

Modification Available Performance Enhancement Service Note

Supersedes:
N1092A-04

N1092A DCA-M Sampling Oscilloscope

Serial Numbers: US55290101, US55290201-US55290214, US56020057-US56020065, US56140201, US56140202, US56140301-US56140322, US56140326-US56140357, US56140359-US56140385, US56140387-US56140393, US57110501-US57110508, US57110510-US57110522, US57220101-US57220168, US57220170-US57220266, US60420101, US60420102, US60420104, US60450102, MY58360102-MY58360188, MY58360191-MY58360222, MY59250101-MY59250160, MY59250164-MY59250186, MY59250196-MY59250235, MY59250256-MY59250349, MY59250351-MY59250368, MY59250372-MY59250376, MY59250380-MY59250390, MY60420121-MY60420125, MY60420127, MY60420128, MY60420131-MY60420135, MY60450101-MY60450112, MY60450114-MY60450117, MY60450123-MY60450132, MY60450134, MY60450137-MY60450139, MY60450142, MY60450146, MY60450154-MY60450156, MY60450158, MY60450159, MY60450163, MY60450165-MY60450174, MY60450176-MY60450183, MY60450187, MY60450188, MY60450194, MY60450195, MY60450204-MY60450213, MY60450215, MY60450217-MY60450227, MY60450229-MY60450242, MY60450244-MY60450252, MY60450254-MY60450275, MY60450277-MY60450279, MY60450283-MY60450288, MY60450295, MY60450297, MY60450298, MY60450300, MY61240109, MY61240113-MY61240116

An improved extinction ratio calibration is available for DCA-M Sampling Oscilloscopes with option 30A or N28

Parts Required: NONE

ADMINISTRATIVE INFORMATION

XX Calibration Required
[] Calibration NOT Required

PRODUCT LINE: 8F
AUTHOR: MM

ADDITIONAL INFORMATION:

Situation:

With the introduction of option 40A to the N1092x DCA-M Sampling Oscilloscope product family, an improved extinction ratio (ER) calibration was introduced.

- All N1092x DCA-M instruments with option 40A shipped from the factory with the improved ER calibration.
- Beginning with serial number MY61270000, all N1092x DCA-M instruments with option 30A or option N28 have been manufactured with the improved ER calibration.

The improved calibration provides:

- Improved ER measurement accuracy for NRZ signals
- Calibrated Outer ER measurements for PAM-4 signals (previously uncalibrated)

The serial numbers listed below shipped from the factory with an older version of ER calibration and differences in ER measurements can be expected as a result. To confirm the calibration version, see 'Identifying ER Calibration Version' below.

Solution/Action:

N1092x-30A/N28 instruments with the older ER calibration will have the improved ER calibration applied during service, either:

- During repair. After any hardware is replaced, a new ER calibration is required, and the improved ER calibration will be performed.
- or
- Upon request during calibration. ER calibration is normally not performed during calibration. To request the improved ER calibration, reference this service note when opening a service order.

While no additional charges will be added for ER calibration, the customer may still be charged for calibration and/or repair of unrelated failures, per the standard process.

Identifying ER Calibration Version:

For N1092x DCA-M instruments with option 30A or option N28, units with the improved ER calibration are identified in the Help > About dialog with a “C1” annotation following the serial number.

- If the “C1” annotation is present, the unit has the improved ER calibration
- If the “C1” annotation is not present, the unit has the older ER calibration

The screenshot shows the 'About N1010A' dialog box. At the top left is the 'DCA' logo and 'FlexDCA N1000-Series System Software' with copyright information. Below this, the model is 'N1010A' and the serial number is 'mvissoct'. A 'beta P.06.80.112' label is visible. The 'System Information' section lists: Software Version: P.06.80.112, Software Version Date: 2021.0708, Build Date: 6/7/2021 8:28:50 AM, Software Options: None, Application: Remote DCA, Embedded: No, Free Disk Space: 1.66 TB, Total Memory: 63.809 GB, Available Memory: 38.265 GB, Graphics Performance: High, CPU Class: Generic CPU. The 'Modules' section shows 'Slot 5 Module: N1092A 168,206,280,30A,FS1,IRC,LOJ,PLK US56140201 (C1)'. The '(C1)' is highlighted with a red box. At the bottom, there is a URL 'http://www.keysight.com/find/FlexDCA_download', a 'Copy to Clipboard' button, and a 'Save Support Info...' button. The Keysight Technologies logo is at the bottom left.

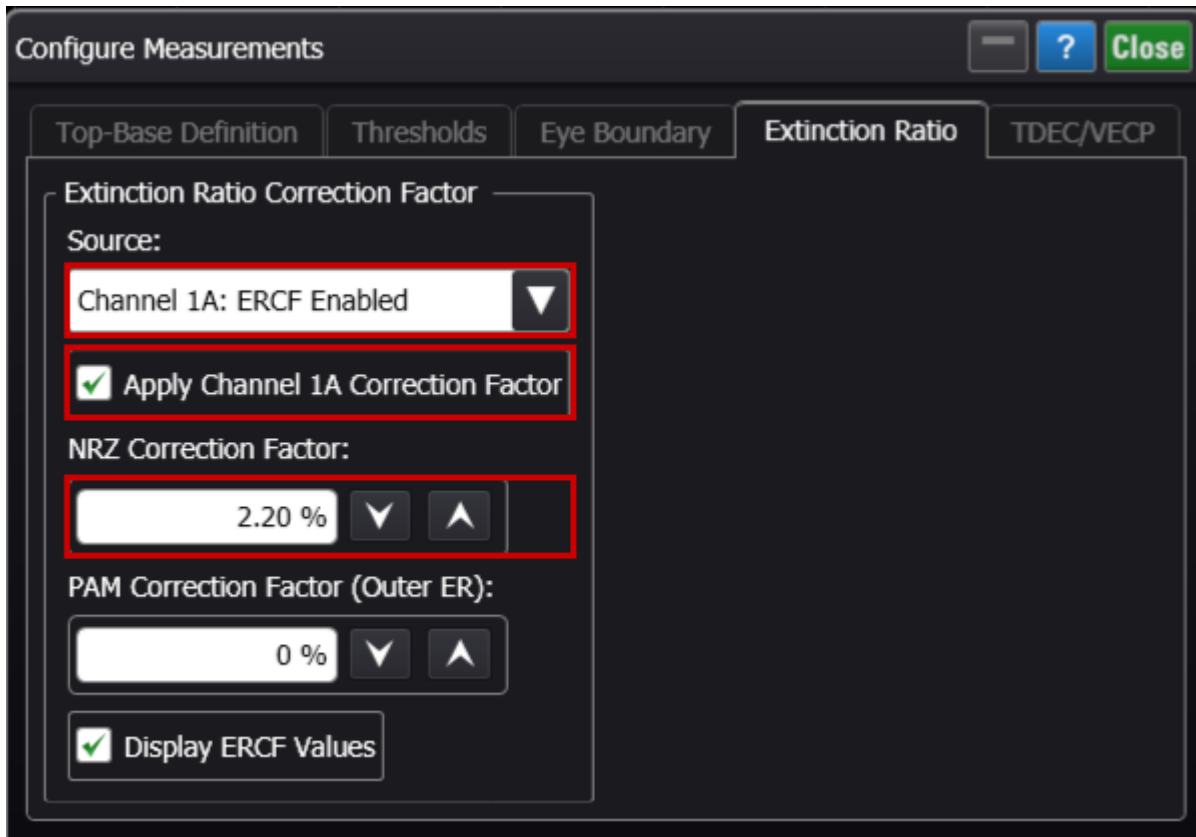
Note that the “C1” annotation is NOT used for units with option 40A because all units have the improved ER calibration.

Achieving Correlation to Older ER Measurements:

For NRZ signals, if correlation is desired to measurements made based on the older ER calibration, an extinction ratio correction factor (ERCF) can be used (Measure > Configure Base Measurements > Extinction Ratio). It is acceptable to for users to calculate the desired ERCF based on their own DUT measurements. Alternately, the following suggested values may be used:

Filter Rate (GHz)	ERCF (%)
25.78125	2.2
26.5625	2.2
27.952493	2.5
28.05	2.5

When entered for units with the improved ER calibration, these values will adjust the new ER measurements to be closer to what would have been measured with the older calibration method.



No ERCF is available for PAM-4 signals because the Outer ER measurement was previously uncalibrated.

Revision History:

Date	Service Note Revision	Author	Reason for Change
06 August 2021	01	MM	As Published
11 October 2023	02	NC	Removed the notes that this could only be performed at facility with repair capability.