

## User's and Service Guide

You can download a copy of the L4610A PRM-34B Radio Test Set User's and Service Guide at: [www.agilent.com/find/L4610A](http://www.agilent.com/find/L4610A)

## Warnings

- Use the L4610A for its intended purpose only. Use in any way other than as instructed in this Guide could result in a hazard.
- Refer to the battery vendor's Material Safety Data Sheet (MSDS) for hazards and safe handling instructions related to the battery.
- Follow the battery manufacturer's instructions for safe disposal.
- Never use a battery charger with the L4610A or its non-rechargeable battery.

## Cautions

- Except for the BA-5372/U battery, there are no operator serviceable parts inside.
- Refer all servicing to qualified service personnel. Servicing is required when the device does not operate normally.
- The L4610A PRM-34B RTS is not shipped with the required BA-5372/U 6V battery. Only use the specified battery.
- Follow battery installation instructions: Observe the polarity markings on the battery cover. Never insert the battery in the reverse direction. Protect sensitive electronics from ESD damage: do not touch the battery contacts during replacement.

## Cleaning

If cleaning is necessary, use a dry cloth or one slightly dampened with water to clean the external case parts. Do not attempt internal cleaning.

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For information specific to the L4610A: [www.agilent.com/](http://www.agilent.com/) and enter L4610A as the search keyword.

Product specifications and descriptions in this document subject to change without notice.

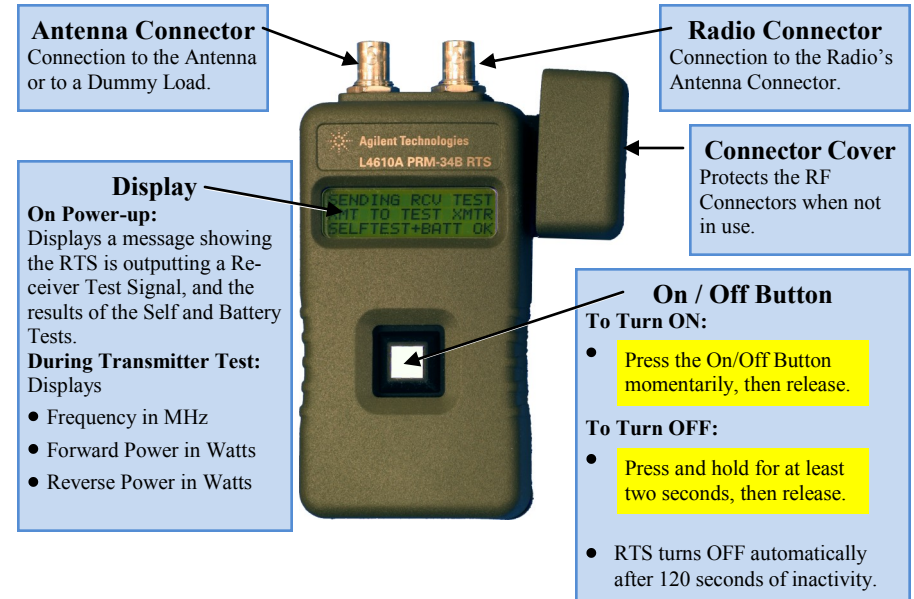
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## L4610A PRM-34B Radio Test Set Quick Start Guide

The PRM-34B is simple to use and quickly performs the required Operational Checks to insure a radio is operational. This guide will help you identify the different components of the Radio Test Set (RTS), provide a brief description of the operating features, and provide step-by-step instructions on how to test a SINCGARS radio.

### L4610A PRM-34B Identification



## L4610A PRM-34B Modes of Operation

### ON / OFF Modes

- ON** Press the ON/OFF button momentarily to turn the RTS ON. Do not hold the button down for longer than 1 second, or the RTS will turn off when you release the button.
- OFF** Press and hold the ON/OFF button for 2 seconds. The RTS turns OFF when you release the button. The RTS turns OFF automatically after 120 seconds of inactivity.

### Receiver Test Mode (Sensitivity/Squelch Measurement)

When the Radio Test Set is ON and a transmit signal is not present on the Radio Connector Port, the Radio Test Set outputs a 30 to 85 MHz (@ 5 MHz Intervals) Complex FM modulated signal for the Receiver Test Mode.

### Transmitter Test Mode (Measures Forward and Reverse Power and Frequency)

When a signal of 0.1 Watts or higher is detected, the RTS automatically switches to the Transmitter Test Mode and displays Frequency, Forward Power and Reverse Power Measurements.

## L4610A PRM-34B Radio Test Instructions

The following table provides step-by-step user instructions on how to perform the Receiver and Transmitter Operation Checks of the SINCGARS Radio Tests. These tests are simple to perform, and shows how easily and quickly a radio can be tested.

Testing a SINCGARS Radio with the PRM-34B Radio Test Set		
Step	Instructions	Results
1	<p><b>Connect the Radio to the PRM-34B Radio Test Set</b></p> <p>Connect the supplied BNC cable from the Radio's <b>ANT</b> connector to the RTS's <b>Radio</b> connector. Connect the radio's antenna cable to the RTS's <b>ANTENNA</b> connector (A dummy load can be used in place of the antenna).</p>	N/A
2	<p><b>Setup the Radio's test conditions</b></p> <p>Set the Radio for the following setup: Single Channel Mode (MODE to <b>SC</b>) Squelch ON (FCTN to <b>SQ ON</b>) Push to Talk (COMSEC to <b>PT</b>) RF Power to Hi (RF PWR to <b>HI</b>) Set Channel to <b>75000</b></p>	N/A
3	<p><b>Perform the Receiver Checks</b> (Sensitivity / Squelch Measurements)</p> <p>Turn the PRM-34B Radio Test Set <b>ON</b></p> <p><i>Note: The RTS automatically powers up in the Receiver test mode when no transmitter power is present, and outputs the RF Signal for the Receiver Tests.</i></p>	Test Tone should be heard in Handset
4	<p><b>Perform Transmitter Checks</b> (Frequency, Forward Power, and Reverse Power)</p> <p>Press-release-press (hold) the Handset's Push-To-Talk (PTT) Switch. The double-press is required to bypass the interlock that prevents transmitting when a signal is being received.</p> <p><i>Note: The PRM-34B detects the Radio's output signal, automatically switches to the Transmitter test mode, and displays the measurement results. The display brightens as a visual cue of the mode change.</i></p> <pre style="background-color: yellow; padding: 5px;"> FREQ 75.001 MHz FWD 3.8 WATTS RVS 0.6 WATTS                     </pre> <p style="text-align: center;"><i>PRM-34B Display Example</i></p>	<p><b>Frequency</b> 74998 to 75002 MHz</p> <p><b>FWD PWR</b> 2.5 Watts Minimum</p> <p><b>RVS PWR</b> &lt; 1/3 of FWD PWR</p>
End	<b>Tests are Complete</b>	

## L4610A PRM-34B Self-test Indications

In normal use, you should expect to see a low-battery warning after about 50 hours of testing time. If you continue using the RTS with a low-battery warning, eventually you will see a message that the battery must be replaced. In addition, the RTS performs several self-tests to help insure proper operation. It will warn you when you turn it on if you are trying to operate it beyond its rated temperature range, and it checks several internal parameters when it is turned on. Most irregular conditions only give a warning that the unit should be serviced as soon as possible, but allow you to continue making measurements in an emergency. A very few abnormal conditions are considered fatal, and do not allow the RTS to operate at all. All possible displays for abnormal conditions are shown below for reference. Although the self-tests help assure that the RTS is operating properly, they cannot check everything. If you have reason to suspect a problem with the RTS, send it for verification and service even if no warning is shown.

```

SENDING RCV TEST
> BATTERY LOW <
> REPLACE SOON <
                    
```

When you see this message, you should replace the battery soon. Under normal conditions, you will have several hours more testing available until the battery *must* be replaced.  
*Hint: If you warm a cold RTS, the battery will have more power.*

```

BATTERY TOO LOW
REPLACE BATT NOW
                    
```

When you see this message, you *must* replace the battery. In and emergency, if there is still some life in the battery, you will have about two seconds after you turn the power on to make measurements, before measurements stop and this message is displayed. The display will cycle between bright and dim when this message is active.  
*Hint: The RTS will power up in the transmitter test mode if you activate the transmitter before you turn on the RTS power. In this way, you can make a transmitter test very quickly.*

```

TEMP ABOVE SPEC
OPERATING RANGE
PUSH BTN TO CONT
                    
```

One or the other of these two messages will be displayed when you turn the RTS on and it is hotter or colder than its specified operating temperature range, -20°C to +55°C. You must press the ON/OFF button momentarily to cause the RTS to enter normal measurement operation. The RTS is not guaranteed to meet specifications when operated beyond its rated temperature range.

```

TEMP BELOW SPEC
OPERATING RANGE
PUSH BTN TO CONT
                    
```

*Hint: at cold ambient temperatures, operation will be enhanced if you warm the unit slightly before use.*

```

SENDING RCV TEST
SELFTEST WARNING
> SERVICE SOON <
                    
```

The self-tests that run when you turn the RTS on have discovered an abnormal internal condition. You may continue to use the RTS, but it may not meet all of its specifications, and you should send it for service as soon as possible.

```

FATAL ERROR
INTERNAL VOLTAGE
TOO HIGH
                    
```

These two displays indicate that the self-tests found a problem that either could cause internal damage, or makes all measurements unfit for use. If an internal voltage is too high, the RTS will turn itself off in about two seconds. You should send it for service, and not try to turn it back on. The "Bad Frequency Reference" error will display for about ten seconds before the RTS turns itself off. You should send the unit for service.

```

FATAL ERROR
BAD FREQUENCY
REFERENCE
                    
```