

# Site Master™

## Models S114C and S332C Antenna, Cable and Spectrum Analyzers

### MAINTENANCE MANUAL



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# Anritsu

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## 1. INTRODUCTION

This manual provides maintenance instructions for the Site Master Model S114C and S332C Antenna, Cable, and Spectrum Analyzers. It describes the product and provides performance verification procedures, parts replacement procedures, and a replaceable parts list.

## 2. DESCRIPTION

The Site Master is a hand held SWR/RL (standing wave ratio/return loss), Distance-To-Fault and spectrum analysis measurement instrument. It combines a synthesized source, VSWR Bridge, receiver and spectrum analyzer circuitry in a compact instrument. An optional power monitor is also available.

The following sections contain tests that can be used to verify the performance of the Site Master models S114C and S332C having any version of firmware.

## 3. SITE MASTER FREQUENCY ACCURACY

The following test can be used to verify the CW frequency accuracy of the Site Master. Measurement calibration of the Site Master is *not* required for this test.

### a. Equipment Required:

- Spectrum Analyzer Anritsu Model MS2663C or equivalent

### b. Procedure:

1. Press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)

#### **NOTE**

Before continuing, allow a five minute warm up for the internal circuitry to stabilize.

2. Press the **FREQ/DIST** key, then press the **F1** soft key and set F1 to 1000 MHz, then press the **ENTER** key.
3. Press the **F2** soft key, set F2 to 1000 MHz, then press the **ENTER** key.
4. Connect the RF cable from the Site Master Reflection Test Port to the RF Input on the MS2663C or equivalent.
5. Set up the Spectrum Analyzer as follows:

- (a) Press the **Preset** key, then select **Preset All** (F1).
  - (b) Press the **Frequency** key.
  - (c) Press the **1** key and then the **GHz** key to change the Center Frequency to 1 GHz.
  - (d) Press the **Span** key.
  - (e) Press the **7, 5, 0,** and **kHz** keys sequentially to change the Frequency Span to 750 kHz.
  - (f) Press the **RBW** key.
  - (g) Press the **1, 0** and **kHz** keys sequentially to change the RBW to 10 kHz.
  - (h) Press the **VBW** key.
  - (i) Press the **Filter Off** soft key (F3) to turn the VB filter off.
  - (j) Press the **Amplitude** key.
  - (k) Press the **0,** and **dBm** keys sequentially to change the Reference Level to 0 dBm.
  - (l) Press the **Log Scale** soft key (F5)
  - (m) Select **2 dB/Div** (F3) and then press the **return** soft key (F6).
  - (n) Press the **Marker** key.
  - (o) Press the **Zone Width** soft key (F5).
  - (p) Select the **Spot** soft key (F1).
6. On the Site Master, press the **SYS** key, the **OPTIONS** soft key and then the **FIXED CW** soft key to turn Fixed CW on.

#### **NOTE**

If the Site Master has gone into the hold mode, press the **RUN/HOLD** key to return to normal mode.

7. On the Spectrum Analyzer, press **A, B** then the **Storage** soft key (F5).
8. Press the **MaxHold** soft key (F2).
9. When a smooth peak response appears on the Spectrum Analyzer, press the **Marker Peak Search** key on the Spectrum Analyzer. Verify that the marker peak readout value is 1000 MHz  $\pm$ 75 kHz.
10. On the Site Master, press the **SYS** key, the **OPTIONS** soft key and then the **FIXED CW** soft key to turn Fixed CW Off.

#### 4. RETURN LOSS VERIFICATION

The following test can be used to verify the accuracy of return loss measurements. Measurement calibration of the Site Master is required for this test.

##### a. *Equipment Required:*

- 20 dB offset, Anritsu SC5270
- 6 dB offset, Anritsu SC5237
- Open/Short, Anritsu 22N50
- 50 Ohm Termination, Anritsu 28N50-2 or SM/PL

##### b. *Procedure:*

1. Press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)

##### **NOTE**

Before continuing, allow a five minute warm up for the internal circuitry to stabilize.

2. Press the **MODE** key.
3. Use the Up/Down arrow key to highlight RETURN LOSS, then press **ENTER**.
4. Press the **START CAL** key.
5. Follow the instructions on the screen to perform a calibration using a 22N50 Open/Short and 28N50-2 or SM/PL Termination.
6. Connect the 20 dB offset to the Refl Test Port and verify that the reading is 20 dB  $\pm$  1.7 dB.
7. Connect the 6 dB offset to the Refl Test Port and verify that the reading is 6 dB  $\pm$  1.2 dB.

#### 5. SPECTRUM ANALYZER FREQUENCY ACCURACY

The following test can be used to verify the CW frequency accuracy of the Site Master Spectrum Analyzer.

##### a. *Equipment Required:*

- Anritsu MG3692A Synthesized Signal Source, with options 4 and 15A
- 10 MHz Reference Standard

##### b. *Procedure:*

1. Connect the 10 MHz reference source to the Anritsu MG3692A Synthesized Signal Source.
2. Connect the output of the source to the RF Input of the Site Master.
3. Connect the external power supply (Anritsu part number 40-115) to the Site Master.
4. Press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)
5. Turn on the 10 MHz reference source and the Anritsu MG3692A Synthesized Signal Source.
6. Set the MG3692A output to 1000 MHz CW for the S114C (2000 MHz CW for the S332C), with an RF output level of 0 dBm.

##### **NOTE**

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

7. On the Site Master, press the **MODE** key. Use the up/down arrow key to highlight SPECTRUM ANALYZER and press **ENTER** to select spectrum analyzer mode.
8. Press the **AMPLITUDE** key and the REF LEVEL soft key.
9. Enter 20 and press the **ENTER** key to set the Reference Level to 20 dBm.
10. Press the **FREQ/DIST** key and the CENTER soft key.
11. For the S114C, enter 1000 and press the MHz soft key to set the center frequency to 1000 MHz. For the S332C, enter 2000 and press the MHz soft key to set the center frequency to 2000 MHz.
12. Press the SPAN soft key and enter 50. Press the kHz soft key to set the span to 50 kHz.
13. Press the **SWEEP** key.
14. Press the RBW soft key and then the MANUAL soft key. Use the Up/down arrow key to select 10 kHz. Press **ENTER** to set the resolution bandwidth to 10 kHz and press the BACK soft key.

15. Press the VBW soft key and then the MANUAL soft key. Use the Up/down arrow key to select 3 kHz. Press **ENTER** to set the video bandwidth to 3 kHz.
16. Press the **MARKER** key, then the M1 soft key.
17. Select the EDIT soft key and use the Up/down arrow key to center the marker on the waveform. Verify that the marker frequency is 1000 MHz,  $\pm 2$  kHz for the S114C, or 2000 MHz  $\pm 4$  kHz for the S332C.

**NOTE**

If the unit fails the Spectrum Analyzer Frequency Accuracy test, contact Anritsu Customer Service.

**6. SPECTRUM ANALYZER PHASE NOISE VERIFICATION**

This test can be used to verify the phase noise of the Site Master Spectrum Analyzer.

**a. Equipment Required:**

- Anritsu MG3692A Synthesized Signal Source, with options 2A, 4 and 15A, or equivalent

**b. Procedure:**

1. Connect the output of the source to the Site Master RF Input.
2. Connect the external power supply (Anritsu part number 40-115) to the Site Master.
3. Press and hold the ESCAPE/CLEAR key, then press the ON/OFF key to turn on the Site Master. (This sets the instrument to the factory preset state.)

**NOTE**

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

4. Set the MG3692A output to 1000 MHz, with an RF output level of  $-30$  dBm.
5. On the Site Master, press and hold the ESCAPE/CLEAR key, then press the ON/OFF key to turn on the Site Master. (This sets the instrument to the factory preset state.)
6. Press the **SWEEP** key.

7. Press the RBW soft key and the MANUAL soft key. Use the Up/down arrow key to select 10 kHz. Press **ENTER** to set the resolution bandwidth to 10 kHz then press the BACK soft key.
8. Press the VBW soft key and the MANUAL soft key. Use the Up/down arrow key to select 3 kHz. Press **ENTER** to set the video bandwidth to 3 kHz.
9. Press the **FREQ/DIST** key and the CENTER soft key.
10. Enter 1000 and press the **ENTER** key to set the center frequency to 1000 MHz.
11. Press the **SPAN** soft key and enter 0.1. Press the **ENTER** key to set the span to 0.100 MHz.
12. Press the **AMPLITUDE** key.
13. Press the REF LEVEL soft key and enter  $-27$ . Press **ENTER** to set the reference level to  $-27$  dBm.
14. Press the **MARKER** key, then the M1 soft key.
15. Press EDIT and enter 1000. Press **ENTER** to set the M1 marker frequency to 1000 MHz.
16. Press the BACK soft key and the M2 soft key.
17. Press EDIT and enter 1000.03. Press **ENTER** to set the M2 marker frequency to 1000.03 MHz (30 kHz higher than the center frequency).
18. Press the DELTA (M2-M1) soft key.
19. Press the **RUN/HOLD** key and read and record the  $\Delta 2$  reading
20. Press the **RUN/HOLD** key to read and record five values, then calculate the average of the five recorded values.
21. Subtract 40 dB from the average value and verify that the result is  $\leq -75$  dBc/Hz. (For example:  $-35$  dBc measured  $- 40$  dB =  $-75$  dBc/Hz.)
22. (For example:  $-35$  dBc measured +  $(-40$  dB) =  $-75$  dBc/Hz.)

### NOTE

The measured value is converted to dBc/Hz using the following formula:

$$dBc/Hz = - \left| measured\ dBc \right| - \left[ 10_{\log} \left( \frac{RBW}{1Hz} \right) \right]$$

At 10 kHz RBW,  $10_{\log} \left( \frac{RBW}{1Hz} \right) = 40$ , so

$$dBc/Hz = - \left| measured\ dBc \right| - 40$$

23. Press the **BACK** soft key and the M3 soft key.
24. Press the **EDIT** key and enter 999.970. Press **MHz** to set the M3 marker frequency to 999.970 MHz (30 kHz lower than the center frequency).
25. Press the **DELTA** (M3-M1) soft key.
26. Press the **RUN/HOLD** key. Read and record the  $\Delta$  3 reading.
27. Press the **RUN/HOLD** key to read and record five values, then calculate the average of the five recorded values.
28. Subtract 40 dB from the average value and verify that the result is  $\leq -75$  dBc/Hz. (For example:  $-35$  dBc measured  $- 40$  dB =  $-75$  dBc/Hz.)

## 7. SPECTRUM ANALYZER SECOND HARMONIC DISTORTION TEST

The following test can be used to verify the input related spurious response of the Site Master Spectrum Analyzer.

### a. Equipment Required:

- Anritsu MG3692A Synthesized Signal Source with options 2A, 4 and 15A, or equivalent
- 10 MHz Reference Standard
- 50 MHz Low Pass Filter
- RF coaxial cable, N male to N male

### b. Procedure:

1. Connect the 10 MHz reference source to the Anritsu MG3692A Synthesized Signal Source.
2. Connect one end of the 50 MHz Low Pass Filter to the output of the source and the other end to the Site Master Spectrum Analyzer RF Input with the RF coaxial cable.

3. Connect the external power supply (Anritsu part number 40-115) to the Site Master.
4. On the Site Master, press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)
5. Turn on the 10 MHz reference source and the Anritsu MG3692A Synthesized Signal Source.
6. Set the MG3692A output to 40MHz CW, with an RF output level of  $-30$  dBm.

### NOTE

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

7. On the Site Master, press the **MODE** key. Use the up/down arrow key to highlight **SPECTRUM ANALYZER** and press **ENTER** to select spectrum analyzer mode.
8. Press the **AMPLITUDE** key and the **REF LEVEL** soft key.
9. Enter  $-27$  and press the **ENTER** key to set the Reference Level to  $-27$  dBm.
10. Press the **SCALE** soft key and enter 7 then press **ENTER**.
11. Press the **FREQ/DIST** key and then the **CENTER** soft key.
12. Enter 40 and press the **MHz** soft key to set the center frequency to 40 MHz.
13. Press the **SPAN** soft key and enter 0.2. Press the **MHz** soft key to set the span to 0.200 MHz.
14. Press the **SWEEP** key.
15. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 10 kHz. Press **ENTER** to set the resolution bandwidth to 10 kHz and select **BACK**.
16. Press the **VBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 3 kHz. Press **ENTER** to set the video bandwidth to 3 kHz.
17. Press the **MARKER** key, then the M1 soft key.
18. Select the **EDIT** soft key, then enter 40. Press the **MHz** soft key to set M1 to 40 MHz.

19. On the MG3692A Synthesized Signal Source, adjust the output level so that the M1 reading of Site Master Spectrum Analyzer is  $-30$  dBm at 40 MHz.
20. On the Site Master, press the **FREQ/DIST** key and then the **CENTER** soft key.
21. Enter 80 and press the **MHz** soft key to set the center frequency to 80 MHz.
22. Press the **MARKER** key and the **M1** soft key.
23. Select the **EDIT** soft key, then enter 80. Press the **MHz** soft key to set M1 to 80 MHz.
24. Record the amplitude of the signal at M1 80 MHz:

Second Harmonic Level @ 80 MHz = \_\_\_\_ dBm

25. Convert this measured value to dBc using the following formula:

Input Related Spurious Response (dBc) =  
 [Second Harmonic Level @ 80 MHz] +  
 30 dBm = \_\_\_\_ dBc

Specifications for this measurement are  $-45$  dBc with  $-30$  dBm into the first mixer.

## 8. SPECTRUM ANALYZER RESIDUAL SPURIOUS RESPONSE TEST

The following test can be used to verify the residual spurious response of the Site Master Spectrum Analyzer.

### a. *Equipment Required:*

- Anritsu 28N50-2 or SM/PL 50 ohm Termination or equivalent

### b. *Procedure:*

1. Connect the 50 ohm termination to the Site Master RF Input.
2. On the Site Master, press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)

### **NOTE**

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

3. On the Site Master, press the **MODE** key. Use the up/down arrow key to highlight **SPECTRUM ANALYZER** and press **ENTER** to select spectrum analyzer mode.
4. Press the **AMPLITUDE** key and the **REF LEVEL** soft key.
5. Enter  $-75$  and press the **ENTER** key to set the Reference Level to  $-75$  dBm.
6. Press the **SCALE** soft key and enter 5, then press **ENTER**.
7. Press the **SWEEP** key.
8. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 10 kHz. Press **ENTER** to set the resolution bandwidth to 10 kHz and select **BACK**.
9. Press the **VBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 100 Hz and press **ENTER** to set the video bandwidth to 100 Hz.
10. Press the **FREQ/DIST** key and the **START** soft key.
11. Enter 500 and press the **kHz** soft key to set the start frequency to 500 kHz.
12. Press the **STOP** soft key and enter 4, then press the **MHz** soft key to set the stop frequency to 4 MHz.
13. Wait till one full sweep is complete.
14. Press the **MARKER** key and then the **M1** soft key.
15. Press the **ON/OFF** soft key and then the **MARKER TO PEAK** soft key.
16. Record the M1 amplitude reading and verify whether it is less than or equal to  $-90$  dBm.

### **NOTE**

If a spur with an amplitude larger than  $-90$  dBm occurs, wait another full sweep and observe whether the spur occurs at the same point on the second sweep. If the spur does not occur at the same point on the second sweep, then the spur on the first sweep was not real.

17. Press the **SWEEP** key.
18. Press the **VBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 3 kHz and press **ENTER** to set the video bandwidth to 3 kHz.

19. Press the **FREQ/DIST** key and the **START** soft key.
20. Enter 4 and press the **MHz** soft key to set the start frequency to 4 MHz.
21. Press the **STOP** soft key and enter 1000, then press the **MHz** soft key to set the stop frequency to 1000 MHz.
22. Wait until one full sweep is complete.
23. Press the **MARKER** key and then the **M1** soft key.
24. Press the **ON/OFF** soft key and then the **MARKER TO PEAK** soft key.
25. Record the **M1** amplitude reading and verify it is  $\leq -90$  dBm.
26. Press the **FREQ/DIST** key and the **START** soft key.
27. Enter 1000 and press the **MHz** soft key to set the start frequency to 1000 MHz.
28. Press the **STOP** soft key.
29. For the S114C, enter 1600, then press the **MHz** soft key to set the stop frequency to 1600 MHz.  
  
For the S332C, enter 2000, then press **MHz** soft key to set the stop frequency to 2000 MHz.
30. Wait until one full sweep is complete.
31. Press the **MARKER** key and then the **M1** soft key.
32. Press the **ON/OFF** soft key and then the **MARKER TO PEAK** soft key.
33. Record the **M1** amplitude reading and verify it is  $\leq -90$  dBm.

**NOTE**

Continue on to Step 34 only if the unit being tested is a Model S332C Site Master.

34. Press the **FREQ/DIST** key and the **START** soft key.
35. Enter 2000 and press the **MHz** soft key to set the start frequency to 2000 MHz.
36. Press the **STOP** soft key and enter 3000, then press the **MHz** soft key to set the stop frequency to 3000 MHz.
37. Wait until one full sweep is complete.
38. Press the **MARKER** key and then the **M1** soft key.

39. Press the **ON/OFF** soft key and then the **MARKER TO PEAK** soft key.
40. Record the **M1** amplitude reading and verify it is  $\leq -90$  dBm.

**9. SPECTRUM ANALYZER RESOLUTION BANDWIDTH ACCURACY TEST**

The following test can be used to verify the resolution bandwidth accuracy of the Site Master Spectrum Analyzer at four frequencies.

**a. Equipment Required:**

- Anritsu MG3692A Synthesized Signal Source with options 2A, 4 and 15, or equivalent
- 10 MHz Reference Standard
- 3 GHz RF cable (Nm to Nm) or equivalent

**b. Procedure:**

1. Connect the 10 MHz reference source to the Anritsu MG3692A Synthesized Signal Source.
2. Connect the output of the Anritsu MG3692A Synthesized Signal Source to the Site Master Spectrum Analyzer RF Input.
3. On the Site Master, press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)

**NOTE**

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

4. Set the MG3692A output to 1 GHz, with an RF output level of  $-30$  dBm.
5. On the Site Master, press the **MODE** key. Use the up/down arrow key to highlight **SPECTRUM ANALYZER** and press **ENTER** to select spectrum analyzer mode.
6. Press the **AMPLITUDE** key and the **REF LEVEL** soft key.
7. Enter  $-27$  and press the **ENTER** key to set the Reference Level to  $-27$  dBm.
8. Press the **SCALE** soft key and enter 3, then press **ENTER**.

9. Press the **FREQ/DIST** key and the **CENTER** soft key.
10. Enter 1 and press the **GHz** soft key to set the center frequency to 1GHz.

**NOTE**

The Measured Occupied BW value for each RBW setting can be recorded in Table 1.

**1 MHz RBW Test**

11. Press the **SPAN** soft key, enter 5 and press the **MHz** soft key to set the span to 5 MHz.
12. Press the **SWEEP** key.
13. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 1 MHz. Press **ENTER** to set the resolution bandwidth to 1 MHz and select **BACK**.
14. Press the **VBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 3 kHz and press **ENTER** to set the video bandwidth to 3 kHz.
15. Press the **MEASURE** soft key, the **OBW** soft key and then the **METHOD** soft key to measure a 3 dB bandwidth.
16. Press the **MEASURE** soft key and read the displayed Meas Occ BW value. The Meas Occ BW value should be  $\pm 20\%$  of the RBW.

**100 kHz RBW Test**

17. Press the **FREQ/DIST** key.
18. Press the **SPAN** soft key, enter 1 and press the **MHz** soft key to set the span to 1 MHz.
19. Press the **SWEEP** key.
20. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 100 kHz. Press **ENTER** to set the resolution bandwidth to 100 kHz and select **BACK**.
21. Press the **MEASURE** soft key, the **OBW** soft key and then the **METHOD** soft key to measure a 3 dB bandwidth.
22. Press the **MEASURE** soft key and read the Meas Occ BW value. The Meas Occ BW value should be  $\pm 20\%$  of the RBW.

**30 kHz RBW Test**

23. Press the **FREQ/DIST** key.
24. Press the **SPAN** soft key, enter .1 and press the **MHz** soft key to set the span to 0.1 MHz.
25. Press the **SWEEP** key.
26. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 30 kHz. Press **ENTER** to set the resolution bandwidth to 30 kHz and select **BACK**.
27. Press the **MEASURE** soft key, the **OBW** soft key and then the **METHOD** soft key to measure a 3 dB bandwidth.
28. Press the **MEASURE** soft key and read the displayed Meas Occ BW value. The Meas Occ BW value should be  $\pm 20\%$  of the RBW.

**10 kHz RBW Test**

29. Press the **FREQ/DIST**
30. Press the **SPAN** soft key, enter .04 and press the **MHz** soft key to set the span to 0.04 MHz.
31. Press the **SWEEP** key.
32. Press the **RBW** soft key and then the **EDIT** soft key. Use the Up/down arrow key to select 10 kHz. Press **ENTER** to set the resolution bandwidth to 10 kHz and select **BACK**.
33. Press the **MEASURE** soft key, the **OBW** soft key and then the **METHOD** soft key to measure a 3 dB bandwidth.
34. Press the **MEASURE** soft key and read the displayed Meas Occ BW value. The Meas Occ BW value should be  $\pm 35\%$  of the RBW.

**Table 1.** RBW Check

RBW Setting	Lower Limit	Measured Value	Upper Limit
1 MHz	0.8 MHz		1.2 MHz
100 kHz	80 kHz		120 kHz
30 kHz	24 kHz		36 kHz
10 kHz	6.5 kHz		13.5 kHz

## 10. SPECTRUM ANALYZER MEASUREMENT ACCURACY TEST

This test verifies the level accuracy of the Site Master Spectrum Analyzer.

### a. Equipment Required:

- Anritsu MG3692A Synthesized Signal Source, with options 2A, 4 and 15A
- Anritsu ML2430A-Series Power Meter or equivalent
- Anritsu MA2442A High Accuracy Power Sensor or equivalent
- Anritsu N241A50 Power Splitter or equivalent
- Anritsu 34NN50A 50 ohm adapter or equivalent
- Anritsu 34RSN50 50 ohm adapter or equivalent
- Anritsu 15NNF50-1.5C RF Coaxial Cable or equivalent

### b. Procedure:

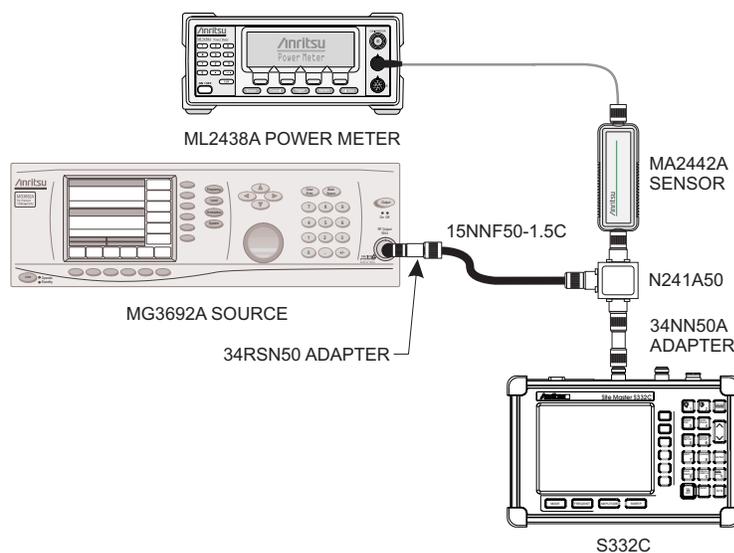
1. Connect the power sensor to the power meter and calibrate the sensor.
2. Using the power splitter, coaxial cable and adapters, connect the Site Master to the signal source and the power sensor as shown in Figure 1.

3. Connect the external power supply (Anritsu part number 40-115) to the Site Master.
4. On the Site Master, press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)
5. Turn on the power meter and signal source.

### NOTE

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

6. On the Site Master, press the **MODE** key. Use the up/down arrow key to highlight **SPECTRUM ANALYZER** and press **ENTER** to select spectrum analyzer mode.
7. Press the **SWEEP** key.
8. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 10 kHz. Press **ENTER** to set the resolution bandwidth to 10 kHz.
9. Press **BACK**, then the **VBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 3 kHz. Press **ENTER** to set the video bandwidth to 3 kHz.
10. Press **BACK**, then **MEASURE**, then **DETECTION**, then **AVERAGE**.
11. Press the **FREQ/DIST** key.



**Figure 1.** Measurement Accuracy Setup

12. Press the SPAN soft key and enter .5, then press the MHz key to set the span to .5 MHz.
13. Press the **AMPLITUDE** key.
14. Press the REF LEVEL soft key, enter 20 and press the **ENTER** key to set the reference level to +20 dBm.
15. Press the **FREQ/DIST** key and the CENTER soft key.
16. Enter 50 and press the MHz soft key to set the center frequency to 50 MHz.
17. On the Anritsu ML2430A-Series Power Meter, press the Sensor key and then the CalFactor soft key. Select the FREQ soft key and enter 50 MHz for the Input Signal Frequency. This sets the power meter to the proper power sensor cal factor.
18. Set the MG3692A output to 50 MHz CW and the power level to +10 dBm as indicated on the power meter.
28. Set the MG3692A power level to -30 dBm as indicated on the power meter.
29. Verify that the M1 reading is  $\pm 2$  dB maximum from the input signal.
30. Press the **AMPLITUDE** key.
31. Press the REF LEVEL soft key and enter -40. Press **ENTER** to set the reference level to -40 dBm.
32. Set the MG3692A power level to -50 dBm as indicated on the power meter.
33. Verify that the M1 reading is  $\pm 2$  dB maximum from the input signal.
34. Repeat steps 15 through 33 for frequencies of 500 MHz, 1000 MHz, 1500 MHz, 2000 MHz, 2500 MHz and 2950 MHz.

**NOTE**

To insure accuracy, set the output of the signal source using the power meter reading. Do not rely on the signal source display.

19. Press the **MARKER** key, then the M1 soft key.
20. Select the MARKER TO PEAK soft key to position the marker at the center of the response for the test frequency.

**NOTE**

Table 2 can be used to record the results of this test for future reference.

21. Verify that the M1 reading is  $\pm 2$  dB maximum from the input signal.
22. Press the **AMPLITUDE** key.
23. Press the REF LEVEL soft key, enter 0 and press **ENTER** to set the reference level to 0 dBm.
24. Set the MG3692A power level to -10 dBm as indicated on the power meter.
25. Verify that the M1 reading is  $\pm 2$  dB maximum from the input signal.
26. Press the **AMPLITUDE** key.
27. Press the REF LEVEL soft key, enter -20 and press **ENTER** to set the reference level to -20 dBm.

Table 2. Measurement Accuracy Test Results

Freq (MHz)	Power Level (dBm)	Site Master Ref Level (dBm)	M1 Reading
50	+10	+20	_____
	-10	+20	_____
	-30	-20	_____
	-50	-40	_____
			_____
500	+10	+20	_____
	-10	+20	_____
	-30	-20	_____
	-50	-40	_____
			_____
1000	+10	+20	_____
	-10	+20	_____
	-30	-20	_____
	-50	-40	_____
			_____
1500	+10	+20	_____
	-10	+20	_____
	-30	-20	_____
	-50	-40	_____
			_____
2000 (S332C only)	+10	+20	_____
	-10	+20	_____
	-30	-20	_____
	-50	-40	_____
			_____
2500 (S332C only)	+10	+20	_____
	-10	+20	_____
	-30	-20	_____
	-50	-40	_____
			_____
2950 (S332C only)	+10	+20	_____
	-10	+20	_____
	-30	-20	_____
	-50	-40	_____
			_____

## 11. DISPLAYED AVERAGE NOISE LEVEL

The following test can be used to verify the displayed average noise level of the Site Master Spectrum Analyzer.

### a. *Equipment Required:*

- Anritsu 28N50-2 or SM/PL 50 ohm Termination or equivalent

### b. *Procedure:*

1. Connect the 50 ohm termination to the Site Master Spectrum Analyzer RF Input.
2. On the Site Master, press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)

### **NOTE**

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

3. On the Site Master, press the **MODE** key. Use the up/down arrow key to highlight **SPECTRUM ANALYZER** and press **ENTER** to select spectrum analyzer mode.
4. Press the **AMPLITUDE** key and the **REF LEVEL** soft key.
5. Enter  $-75$  and press the **ENTER** key to set the Reference Level to  $-75$  dBm.
6. Press the **SCALE** soft key and enter 5, then press **ENTER**.
7. Press the **SWEEP** key and then the **MEASURE** soft key.
8. Press the **DETECTION** soft key, then press **AVERAGE** soft key.
9. Press the **SWEEP** key.
10. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 10 kHz. Press **ENTER** to set the resolution bandwidth to 10 kHz and select **BACK**.
11. Press the **VBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 100 Hz and press **ENTER** to set the video bandwidth to 100 Hz.
12. Press the **FREQ/DIST** key and the **START** soft key.

13. Enter 100 and press the kHz soft key to set the start frequency to 100 kHz.
14. Press the **STOP** soft key and enter 500, then press the kHz soft key to set the stop frequency to 500 kHz.
15. Wait until a full sweep is complete.
16. Press the **MARKER** key and then press the **M1** soft key.
17. Press the **MARKER TO PEAK** soft key. Record the **M1** amplitude reading and verify it is  $\leq -80$  dBm.
18. Press the **FREQ/DIST** key and the **START** soft key.
19. Enter 500 and press the kHz soft key to set the start frequency to 500 kHz.
20. Press the **STOP** soft key and enter 4, then press the MHz soft key to set the stop frequency to 4 MHz.
21. Wait until a full sweep is complete.
22. Press the **MARKER** key and then press the **M1** soft key.
23. Press the **MARKER TO PEAK** soft key. Record the **M1** amplitude reading and verify it is  $\leq -95$  dBm.
24. Press the **SWEEP** key.
25. Press the **VBW** soft key, and then the **MANUAL** soft key. Use the Up/down arrow key to select 3 kHz, and press **ENTER** to set the video bandwidth to 3 kHz.
26. Press the **FREQ/DIST** key and the **START** soft key.
27. Enter 4 and press the MHz soft key to set the start frequency to 4 MHz.
28. Press the **STOP** soft key and enter 1000, then press the MHz soft key to set the stop frequency to 1000 MHz.
29. Wait until a full sweep is complete.
30. Press the **MARKER** key and then press the **M1** soft key.
31. Press the **MARKER TO PEAK** soft key. Record the **M1** amplitude reading and verify it is  $\leq -95$  dBm.
32. Press the **FREQ/DIST** key and the **START** soft key.
33. Enter 1000 and press the MHz soft key to set the start frequency to 1000 MHz.

34. Press the STOP soft key.
35. For the S114C, enter 1600 then press the MHz soft key to set the stop frequency to 1600 MHz.  
  
For the S332C, enter 2000 then press the MHz soft key to set the stop frequency to 2000 MHz.
36. Wait until a full sweep is complete.
37. Press the **MARKER** key and then press the M1 soft key.
38. Press the **MARKER TO PEAK** soft key. Record the M1 amplitude reading and verify it is  $\leq -95$  dBm.

**NOTE**

Continue to Step 39 only if the unit is a Site Master Model S332C.

39. Press the **FREQ/DIST** key and the **START** soft key.
40. Enter 2000 and press the MHz soft key to set the start frequency to 2000 MHz.
41. Press the STOP soft key and enter 3000, then press the MHz soft key to set the stop frequency to 3000 MHz.
42. Wait until a full sweep is complete.
43. Press the **MARKER** key and then press the M1 soft key.
44. Press the **MARKER TO PEAK** soft key. Record the M1 amplitude reading and verify it is  $\leq -95$  dBm.

## 12. SPECTRUM ANALYZER DYNAMIC RANGE TEST

This test can be used to verify the dynamic range of the Site Master spectrum analyzer.

### a. *Equipment required:*

- Two Anritsu MG3692A Synthesized Signal Sources with options 2A, 4 and 15A, or equivalent
- Anritsu N241A50 Power Splitter or equivalent
- Anritsu 34NN50A 50 ohm adapter or equivalent
- Anritsu 34RSN50 50 ohm adapter or equivalent

### b. *Procedure:*

1. Connect the output of the Power Splitter to the RF In port of the Site Master Spectrum Analyzer.
2. Connect the output of the both signal sources to the input of the Power Splitter.
3. Turn on both sources.
4. On the Site Master, press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)

**NOTE**

Before continuing, allow a 30-minute warm up for the internal circuitry to stabilize.

5. Set the CW frequency of the first source to 1.0 GHz.
6. Set the CW frequency of the second source to 1.2 GHz.
7. On the Site Master, press the **MODE** key. Use the up/down arrow key to highlight **SPECTRUM ANALYZER** and press **ENTER** to select spectrum analyzer mode.
8. Press the **FREQ/DIST** key.
9. Press the **CENTER** soft key, enter 1100, then press the MHz soft key to set the center frequency to 1100 MHz.
10. Press the **SPAN** soft key and enter 500, then press the MHz key to set the span to 500 MHz.
11. Press the **AMPLITUDE** key and then the **REF LEVEL** soft key.
12. Enter -20 and then press the **ENTER** key to set the reference level to -20 dBm.
13. Press the **SWEEP** key.
14. Press the **RBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 30 kHz, then press **ENTER** to set the resolution bandwidth to 30 kHz.
15. Press **BACK**, then the **VBW** soft key and then the **MANUAL** soft key. Use the Up/down arrow key to select 30 kHz, then press **ENTER** to set the video bandwidth to 30 kHz.

16. Adjust the signal levels of both signal sources so that both signal peaks are at  $-20$  dBm as indicated on the Site Master Spectrum Analyzer display.
17. Referring to steps 13 through 15, set the RBW to 10 kHz and the VBW to 1 kHz.
18. Wait until the sweep is complete, then reduce the power level of the second source signal to below  $-85$  dBm and verify that the signal is visible at below  $-85$  dBm.

**NOTE**

Be sure to wait until the sweep is complete before changing the power level of the second source.

**13. POWER MONITOR VERIFICATION**

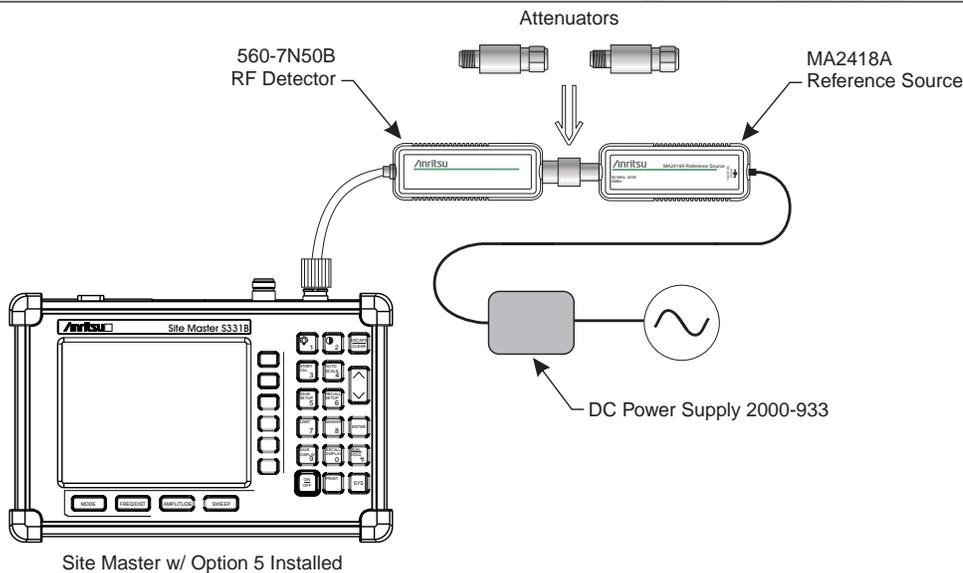
If the Power Monitor (Option 5) is installed in the Site Master, the following test can be used to verify the accuracy of the power measurements. Measurement calibration of the Site Master is not required for this test.

**a. Equipment Required:**

- RF Detector, 10 MHz to 20 GHz, Anritsu 560-7N50B
- 10 dB Attenuator, Weinschel 1-10
- 30 dB Attenuator, Weinschel 1-30
- RF Reference Source, 0.050 GHz, Anritsu MA2418A
- DC Power Supply, Anritsu 2000-933

**b. Procedure**

1. Connect the DC power supply to the MA2418A Reference Source (Figure 2).
2. Connect the MA2418A Reference Source to the input of the 560-7N50B RF detector.
3. Connect the RF Detector output to the RF Detector input of the Site Master.
4. Connect the DC power supply to the appropriate line voltage to supply power to the MA2418A Reference Source.
5. Press and hold the ESCAPE/CLEAR key, then press the ON/OFF key to turn on the Site Master. (This sets the instrument to the factory preset state.)
6. Press the MODE soft key.
7. Use the Up/Down arrow key to highlight POWER MONITOR, then press ENTER.
8. Press the ZERO soft key to zero the power monitor. When complete, ZERO ADJ:ON is displayed in the message area.
9. Verify that the power monitor reading is  $0.0$  dBm  $\pm 1$  dB.
10. Connect the output of the MA2418A Reference Source to the two attenuators so as to add 40 dB of attenuation (Figure 2).
11. Connect the MA2418A Reference Source and the attenuators to the input of the 560-7N50B RF detector.
12. Verify that the power monitor reading is now  $-40.0$  dBm  $\pm 2$  dB.



**Figure 2.** Power Monitor Verification

## 14. TERMINATION VERIFICATION

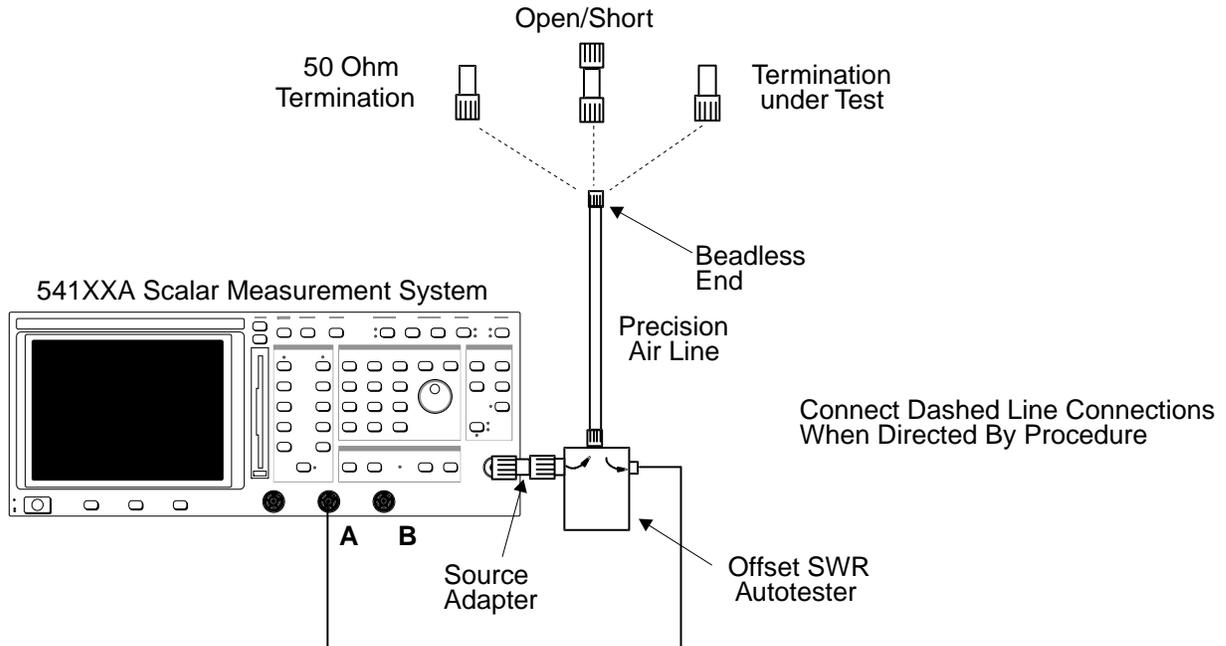
This test verifies the accuracy of the Site Master SM/PL termination using the precision return loss mode of the 541XXA Scalar Measurement System. Measurements of terminations using this mode provide results that are traceable to the NIST (National Institute of Standards and Technology) standards for the precision airline.

### a. Equipment Required:

- Scalar Measurement System, Anritsu 541XXA
- Offset SWR Autotester, Anritsu 560-97A50-20
- Precision Airline, Anritsu 18N50
- Open/Short, Anritsu 22N50
- 50 Ohm Termination, Anritsu 28N50-2
- Source Adapter, Anritsu 34NN50A

### b. Procedure

1. Connect the test equipment as shown in Figure 3.
2. Press the Power key on the 541XXA to On.
3. Press the System Menu key.
4. Using the Menu up-down keys: Highlight RESET, then press the Select key.
5. At the RESET MENU display, use the Menu up-down keys to highlight RESET TO FACTORY DEFAULTS, then press the Select key.
6. Set the signal source for the frequency range as follows:
  - (a) Press the Frequency key.
  - (b) Using the Data Entry Keypad or Data Entry Knob, set the Start frequency to 0.01 GHz. Press the Enter key.
  - (c) Using the Data Entry Keypad or Data Entry Knob, set the Stop frequency to 4.0 GHz. Press the Enter key.
7. Press the Channel 2 Display On/Off key to Off.
8. Press the Channel 1 Menu key.
9. Using the Menu up-down keys: Highlight PRECISION RL, then press the Select key.
10. At the PRECISION RETURN LOSS menu display, use the Menu up-down keys to highlight FINAL, then press the Select key.
11. Press the Calibration key.



**Figure 3.** 541XXA Precision Return Loss Setup

12. At the CALIBRATION menu display, use the Menu up-down keys to highlight START CAL, then press the Select key.
13. At the PRECISION RETURN LOSS CALIBRATION menu display prompt, connect the Offset SWR Autotester to Input A, if you have not done so yet.
14. Connect the precision air line to the Offset SWR Autotester test port. Position the air line pointing vertically upward. Downward or horizontal positions make connector pin alignment difficult.

**NOTE**

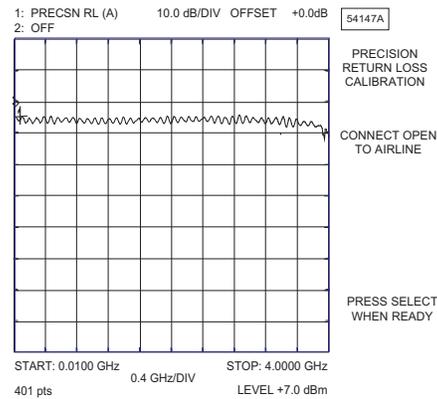
Ensure that the beadless end of the precision airline is at the measurement connection point.

15. Press the Select key when ready.
16. At the PRECISION RETURN LOSS CALIBRATION menu prompt, connect the Open to the beadless end of the air-line. Press the Select key to start the calibration.
17. Verify that the display resembles that shown in Figure 4, page 14.

**CAUTION**

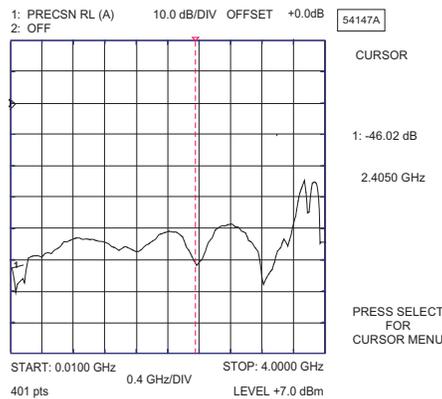
During both calibration and measurement, be sure to properly align the beadless connector of the airline. When the connectors are mis-aligned, a spike will usually be visible on the display.

18. At the next menu prompt, remove the Open and connect the Short to the beadless end of the airline. Press the Select key to start the calibration process.
19. At the next menu prompt, remove the Short and connect the 50 Ohm Termination to the beadless end of the air line. Press the Select key to start the calibration process.
20. When the calibration is complete, remove the 50 Ohm Termination.
21. Connect the SM/PL termination to the beadless end of the air line and press the Select key to begin the measurement.
22. Observe that the waveform displayed resembles that shown in Figure 5.
23. Press the Cursor On/Off key to On.



**Figure 4.** Example of a Good Connection

24. Observe the Cursor menu readout. The minimum return loss reading for the SM/PL termination should be 42 dB.



**Figure 5.** Direct Readout of the Precision Return Loss

**15. INSTACAL MODULE VERIFICATION**

This test verifies the performance of the Anritsu Site Master InstaCal Calibration Module. The InstaCal Module, part number ICN50, is an optional accessory for the S114C and S332C.

**NOTE**

Full verification of the InstaCal module over its entire frequency range (2 - 4000 MHz) requires both an S114C and S332C Site Master. However, limited verification is possible with either instrument for the frequency range of that instrument only. The frequency range of the S114C is 2 to 1600 MHz. The frequency range of the S332C is 25 to 4000 MHz.

**a. Equipment Required:**

- InstaCal Module, part number ICN50
- 20 dB offset, Anritsu SC5270
- 6 dB offset, Anritsu SC5237

**b. Procedure**

**NOTE**

If performing full verification over the entire frequency range with both an S114C and S332C Site Master, perform this procedure first on the S114C and then on the S332C.

1. Press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. (This sets the instrument to the factory preset state.)

**NOTE**

Before continuing, allow a five minute warm up for the internal circuitry to stabilize.

2. Press the **MODE** soft key.
3. Use the Up/Down arrow key to highlight **RETURN LOSS**, then press **ENTER**.
4. Press the **START CAL** key. The message "CONNECT OPEN or InstaCal TO RF Out PORT" will appear in the display.
5. Connect the InstaCal module to the RF Out port and press the **ENTER** key.

**NOTE**

If this particular InstaCal module has been used to calibrate this Site Master before, the Site Master senses the familiar InstaCal module and automatically calibrates the unit using the OSL procedure.

If the Site Master senses that the characterization data for the InstaCal module connected to this Site Master is different than the one currently stored, it will display soft key options to keep or replace the InstaCal characterization data.

Selecting the **YES** soft key transfers all of the characterization data from this InstaCal module to the Site Master. The transfer may take up to three minutes. This option is preferred if this InstaCal module is to stay with this particular Site Master. Once completed, the data will not need to be transferred again for this combination of Site Master and InstaCal module.

Selecting the **NO** soft key will temporarily transfer only the portion of the characterization data necessary for this particular calibration. This transfer takes approximately 30 to 60 seconds, and will have to be repeated every time a calibration is done using this combination of Site Master and InstaCal module.

6. Verify that the calibration has been properly performed by checking that the **CAL ON!** message is displayed in the upper left corner of the display.
7. Remove the InstaCal module from the RF Out port and connect the 20 dB Offset to the RF Out port.
8. Measure the return loss of the 20 dB Offset. The level should be 20 dB,  $\pm 2$  dB across the calibrated frequency range.
9. Remove the 20 dB Offset from the RF Out port and connect the 6 dB Offset to the RF Out port.
10. Measure the return loss of the 6 dB Offset. The level should be 6 dB,  $\pm 1.2$  dB across the calibrated frequency range.

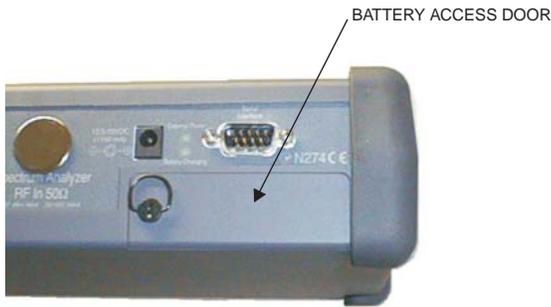
## 16. BATTERY PACK REMOVAL AND REPLACEMENT

This procedure provides instructions for removing and replacing the Site Master battery pack.

### NOTE

Procedures in this manual may apply to many similar instruments. Photos and illustrations used are representative and may show instruments other than the S114C or S332C.

1. With the Site Master standing upright on a stable surface, locate the battery access door (Figure 9).



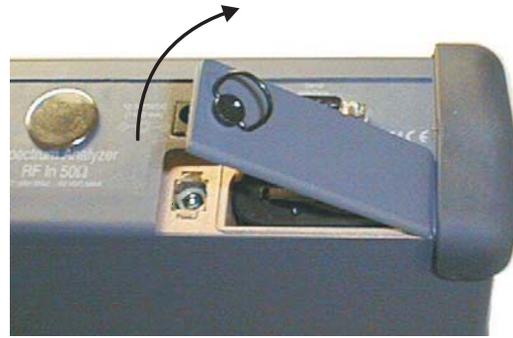
**Figure 9.** Battery Access Door Location

2. Lift up the access door handle and rotate it 90 degrees counterclockwise, as illustrated in Figure 6.

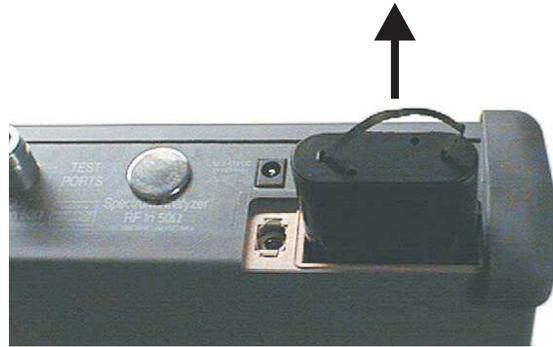


**Figure 6.** Rotate the Battery Access Door Handle

3. Lift the door and remove, as illustrated in Figure 7.
4. Grasp the battery lanyard and pull the battery straight up and out of the unit, as illustrated in Figure 8.

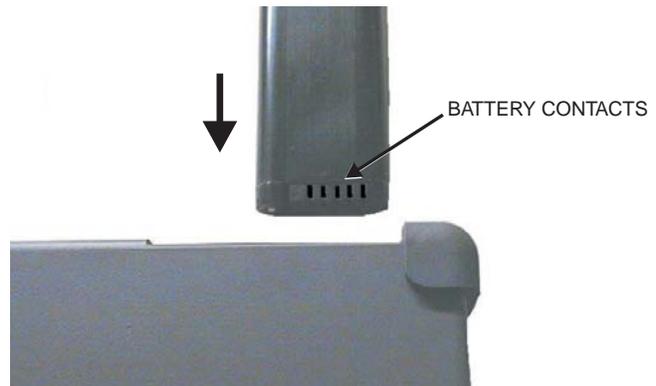


**Figure 7.** Removing the Battery Access Door



**Figure 8.** Removing the Battery

5. Replacement is the opposite of removal. Note the orientation of the battery contacts, and be sure to insert the new battery with the contacts facing the rear of the unit (Figure 10).



**Figure 10.** Battery Orientation

## 17. BATTERY INFORMATION

The following information relates to the care and handling of the Site Master battery, and NiMH batteries in general.

- The Nickel Metal Hydride (NiMH) battery supplied with the Site Master is shipped in a discharged state. Before using the Site Master, the internal battery must first be charged for three hours, either in the Site Master or in the optional battery charger (Anritsu part number: 2000-1029).
- Use only Anritsu approved battery packs.
- Recharge the battery only in the Site Master or in an Anritsu approved charger.
- With a new NiMH battery, full performance is achieved after three to five complete charge and discharge cycles.
- When the Site Master or the charger is not in use, disconnect it from the power source.
- Do not charge batteries for longer than 24 hours; overcharging may shorten battery life.
- If left unused a fully charged battery will discharge itself over time.
- Temperature extremes will affect the ability of the battery to charge: allow the battery to cool down or warm up as necessary before use or charging.
- Discharge an NiMH battery from time to time to improve battery performance and battery life.
- The battery can be charged and discharged hundreds of times, but it will eventually wear out.
- The battery may need to be replaced when the operating time between charging becomes noticeably shorter than normal.
- Never use a damaged or worn out charger or battery.
- Storing the battery in extreme hot or cold places will reduce the capacity and lifetime of the battery.
- Never short-circuit the battery terminals.
- Do not drop, mutilate or attempt to disassemble the battery.
- Do not dispose of batteries in a fire!
- Batteries must be recycled or disposed of properly. Do not place batteries in household garbage.
- Always use the battery for its intended purpose only.

### 17.1. Battery Testing Procedure

1. With the Site Master off and the battery installed, connect the Universal AC Adapter to the 12.5-15VDC (1100 mA) connector. The External Power LED and the Battery Charging LED will light.

#### **NOTE**

If the Battery Charging LED does not light, the battery may be too low to immediately start full charging. Leaving the unit connected to AC power for several hours may bring the battery up to a level where full charging can begin. Turn the unit off and back on to see if the Battery Charging LED lights indicating a full charge cycle has begun.

2. Disconnect the AC-DC Adapter when the Battery Charging LED turns off, indicating the battery is fully charged.
3. Press and hold the **ESCAPE/CLEAR** key, then press the **ON/OFF** key to turn on the Site Master. This sets the instrument to the factory preset state. Press **ENTER** when prompted to continue.
4. Press the **SYS** key, followed by the **STATUS** soft key. Verify that the indicated battery charge is  $\geq 80\%$ . If the value is 80% or above, press the **ESCAPE/CLEAR** key and continue with this procedure.

If the value is lower than 80%, a discharge/charge cycle may be needed to improve the battery capacity. Completely discharge the battery, as described in Steps 5 and 6 below, and then recharge the battery as described in Steps 1 and 2. If the battery capacity does not increase after a discharge/charge cycle, replace the battery.

5. Press the **START CAL** key (to keep the Site Master from going into HOLD mode) and make note of the test start time.
6. When the Site Master display fades and the Site Master switches itself off, make note of the test stop time.
7. The total test time (Step 5 to Step 6) should be  $\geq 2.5$  hours. If the battery charge is near 80% and the total test time is  $< 2.5$  hours, replace the battery.

## 18. FRONT PANEL ASSEMBLY REMOVAL AND REPLACEMENT

This procedure provides instructions for removing and replacing the Site Master front panel assembly. With the front panel assembly removed, the LCD display, keypad PCB, keypad membrane, and main PCB assemblies can be removed and replaced.

1. Place the Site Master face up on a work surface.
2. Remove the four rubber corner bumpers by carefully sliding the bumpers off of the case corners (Figure 11).



**Figure 11.** Removing the Corner Bumpers

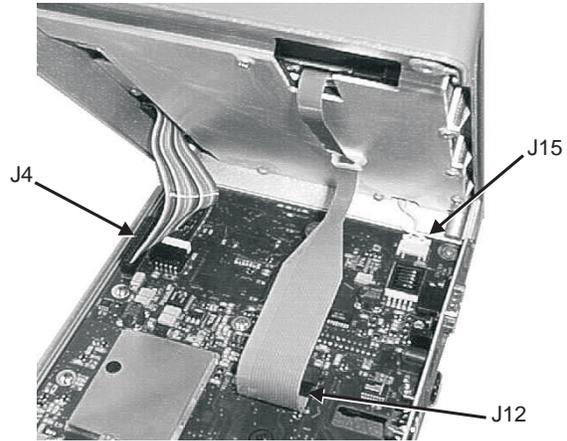
3. With the bumpers removed, the access holes for the case screws are revealed. Use a Phillips screwdriver to remove the four screws securing the two halves of the Site Master case together.
4. Carefully lift up on the right side (as viewed from the front) of the front half of the case and begin to separate the two halves.

### CAUTION

Do not force or pull the two halves of the case apart as there are delicate cables attached between the two halves that must be disconnected first.

5. Carefully depress the latch tab and disconnect the LCD display cable from J12 on the main PCB.
6. Carefully disconnect the keypad interface cable from J4 on the main PCB.
7. Carefully disconnect the LCD display backlight cable from J15 on the main PCB.

8. Remove the front panel assembly.



**Figure 12.** Site Master Front Panel Cable Connections

9. Reverse the above steps to replace the front panel assembly.

### NOTE

The corner bumpers only mount one way. That is, the raised area inside one end of the bumper (Figure 13) is made to conform to the contour of the front cover only.

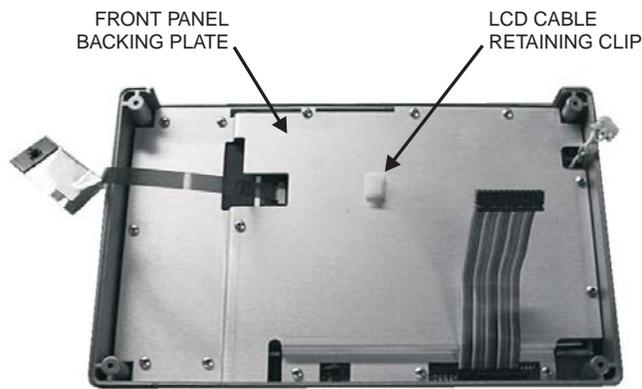


**Figure 13.** Corner Bumper Detail

## 19. LCD ASSEMBLY REPLACEMENT

This procedure provides instructions for removing and replacing the Liquid Crystal Display (LCD) once the front panel assembly has been separated from the Site Master.

1. Remove the front panel assembly as directed in section 18.
2. Place the front panel assembly face down on a protected work surface.
3. Remove the 14 Phillips screws that attach the backing plate to the front panel assembly.
4. Release the LCD display cable from the retaining clip on the front panel backing plate.



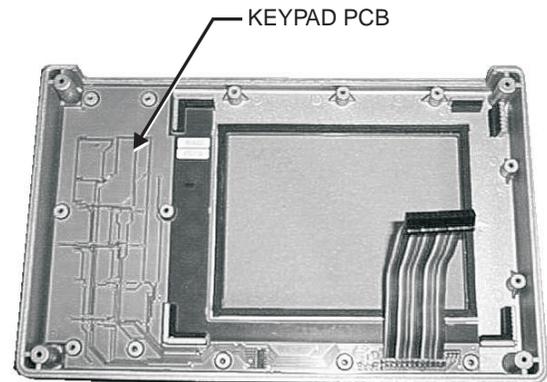
**Figure 14.** Front Panel Backing Plate

5. Remove the front panel backing plate, carefully feeding the LCD cable through the access hole to avoid damage to the cable or connector.
6. Remove the rubber cushion pad from the LCD assembly and remove the assembly.
7. Reverse the above steps to install the replacement assembly.

## 20. KEY PAD PCB REPLACEMENT

This procedure provides instructions for removing and replacing the key pad PCB.

1. Remove the front panel assembly as directed in section 18.
2. Place the front panel assembly face down on a protected work surface.
3. Remove the 14 Phillips screws that attach the backing plate to the front panel assembly.
4. Release the LCD display cable from the retaining clip on the front panel backing plate (Figure 14).
5. Remove the front panel backing plate, carefully feeding the LCD cable through the access hole to avoid damage to the cable or connector.
6. Remove the rubber cushion pad from the key pad PCB and remove the PCB.



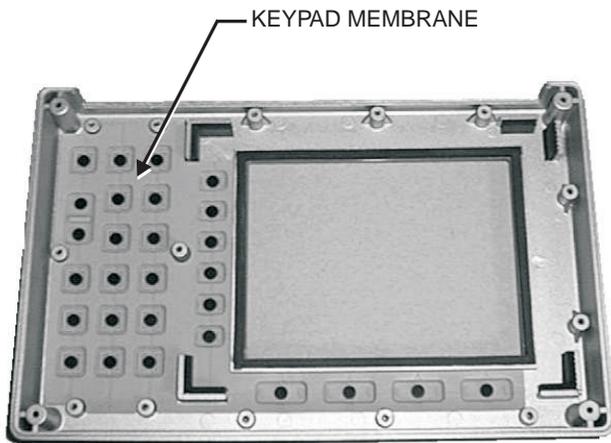
**Figure 15.** Front Panel Keypad PCB Location

7. Reverse the above steps to install the replacement assembly.

## 21. KEY PAD MEMBRANE REPLACEMENT

This procedure provides instructions for replacing the key pad membrane.

1. Remove the front panel assembly as directed in section 18.
2. Remove the key pad PCB as directed in section 20.
3. Remove the keypad membrane by gently pulling the membrane up and out of the holes in the front panel.



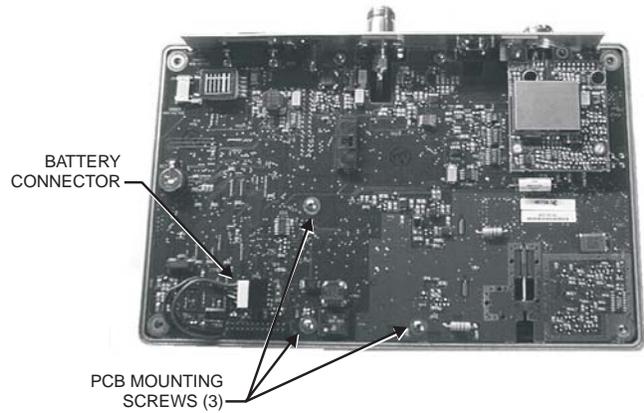
**Figure 18.** Front Panel Keypad Membrane

4. Reverse the above steps to install the replacement membrane.

## 22. MAIN PCB ASSEMBLY REPLACEMENT

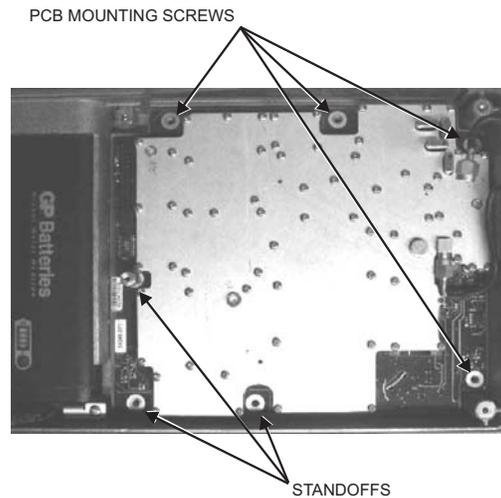
This procedure provides instructions for replacing the main PCB assembly with the connector panel attached. The assembly consist of two PCBs (Control and Spectrum Analyzer) which must be replaced together.

1. Remove the front panel assembly as directed in section 18.
2. Disconnect the battery connector from J13 on the main PCB.
3. Disconnect the semi-rigid coaxial cable from the RF In connector on the connector panel.
4. Remove the three PCB mounting screws and remove the Control PCB assembly with the connector panel attached.



**Figure 16.** Control PCB

5. Remove the three .25" standoffs and four Phillips screws and remove the Spectrum Analyzer PCB.



**Figure 17.** Spectrum Analyzer PCB

6. Reverse the above steps to install the new main PCB.

### **NOTE**

The main PCB connector panel fits into grooves in the two halves of the case. Make sure the panel is correctly aligned with the grooves before reassembling the two halves together.

### 23. REPLACEABLE PARTS

Replaceable parts for the Site Master Models S114C and S332C are listed below.

**Table 3.** *Replaceable Parts List*

Part Number	Description	Qty
<b>Accessories</b>		
10580-00060	User's Guide, Site Master S113C, S114C, S331C, S332C	1
10580-00061	Programming Manual, Site Master S113C, S114C, S331C, S332C (available on disk only)	1
2300-347	Software Tools CD, Site Master	1
40-115	Universal AC Adapter	1
2000-1029	Battery Charger	
22N50	Precision Short/Open, N Male	1
SM/PL	Precision RF Terminator, N Male	1
OSLN50LF	Precision Open/Short/Load, N Male	1
806-62	Cable Assy, Cig Plug, Female	1
800-441	Serial Interface Cable Assy	1
48258	Soft Carrying Case	1
<b>Replaceable Parts</b>		
510-87	N-Connector	2
ND57371	Option 05 Input Connector with cable	1
15-102	Liquid Crystal Display Assembly	1
633-27	Rechargeable Battery, NiMH	1
ND57961	Control and SA PCB Assembly, S114C	1
ND57965	Control and SA PCB Assembly, S332C	1
ND57962	Control and SA PCB Assembly, S114C with Option 05	1
ND57966	Control and SA PCB Assembly, S332C with Option 05	1
52737-3	Keypad PCB Assy	1
46649-1	Membrane Keypad, Main	1
633-26	Lithium Coin Clock Battery	1

Part Number	Description	Qty
<b>Hardware</b>		
900-861	Pan Head Screw, 4-20, 0.365	19
900-869	Screw, 4-40, 0.875	4
900-720	Screw, 4-40, 0.187	3
900-697	Screw, 4-40, 0.312	3
785-927	M-F Stand off, 4-40, 11/16	3
900-326	Keyp Nut, 4-40, 0.187	8
761-79	Cap Vinyl, Black, round	1
<b>Case Parts</b>		
46652-1	Top Case	1
46653-1	Bottom Case	1
48231-1	Battery Door	1
790-509 790-510 790-511	Battery Door Latch (3 pieces)	1
46655	Case Corner Bumpers	4
46662	LCD Retainer Plate	1
48241	Foam, LCD Corners	8
48278	Foam, LCD Window	1
46659	Foam, LCD Backing	1
46661	Foam, Keypad Backing	1
48246	Foam, Battery Door	4
720-19	Cable Clamp	1
790-515	Spring, Battery Compartment	1
55226	ID Label, Model S114C	1
55214	ID Label, Model S332C	1

### **23.1. Anritsu Customer Service**

Online support and updates to the product software or documentation, if any, can be downloaded from the Anritsu Web site at:

<http://www.us.anritsu.com>

For the latest service and sales contact information in your area, please visit:

<http://www.anritsu.com/contact.asp>



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