with the test set. Overpowering the front end can damage the front end components.
- Before turning on or turning off the connected equipment or the DUT, reduce the signal level to the minimum safety level. This should help to prevent unexpected voltage swell or sag affecting the input or output of analyzer.
- Properly apply a DC block, limiter or external attenuator as needed. For more info visit
  www.agilent.com/find/mta

For example, Agilent 11867A RF limiter is available to provide input protection. It will reflect signals up to a level of 10 watts average power and 100 watts peak power. 11867A will provide input protection, within the specified frequency range for the attenuator and mixer for many spectrum analyzer applications.
11742A blocking capacitor blocks DC signals below 45 MHz and passes signals up to 26.5 GHz. Ideal for use with high frequency oscilloscopes or in biased microwave circuits, it will suppress low frequency signals that can damage expensive measuring equipment.

4. Protect the RF input connector

- Be careful not to bend, bump or flex any device under test (DUT) connected to the input of the instrument (such as filters, attenuators, or large cables). This will reduce the amount of strain placed on the input connector and the mounting hardware.
- Ensure externally connected items are properly supported (not freely suspended) from the input.

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- Always use torque wrench and gauge tools for connecting RF connectors.
- Do not mix using 50 ohm and 75 ohm connectors and cables.

5. Follow proper RF cable and connector care

- Avoid repeated bending of cables; a single sharp bend can damage a cable instantly.
- Limit the number of connections and disconnections to reduce wear.
- Inspect the connectors prior to use; look for dirt, nicks, and other signs of damage or wear. A bad connector can ruin the good connector instantly.
- Clean dirty connectors to prevent poor electrical connections and damage to the connector. For more cable and connector care tips refer to Application Note 326 found at www.agilent.com/find/cable_care

6. Follow electrostatic discharge precautions

- Electrostatic discharge (ESD) can damage or destroy electronic components. Whenever possible, conduct testing at a static-safe workstation. Keep electrostatic-generating materials at least one meter away from all components. Before connecting any coaxial cable to an analyzer, momentarily short the center and outer conductors of the cable together.
- Install ESD protective covers on all RF connectors prior to shipping and moving equipment.
- For more information visit the Electrostatic Discharge Association http://www.esda.org

7. Check for proper ventilation and humidity

- Periodically check and clean the cooling vents of the instrument. Inadequate airflow can result in excessive operating temperatures which can lead to instrument failures. Optimal operating temperature is 23℃+-5℃, always keep instrument ambient temperature at < 35℃.
- When installing the product in a cabinet, the convection air currents in and out of the instrument must not be restricted. The ambient temperature must be less than the maximum operating temperature of the product by 4°C for every 100 watts dissipated in the cabinet. If the total power dissipated in the cabinet is greater than 800 watts, then forced convection must be used.
- For E5515, air flows from right side to left side (facing front panel). Approximately 170 CFM.
- Performance and reliability recommendations for operating temperature ranges are:

Operating Ambient Temperature Range	Expected Performance and Reliability
+22° to +27° C	Best
+27° to +35° C	Acceptable
+35° to +55° C (+15° to +55° C is specified operating temp range)	Reduced

8. Use proper lifting techniques

- Lift the instrument by the handles when transporting.
- Avoid picking up the instrument with your hand over the front panel. If the instrument slips, damage may occur to the keypad, knob, or input connectors.
- Use a cart or two persons to help move any heavy instrument.

9. Use proper packing for transport

- Instrument damage can result from using packaging materials other than those specified. Never use styrene pellets in any shape as packaging materials. They do not adequately cushion the equipment and can cause equipment damage by generating static electricity. If possible, retain the original packaging for re-use when shipping the instrument.

10. Get the latest information about your product

- Check for updated service notes: www.agilent.com/find/servicenotes
- Subscribe to the Agilent E-mail updates: www.agilent.com/find/emailupdate
- Check product information: wireless.agilent.com/rfcomms/refdocs/svc
- For Worldwide Service Locations visit www.agilent.com/find/assist

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