

# Modification Recommended Service Note

Supersedes:  
NONE

## N1092B DCA-M Sampling Oscilloscope

Serial Numbers: US60190102, US57220239, US57220119, MY59250114

**The Problem** – A MM Optical Calibration adjustment may have impacted the multimode Optical RMS Noise performance during the last calibration cycle.

**Parts Required:**

P/N	Description	Qty.
NONE		

ADMINISTRATIVE INFORMATION

ACTION	<input type="checkbox"/> ON SPECIFIED FAILURE	STANDARDS	
CATEGORY:	XX AGREEABLE TIME	LABOR:	0.2 Hours
LOCATION	XX SERVICE CENTER	SERVICE:	<input type="checkbox"/> RETURN
CATEGORY:	<input type="checkbox"/> ON-SITE (active On-site contract required)	INVENTORY:	<input type="checkbox"/> SCRAP
	<input type="checkbox"/> CHANNEL PARTNERS		<input type="checkbox"/> SEE TEXT
USED	<input type="checkbox"/> RETURN	PARTS:	<input type="checkbox"/> SCRAP
			<input type="checkbox"/> SEE TEXT
AVAILABILITY:	PRODUCT'S SUPPORT LIFE	NO CHARGE AVAILABLE UNTIL:	November 30, 2024
	XX Calibration Required	PRODUCT LINE:	8F
	<input type="checkbox"/> Calibration NOT Required	AUTHOR:	NC

ADDITIONAL INFORMATION:

IMPORTANT! This calibration can only be performed at a facility with repair capability. Please route to a repair capable location.

## Situation:

The instruments with the listed serial numbers had a Factory Optical Calibration at 850 nm adjustment during its last calibration cycle, which may have impacted the multimode Optical RMS Noise performance. If you are making multimode measurements, you can send your unit back to Keysight for performance verification. Instructions on how to manually test noise performance and performing a User Optical Calibration are included below. This issue does not impact single-mode noise performance.

## Solution/Action:

If multimode measurements are being performed, it is recommended to send the unit back to Keysight to have the unit's performance verified and re-calibrated and adjusted as needed.

While no additional charges will be added for the re-calibration, the customer may be charged for repair of unrelated failures, per the standard process.

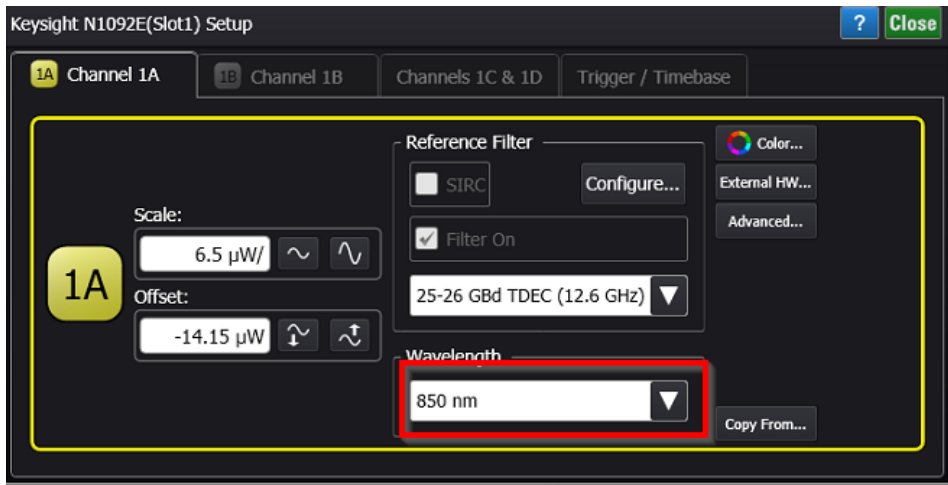
If the unit is not sent in immediately, the next time that the unit is sent back for performance verification, the unit will be adjusted and calibrated as required.

NOTE TO SERVICE CENTER – These units should be sent to a facility that has “repair capability”, in case more extensive adjustments are needed. If you do not have repair capability, please ship the instrument to a repair capable location.

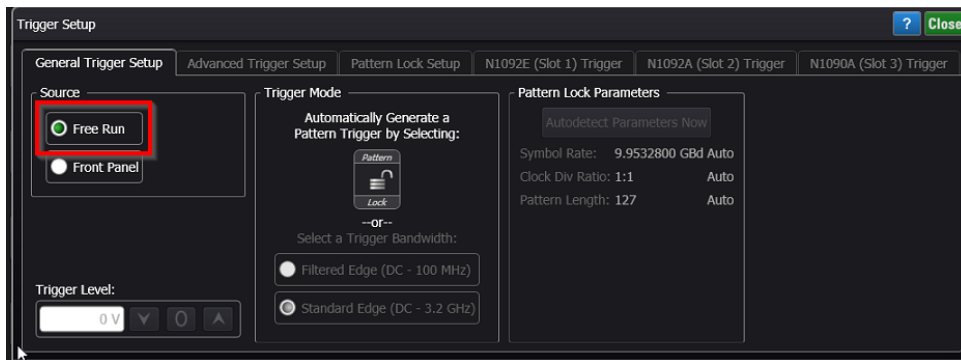
## Noise Verification:

The user may also manually verify the noise performance to determine if the unit's noise was impacted. These instructions are as follows:

1. Disconnect any optical signals. This measurement is to be made with no optical signals applied.
2. Execute a default setup.
3. Turn off all channels, except the channel under test.
4. Change the Wavelength to 850 nm and select the appropriate filter.

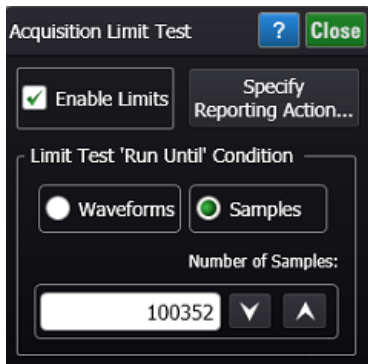


5. Set the DCA-M's "Trigger Setup" to "Free Run" mode.



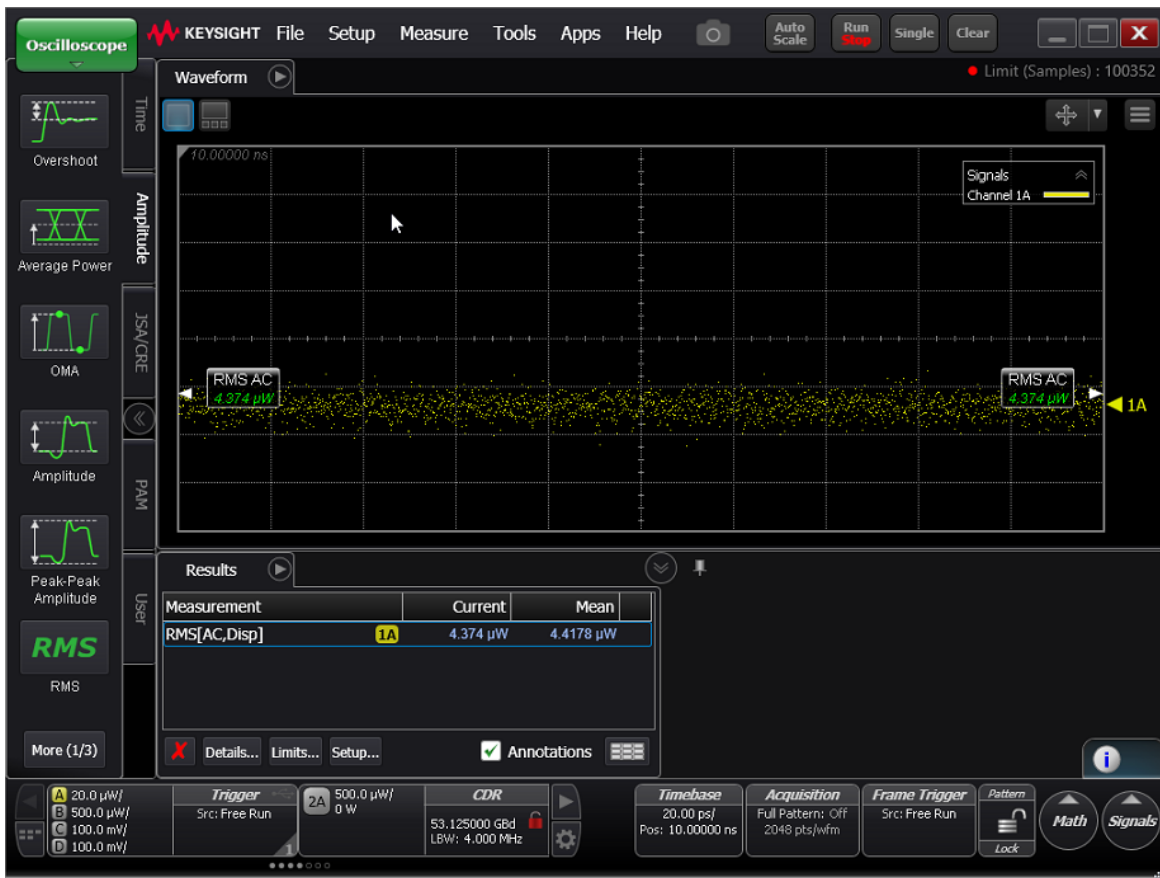
6. Setup the "Acquisition Limit Test" to the following:

- Set the Limit Test to "Samples" and set the number of Acquisitions to 100,352 and select "Enable Limits".



7. Put FlexDCA into Oscilloscope Mode

- Make a RMS[AC,Disp] measurement.
- Change scale to 20 uW/div



- c. Compare the Mean value displayed to the specification table shown below. If the displayed noise is above the value in the table, the noise was impacted. You may send the unit back to Keysight for re-calibration and adjustment. Alternatively, you may try to perform a “User Optical Calibration” as described in the following section below.

RMS Noise (Maximum)	850 nm
100GBASE-SR4 TDEC (12.6 GHz filter)	7 μW
20.625 Gb/s	9 μW
25 Gb/s Ethernet (25.78125 Gb/s)	10 μW
400GBASE-SR16 (26.5625 Gb/s)	10 μW
Ethernet OTU4 FEC/ITU-T G.959.1 (27.952493 Gb/s)	11 μW
32G Fibre Channel (28.05 Gb/s)	11 μW

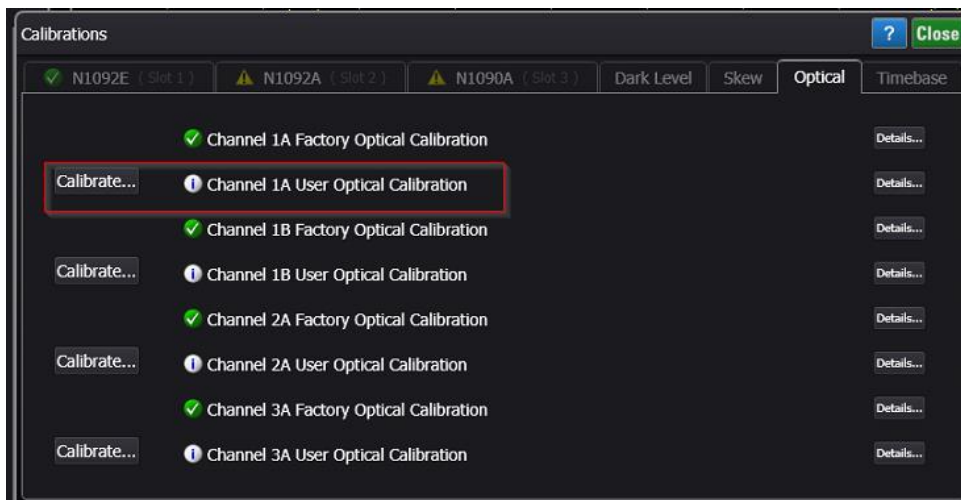
Full specifications can be found at the following link:

[https://rfmw.em.keysight.com/DigitalPhotonics/FlexDCA/SR/Content/Topics/DCA-M/N1092\\_series\\_specs.htm?tocpath=DCA-M%7C\\_\\_\\_\\_\\_3](https://rfmw.em.keysight.com/DigitalPhotonics/FlexDCA/SR/Content/Topics/DCA-M/N1092_series_specs.htm?tocpath=DCA-M%7C_____3)

8. Go back to Step 2 and repeat this measurement for all filters that are being used.

## User Optical Calibration:

If the noise value is above the maximum value, the user may run a “User Optical Calibration” and use this setting instead of the “Factory Optical Calibration”.



A CW multimode optical source is required for this step. Instructions on how to perform an Optical Calibration can be found in the FlexDCA Online help at the link below:

[https://rfmw.em.keysight.com/DigitalPhotonics/flexdca/UG/Content/Topics/Calibration/d\\_cal\\_optical.htm?Highlight=optical%20calibration](https://rfmw.em.keysight.com/DigitalPhotonics/flexdca/UG/Content/Topics/Calibration/d_cal_optical.htm?Highlight=optical%20calibration)

If a User Optical Calibration is performed and used, it is recommended to re-run the noise measurement to ensure that this adjustment has resolved the issue.

## Revision History:

Date	Service Note Revision	Author	Reason for Change
06 Nov 2023	01	N. Chappell	As Published