SERVICE NOTE

SUPERSEDES: None

1663EP - 34 Channel Color Logic Analyzer with 32 Channel Pattern Generator

Serial Numbers: US00000000/US99999999

New Threshold Accuracy Field Calibration Procedure

To Be Performed By: Agilent-Qualified Personnel

Duplicate Service Notes:

1660E-01	136 Channel Color Logic Analyzer
1660ES-01	136 Channel Color Logic Analyzer with 2 Channel Oscilloscope
1660EP-01	136 Channel Color Logic Analyzer with 32 Ch Pattern Generator
1661E-01	102 Channel Color Logic Analyzer
1661ES-01	102 Channel Color Logic Analyzer with 2 Channel Oscilloscope
1661EP-01	102 Channel Color Logic Analyzer with 32 Ch Pattern Generator
1662E-01	68 Channel Color Logic Analyzer
1662ES-01	68 Channel Color Logic Analyzer with 2 Channel Oscilloscope
1662EP-01	68 Channel Color Logic Analyzer with 32 Ch Pattern Generator
1663E-01	34 Channel Color Logic Analyzer
1663ES-01	34 Channel Color Logic Analyzer with 2 Channel Oscilloscope
1663EP-01	34 Channel Color Logic Analyzer with 32 Ch Pattern Generator

Continued

DATE: January 2000

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:

INFORMATION ONLY

AUTHOR:	ENTITY:	ADDITIONAL INFORMATION:
REB	0800	01660-97030 HP 1660E/ES/EP Series Logic Analyzers Service Guide

PRINTED IN U.S.A.

Agilent Technologies

Situation:

It is determined that characterizing the threshold hysteresis is not necessary for Agilent benchtop logic analyzers because the typical customer use model will not benefit from the existing calibration algorithm. Additionally, the activity indicators in the 1660E,ES,EP-Series benchtop logic analyzer products, used to verify the pass/fail status of the threshold accuracy calibration, are more suceptible to noise than their predecessor products. The noise suceptibility can cause false failure of the threshold accuracy calibration.

Solution / Action:

A new threshold accuracy field calibration algorithm yields a simple pass/fail status of the threshold accuracy field calibration based on the results displayed in the logic analyzer Waveform menu after taking an acquisition. Additionally, the new calibration algorithm tests the threshold at two points, ECL and 0 V User, instead of the previous five test points.

This new algorithm is included in the Agilent 1670G-Series benchtop logic analyzer products. There is currently no plan to update the service manuals of predecessor products with this new procedure. Therefore this new threshold accuracy procedure supercedes parts of the existing procedure "To Test the Threshold Accuracy" in the 1660E,ES,EP-Series service manual listed below.

ADD the following steps to "Set up the logic analyzer" on page 3-10 of the 1660E,ES,EP-Series service manual:

3 Set up the Format menu.

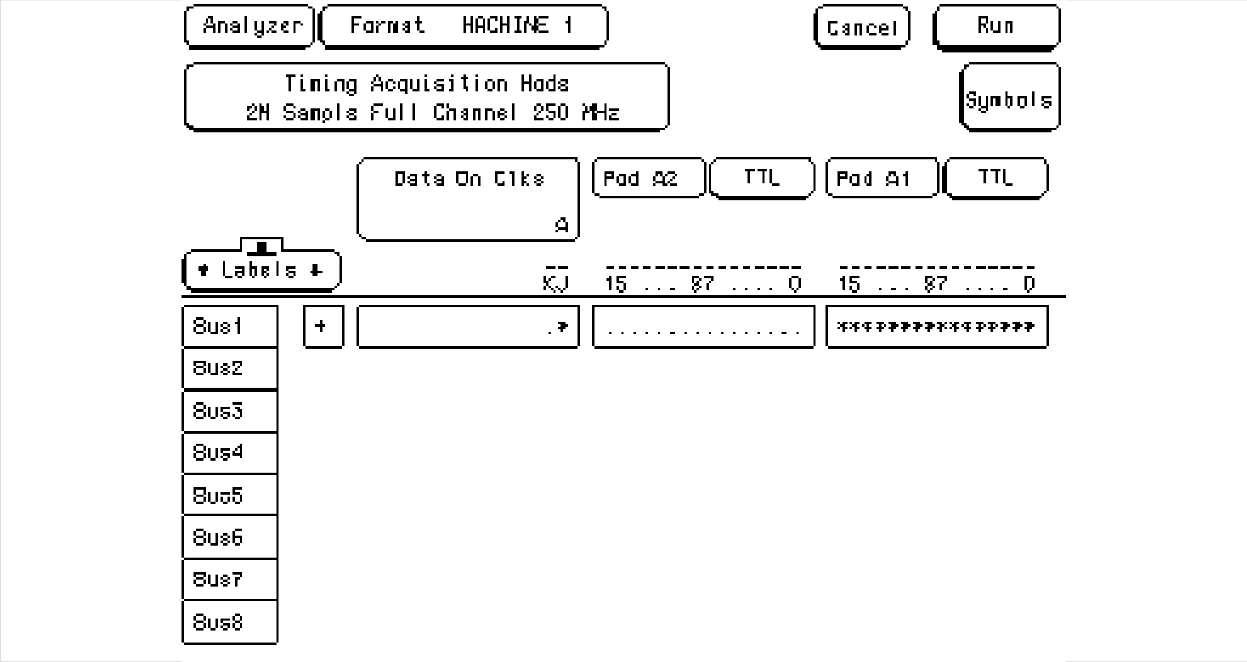
a. Press the Format key.

b. Move the cursor over the Pod A1 channel selection field.
Press the Clear Entry button until all channels are assigned (all '*'),
then press Done.

c. Move the cursor over the Data on Clocks channel selection field, then press Select.
Rotate the RPG knob to move the channel selector to the channel indicated in the
following table, then press Select. Press Done.

Pod	Channel
A1, A3, A5, A7	0
A2, A4, A6, A8	1

Continued

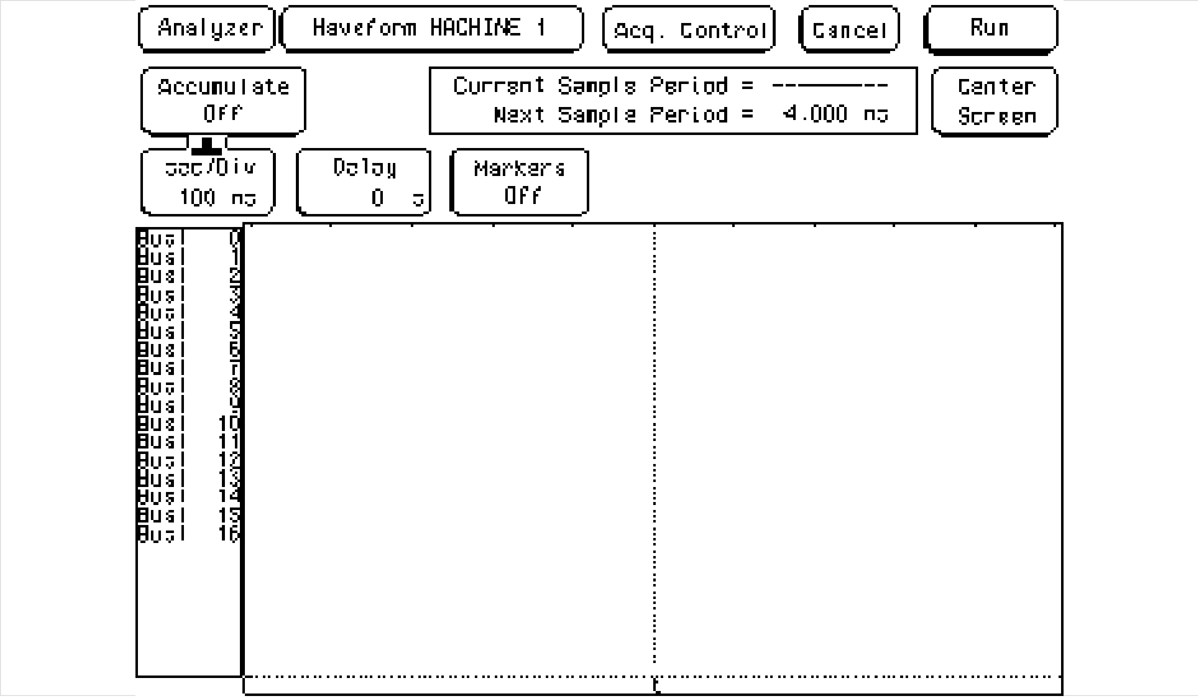


4 Set up the Waveform menu.

a. Press the Waveform key.

b. In the Waveform menu, move the cursor to the pod/channel selection field, then press Select.
In the pop-up menu, select Delete All, then select Continue.

c. Again press Select. At the pop-up menu, select Insert, then select Bus1, then select Sequential.



Continued

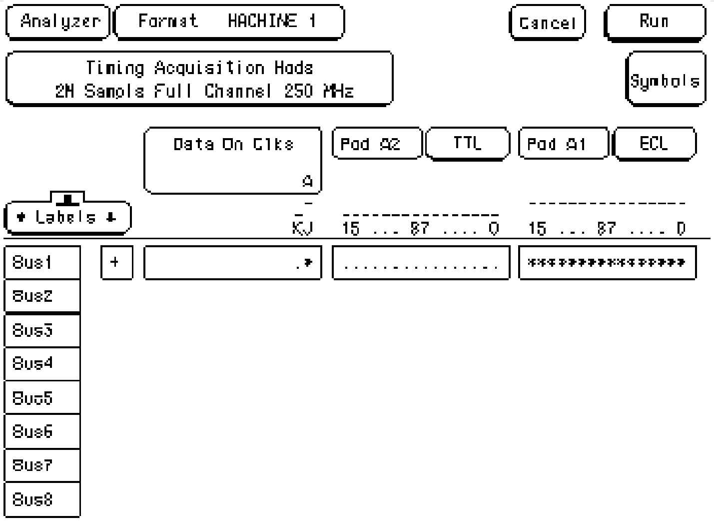
REPLACE pages 3-11 thru 3-17 with the following steps:

Test the ECL Threshold

1 Set up the Format menu.

a. Press the Format key.

b. Select the field to the right of Pod A1, then select ECL in the pop-up menu.

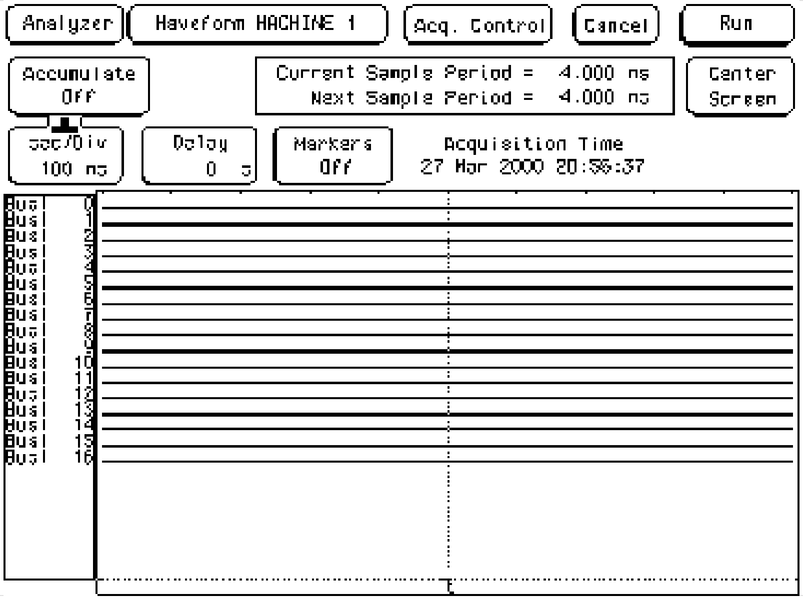


2 Test the high-to-low transition.

a. On the DC power source, enter -1.438 V.

b. On the multimeter, verify that the DC voltage is -1.439 V +0 mV, or -2 mV.
Adjust the DC power source voltage output if necessary.

c. On the logic analyzer, press Run. The display should show all channels at a logic "0".



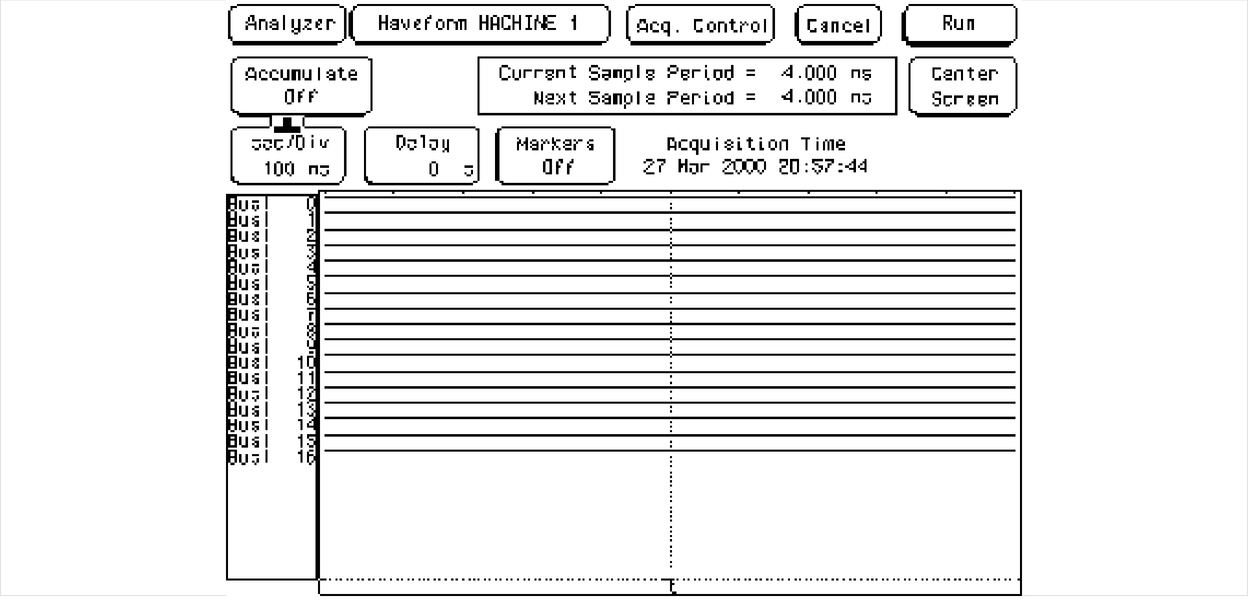
Continued

3 Test the low-to-high transition

a. On the DC source, enter -1.162 V

b. On the multimeter, verify that the DC voltage is -1.161 V +0 mV, or -2 mV. Adjust the DC power source voltage output if necessary.

c. On the logic analyzer, press Run. The display should show all channels at a logic "1".



Accumulate Off

Current Sample Period = 4.000 ns
Next Sample Period = 4.000 ns

sec/Div 100 ns

Delay 0 s

Markers Off

Acquisition Time
27 Mar 2000 20:57:44

4 Record a PASS/FAIL in the performance test record for Threshold Accuracy Pod 1 - ECL.

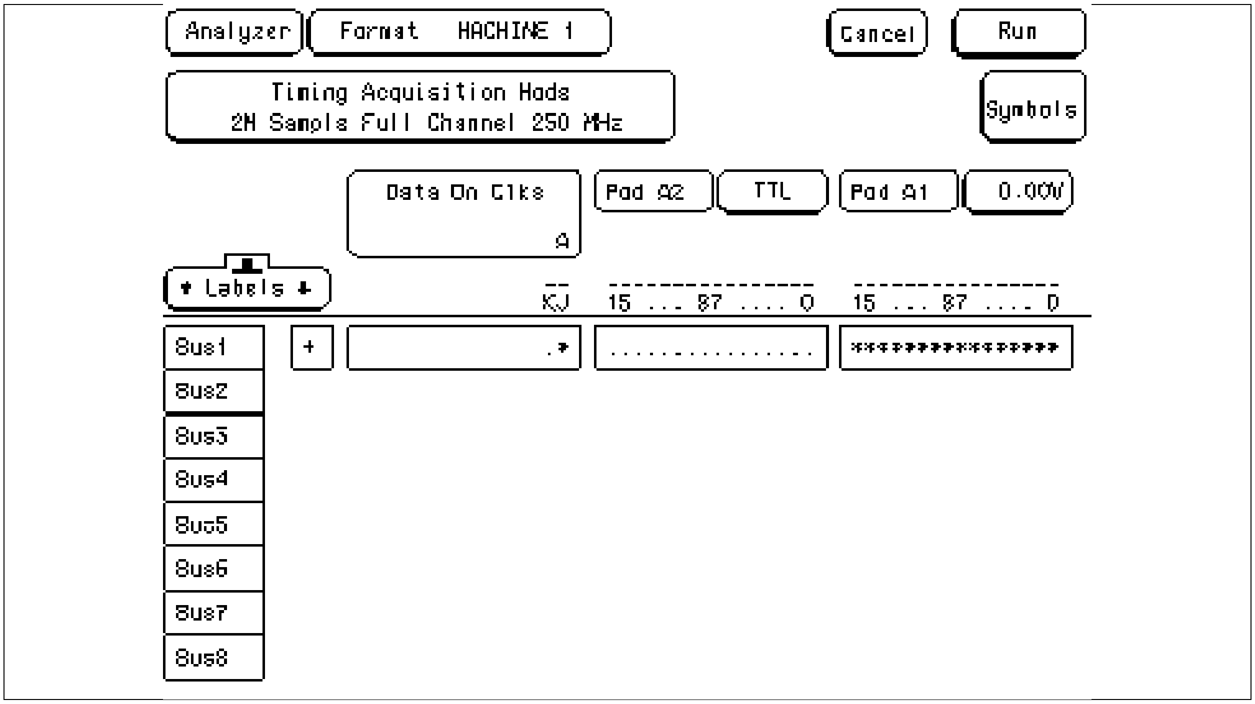
Test the 0 V User threshold

1 Set up the Format menu.

a. Press the Format key.

b. Select the field to the right of Pod A1, then select User in the pop-up menu, then enter 0 V.

Continued



2 Test the high-to-low transition.

a. On the DC power source, enter -0.099 V.

b. On the multimeter, verify that the DC voltage is -0.100 V +0 mV, or -2 mV. Adjust the DC power source voltage output if necessary.

c. On the logic analyzer, press Run. The display should show all channels at a logic "0".

3 Test the low-to-high transition

a. On the DC source, enter 0.099 V

b. On the multimeter, verify that the DC voltage is 0.100 V +0 mV, or -2 mV. Adjust the DC power source voltage output if necessary.

c. On the logic analyzer, press Run. The display should show all channels at a logic "1".

4 Record a PASS/FAIL in the performance test record for Threshold Accuracy Pod 1 - 0 V.

Test the next pod

1. Using the 17-by-2 test connector and probe tip assembly, connect the data and clock channels of the next pod to the output of the function generator until all pods have been tested.
   To unassign a pod pair and assign the next pod pair to be tested, press the Config key. Select the pod pairs, then select assign or unassign in the pop-up menu.

2 Start with "Test the ECL threshold" on page 3-11, substituting the next pod to be tested for pod 1.

Continued

REPLACE the Performance Test Record Threhsold Accuracy results on page 3-95 with the following:

Threshold Accuracy		**Pass/Fail**
Pod 1	ECL, 139 mV	________
	0 V, 100 mV	________
Pod 2	ECL, 139 mV	________
	0 V, 100 mV	________
Pod 3	ECL, 139 mV	________
	0 V, 100 mV	________
Pod 4	ECL, 139 mV	________
	0 V, 100 mV	________
Pod 5	ECL, 139 mV	________
	0 V, 100 mV	________
Pod 6	ECL, 139 mV	________
	0 V, 100 mV	________
Pod 7	ECL, 139 mV	________
	0 V, 100 mV	________
Pod 8	ECL, 139 mV	________
	0 V, 100 mV	________