Signature 1000RX Cable Analyzer Performance Verification Manual

Version 1.0

30 August, 2004

CIRRIS

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Firmware   The firmware version your Cirris 1000RX is equipped with is displayed as the analyzer powers up. Several items will flash by fairly quickly, so be ready to read the version number.

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COPYRIGHT 1988-98
VERSION 1.29x
```

Use the comparison tables on the Data Sheet. Make copies of the data sheets. Don't write on the originals.

If you need to upgrade the firmware in your Cirris 1000RX, telephone Cirris at 801-973-4600 or 800-441-9910.

Things to remember

- You should check the calibration of your 1000RX at least once per year. Also check the calibration whenever you suspect the analyzer may not be working properly. You **cannot** adjust the calibration yourself. If the analyzer does not pass the calibration tests, contact Cirris at 801-973-4600 or 800-441-9910.

- Keep the adapter receptacles and the area surrounding the analyzer free from dust, metal particles, and other debris. Keep all liquids away from your 1000RX. Liquid spills can pose a health hazard, can severely damage the analyzer, and will immediately void its warranty.

Your packing list   In addition to your analyzer (with its wall transformer power supply) and this manual, you will need a Zero Ohm Adapter, and a 1000RX Resistance Adapter to do these tests.

Set up the hardware

To prepare the analyzer's hardware for calibration, do these things:

- Install the expansion box if you have one to use.

- Make sure the analyzer is turned off, then connect the power cord to the analyzer, and plug the wall transformer into a live, well-grounded wall outlet.

Set the options for testing signal routing

Be sure to use the correct option settings (shown beginning on the next page) for the firmware version your 1000RX contains (see page 3 for instructions on how to find out what firmware version your analyzer has).To set the test options for testing signal routing, do these things:

1. Press in and hold the Display/Print switch as you turn on the analyzer by pressing the On switch. Hold Display/Print until **Ready To Set Up Options** appears.
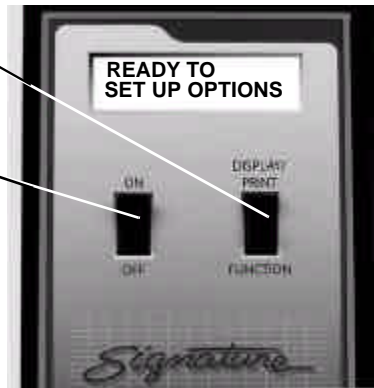
2. Once **Ready To Set Up Options** appears in the display, release Display/Print.

3. Select the **Create Test From** option by pressing Display/Print.

   - If the setting is **SAMPLE CABLE**, go on to the next option by pressing Display/Print.

   - To change the option setting, press Function until **SAMPLE CABLE** appears, then go on to the next option by pressing Display/Print.

4. Continue stepping through the options by pressing Display/Print, changing the settings as necessary by pressing Function, until all the options are set as shown in one of these tables. When you are done, **Ready to Learn** will appear on the display.

First Option Settings for Calibration Firmware Version 1.29x or later	
Option	**Setting**
Create Test From	SAMPLE CABLE
Connection Resistance	<.1Ω
Insulation Resistance	>5MΩ
Error Tones are	HIGH
Sorted Wire List is	OFF
Count All Cables is	OFF
Auto Print is	OFF

5. Turn the analyzer off.

What to do if you go past the value you want

If you want to go backward through either the options or settings, press in and hold the Memory button on the back of the analyzer, while pressing Display/Print or Function. .

Memory button
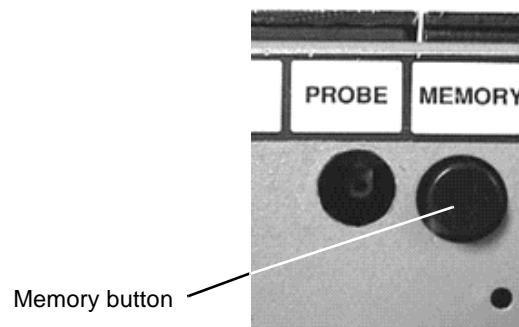
Get your data sheet ready

To make keeping track of your test results easy, we have provided a set of data sheets. **PHOTOCOPY** these! That way, you will have clean sets of data sheets available whenever you need them. As you go through the calibration tests on your 1000RX, write your test results onto the photocopies.

Test the Signal Routing System

To test the signal routing system in your Cirris 1000RX, do these things:

1. Install the Zero Ohm Adapter in position J1-J2 as shown here.

Zero ohm adapter in position J1-J2
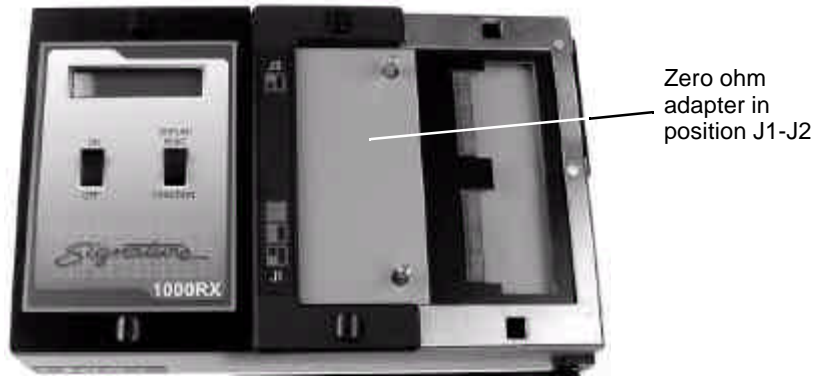
2. Turn on the analyzer. The analyzer will prompt **Learning Cable** for several seconds, then the prompt should change to **SIG:XXXXXX-XXXX Please Verify**. The correct signature will be shown on the data sheets. Write the displayed signature into the "Signature Seen" blank in Table 1 on the data sheet, then compare it to the "Correct Signature" shown. If they match, check off "Pass." If they do not match, check off "Fail".

LEARNING CABLE	SIG:XXXXXX-XXXX PLEASE VERIFY

3. Turn off the analyzer.

4. Install the Zero Ohm Adapter in position J3-J4 as shown here.

Zero Ohm adapter in position J3-J4

5. Turn on the analyzer. The analyzer will prompt **Learning Cable** for several seconds, then the prompt should change to **SIG:XXXXXX-XXXX Please Verify**. Write the displayed signature into the "Signature Seen" blank in Table 2 on the data sheet, then compare it to the "Correct Signature" shown. If they match, check off "Pass." If they do not match, check off "Fail." .

6. Turn off the analyzer..

LEARNING CABLE	SIG:XXXXXX-XXXX PLEASE VERIFY

7. If you are using an expansion box, repeat the verification process until all of the

positions have been tested. Carefully record the test results as you go.

Test the Resistance Measurement System

To test the Resistance Measurement system in your Cirris 1000RX, do these things:

1. Check the test option settings. They should **not** have changed. See page 5 for details on how to do this.

2. Install the 1000RX Resistance Adapter in position J1-J2 as shown here.

3. Turn on the analyzer. The analyzer will prompt **Learning Cable** for several seconds. The prompt will then change to **Learned Cable Resistance Error**.


4. Press Display/Print. The analyzer will prompt with a "J" value and the first of four resistance values. Write the displayed resistance value into the Resistance Seen blank on row 1 of table 5 in the data sheet. Compare the resistance value prompted by the analyzer with the Correct Resistance shown in the table on the data sheet.

   • If the displayed resistance falls either on the Correct Resistance or between the MAXimum and MINimum resistance limits shown in the table, check off "Pass."

   • If the displayed resistance value falls outside the resistance limits shown in the table, check off "Fail".

5. Continue pressing Display/Print to check three more resistance values. Fill out the remaining "Resis. Seen" blanks in Table 5 on the data sheet as you go. Compare the resistances you see with the correct resistances shown, and check off "Pass" or "Fail" for each. Only four resistance values should display. When you press Display/Print a fifth time, the prompt should return to **Learned Cable Resistance Error**.

Test the Resistance Threshold System

To test the Resistance Threshold system in your 1000RX, do these things:

1. Install the 1000RX Resistance Adapter in position J1-J2 if it is not already there.

2. Turn on the analyzer, and wait for the Learned Cable Resistance Error prompt to

appear. Press and release the Memory button.

Memory button
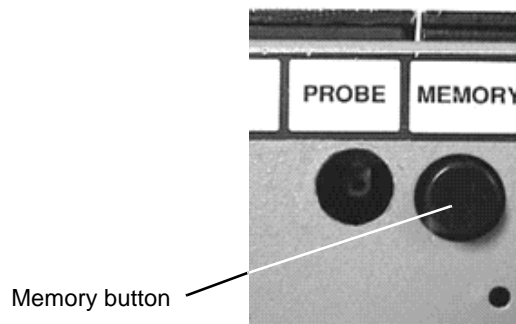
3. The analyzer will prompt **SIG:XXXXXX-XXXX Please Verify**. Write the displayed signature into the Signature Seen blank in Table 6 on the data sheet. Compare the signature prompted by the analyzer with the Correct Signature. If they match, check off "Pass." If they do not match, check off "Fail."

4. Press the Memory button again. **Note**: Ignore the beeps the analyzer makes.

5. The analyzer should prompt **SIG: 6462A7-6S020** for firmware versions 1.29x or later.

6. Press Display/Print. The analyzer will display the first of ten "NCJ" values, followed by **Insulation Short**.

7. Write the first "NCJ" value shown into row 1 of Table 7 on the data sheet. Compare it with the "Correct NCJ Value" shown, and check off "Pass" or "Fail" as usual.

8. Press Display/Print to step through nine more "NCJ" values. Write each value into the appropriate blank in table 7 on the data sheet you are using. Compare each value as before, and check off "Pass" or "Fail" for each. Only ten values should display. Pressing Display/Print again should cause the **SIG: XXXXXX-XXXX** prompt to reappear.

9. Turn off the analyzer.

**Reset the options,
continue calibration**

For instructions on how to set the options, see page 5.

1. Set the options as shown in these tables:

Second Option Settings for Calibration Firmware Version 1.29x or later	
Option	**Setting**
Create Test From	SAMPLE CABLE
Connection Resistance	<.1Ω
Insulation Resistance	>500KΩ

Second Option Settings for Calibration Firmware Version 1.29x or later	
Option	**Setting**
Error Tones are	HIGH
Sorted Wire List is	OFF
Count All Cables is	OFF
Auto Print is	OFF

2. Turn the analyzer off.

3. Turn on the analyzer. The analyzer will prompt **Learning Cable** for several seconds. The prompt should then change to **Learned Cable Resistance Error**.

4. Press the Memory button.

5. The analyzer will prompt **SIG:XXXXXX-XXXX Please Verify**. Write the displayed signature into the Signature Seen blank in Table 8 on the data sheet. Compare the signature prompted by the analyzer with the Correct Signature shown in the table on the data sheet. If they match, check off "Pass." If they do not match, check off "Fail."

6. Press the Memory button. The analyzer should prompt **SIG: 6462A7-6M020 Insulation Short** for software versions 1.29x or later.

7. Press Display/Print. The analyzer should display the first of six "NCJ Insulation Short" values. Write this value into the first row of Table 9 on the data sheet. Compare it with the correct value on the same row, then check off "Pass" or "Fail" for each.

8. Press Display/Print to step through the remaining five "NCJ Insulation Short" values. Write each value into the correct row in Table 9 on the data sheet. Compare each value with the correct value on the same row, then check off "Pass" or "Fail" for each. Only six values should display. Pressing Display/Print again should cause the **SIG: 6462A7-6M020 Insulation Short** prompt to reappear.

Conclusion

You have now completed the performance verification tests on your Cirris 1000RX Cable Analyzer. If your analyzer passed all of these tests, it is in proper working order.

If your analyzer did not pass all of these tests, please call our customer support team at 801-973-4600 or 800-441-9910. Please have the data sheet that you filled out during the testing process handy. Be prepared to give your customer service representative as complete a description as you can of the failure(s) or other problems you encountered in verifying the analyzer's performance.

PHOTOCOPY
THESE!

These data sheets give you an easy way to record your calibration testing results as you work through the procedure. Photocopy these double-sided master sheets, then write your results onto the copies instead of onto these originals. That way, you'll have a supply of data sheets ready whenever you need them.

File copies?

A good way to keep track of the calibrations you do on your Cirris 1000RX is to simply file the completed data sheets away for permanent reference. We recommend this as a good way to start a "calibration trail" on your analyzer.

1000RX Performance Verification Data Sheet
For firmware versions 1.29x or later

Operator:_____
Analyzer Ser. Num:_____
Test Date:____/____/____

Test the Signal Routing System

Signature Seen	Correct Signature	Pass	Fail
	7F5527-6S020		

Table 1

Zero Ohm Adapter at position J1-J2

Signature Seen	Correct Signature	Pass	Fail
	94C424-6S020		

Table 2

Zero Ohm Adapter at position J3-J4

Signature Seen	Correct Signature	Pass	Fail
	5CC1A1-6S020		

Table 3

Zero Ohm Adapter at position J5-J-6

Signature Seen	Correct Signature	Pass	Fail
	D3A34A-6S020		

Table 4

Zero Ohm Adapter at position J7-J8

Test the Resistance Measurement System

Row	"J" Posit.	Resis. Seen	Correct Resis.	MIN Limit	MAX Limit	Pass	Fail
1	J1B002 J1B004		10Ω	9.5Ω	10.5Ω		
2	J1B003 J1B005		100Ω	95Ω	105Ω		
3	J1B006 J1B008		1000Ω	950Ω	1050Ω		
4	J1B007 J1B010		9.09KΩ	8.64KΩ	9.55KΩ		

Table 5

Test the Resistance Threshold System

Signature Seen	Correct Signature	Pass	Fail
	6462A7-6S020		

Table 6

Row	"NCJ" Seen	Correct "NCJ"	Pass	Fail	Row	"NCJ" Seen	Correct "NCJ"	Pass	Fail
1		NC J1B009			6		NC J1A016		
2		NC J1B011			7		NC J1A020		
3		NC J1B012			8		NC J1A021		
4		NC J1B014			9		NC J1A022		
5		NC J1B016			10		NC J1A023		

Table 7

Signature Seen	Correct Signature	Pass	Fail
	6462A7-6M020		

Table 8

Row	"NCJ" Seen	Correct "NCJ"	Pass	Fail	Row	"NCJ" Seen	Correct "NCJ"	Pass	Fail
1		NC J1B009			4		NC J1B014		
2		NC J1B011			5		NC J1B016		
3		NC J1B012			6		NC J1A016		

Table 9