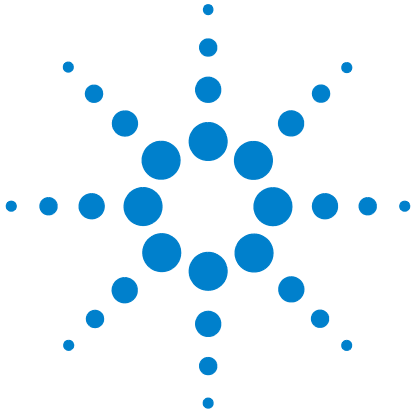


Agilent X-Series E6607C Wireless Communications Test Set

Safety and Regulations

Agilent Technologies

Notices

Trademark Acknowledgements

Microsoft “ is a U.S. registered trademark of Microsoft Corporation.

Windows “ and MS Windows “ are U.S. registered trademarks of Microsoft Corporation.

Adobe Reader “ is a U.S. registered trademark of Adobe System Incorporated.

Java™ is a U.S. trademark of Sun Microsystems, Inc.

MATLAB “ is a U.S. registered trademark of Math Works, Inc.

Norton Ghost™ is a U.S. trademark of Symantec Corporation.

Document Part Number

E6607-90037

Print Date

February, 2013

Printed in Malaysia

Agilent Technologies, Inc.
1400 Fountaingrove Parkway
Santa Rosa, CA 95403

Warranty

The material contained in this document is provided “as is,” and is subject to being changed, without notice, in future editions. Further, to the maximum extent permitted by applicable law, Agilent disclaims all warranties, either express or implied, with regard to this manual and any information contained herein, including but not limited to the implied warranties of merchantability and fitness for a particular purpose. Agilent shall not be liable for errors or for incidental or consequential damages in connection with the furnishing, use, or performance of this document or of any information contained herein. Should Agilent and the user have a separate written agreement with warranty terms covering the material in this document that conflict with these terms, the warranty terms in the separate agreement shall control.

Technology Licenses

The hardware and/or software described in this document are furnished under a license and may be used or copied only in accordance with the terms of such license.

Restricted Rights Legend

If software is for use in the performance of a U.S. Government prime contract or subcontract, Software is delivered and licensed as “Commercial computer software” as defined in DFAR 252.227-7014 (June 1995), or as a “commercial item” as defined in FAR 2.101(a) or as “Restricted computer software” as defined in FAR 52.227-19 (June 1987) or any equivalent agency regulation or contract clause. Use, duplication or disclosure of Software is subject to Agilent Technologies’ standard commercial license terms, and non-DOD Departments and Agencies of the U.S. Government will receive no greater than Restricted Rights as defined in FAR 52.227-19(c)(1-2) (June 1987). U.S. Government users will receive no greater than Limited Rights as defined in FAR 52.227-14 (June 1987) or DFAR 252.227-7015 (b)(2) (November 1995), as applicable in any technical data.

Safety Notices

CAUTION

A **CAUTION** notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a **CAUTION** notice until the indicated conditions are fully understood and met.

WARNING

A WARNING notice denotes a hazard. It calls attention to an operating procedure, practice, or the like that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING notice until the indicated conditions are fully understood and met.

Warranty

This Agilent Technologies product is warranted against defects in material and workmanship for a period of one year from the date of shipment. during the warranty period, Agilent Technologies will, at its option, either repair or replace products that prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by Agilent Technologies. Buyer shall prepay shipping charges to Agilent Technologies shall pay shipping charges to return the product to Buyer. However, Buyer shall pay all shipping charges, duties, and taxes for products returned to Agilent Technologies from another country.

Compliance

This product has been designed and tested in accordance with accepted industry standards, and has been supplied in a safe condition. The documentation contains information and warnings that must be followed by the user to ensure safe operation and to maintain the product in a safe condition.

Compliance with Canadian EMC Requirements

This ISM device complies with Canadian ICES-001.

Cet appareil ISM est conforme a la norme NMB du Canada.

Acoustic statement (European Machinery Directive 2002/42/EC, 1.7.4.2u)

Acoustic noise emission
LpA <70 dB
Operator position
Normal operation mode

Acoustic Noise -- Further Information	**Supplemental Information** (Values given are per ISO 7779 standard in the “Operator Sitting” position)
Ambient Temperature <40° C	Nominally under 55 dBA Sound Pressure. 55 dBA is generally considered suitable for use in quiet office environments.
Ambient Temperature ≥40° C	Nominally under 65 dBA Sound Pressure. 65 dBA is generally considered suitable for noisy office environments. (The fan speed, and thus the noise level, increases with increasing ambient temperature.)

Contents

1 Safety & Regulatory Information

Test Set Location and Rack Mounting Requirements

Locating the test set

Make sure that the fan inlet and exhaust vent areas on the sides of the test set are not obstructed. The minimal required clearance is 2 inches. Airflow restrictions cause additional airflow noise and cause the fans to speed up so they can draw in enough air for the required cooling resulting in excessive audible noise.

Cooling and rack mounting

Do not rack mount the test set side-by-side with any other instrument with side-by-side ventilation. Make sure the exhaust air from the first instrument is directed away from the inlet of the second unit. If the pre-heated air from the first instrument is directed into the second instrument, it can cause excessive operating temperatures in the second unit and can cause instrument failures. The test set draws air in from the left side and exhausts air from the right side.

Lifting the Test Set

WARNING **Owing to the weight of the instrument, we recommend that it should be lifted by two persons.**

Safety Information

Power requirements

The only physical installation of your Agilent test set is a connection to a power source. Line voltage does not need to be selected.

This test set does *not* contain customer serviceable fuses.

WARNING

This is a Safety Class 1 Product (provided with a protective earthing ground incorporated in the power cord). The mains plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor inside or outside of the product is likely to make the product dangerous. Intentional interruption is prohibited. (IEC 348 clauses 17.3.3c & 17.3.4)

Failure to ground the test set properly can result in personal injury. Before turning on the test set, you must connect its protective earth terminals to the protective conductor of the main power cable. Insert the main power cable plug into a socket outlet that has a protective earth contact only. DO NOT defeat the earth-grounding protection by using an extension cable, power cable, or autotransformer without a protective ground conductor.

CAUTION

This product is designed for use in Installation Category II and Pollution Degree 2 per IEC 61010 Second Edition and IEC 664 respectively. This instrument has autoranging line voltage input. Be sure the supply voltage is within the specified range.

The Mains wiring and connectors shall be compatible with the connector used in the premise electrical system. Failure, to ensure adequate earth grounding by not using the correct components may cause product damage, and serious injury.

Before switching on this instrument, make sure the supply voltage is in the specified range.

AC power cord

The test set is equipped with a three-wire power cord, in accordance with international safety standards. This cable grounds the test set cabinet when connected to an appropriate power line outlet. The cable appropriate to the original shipping location is included with the test set. See:

http://www.agilent.com/find/powercords

CAUTION

Always use the three-prong AC power cord supplied with this product. Failure to ensure adequate earth grounding by not using this cord can cause product damage.

This instrument has auto-ranging line voltage input; be sure the supply voltage is within the specified range and voltage fluctuations do not to exceed 10 percent of the nominal supply voltage:

100/120 VAC 50/60,
220/240 VAC 50/60 Hz,
350 W MAX.

WARNING

If this product is not used as specified, the protection provided by the equipment could be impaired. This product must be used in a normal condition (in which all means for protection are intact) only.
Install the instrument so that the detachable power cord is readily identifiable and easily reached by the operator. The detachable power cord is the instrument disconnecting device. It disconnects the mains circuits from the mains supply before other parts of the instrument. The front panel switch is only a standby switch and is not a LINE switch. Alternatively, an externally installed switch or circuit breaker (which is readily identifiable and is easily reached by the operator) may be used as a disconnecting device.

Environmental Conditions (Operating)

This product is designed for use in the following conditions:

- For indoor use only
- Altitude up to 4600 meters
- Maximum relative humidity 80% for temperatures up to 31 degrees C, decreasing linearly to 50% relative humidity at 40 degrees C.

CAUTION

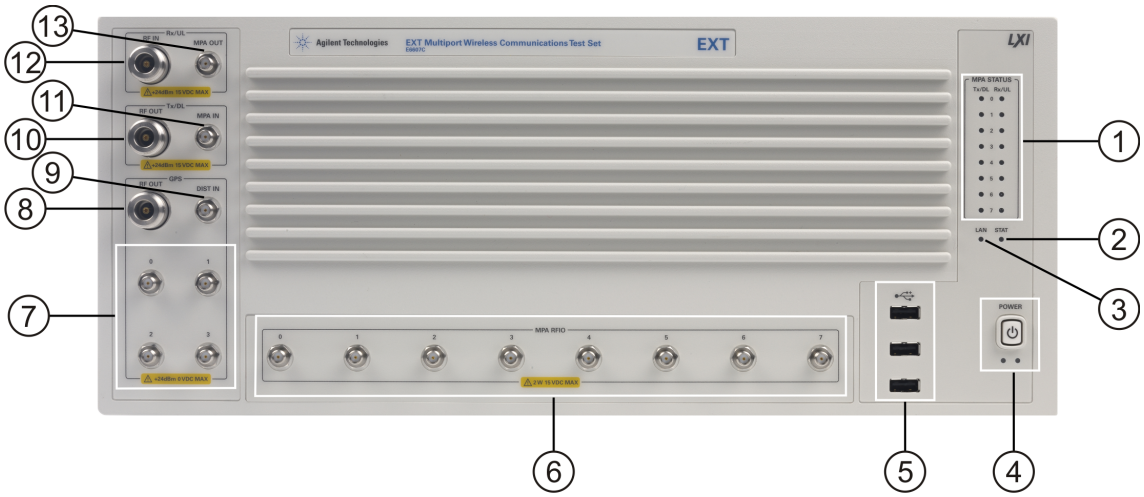
This product is designed for use in Installation Category II and Pollution Degree 2 per IEC 61010 Second Edition and IEC 664 respectively.

Ventilation

CAUTION

VENTILATION REQUIREMENTS: When installing the product in a cabinet, the convection into and out of the product must not be restricted. The ambient temperature (outside the cabinet) must be less than the maximum operating temperature of the product by 4^{o}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.

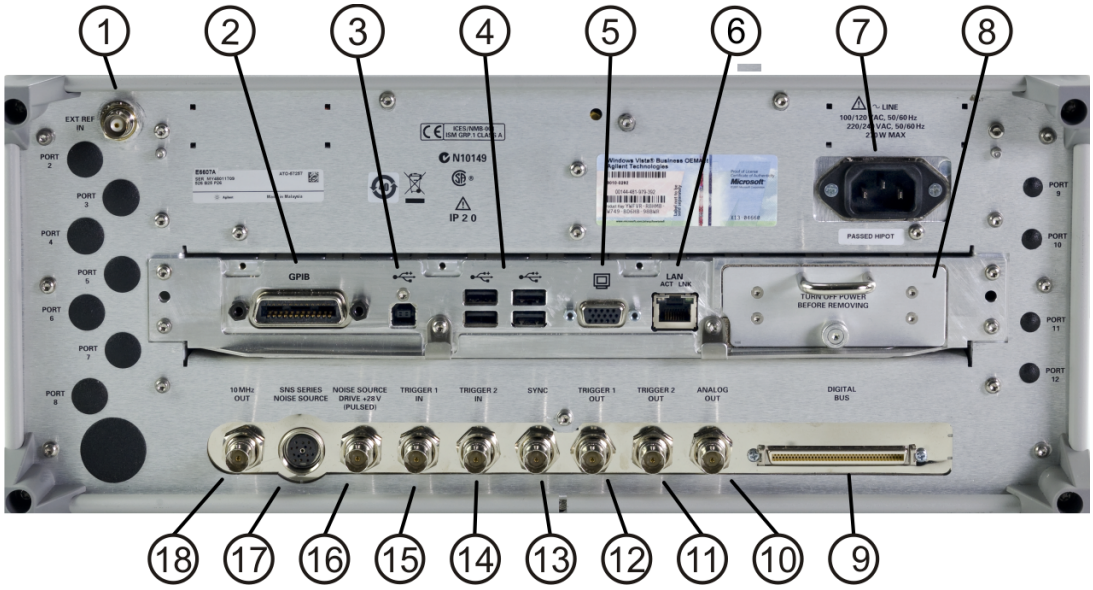
Front-Panel Connectors



Item		Description
#	Name	
1	MPA Status	MPA Status Indicator LEDs light indicating the status of the instrument: • Tx/DL 0 - 7 (these light to indicate that the related RFIO ports are being used to transmit RF outputs to the connected DUTs). • Rx/UL 0 - 7 (these light to indicate that the related RFIO ports are being used to receive RF inputs from the connected DUTs). NOTE There are no indicators for the GPS ports, because the ports cannot be switched on or off. Whatever RF input is provided to the GPS DIST IN port is always split and delivered to the GPS 0 - 3 ports.
2	Stat	SCPI Status Indicator LED lights to indicate that the instrument is ready to receive a remote SCPI command.
3	LAN	LAN Status Indicator LED lights to indicate that the instrument has made an active LAN connection.

Item		Description
#	Name	
4	Power	Power Standby/On switch and indicator LEDs. A green light indicates power on. A yellow light indicates standby mode. NOTE This is a standby switch, *not* a LINE switch (disconnecting device). The test set continues to draw power even when the line switch is in standby. The main power cord can be used as the system disconnecting device. It disconnects the mains circuits from the mains supply. If the test set is being controlled remotely from another computer, pressing this switch does not deactivate the test set, unless you press and hold the switch to force a power shutdown.
5	USB Connectors	Standard USB 2.0 ports, Type A. Connect to external peripherals such as a mouse, keyboard, DVD drive or hard drive.
6	MPA RFIO, Ports 0 - 7	RF input and output connections to the DUTs (SMA connectors). The maximum safe input level at any of these ports is 2 W (+33 dBm), ±15 Vdc.
7	GPS, Ports 0 - 3	RF input and output connections to the DUTs (SMA connectors). The maximum safe input level at any of these ports is 0.25 W (+24 dBm), 0 Vdc. Because GPS Ports 0 - 3 are the outputs of a four-way splitter, the maximum output power levels from these ports are lower than for RFIO Ports 0 - 7; see the E6607C data sheet for specifics.
8	RF OUT	GPS RF output port (communicates only with the source). The maximum safe input level at any of these ports is 0.25 W (+24 dBm), 0 Vdc.
9	DIST IN	GPS RF distribution input port (SMA connector). This port is connected to the four-way splitter that provides the signal to the 4 GPS output Ports 0 - 3. The maximum safe input level at any of these ports is 0.25 W (+24 dBm), 0 Vdc.
10	RF OUT	Tx/DL RF output port (communicates only with the source). The maximum safe input level at any of these ports is 0.25 W (+24 dBm), ±15 Vdc.
11	MPA IN	Tx/DL MPA RF input port (SMA connector). The maximum safe input level at any of these ports is 0.25 W (+24 dBm), ±15 Vdc.
12	RF IN	Rx/UL RF input port (communicates only with the analyzer). The maximum safe input level at any of these ports is 0.25 W (+24 dBm), ±15 Vdc.
13	MPA OUT	Rx/UL RF MPA output port (SMA connector). The maximum safe input level at any of these ports is 0.25 W (+24 dBm), ±15 Vdc.

Rear-Panel Connectors



Item		Description
#	Name	
1	EXT REF IN	Input for an external frequency reference signal: 1 to 50 MHz
2	GPIB	A General Purpose Interface Bus (GPIB, IEEE 488.1) connection that can be used for remote test set operation.
3	USB Connector	USB 2.0 port, Type B. USB TMC (test and measurement class) connects to an external pc controller to control the test set and for data transfers over a 480 Mbps link.
4	USB Connectors	Standard USB 2.0 ports, Type A. Connect to external peripherals such as a mouse, keyboard, printer, DVD drive, or hard drive.
5	MONITOR	Allows connection of an external VGA monitor.
6	LAN	A TCP/IP Interface that is used for remote test set operation.
7	Line power input	The AC power connection. See the product specifications for more details.
8	Removable Hard Drive	Standard on E6607C.
9	DIGITAL BUS	Reserved for future use.
10	ANALOG OUT	Reserved for future use.
11	TRIGGER 2 OUT	A trigger output used to synchronize other test equipment with the test set. Configurable from the Input/Output keys.

Item		Description
#	Name	
12	TRIGGER 1 OUT	A trigger output used to synchronize other test equipment with the test set. Configurable from the Input/Output keys.
13	SYNC	Reserved for future use.
14	TRIGGER 2 IN	Allows external triggering of measurements.
15	TRIGGER 1 IN	Allows external triggering of measurements.
16	NOISE SOURCE DRIVE +28 V (PULSED)	Not functional in the EXT Test Set.
17	SNS SERIES NOISE SOURCE	Not functional in the EXT Test Set.
18	10 MHz OUT	An output of the test set internal 10 MHz frequency reference signal. It is used to lock the frequency reference of other test equipment to the test set.

Front and Rear Panel Symbols

This symbol is used to indicate power ON (green LED).

This symbol is used to indicate power STANDBY mode (yellow LED).

This symbol indicates the input power required is AC.

The instruction documentation symbol. The product is marked with this symbol when it is necessary for the user to refer to instructions in the documentation.

The CE mark is a registered trademark of the European Community.

The C-Tick mark is a registered trademark of the Australian Spectrum Management Agency.

This is a marking of a product in compliance with the Canadian Interference-Causing Equipment Standard (ICES-001). This is also a symbol of an Industrial Scientific and Medical Group 1 Class A product (CISPR 11, Clause 4).

The CSA mark is a registered trademark of the CSA International.

South Korean Class A EMC Declaration
A 급 기기 (업무용 방송통신기자재)
이 기기는 업무용 (A 급) 전자파적합기기로서 판 매자 또는 사용자는 이 점을 주 의하시기 바라 며 , 가정외의 지역에서 사용하는 것을 목적으 로 합니다 .

This symbol indicates separate collection for electrical and electronic equipment mandated under EU law as of August 13, 2005. All electric and electronic equipment are required to be separated from normal waste for disposal (Reference WEEE Directive 2002/96/EC). To return unwanted products, contact your local Agilent office, or see http://www.agilent.com/environment/product/ for more information.

Indicates the time period during which no hazardous or toxic substance elements are expected to leak or deteriorate during normal use. Forty years is the expected useful life of the product.

This symbol on all primary and secondary packaging indicates compliance to China standard GB 18455-2001.

Maintenance Information

Instrument Maintenance

Cleaning the instrument

WARNING **To prevent electrical shock, disconnect the test set from mains before cleaning. Use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt to clean internally.**

Cleaning the connectors

WARNING **Cleaning connectors with alcohol shall only be done with the instrument power cord removed, and in a well-ventilated area. Allow all residual alcohol moisture to evaporate, and the fumers to dissapate prior to energizing the instrument.**

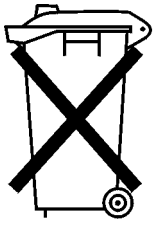
Battery Information

The test set uses a lithium battery located on the CPU board. This is not an operator replaceable part. See "Where to Get Technical Help" on page 20. Replaceable parts must be approved or supplied by Agilent Technologies.

You can order the service documentation for the instrument through your Agilent Sales and Service office.

WARNING **Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended. Discard used batteries according to the manufacturer's instructions.**

Do not throw batteries away but collect as small chemical waste.



DO NOT THROW BATTERIES AWAY BUT
COLLECT AS SMALL CHEMICAL WASTE.

Protecting against electrostatic discharge

Electrostatic discharge (ESD) can damage or destroy electronic components (the possibility of unseen damage caused by ESD is present whenever components are transported, stored, or used).

Test equipment and ESD

To help reduce ESD damage that can occur while using test equipment:

WARNING **Do not use these first three techniques when working on circuitry with a voltage potential greater than 500 volts.**

- Before connecting any coaxial cable to a test set connector for the first time each day, momentarily short the center and outer conductors of the cable together.
- Personnel should be grounded with a 1 MΩ resistor-isolated wrist-strap before touching the center pin of any connector and before removing any assembly from the test set.
- Be sure that all instruments are properly earth-grounded to prevent build-up of static charge.
- Perform work on all components or assemblies at a static-safe workstation.
- Keep static-generating materials at least one meter away from all components.
- Store or transport components in static-shielding containers.
- Always handle printed circuit board assemblies by the edges. This reduces the possibility of ESD damage to components and prevent contamination of exposed plating.

Additional information about ESD

For more information about ESD and how to prevent ESD damage, contact the Electrostatic Discharge Association (http://www.esda.org). The ESD standards developed by this agency are sanctioned by the American National Standards Institute (ANSI).

Troubleshooting

WARNING No operator serviceable parts inside. Refer servicing to qualified personnel. To prevent electrical shock do not remove covers.

Basic troubleshooting steps that you can take before seeking technical assistance are outlined below.

Check the Basics

- Is there power at the receptacle?
- Is the test set turned on? Check to see if the green LED beside the power switch is on. Also, listen for internal fan noise to determine if the analyzer cooling fans are running.
- If other equipment, cables, and connectors are being used with your signal analyzer, make sure they are connected properly and operating correctly.
- Is the EXT running? If not, there is a software launch shortcut/icon on the desktop.
- Does the EXT application have the focus? (That is, is the blue window banner highlighted?) If not, move focus to the application with Alt-Tab.
- Review the measurement procedures being performed when the problem first appeared. Are all of the settings correct?
- If the test set is not functioning as expected, return the test set to a known state by pressing **Mode Preset**. However, some analyzer settings are not affected by Mode Preset. If you wish to reset all possible settings, press **System**, **Power On**, **Restore Power On Defaults**.
- Is the measurement being performed, and the results that are expected, within the specifications and capabilities of the analyzer? Refer to the specifications guide for your test set. Technical manual pdf files are available in the instrument (C:\Program Files\Agilent\SignalAnalysis\Infrastructure\Help\files), and on the Agilent website: http://www.agilent.com/find/ext_manuals
- If the analyzer is not communicating via the LAN connection, check for the presence of blinking yellow LEDs on the rear panel LAN connector. If the ACT LED is not blinking, check the LAN cable and LAN integrity.
- To meet specifications, the analyzer must be aligned. Either the Auto Align (On) feature must be selected (press **System**, **Alignments**, **Auto Align**, **Normal**), or the analyzer must be manually aligned.

Where to Get Technical Help

Agilent Technologies has offices around the world to provide you with complete support for your analyzer. To obtain servicing information, or to order replacement parts, contact the nearest Agilent Technologies office listed below. In any correspondence or telephone conversations, refer to your analyzer by its product number, full serial number, and software revision.

Press **System**, **Show, System**, and the product number, serial number, and software revision information will be displayed on your analyzer screen. A serial number label is also attached to the rear panel of the analyzer.

Locations for Agilent Technologies

Americas

Canada
+1 877 894-4414

Brazil
+55 11 3351-7012

Mexico
+001 0800 254-2440 ext 2610

United States
+1 800 829-4444
Press # then 3

Africa & Middle East

Israel
+972 3 9288 600

South Africa
+2712 678 9200

Turkey
+90-312-466 8212

Asia & Pacific

Australia
1 800-225-574

China
800-810-0189 / 400-810-0189

Hong Kong
800-938-693

India
1-800-11-2626

Japan
0120-412-766

Korea
080-769-0800

Malaysia
1 800-888-848

New Zealand
64 4 570 248

Philippines
+632 850-4347/49

Singapore
1 800-375-8100

Taiwan
0800-047-866

Thailand
1 800-291-222

Vietnam
120-65-201

Europe

Denmark
45 45 80 1215

Finland
010 855 2100

France
0825-01-07-00

Germany
+49 (0) 7031 464 6333

Italy
+39 02 9260 8484

Netherlands
+31 0 20 547 2111

Russia
+7 (495) 797 3930

Spain
91 631 3300

Sweden
0200-88 22 55

United Kingdom
+44 0 118 927 6201

Online assistance: http://www.agilent.com/find/assist

Contact us: http://www.agilent.com/find/contactus

Packaging the Instrument

Use original packaging or comparable. It is best to pack the unit in the original factory packaging materials if they are available.

CAUTION 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 or prevent it from shifting in the carton. They cause equipment damage by generating static electricity and by lodging in the instrument louvers, blocking airflow.

You can repackage the test set with commercially available materials, as follows:

Step	Notes
1 Attach a completed service tag to the test set	
2 Wrap the test set in antistatic plastic to reduce the possibility of damage caused by electrostatic discharge	
3 Use a strong shipping container.	The carton must be both large enough and strong enough to accommodate the test set. A double-walled, corrugated cardboard carton with 159 kg (350 lb) bursting strength is adequate. Allow at least 3 to 4 inches on all sides of the test set for packing material.
4 Surround the equipment with three to four inches of packing material and prevent the equipment from moving in the carton.	If packing foam is not available, the best alternative is plastic bubble-pak. This material looks like a plastic sheet filled with 1-1/4 inch air bubbles. Use the pink-colored bubble which reduces static electricity. Wrapping the equipment several times in this material should both protect the equipment and prevent it from moving in the carton.
5 Seal the shipping container securely with strong nylon adhesive tape.	
6 Mark the shipping container "**FRAGILE, HANDLE WITH CARE**" to assure careful handling.	
7 Retain copies of all shipping papers.	