54645A-02

S E R V I C E N O T E

Supersedes:
None

Agilent 54645A Oscilloscope

Serial Numbers: [0000A00000 / 9999Z99999]

Delete the DAC test from the performance verification tests in the User and Service Guide.

Parts Required:

None

ADMINISTRATIVE INFORMATION

SERVICE NOTE CLASSIFICATION:
INFORMATION ONLY
AUTHOR: KOO PRODUCT LINE: 1A
ADDITIONAL INFORMATION:

Agilent Technologies

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Situation:
The performance tests start with a procedure labeled “To check the output of the DC CALIBRATOR.” This test verifies the output levels of the DAC on the system board. The output of this DAC is used to calibrate the oscilloscope. Once the oscilloscope is calibrated, you run the performance tests to verify the oscilloscope passes all of the performance verification tests. The purpose of the performance verification tests is to ensure the oscilloscope meets all published specifications. We wanted to check the output of the DAC before calibrating the oscilloscope and doing the performance tests. It was expected that if the DAC was not within expected limits, the calibration would not be correct and the performance tests would fail. A questions was raised about the 0V specification of the DAC. The DAC test lists a specification for 0V +-500 uV and 5V +-10 mV. This was called a specification in error. This is a characteristic of the DAC’s performance. Agilent Technologies, Inc. does not warrant or specify the output of the DAC.

We have found that the oscilloscope passes all performance tests with as much as 550 uV output when the DAC is programmed to output 0V. As long as the oscilloscope passes all performance tests, then the oscilloscope meets all published specifications. You do not need to perform the DAC test prior to testing the performance of the oscilloscope.

Solution/Action:
1. In the section “Verifying Oscilloscope Performance,” Do not perform the “ To check the output of the calibrator.”

2. If the oscilloscope passes the performance tests, the oscilloscope meets all product specifications. If the oscilloscope fails the performance tests, go to “Adjusting the Oscilloscope.” In the part “To perform the self-calibration,” do not perform step 1. Step 1 has you verify the output of the DAC.

3. After completing “Adjusting the Oscilloscope,” go to “Verifying the Oscilloscope Performance” and retest the oscilloscope.

4. If the oscilloscope passes the performance tests, the oscilloscope meets all product specifications. If the oscilloscope fails the performance tests again, go to “Troubleshooting the Oscilloscope ” and do all the troubleshooting tests until you find a test that indicates a probable failure with the oscilloscope.

5. If you perform the internal self-tests, we expect that the 0V DAC output should be about 0V +-1 mV. The +5V DAC output should be about 5V +- 10 mV.