

Installation Instruction, Electrical

Applicable for Z780i, Z780a, TM506

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1 General

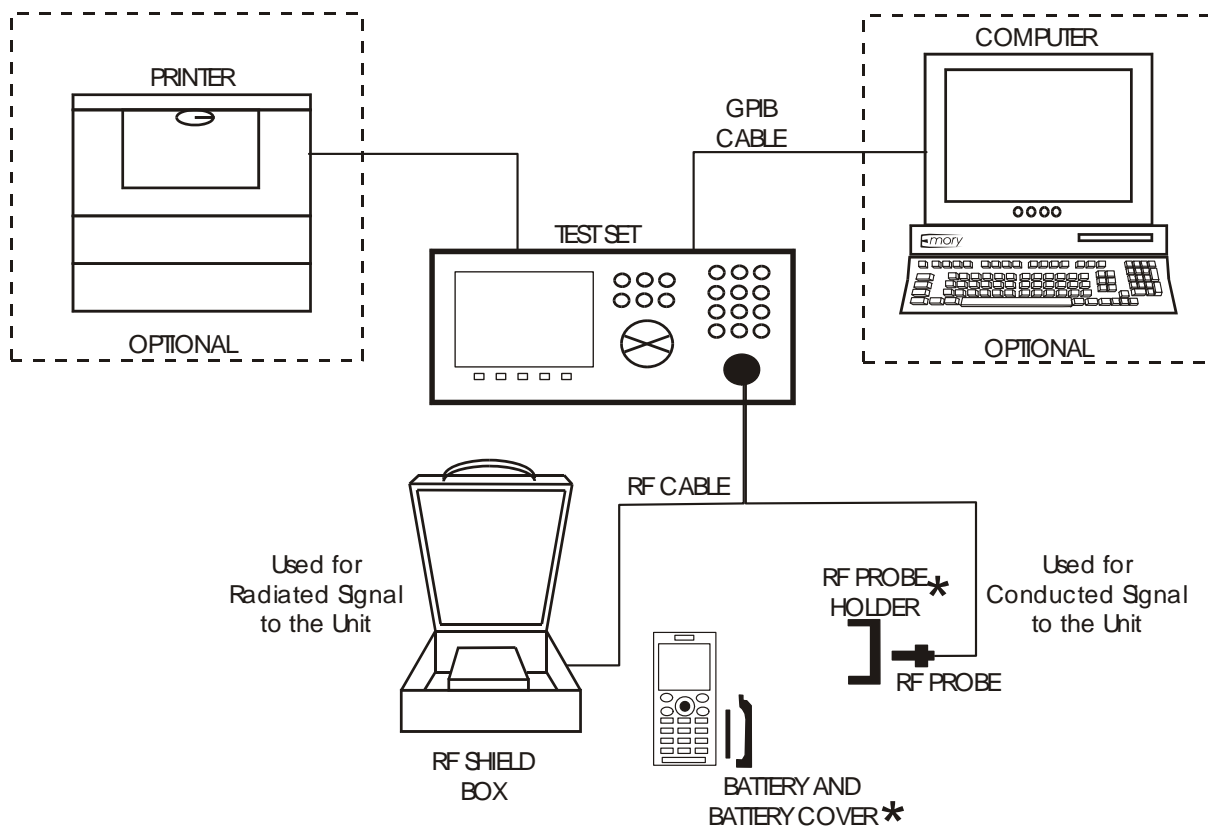
The Electrical Installation Instructions describe the procedures for installing all of the hardware and software needed to perform testing at an Electrical level for the Sony Ericsson products specified.

2 Go/No Go Testing

There are two options for performing a Go No/Go test. One is to use an RF Probe and cable, and the other is to use an antenna coupler together with a shielding box.

2.1 Test Set-Up Go/No Go test

All test hardware necessary for this test set up is documented in the Mechanical or Electrical Equipment Lists.



* The RF Probe Holder and the Battery Cover may not be used for every product. See the Installation Instructions and Test Instructions for details.



2.2 Test Set

A Quad Band GSM 850/900/1800/1900 and WCDMA (Bands I, II and V) Test Set approved according to the Electrical Equipment List must be used.

It should be installed according to the Instrument Manufacturer's Instructions.

2.3 RF Connections Antenna Coupler

Connect the RF Cable between the RF-port of the Test set and the RF Shield box. The Antenna Coupler should be installed into the RF Shield Box according to the manufacturer's instructions.

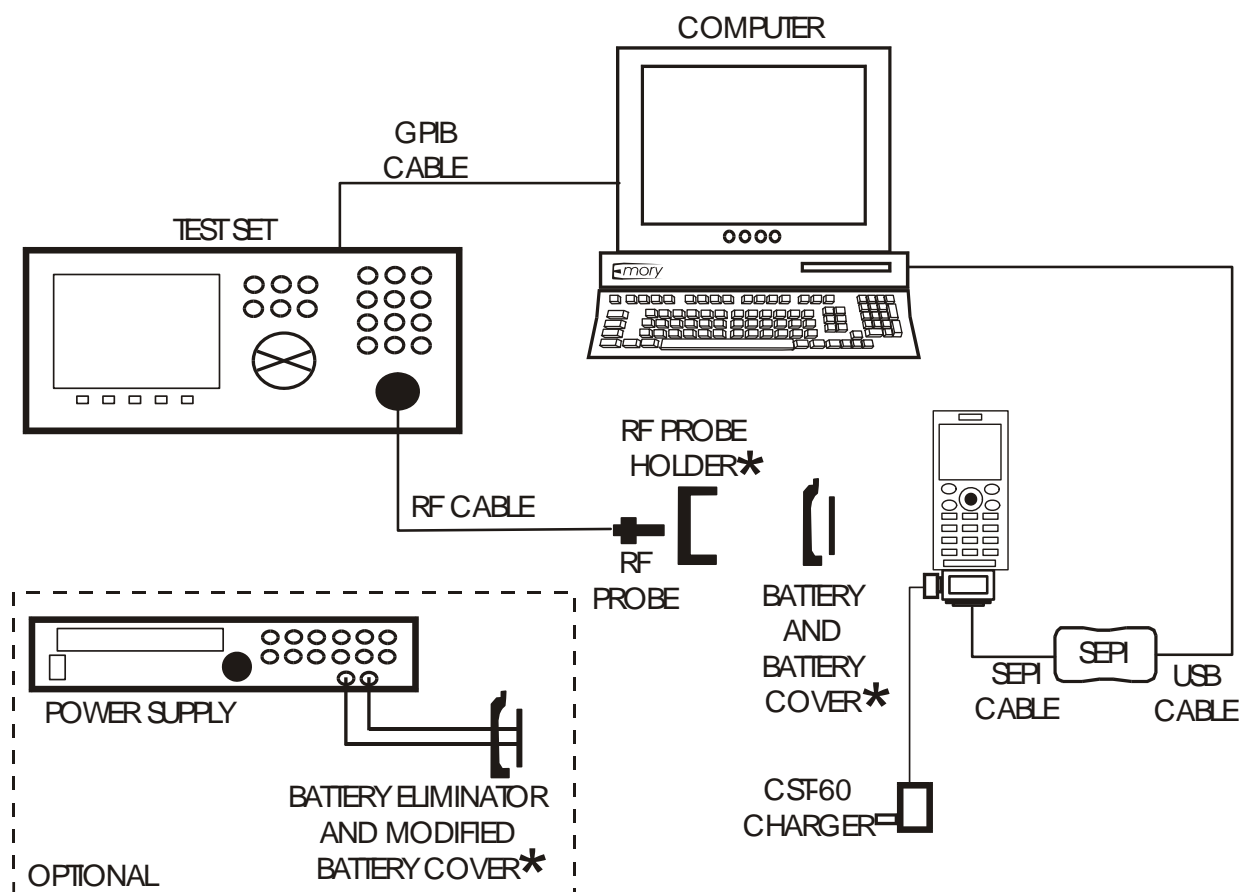
2.4 RF Connections Probe (optional)

Connect the RF-cable between the RF-port of the Test set and the RF Probe. Attach the RF Probe to the phone according to the information in the Test Instruction Electrical.

3 Calibration

There are two types of calibration; GSM and WCDMA. Due to the sensitivity of the phone from outside interference during WCDMA calibration, a Shield box and Service Tool Test Interface are required for WCDMA Calibration. These can be also used for GSM Calibration. Section 3.1 depicts a GSM only setup. For GSM only, follow sections 3.2 thru 3.10. For WCDMA or GSM, follow sections 3.2 thru 3.6 and 3.11.

3.1 GSM Calibration Test set up – SERP (only authorized centers)



* The RF Probe Holder, Battery Cover, and Modified Battery Cover may not be used for every product. See the Installation Instructions and Test Instructions for details.



3.2 Test Set

A Test Set approved according to the Electrical Equipment List must be used. It should be installed according to the instrument Manufacturer's Instructions.

3.3 GPIB card and cable

Use a GPIB card and cable according to the Electrical Equipment List. Use the GPIB cable to connect the GPIB card in the computer to the test instrument.

3.4 Sony Ericsson programming interface – SEPI

The USB programming interface is delivered with the necessary software and instruction for installation. The USB programming interface (SEPI) should be connected to a USB-port on the computer.

3.5 USB Cable

The A-B Plug-Plug cable is the interface between the computer and the USB programming interface (SEPI). Connect the cable between the USB programming interface and the computer.

3.6 Phone Power during Calibration

There are two options for powering the phone during calibration, a fully charged Battery or a Power supply with a Battery Eliminator (Dummy Battery), both are acceptable.

3.6.1 Battery

A fully charged Sony Ericsson battery approved for this phone model must be used. The part number can be found in the Mechanical Equipment List.



3.6.2 Power Supply

A Power Supply according to Electrical Equipment List must be used.

Set the output of the Power Supply as follows

- Voltage: 3.8Vdc
- Current: 2.0Amps

3.6.3 Battery Eliminator (Dummy Battery)

A Battery Eliminator is to be used together with a power supply to power the phone. Connect the cables from the battery eliminator to the power supply, red cable to positive output terminal and black cable to negative output terminal.

3.6.4 Battery Eliminator (Dummy Battery) Support

In some situations, a device may be needed to hold the battery eliminator in place when it is being used. A simple device for supporting the battery eliminator can be created by following the set of instructions for making a battery eliminator support that is located in the Mechanical Installation instructions.

3.7 RF Connection (GSM Calibration only)

Connect the RF-cable between the RF-port of the Test set and the RF Probe. Attach the RF Probe to the phone according to the information in the Test Instruction Electrical.

3.8 Sony Ericsson programming interface cable (GSM Calibration only)

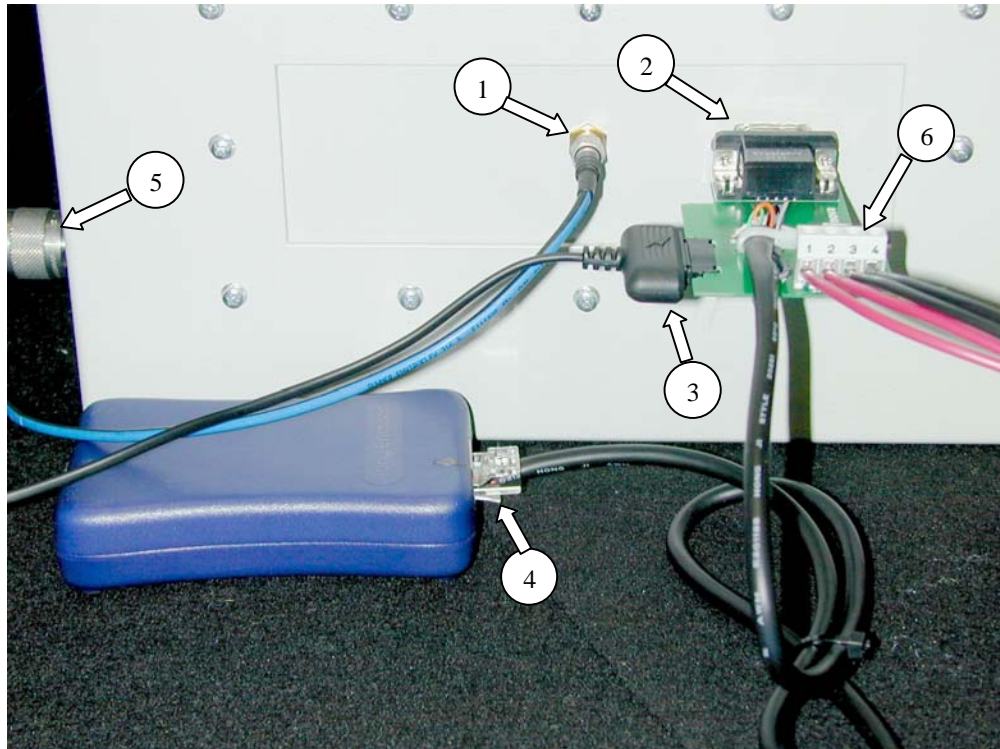
The cable is the interface between the USB programming interface (SEPI) and the phone. A standard Sony Ericsson Mobile Communication charger, CST-60 must be connected to the programming interface cable.

3.9 Calibration Shield box setup (WCDMA or GSM Calibration)

Due to the sensitivity of the phone from outside interference during WCDMA calibration, a Shield box and Service Tool Test Interface are required for WCDMA Calibration. These can be also used for GSM Calibration. A Wiltek 4921 Shield box and Service Tool Test Interface can be found in the Electrical Equipment list. There are several options available.

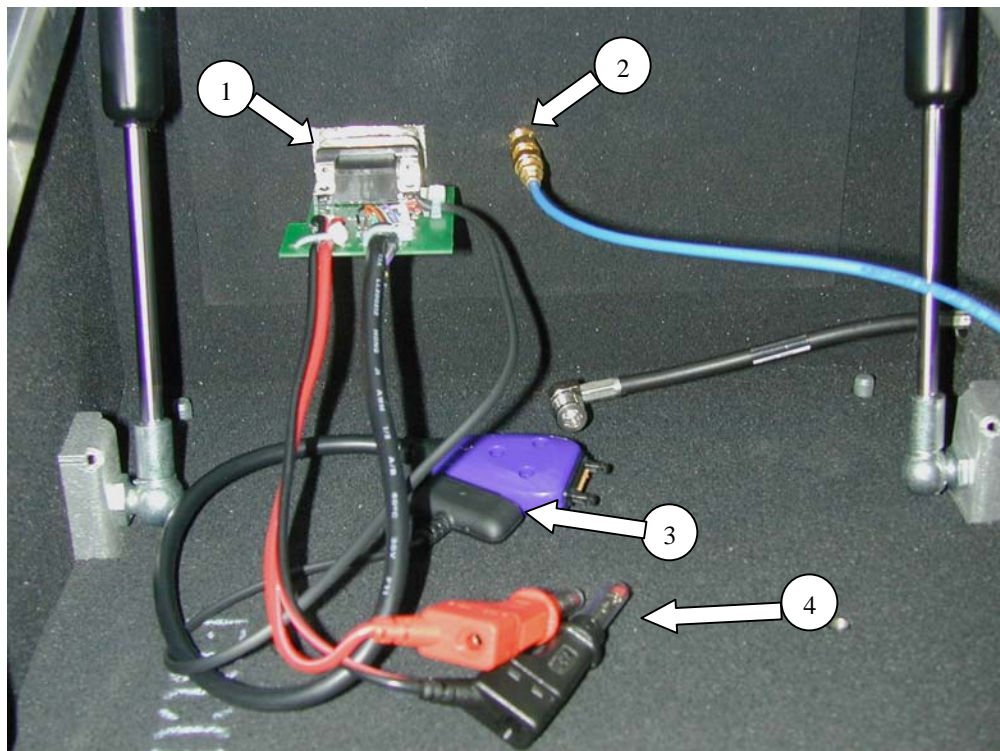
- The Wiltek 4921 Shield Enclosure box along with the Service Tool Test Interface.
- An existing Wiltek Shield box along with the Service Tool Test Interface and modified rear cover can be used. Remove the coupler, replace the rear cover and follow the instructions for the Wiltek 4921 Shield Enclosure box. The modified rear cover and N terminator can be found in the Electrical Equipment list.
- Any Shield box with a RF Isolation factor of >50dbm, has a High density DB-15 connector and an RF-pass thru connection. Attach the Service Tool Test Interface to the DB-15 connector.

The following pictures show how to setup a Wiltek 4921 Shield Enclosure box.



Picture 1

1. Connect the RF-cable between the RF-port of the Test set and the RF connector on the modified Rear Panel.
2. Attach the Outside Service Tool Test Interface to the connector on the modified Rear Panel.
3. Connect a standard Sony Ericsson Mobile Communication charger (CST-60) to the SEPI Calibration interface.
4. Connect the Outside Service Tool Test Interface to the SEPI.
5. Attach the N terminator to the Coupler connection.
6. If a Power Supply is used instead of a standard fully charged battery, connect the output of the Power Supply and the sense lines to the Outside Service Tool Test Interface.



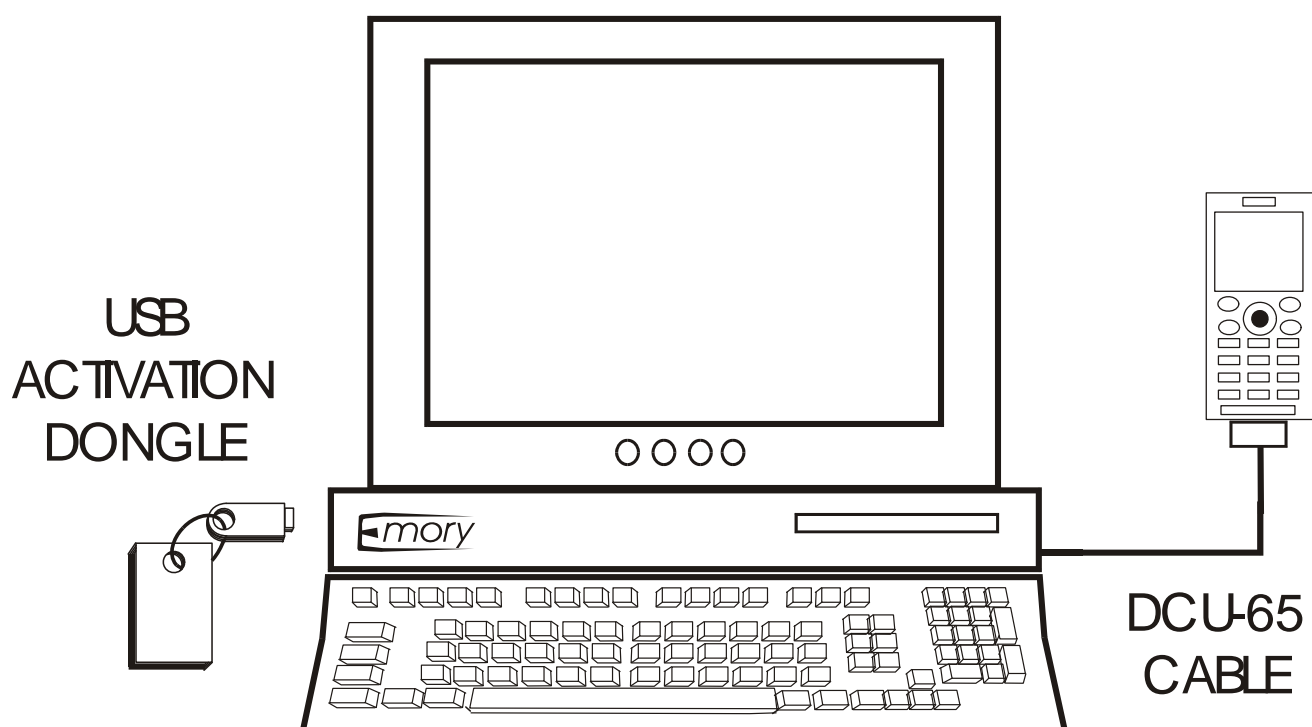
Picture 2

1. Attach the Inside Service Tool Test Interface to the modified Rear Panel.
2. Attach the RF Cable (Short) to the modified Rear Panel. The other end connects to the Phone according to the information in the Test Instructions Electrical.
3. Connect the charging cable from the Inside Service Tool Test Interface to the cable that attaches to the system connector on the phone.
4. If a Power Supply is used instead of a standard fully charged battery, connect the power cables from the Inside Service Tool Test Interface to the Battery Eliminator (Dummy Battery) black cable to black cable and red cable to red cable. In some situations, a device may be needed to hold the battery eliminator in place when it is being used. A simple device for supporting the battery eliminator can be created by following the set of instructions for making a battery eliminator support that is located in the Mechanical Installation instructions.

4 Software Loading

4.1 Set up

General Test set up to perform SW loading. All necessary hardware for this test set up is documented in the Mechanical or Electrical Equipment list.





4.2 Computer

IBM compatible computer is required. The computer should include at least two USB-ports. Refer to Equipment List for minimum requirements.

4.3 USB Activation Dongle

A USB Activation Dongle is required for activation in EMMA III. The USB Activation Dongle should be connected to a USB-port on the computer. Refer to the EMMA III Homepage available from CSPN, for installation instructions.

4.4 Sony Ericsson programming cable – DCU-65

The cable is the interface between the computer and the phone. The DCU-65 cable should be connected to a USB-port on the computer.

5 Software

5.1 EMMA

EMMA contains all software required to service the product. Installation and user manuals are available in the EMMA start page.

<http://ma3.extranet.sonyericsson.com/ma3/>



5.2 SERP Go/No Go Test Script

SERP stands for “**S**ony **E**ricsson **R**epair **P**latform”. It is an application used for testing, calibrating and repairing Sony Ericsson mobile phones.

Download the latest revision of the SERP application from CSPN.

<http://cspn.extranet.sonyericsson.com>

This application is located in the dropdown menu

Repair Instructions-Electrical/SERP application

1. Unzip the file and open the file “Release Notes and Installation Guide” for installation instructions.
2. After SERP is installed a file titled “SERPINFO.htm” will be placed on the Windows Desktop. This file contains numerous documents including:
 - SERP Users Manual – This document contains detailed operating and fault reporting instructions.
 - R&S Grid plate for SERP – This document contains an overview and ordering information for the Rhode & Schwarz Grid Plate used with the Rhode & Schwarz coupler. Also there is a list of supported SEMC handsets and mounting positions.
 - SERP Release Notes and Installation Guide – This document contains system requirements, release notes and an Installation Guide.

5.3 SERP Calibration (only authorized centers)

Download the latest revision of the SERP application from CSPN.

<http://cspn.extranet.sonyericsson.com>

This application can be found from the dropdown menu

Repair Instructions-Electrical/SERP application

1. Unzip the file and open the file “Release Notes and Installation Guide” for installation instructions.
2. Follow the Installation instructions to install SERP.

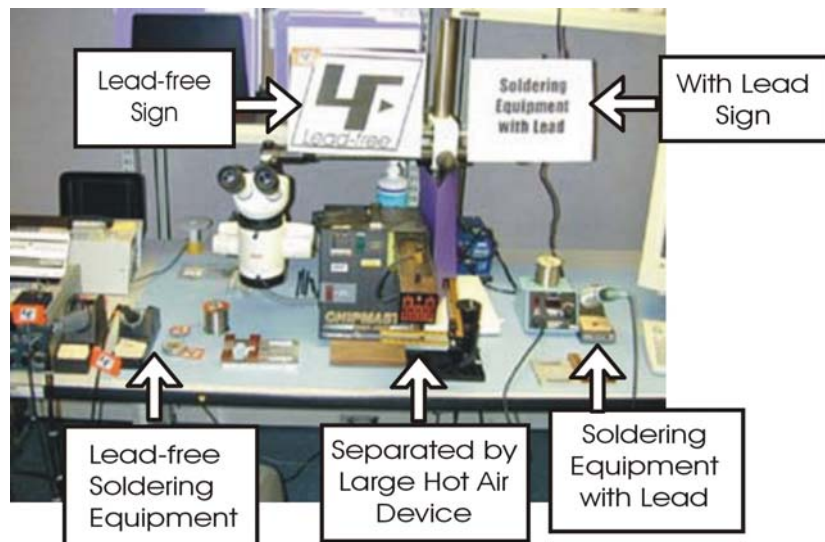
6 Lead-Free Electrical Repair

This product is manufactured with lead-free solder and lead-free components. During electrical repair, it is critical to make sure that no lead is introduced into the product. For this reason, certain repair materials and equipment must be designated as lead-free and labelled accordingly. A lead-free work area must be setup that is completely separated from work areas that are used to make leaded repairs. The lead-free work area must also be clearly labelled as shown in the figure below. Certain items must be designated for lead-free work only. Some of the items that need to be clearly labelled in this way are listed in the table below. Note that any item that contacts the solder must be labelled and used for lead-free work only.

Soldering Tips	Wicking Tape	Tip Cleaner (steel wool)
Solder	Tip Tinner	Soldering Iron



Because of cost and space limitations, some repair centers may not be able to assign a full bench to lead-free repairs. In this case, both lead-free and leaded repair setups can share the same bench, but they must be clearly marked with signs and separated by a physical divider. In the figure below, the large hot air device functions as the divider.

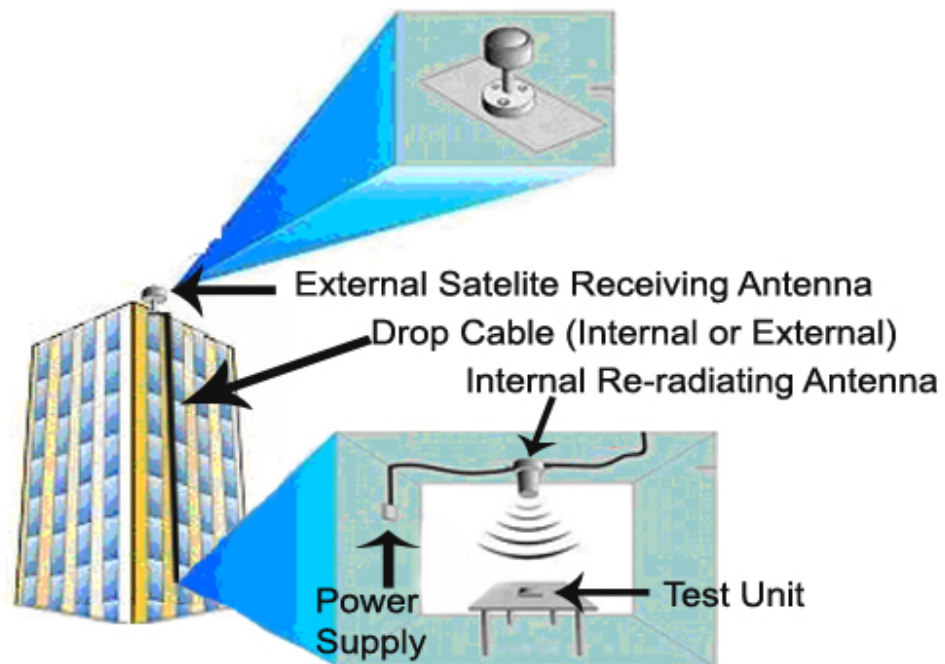


7 GPS Testing

After installing the equipment per manufacturer's instructions, the repair centre will need to use a satellite signal meter to measure the signal strength being radiated from the antenna. The signal strength should be between -140dBm and -130dBm.

7.1 Re-radiating GPS System

Following manufacturer's instructions, install the system on and in the facility as indicated by the drawing below.



7.2 Satellite Signal Simulator System

Following manufacturer's instructions, install the system as indicated by the photo below.



Connect the passive antenna to the rear output.

8 Revision History

Rev.	Date	Changes / Comments
1	2008-6-3	Initial Release
2	2008-07-22	Updated using new template.
3	2008-11-14	Add chapter 7 GPS Testing