

INFORMATION ONLY – DOES NOT COMMUNICATE
A MODIFICATION OR SAFETY CONDITION

E1446A-02

S E R V I C E N O T E

Supersedes:
None

E1446A Summing Amplifier/DAC

Serial Numbers: all

**Revised Performance Verification procedure
for the E1446A service manual p/n E1446-90010**

Parts Required:

P/N	Description	Qty.
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[enter parts info. If no parts, type NONE]

None

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

INFORMATION ONLY

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ADDITIONAL INFORMATION:

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Situation:

The test procedure in the Service manual E1446-90010 does not measure the E1446A specs correctly.

#1: The DC Gain Accuracy Test does NOT take into account the DC Offset of the E1446A MUT/UUT which will Add or Subtract (depending on the Polarity) to/from the DC Gain Result and therefore the DC Gain Test Results are NOT valid .
THIS IS ESPECIALLY A PROBLEM WITH THE NEWER USxxxxxxx E1446A's AS THE DC OFFSET ON THE OUTPUT'S APPEAR TO BE HIGHER THAN THE OLDER 3xxxAxxxxx E1446A's CARDS .

#2: The Actual DC Output of the 3325A/3325B Source is not taken into account (the Procedure relies on the 3325A/B having 0% Error on the DC Offset Mode) and therefore the DC Gain Test Results NOT valid .

Solution/Action:

Here is a revised procedure for the Service Manual E1446-90010 for
Test 2-3 "Low-Level Output" and Test 2-4 "Main Output Test"

Test 2-3 Low-Level Output Gain

Input1 to DIFF+ Gain test

Set 3325 Source to DCV

Set 3458 DVM to 10 VDC range

Send *RST;*CLS to the E1446A

Set the 3325A voltage to 1V and connect to Input1

Measure the 3325A Voltage with the 3458A . This will be Vin1

Measure the E1446A Diff+ output with the 3458A . This will be Vout1

Set the 3325A voltage to -1V

Measure the 3325A voltage with the 3458A. This will be Vin2

Measure the E1446A Diff+ output with the 3458A. This will be Vout2

Compute the Gain=(Vout1-Vout2) / (2*(Vin1-Vin2))

The results should be Gain of $1 \pm 1\%$ or Gain 0.99 to 1.01

Input1 to DIFF- Gain test

Set 3325 Source to DCV

Set 3458 DVM to 10 VDC range

Send *RST;*CLS to the E1446A

Set the 3325A voltage to 1V and connect to Input1

Measure the 3325A Voltage with the 3458A . This will be Vin1

Measure the E1446A Diff- output with the 3458A . This will be Vout1

Set the 3325A voltage to -1V

Measure the 3325A voltage with the 3458A. This will be Vin2

Measure the E1446A Diff- output with the 3458A. This will be Vout2

Compute the Gain=(Vout1-Vout2) / (2*(Vin1-Vin2))

The results should be Gain of $-1 \pm 1\%$ or Gain -0.99 to -1.01

Input2 to DIFF+ Gain test

Set 3325 Source to DCV

Set 3458 DVM to 10 VDC range

Send *RST;*CLS to the E1446A

Set the 3325A voltage to 1V and connect to Input2

Measure the 3325A Voltage with the 3458A . This will be Vin1

Measure the E1446A Diff+ output with the 3458A . This will be Vout1

Set the 3325A voltage to -1V

Measure the 3325A voltage with the 3458A. This will be Vin2

Measure the E1446A Diff+ output with the 3458A. This will be Vout2

Compute the Gain=(Vout1-Vout2) / (2*(Vin1-Vin2))

The results should be Gain of $1 \pm 1\%$ or Gain 0.99 to 1.01

Input2 to DIF- Gain test

Set 3325 Source to DCV

Set 3458 DVM to 10 VDC range

Send *RST;*CLS to the E1446A

Set the 3325A voltage to 1V and connect to Input2

Measure the 3325A Voltage with the 3458A . This will be Vin1

Measure the E1446A Diff- output with the 3458A . This will be Vout1

Set the 3325A voltage to -1V

Measure the 3325A voltage with the 3458A. This will be Vin2

Measure the E1446A Diff- output with the 3458A. This will be Vout2
 Compute the Gain=(Vout1-Vout2) / (2*(Vin1-Vin2))
 The results should be Gain of $-1 \pm 1\%$ or Gain $-.99$ to -1.01

Test 2-4 Main Output Gain Test

Input1 to Main Output test

Set the 3325A voltage to 1V and connect to Input1

Measure the 3325A Voltage with the 3458A . This will be Vin1

Measure the E1446A Main output with the 3458A . This will be Vout1

Set the 3325A voltage to -1V

Measure the 3325A voltage with the 3458A. This will be Vin2

Measure the E1446A Main output with the 3458A. This will be Vout2

Compute the Gain=(Vout1-Vout2) / (2*(Vin1-Vin2))

The results should be Gain of $10 \pm 1\%$ or Gain 9.9 to 10.1

Input2 to Main Output- Gain test

Set 3325 Source to DCV

Set 3458 DVM to VDC Autorange

Send *RST;*CLS to the E1446A

Set the 3325A voltage to 1V and connect to Input2

Measure the 3325A Voltage with the 3458A . This will be Vin1

Measure the E1446A Main Output with the 3458A . This will be Vout1

Set the 3325A voltage to -1V

Measure the 3325A voltage with the 3458A. This will be Vin2

Measure the E1446A Main Output with the 3458A. This will be Vout2

Compute the Gain=(Vout1-Vout2) / (2*(Vin1-Vin2))

The results should be Gain of $10 \pm 1\%$ or Gain 9.9 to 10.1

Summary Table

Test 2-3 Low Level Outputst

Test Description	Minimum	Measured Gain	Maximum
Input1 to Diff+ Gain	.99	_____	1.01
Input1 to Diff- Gain	-.99	_____	-1.01
Input2 to Diff+ Gain	.99	_____	1.01
Input2 to Diff- Gain	-.99	_____	-1.01

Test 2-4 Main Output Test

Test Description	Minimum	Measured Gain	Maximum
Input1 to Main Output Gain	9.9	_____	10.1
Input2 to Main Output Gain	9.9	_____	10.1