*Radiation Report*

# *LMK04832-SP ELDRS Characterization Report*


**ABSTRACT**

Texas Instruments' BiCMOS8B+ process was put through the Enhanced Low Dose Rate Sensitivity (ELDRS) characterization, using the LMK04832AD as the test vehicle. The process and product were shown to be ELDRS-free to 100 krad(Si). The process was also put through the MOS Accelerated Anneal Test (MAAT) and shown not to have time dependent effects (TDE).


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## Trademarks

# 1 Overview

Texas Instruments' BiCMOS8B+ is a BiCMOS process with SiGe bipolar transistors. MIL-STD-883 Test Method 1019[1] requires that analog products with bipolar transistors be qualified for total ionizing dose (TID) at a low dose rate (LDR) unless the product uses a technology known not to exhibit Enhanced Low Dose Rate Sensitivity (ELDRS). If a process exhibits ELDRS a product would degrade significantly more when exposed to ionizing radiation at LDR than at a high dose rate (HDR) for the same TID exposure level. TM1019 includes a characterization procedure to determine if a product or process has ELDRS. A modern technology like BiCMOS8B+ would not be expected to have ELDRS but the ELDRS characterization was run anyway on the LMK04832AD which uses the BiCMOS8B+ process to verify that BiCMOS8B+ is ELDRS-free.

TM1019 also requires that processes that have MOS structures be tested to determine if the process exhibits "time dependent effects" (TDE) where a product will continue to degrade after it has been removed from the ionizing source. TDEs are tested for using the "MOS accelerated annealing test" (MAAT) in TM1019. No TI processes have been shown to have TDEs. The MAAT was also run on the LMK04832AD to verify that BiCMOS8B+ does not have TDEs.

# 2 Test Vehicle

The LMK04832 [2] is a JESD204B [3] compliant clock jitter cleaner with a dual loop (see Figure 2-1). The LMK04832 can provide very low jitter clocking signals up to 3.2 GHz on 14 individually programmable outputs. It can be configured for operation in dual PLL, single PLL, or clock distribution modes with or without SYSREF generation or reclocking. PLL2 may operate with either internal or external VCOs. The outputs can be configured in many different ways: CML, LVPECL, LCPECL, HSDS, LVDS, or 2xLVCMOS. The operating voltage of the LMK04832-SP is 3.15 to 3.45 V.

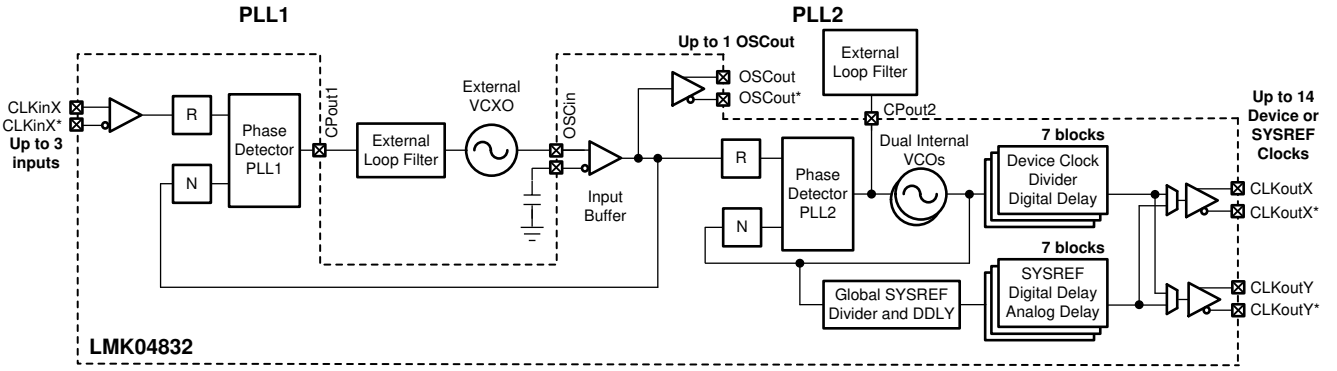



**Figure 2-1. LMK04832-SP Block Diagram**

For this testing, the LMK04832AD was used. The LMK04832AD is an unreleased earlier revision of the space grade LMK04832-SP, 5962R1723701VXC. The LMK04832AD die were assembled in a 64 lead ceramic quad flatpack packages (CQFP), with the TI package designator HBD. The HBD package is used by the 5962R1723601VXC (LMX2615-SP).

The devices under test (DUTs) were put through a 240 hour burn-in with the units biased and operational at 125°C ambient prior to the radiation testing.

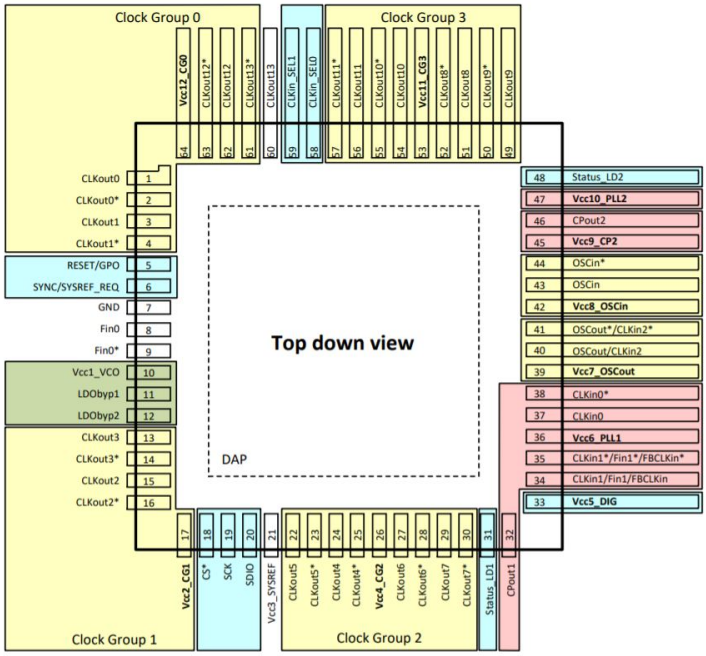



**Figure 2-2. LMK04832-SP Pinout**

## 3 ELDRS Characterization Procedure

A four way split was run with units biased and unbiased during irradiation at LDR and HDR as shown in Table 3-1. Five units were tested for each split. The HDR irradiation was done at Texas Instruments Radiation Test Facility in Santa Clara, California at a dose rate of 67.8 rad(Si)/s. The LDR irradiation was done at Cobham RAD in Colorado Springs, Colorado at a dose rate of 0.01 rad(Si)/s.

**Table 3-1. Characterization Splits**

| Condition | Dose Rate | DUT serial numbers | Test Points |
|---|---|---|---|
| LDR Biased | 0.01 rad(Si)/s | 33, 39, 41, 52, 53 | 0, 50, 100 krad(Si) |
| LDR Unbiased | 0.01 rad(Si)/s | 57, 58, 59, 61, 64 | 0, 50, 100 krad(Si) |
| HDR Biased | 67.8 rad(Si)/s | 5, 15, 19, 20, 24 | 0, 30, 50, 100 krad(Si) |
| HDR Unbiased | 67.8 rad(Si)/s | 25, 26, 28, 29, 32 | 0, 30, 50, 100 krad(Si) |

During the irradiations, the unbiased DUTs had all leads shorted together using conductive foam.

The biased DUTs were irradiated in socketed bias boards. The bias boards used for HDR were different from the board used for LDR but both boards had the same schematic and all DUTs were biased and operating in the same manner. The HDR boards were smaller and had a single socket so the boards would fit in the HDR gamma cell. The LDR boards were larger and had space for 15 sockets. The supply voltage was set to 3.4 V as measured on the DUT boards. The DUT registers were programmed using Texas Instruments USB2ANY module and TICS Pro software[4]. The DUTs were configured so that the PLL2 loop was active and the signal to the Divider and Delay blocks was at 3.2 GHz. Different delays and frequency dividers were used on the different outputs to exercise the different components of the control circuits. The outputs were configured so that at all of the output configurations options, CML, LVPECL, LCPECL, HSDS, LVDS, and 2xLVCMOS were exercised on at least one output each.

The DUTs were electrically tested at TI's test facility in Santa Clara, CA before irradiation and at 50 and 100 krad(Si) test points. The HDR units were also tested at 30 krad(Si). The test program for the commercial version of the LMK04832 was used with the modification of all tests being repeated at three different supply voltages: 3.135 V, 3.3 V and 3.465 V. There are over 7000 parameters tested on each unit. In addition to testing the

parameters with limits in the datasheets the test program tests many other parameters to ensure the proper operation of the device. The test limits were set based on characterization of the commercial version of the product using a six sigma baseline.

# 4 MAAT Procedure

After completing HDR biased testing to 100 krad(Si), DUTs 5 and 15 were irradiated in the biased condition for an additional 50 krad(Si) for a total dose of 150 krad(Si). After the additional irradiation, the DUT boards with the DUTs still in the sockets were placed in an oven and baked at 100°C for 168 hours with the DUTs biased, configured and running under the same conditions as when they were irradiated. At the end of the bake, the units were electrically tested.

**Table 4-1. Summary of Test Conditions**

| | |
|---|---|
| LDR bias board schematic | 590CR19 |
| LDR bias board edge number | 6609049A |
| HDR bias board schematic | 291CR17 |
| HDR bias board edge number | 6609056A |
| Supply voltage | 3.4 V |
| Supply current | 570 mA |
| VCO and PLL frequency | 3.2 GHz |
| Electrical test locations | Texas Instruments, Santa Clara, CA |
| Electrical test supply voltage | 3.135 V, 3.3 V, 3.465 V |
| Test program | LMK4832_A2_CHAR_E |
| Lot name | L01200248 |
| Electrical test data location | MBAYSE SC |
| Test dates | January 28 to July 1, 2020 |

# 5 Results

## 5.1 ELDRS Characterization Results

All DUTs passed all tests at LDR at every test point. Per TM1019, if the DUTs remain within the spec limits for LDR testing, the “IC technology” is considered not to have ELDRS.

For the HDR biased condition, two DUTs failed one test, VTUNE reset pin voltage, at 100 krad(Si). This is not a datasheet test but a functional test to ensure optimum calibration of the VCO over temperature. One of the failing DUTs, DUT 5, was used in the MAAT and recovered after the MAAT. Table 5-1 shows the test results for DUT 5 at each of the test points.

**Table 5-1. DUT5 VTUNE Reset Pin Voltage Results for HDR Biased Condition**

| 0 krad(Si) | 30 krad(Si) | 50 krad(Si) | 100 krad(Si) | MAAT | Lower Limit | Upper Limit |
|---|---|---|---|---|---|---|
| 1.637 V | 1.639 V | 1.639 V | 1.578 V | 1.650 V | 1.58 V | 1.71 V |

The parametric drift was evaluated and compared between the DUTs irradiated at LDR and HDR. Except for the one parameter, VTUNE reset pin voltage, no significant drift was detected when compared to the test limits at either LDR or HDR. For VTUNE reset pin voltage, more drift was seen at HDR than at LDR.

Over 7000 parameters were tested. Appendix A shows statistics and plots of the data for the parametric drift at LDR and HDR for some representative tests. The first test shown is the VTUNE reset pin voltage test that had failures at HDR.

## 5.2 MAAT Results

The two DUTs passed all tests indicating that the process does not exhibit TDEs after irradiation. Appendix B shows the raw electrical data after the MAAT for representative tests.

## 6 Summary

Using the LMK04832AD as a test vehicle the BiCMOS8B+ process was shown not to exhibit ELDRS or TDEs. The process is suitable for low dose rates to 100 krad.

Two HDR biased DUTs failed one test at 100 krad(Si) indicating products on the BiCMOS8B+ process may not be suitable at high dose rates to 100 krad(Si). If RLAT is performed at HDR, it may be necessary to use the "Room temperature anneal (RTA) test" in TM1019 to qualify a product to 100 krad(Si) and the application dose rate would need to kept under a limit determined by how long it would take the product to recover under anneal. See SNAK008 for an example of an LMK04832-SP RLAT report where RTA was used and SNAA156 for more details about the RTA test method.

## 7 References

1. Test Method Standard, Microcircuits, MIL-STD-883, Dept. Defense, DLA Land and Maritime, Columbus, OH, https://landandmaritimeapps.dla.mil/Downloads/MilSpec/Docs/MIL-STD-883/std883-1.pdf
2. Texas Instruments , Dallas, TX, “LMK04832-SP Space Grade Ultra-Low-Noise JESD204B Dual-Loop Clock Jitter Cleaner,” Nov. 2020, https://www.ti.com/lit/ds/symlink/lmk04832-sp.pdf
3. Texas Instruments , Dallas, TX, “JESD204B Overview,” July 2016, https://www.ti.com/lit/ml/slap161.pdf
4. Texas Instruments , Dallas, TX, “LMK04832EVM-CVAL User’s Guide,” June 2020, https://www.ti.com/lit/ug/snau252/snau252.pdf

# A ELDRS Characterization Data and Plots

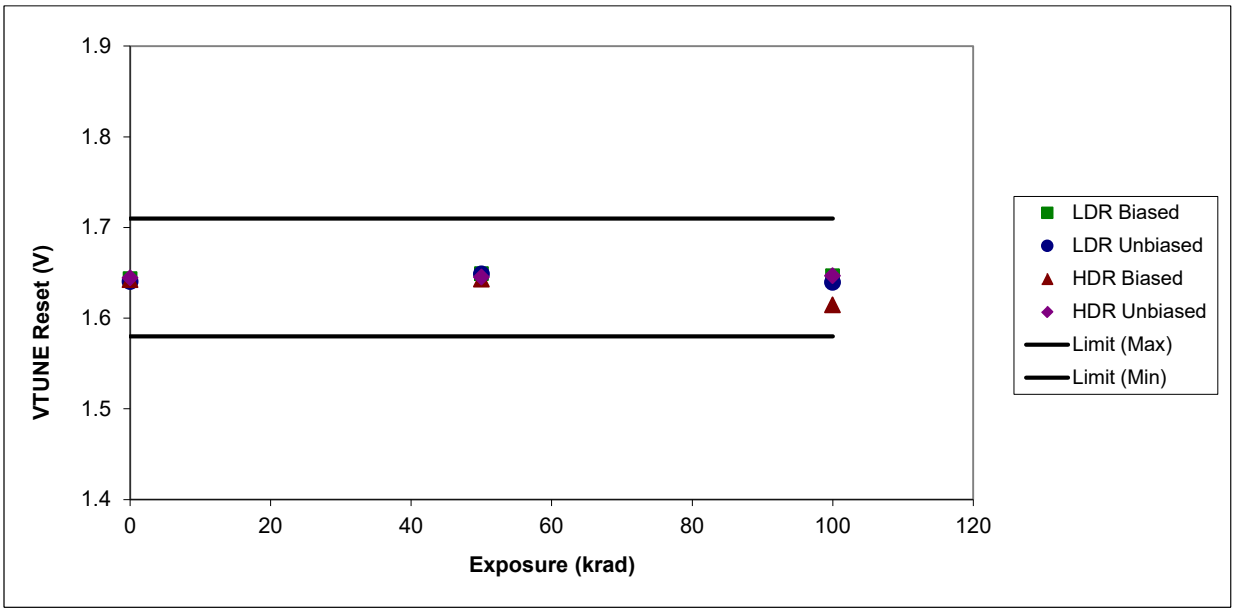
## 10081 VTUNE_ATP/RESET/3.465/ V

VTUNE Reset (V)

**LOT: L01200248**

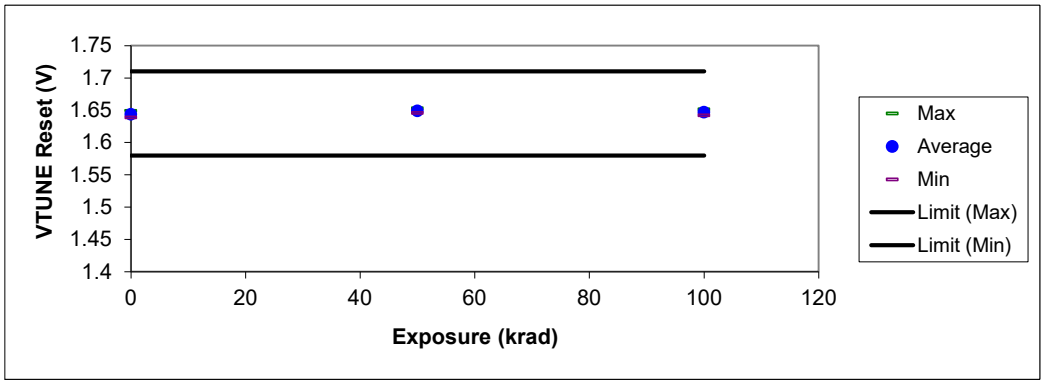
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.64366827 | 1.64894795 | 1.63872433 | 0.00439426 | 1.71 | 1.58 | | |
| LDR BIASED | 50 | 5 | 1.64905121 | 1.65293002 | 1.64544725 | 0.00324414 | 1.71 | 1.58 | 0.003826976 | 3.13 |
| LDR BIASED | 100 | 5 | 1.6466908 | 1.65142 | 1.64180899 | 0.00437519 | 1.71 | 1.58 | 0.002166987 | 2.84 |
| LDR UNBIAS | 0 | 5 | 1.64040277 | 1.64452279 | 1.63658798 | 0.00345108 | 1.71 | 1.58 | | |
| LDR UNBIAS | 50 | 5 | 1.64880686 | 1.65506792 | 1.6443783 | 0.00486037 | 1.71 | 1.58 | 0.008096099 | 4.42 |
| LDR UNBIAS | 100 | 5 | 1.63955114 | 1.64913166 | 1.63463879 | 0.00568095 | 1.71 | 1.58 | -0.001033902 | -1.69 |
| HDR BIASED | 0 | 5 | 1.64235592 | 1.64665902 | 1.63735092 | 0.00441384 | 1.71 | 1.58 | | |
| HDR BIASED | 50 | 5 | 1.64305789 | 1.64696419 | 1.6390295 | 0.00336496 | 1.71 | 1.58 | 0.001220822 | |
| HDR BIASED | 100 | 5 | 1.61455381 | 1.64849019 | 1.55601966 | 0.04406734 | 1.71 | 1.58 | 0.000763059 | |
| HDR UNBIAS | 0 | 5 | 1.64430916 | 1.64955831 | 1.63857174 | 0.00389123 | 1.71 | 1.58 | | |
| HDR UNBIAS | 50 | 5 | 1.6452857 | 1.65138936 | 1.64025021 | 0.0046509 | 1.71 | 1.58 | 0.001831054 | |
| HDR UNBIAS | 100 | 5 | 1.64687266 | 1.653373 | 1.64299679 | 0.00462906 | 1.71 | 1.58 | 0.000610351 | |

**Plot of the average readings for each radiation/bias condition**

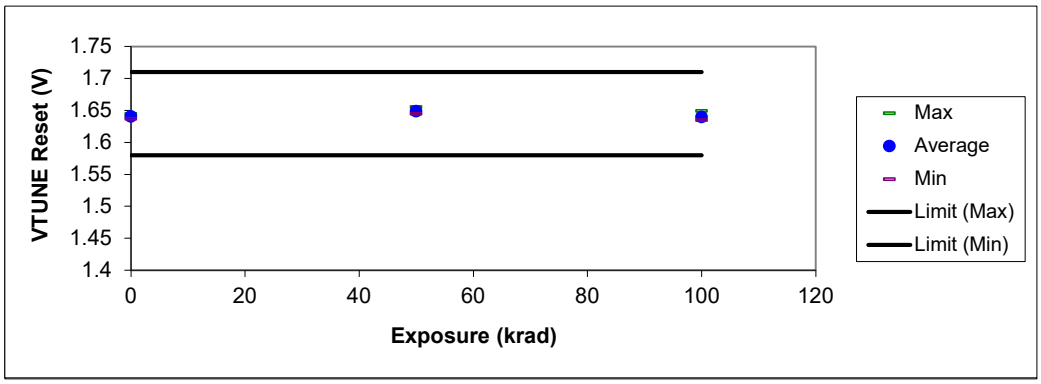


**10081 VTUNE_ATP/RESET/3.465/ V10081 VTUNE_ATP/RESET/3.465/ V**

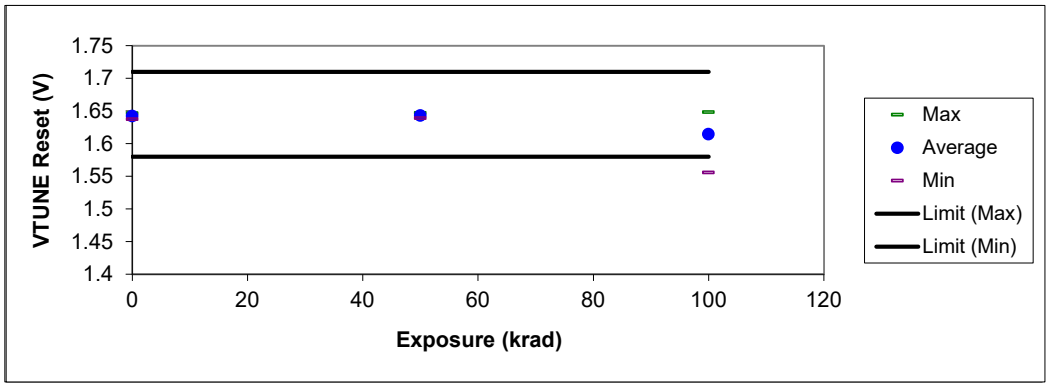
**Low dose rate biased**



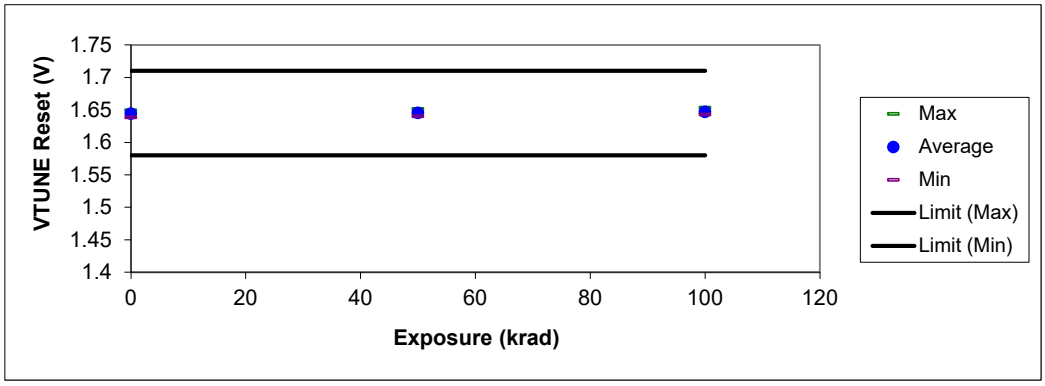

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



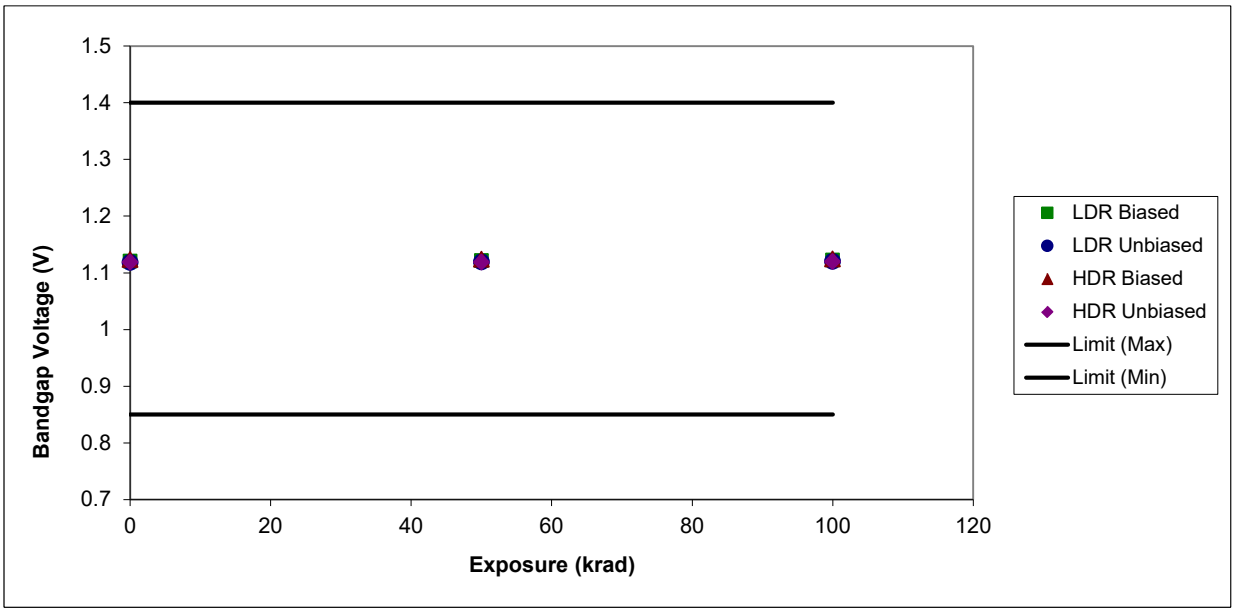
## 12451 PLL2_N_BIAS_VBG/LD1/3.465 V

Bandgap Voltage (V)

**LOT: L01200248**

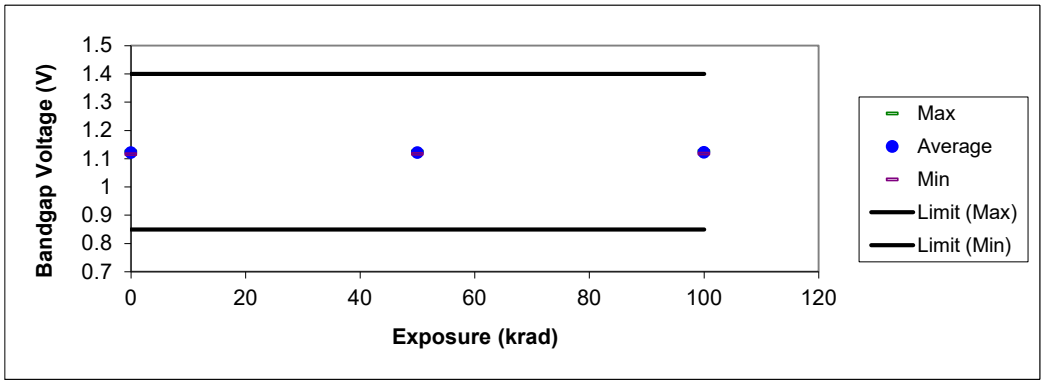
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.12089486 | 1.12599134 | 1.11576784 | 0.00444688 | 1.4 | 0.85 | | |
| LDR BIASED | 50 | 5 | 1.12152734 | 1.12607825 | 1.11660993 | 0.00431457 | 1.4 | 0.85 | 0.000842094 | 1.10 |
| LDR BIASED | 100 | 5 | 1.12243977 | 1.12689412 | 1.1172837 | 0.00428408 | 1.4 | 0.85 | 0.001515865 | 0.99 |
| LDR UNBIAS | 0 | 5 | 1.1185755 | 1.12095594 | 1.11729371 | 0.00147393 | 1.4 | 0.85 | | |
| LDR UNBIAS | 50 | 5 | 1.11926718 | 1.12195492 | 1.11798441 | 0.00156707 | 1.4 | 0.85 | 0.000538111 | 3.53 |
| LDR UNBIAS | 100 | 5 | 1.12042611 | 1.12247026 | 1.11972439 | 0.00114969 | 1.4 | 0.85 | 0.001667618 | 1.82 |
| HDR BIASED | 0 | 5 | 1.12330582 | 1.13194239 | 1.1189723 | 0.0049897 | 1.4 | 0.85 | | |
| HDR BIASED | 50 | 5 | 1.12397721 | 1.13270533 | 1.11927748 | 0.00509109 | 1.4 | 0.85 | 0.00076294 | |
| HDR BIASED | 100 | 5 | 1.12464859 | 1.13270533 | 1.12049818 | 0.00467133 | 1.4 | 0.85 | 0.001525878 | |
| HDR UNBIAS | 0 | 5 | 1.11875865 | 1.12187147 | 1.11271608 | 0.00350393 | 1.4 | 0.85 | | |
| HDR UNBIAS | 50 | 5 | 1.11909435 | 1.12202406 | 1.11317384 | 0.00343141 | 1.4 | 0.85 | 0.000152588 | |
| HDR UNBIAS | 100 | 5 | 1.11967418 | 1.12324476 | 1.11393678 | 0.00346047 | 1.4 | 0.85 | 0.000915527 | |

**Plot of the average readings for each radiation/bias condition**

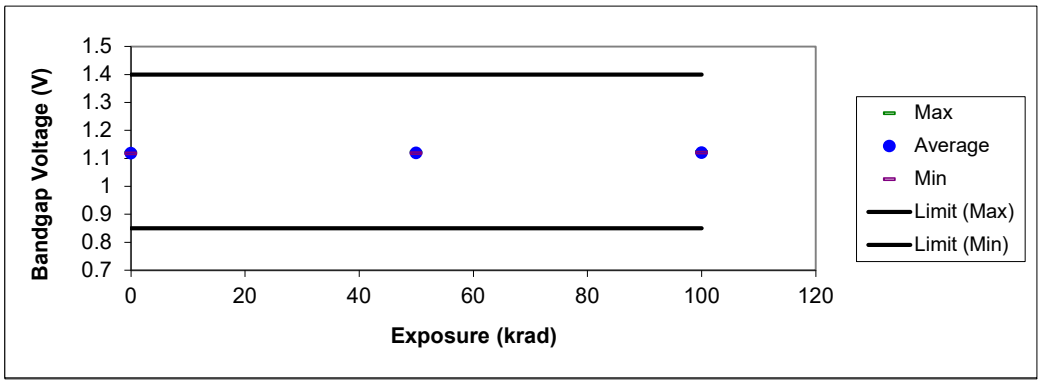


**12451 PLL2_N_BIAS_VBG/LD1/3.465 V**

**Low dose rate biased**




**Low dose rate unbiased**

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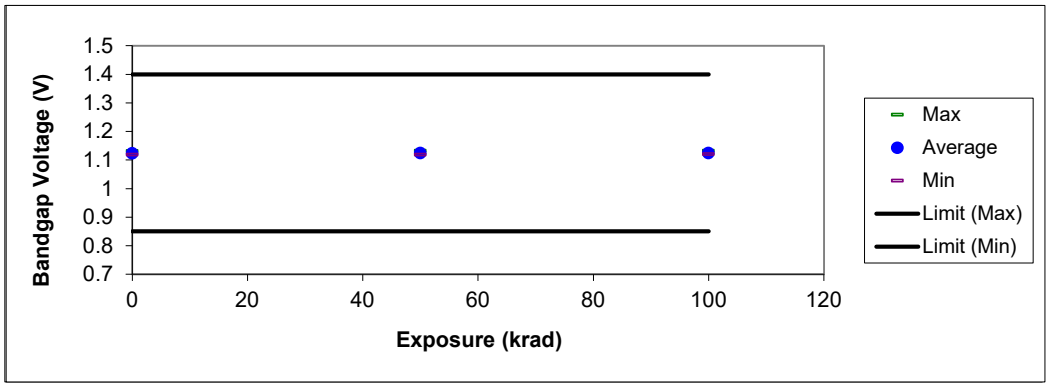
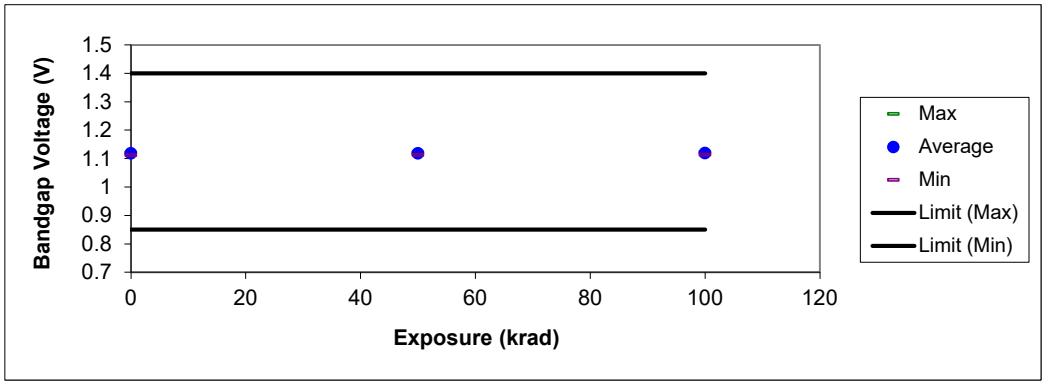



**High dose rate unbiased**



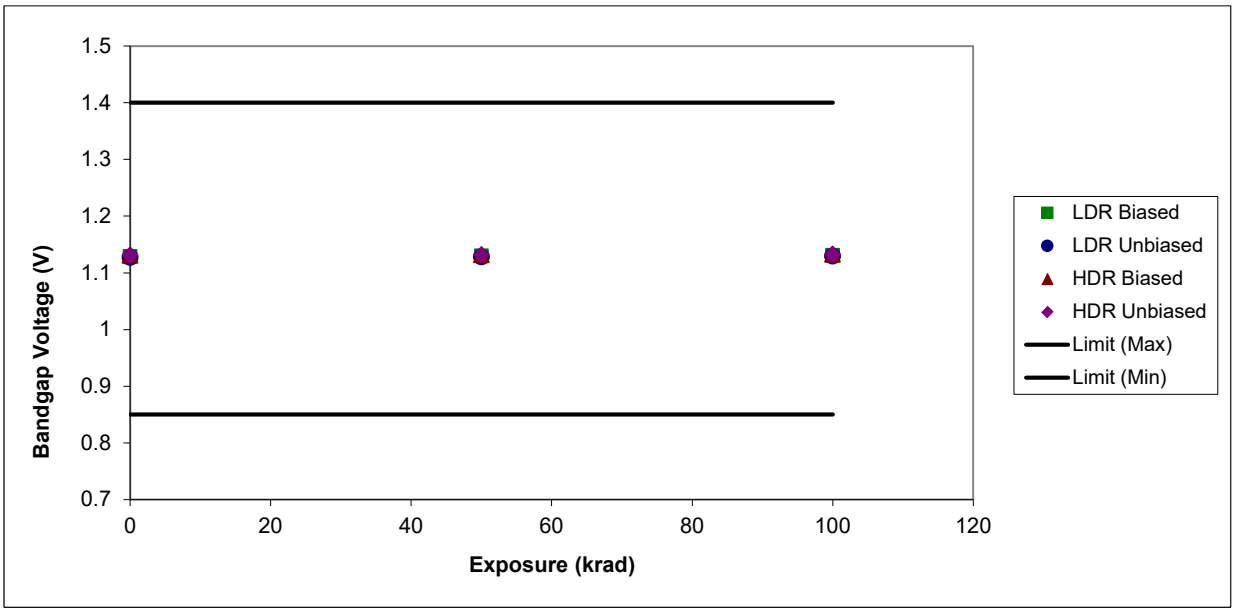
## 12450 PLL1_R_BIAS_VBG/LD2/3.465 V

Bandgap Voltage (V)

**LOT: L01200248**

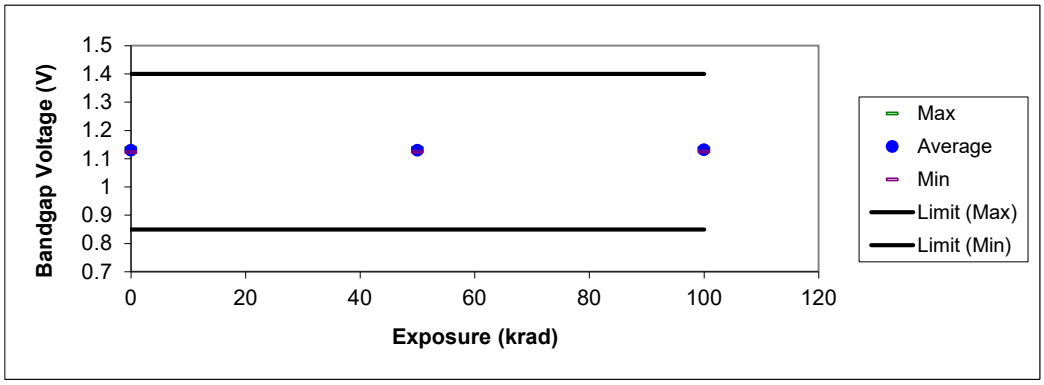
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.12922838 | 1.13768196 | 1.12272799 | 0.00668243 | 1.4 | 0.85 | | |
| LDR BIASED | 50 | 5 | 1.12993903 | 1.13775826 | 1.12386084 | 0.00623851 | 1.4 | 0.85 | 0.000226736 | 0.30 |
| LDR BIASED | 100 | 5 | 1.13095877 | 1.13803697 | 1.12491787 | 0.00597142 | 1.4 | 0.85 | 0.001271009 | 0.76 |
| LDR UNBIAS | 0 | 5 | 1.12703104 | 1.13142574 | 1.12196493 | 0.00358091 | 1.4 | 0.85 | | |
| LDR UNBIAS | 50 | 5 | 1.12804527 | 1.13210762 | 1.12324989 | 0.00345159 | 1.4 | 0.85 | 0.000681877 | 2.23 |
| LDR UNBIAS | 100 | 5 | 1.12949433 | 1.13361311 | 1.12461281 | 0.00357431 | 1.4 | 0.85 | 0.002493262 | 1.49 |
| HDR BIASED | 0 | 5 | 1.1310595 | 1.13478279 | 1.12608492 | 0.00331623 | 1.4 | 0.85 | | |
| HDR BIASED | 50 | 5 | 1.13182249 | 1.13524055 | 1.12715316 | 0.00326313 | 1.4 | 0.85 | 0.00076294 | |
| HDR BIASED | 100 | 5 | 1.13261595 | 1.13646126 | 1.12730575 | 0.00356132 | 1.4 | 0.85 | 0.001678467 | |
| HDR UNBIAS | 0 | 5 | 1.13151729 | 1.13524055 | 1.12883162 | 0.00233821 | 1.4 | 0.85 | | |
| HDR UNBIAS | 50 | 5 | 1.13200557 | 1.13539314 | 1.12989974 | 0.00206538 | 1.4 | 0.85 | 0.000305176 | |
| HDR UNBIAS | 100 | 5 | 1.13295164 | 1.13600349 | 1.13081539 | 0.00190281 | 1.4 | 0.85 | 0.001678467 | |

**Plot of the average readings for each radiation/bias condition**

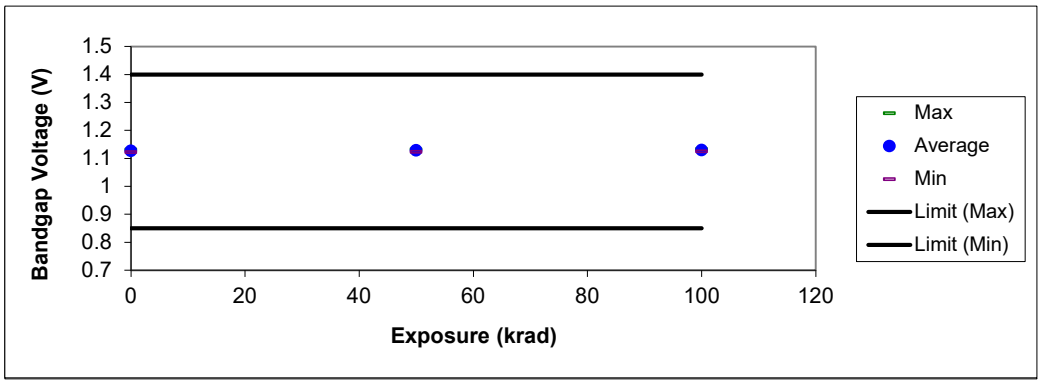


**12450 PLL1_R_BIAS_VBG/LD2/3.465 V**

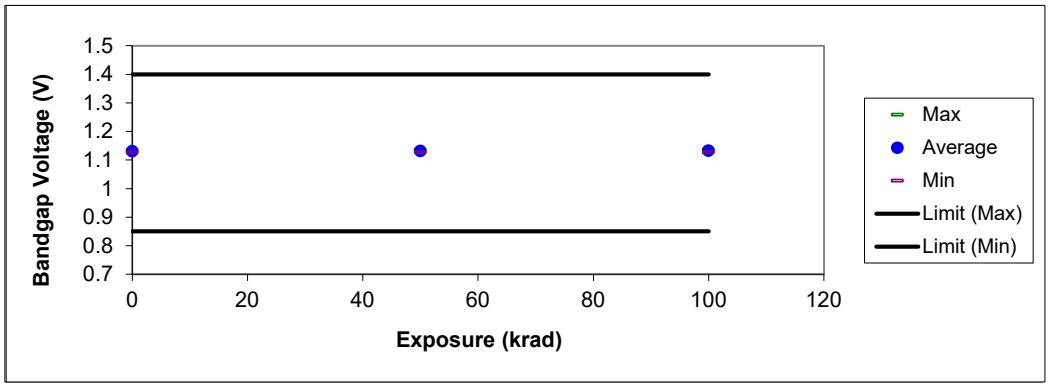
**Low dose rate biased**



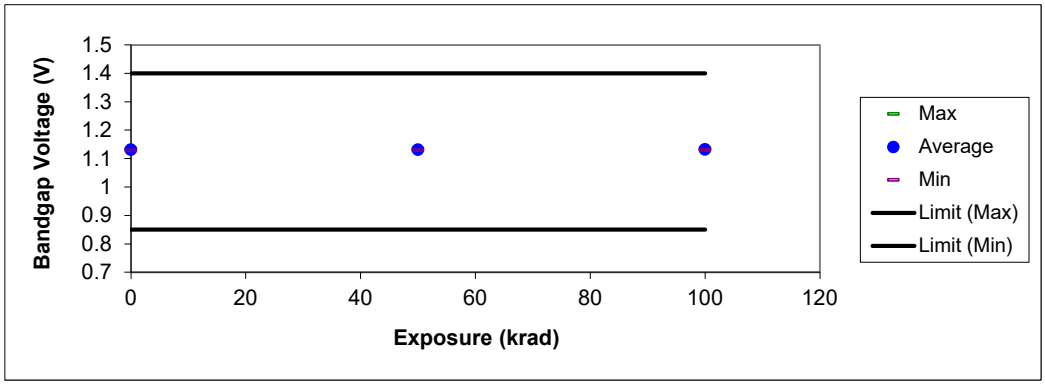

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



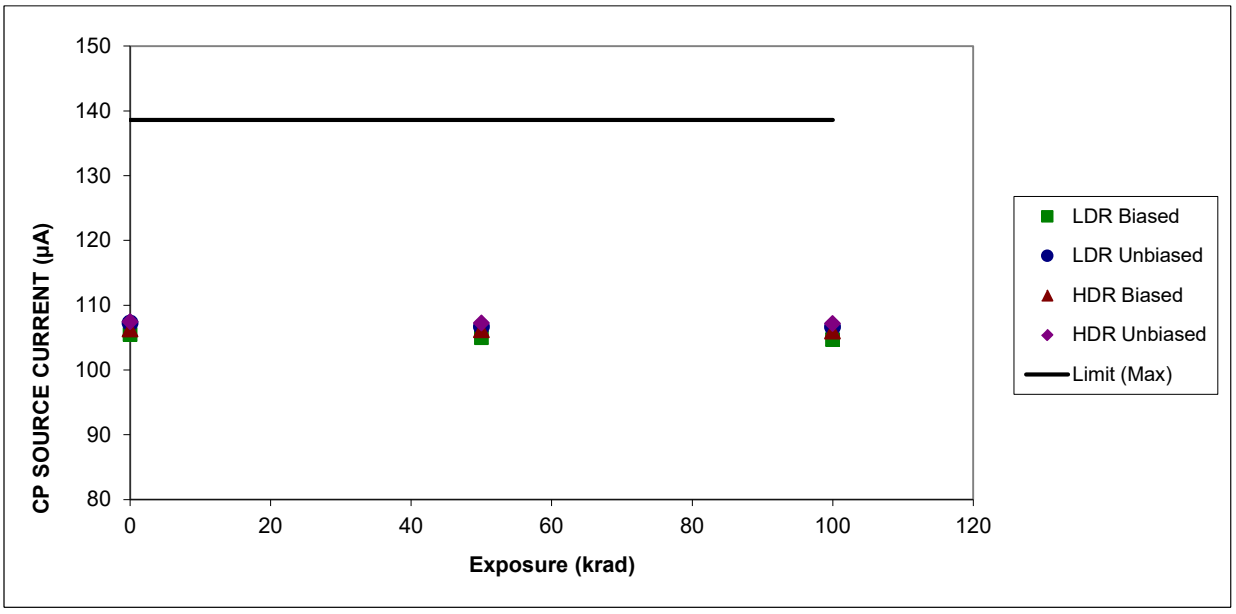
## 12430 ICP2_SRC_X0/3.465 uA

CP SOURCE CURRENT (µA)

**LOT: L01200248**

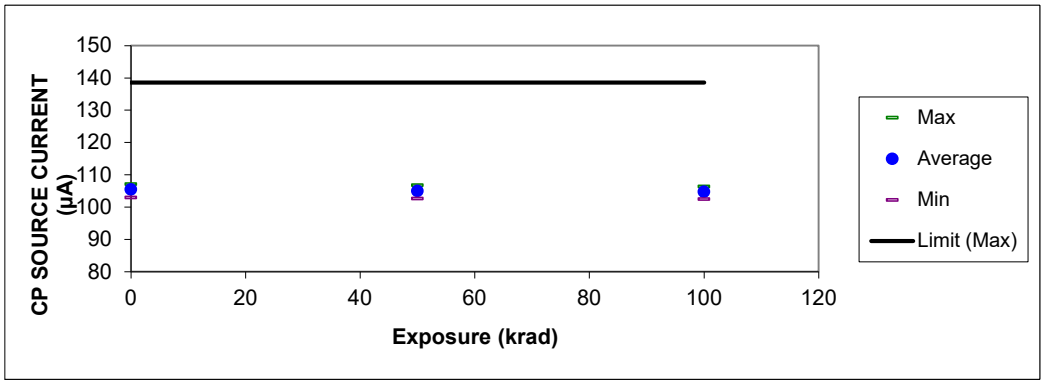
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 105.480367 | 107.065277 | 102.950607 | 1.87993783 | 138.6 | | | |
| LDR BIASED | 50 | 5 | 104.977467 | 106.745125 | 102.630753 | 1.69293937 | 138.6 | | -0.320152283 | 2.10 |
| LDR BIASED | 100 | 5 | 104.709354 | 106.355797 | 102.468361 | 1.54680862 | 138.6 | | -0.709480286 | 3.10 |
| LDR UNBIAS | 0 | 5 | 107.248148 | 108.817818 | 104.550751 | 2.07111745 | 138.6 | | | |
| LDR UNBIAS | 50 | 5 | 106.66893 | 108.116585 | 104.230782 | 1.89793561 | 138.6 | | -0.548843384 | 7.20 |
| LDR UNBIAS | 100 | 5 | 106.645453 | 108.185188 | 104.297745 | 1.82094927 | 138.6 | | -0.480239869 | 3.15 |
| HDR BIASED | 0 | 5 | 106.318538 | 108.665428 | 104.398361 | 2.0170053 | 138.6 | | | |
| HDR BIASED | 50 | 5 | 106.196622 | 108.513031 | 104.245964 | 2.03149087 | 138.6 | | -0.152397156 | |
| HDR BIASED | 100 | 5 | 105.983272 | 107.979652 | 104.169769 | 1.9021975 | 138.6 | | -0.228591919 | |
| HDR UNBIAS | 0 | 5 | 107.446263 | 109.351204 | 105.76992 | 1.397762 | 138.6 | | | |
| HDR UNBIAS | 50 | 5 | 107.263388 | 108.89402 | 105.693718 | 1.32811415 | 138.6 | | -0.076202392 | |
| HDR UNBIAS | 100 | 5 | 107.187192 | 108.589226 | 105.846115 | 1.18609016 | 138.6 | | -0.152389527 | |

**Plot of the average readings for each radiation/bias condition**

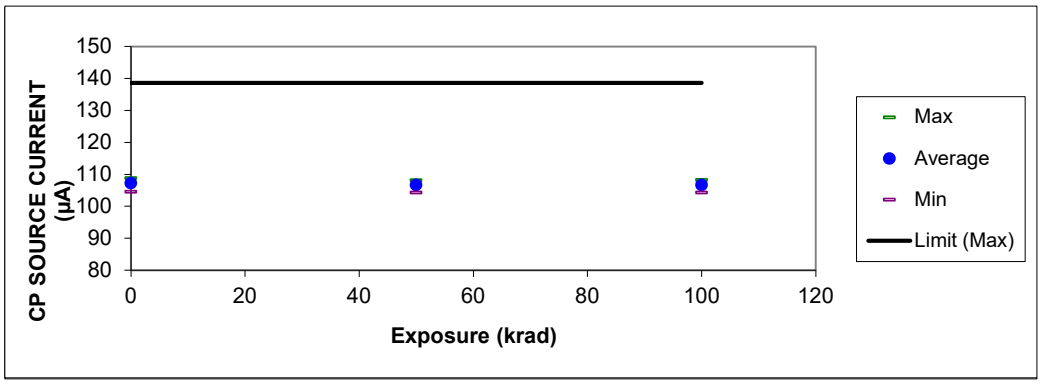


**12430 ICP2_SRC_X0/3.465 uA**

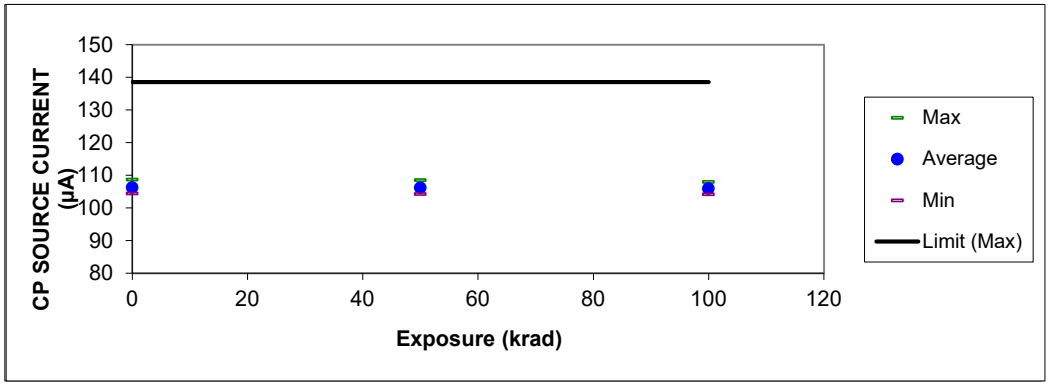
**Low dose rate biased**



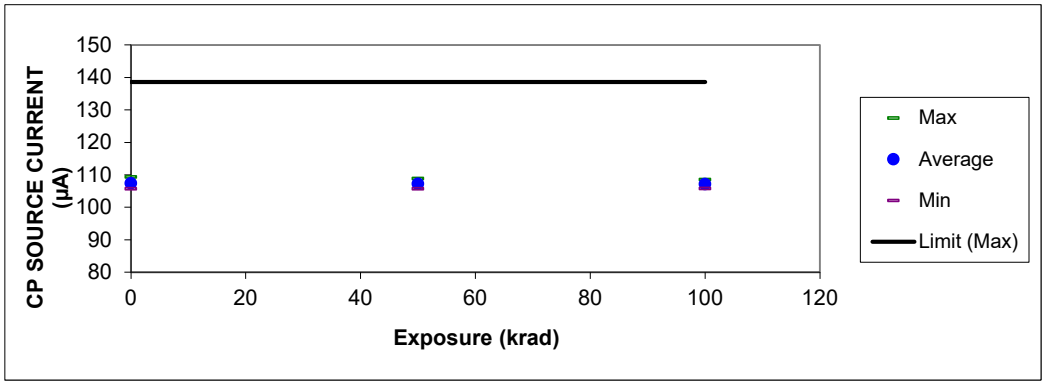

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



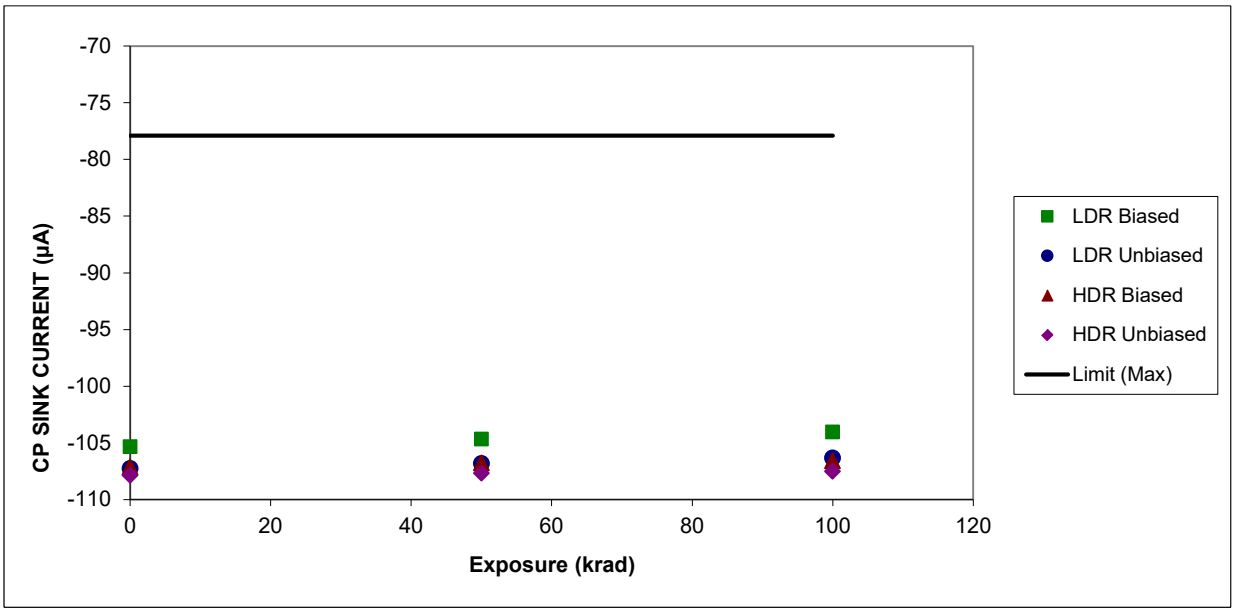
## 12429 ICP2_SINK_X0/3.465 uA

CP SINK CURRENT (μA)

**LOT: L01200248**

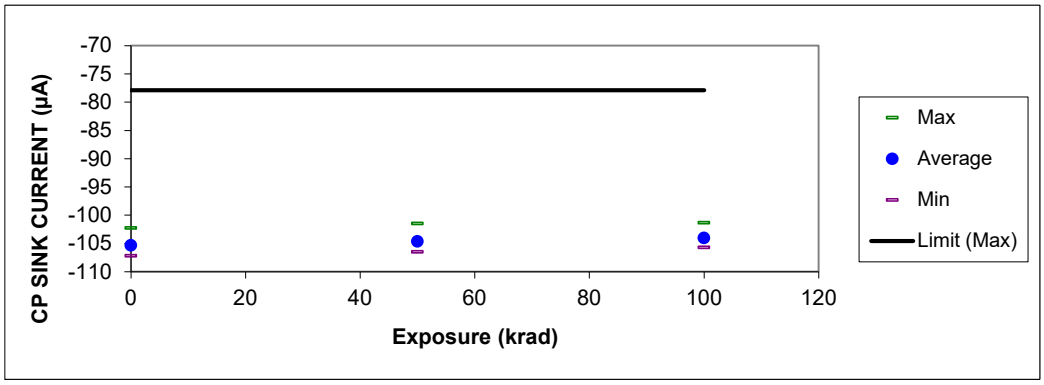
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | -105.32797 | -102.2496 | -107.20243 | 2.06479558 | -77.9 | | | |
| LDR BIASED | 50 | 5 | -104.65747 | -101.48787 | -106.51656 | 2.07586956 | -77.9 | | 0.685874939 | 4.50 |
| LDR BIASED | 100 | 5 | -104.03858 | -101.35548 | -105.70026 | 1.68678226 | -77.9 | | 1.35028076 | 2.53 |
| LDR UNBIAS | 0 | 5 | -107.26339 | -105.60228 | -109.18357 | 1.47300287 | -77.9 | | | |
| LDR UNBIAS | 50 | 5 | -106.82132 | -105.52605 | -108.64993 | 1.25774725 | -77.9 | | 0.533638001 | 3.50 |
| LDR UNBIAS | 100 | 5 | -106.34055 | -104.8618 | -108.06322 | 1.22267977 | -77.9 | | 1.1203537 | 4.90 |
| HDR BIASED | 0 | 5 | -107.11099 | -104.30692 | -110.17414 | 2.14736762 | -77.9 | | | |
| HDR BIASED | 50 | 5 | -106.76049 | -104.15453 | -109.33596 | 1.91056663 | -77.9 | | 0.152389527 | |
| HDR BIASED | 100 | 5 | -106.59285 | -103.77354 | -109.33596 | 2.07069411 | -77.9 | | 0.533378601 | |
| HDR UNBIAS | 0 | 5 | -107.85773 | -105.90707 | -109.94555 | 1.63656638 | -77.9 | | | |
| HDR UNBIAS | 50 | 5 | -107.67486 | -105.75468 | -109.48837 | 1.5099856 | -77.9 | | 0.152397156 | |
| HDR UNBIAS | 100 | 5 | -107.50722 | -105.83087 | -109.25977 | 1.41633222 | -77.9 | | 0.228599548 | |

**Plot of the average readings for each radiation/bias condition**

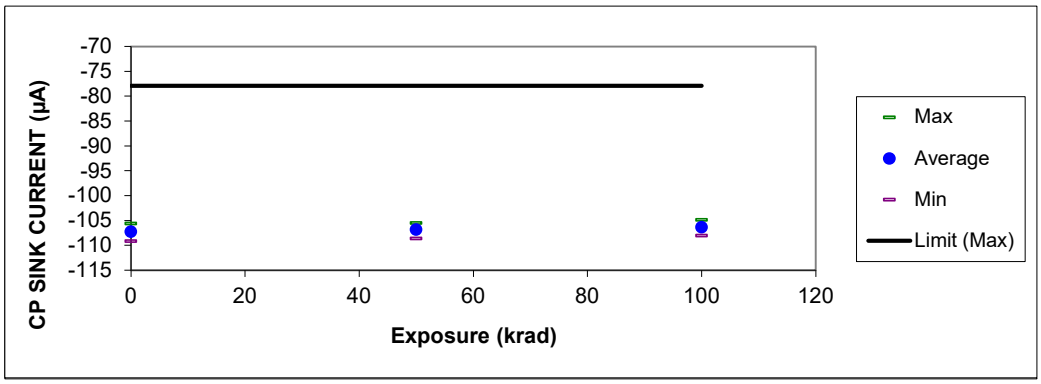


**12429 ICP2_SINK_X0/3.465 uA**

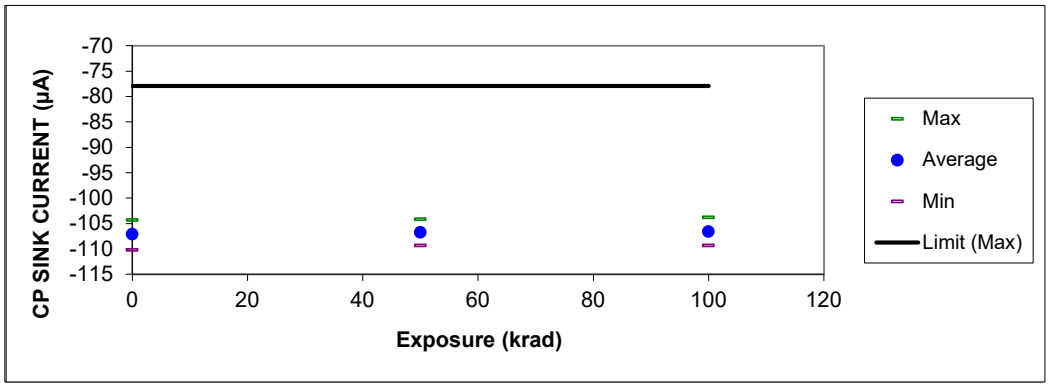
**Low dose rate biased**



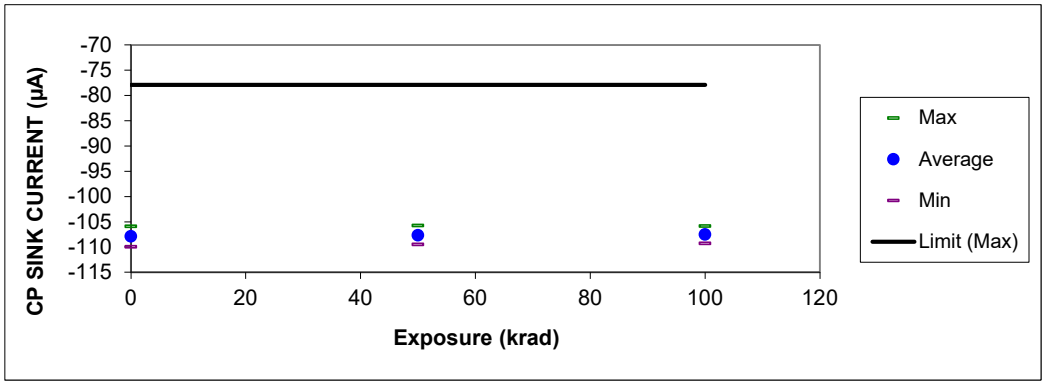

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



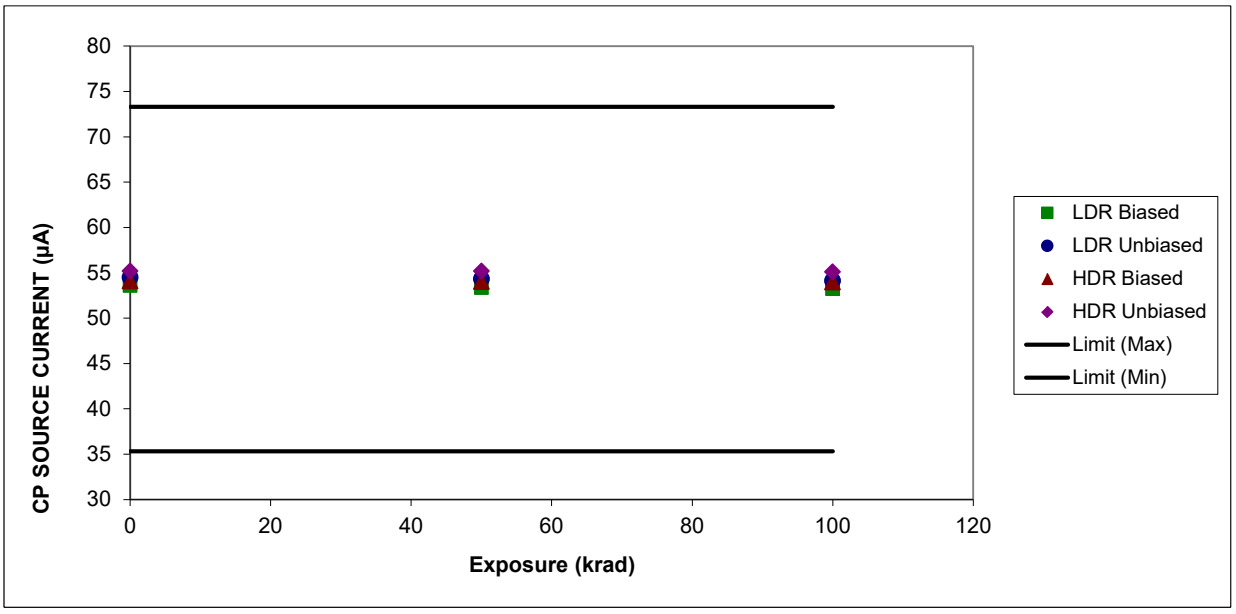
## 12410 ICP1_SRC_X0/3.465 uA

CP SOURCE CURRENT (µA)

**LOT: L01200248**

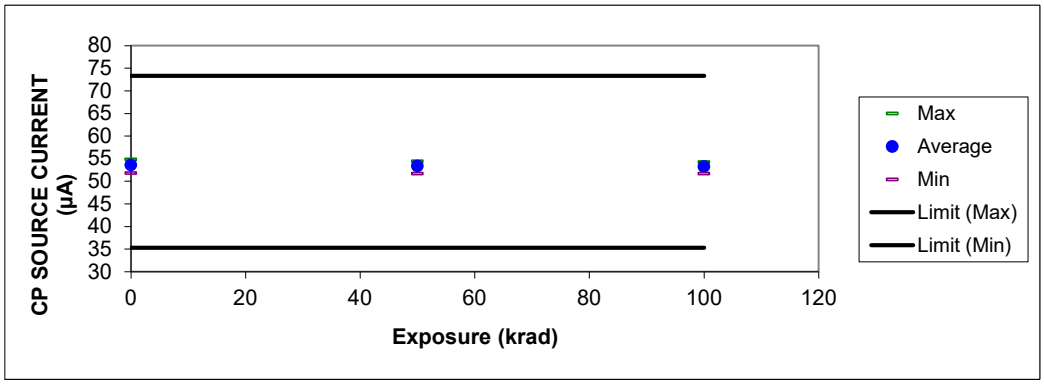
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 53.6056793 | 54.7913857 | 51.8233147 | 1.1780991 | 73.29 | 35.31 | | |
| LDR BIASED | 50 | 5 | 53.3721283 | 54.4008484 | 51.6652184 | 1.09612123 | 73.29 | 35.31 | -0.253734589 | 5.56 |
| LDR BIASED | 100 | 5 | 53.2557579 | 54.2196198 | 51.6883392 | 1.01212644 | 73.29 | 35.31 | -0.350009918 | 3.54 |
| LDR UNBIAS | 0 | 5 | 54.4884911 | 55.6361465 | 52.987709 | 0.98993522 | 73.29 | 35.31 | | |
| LDR UNBIAS | 50 | 5 | 54.3276909 | 55.3838387 | 52.9454002 | 0.91865278 | 73.29 | 35.31 | -0.20079422 | -6.60 |
| LDR UNBIAS | 100 | 5 | 54.1132004 | 55.1089897 | 52.8589592 | 0.8376788 | 73.29 | 35.31 | -0.411952973 | 13.53 |
| HDR BIASED | 0 | 5 | 54.0927467 | 55.5219879 | 53.3377914 | 0.88752885 | 73.29 | 35.31 | | |
| HDR BIASED | 50 | 5 | 54.0455612 | 55.3469467 | 53.2312431 | 0.84549587 | 73.29 | 35.31 | -0.045665741 | |
| HDR BIASED | 100 | 5 | 53.9740227 | 55.2632294 | 53.132309 | 0.84808644 | 73.29 | 35.31 | -0.098937988 | |
| HDR UNBIAS | 0 | 5 | 55.1962593 | 56.4656792 | 53.8933525 | 1.04085623 | 73.29 | 35.31 | | |
| HDR UNBIAS | 50 | 5 | 55.1871277 | 56.3134727 | 53.9314041 | 0.9687568 | 73.29 | 35.31 | 0.030445099 | |
| HDR UNBIAS | 100 | 5 | 55.1049362 | 56.0394974 | 53.8629112 | 0.93393795 | 73.29 | 35.31 | -0.030441285 | |

**Plot of the average readings for each radiation/bias condition**

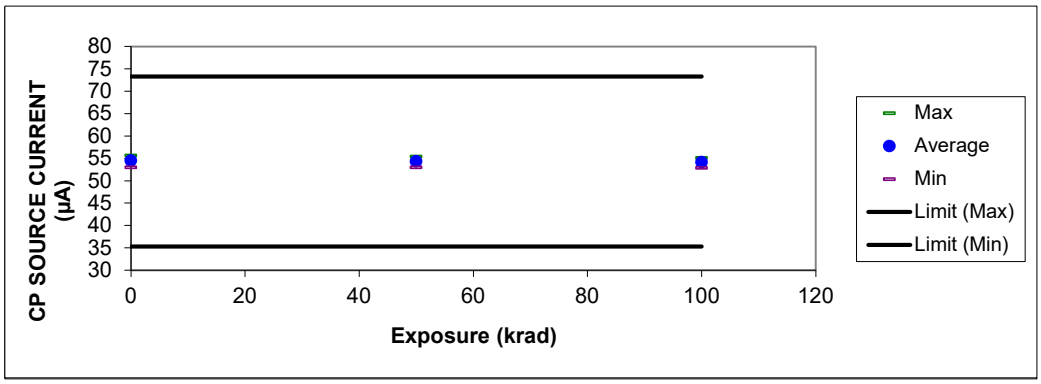


**12410 ICP1_SRC_X0/3.465 uA**

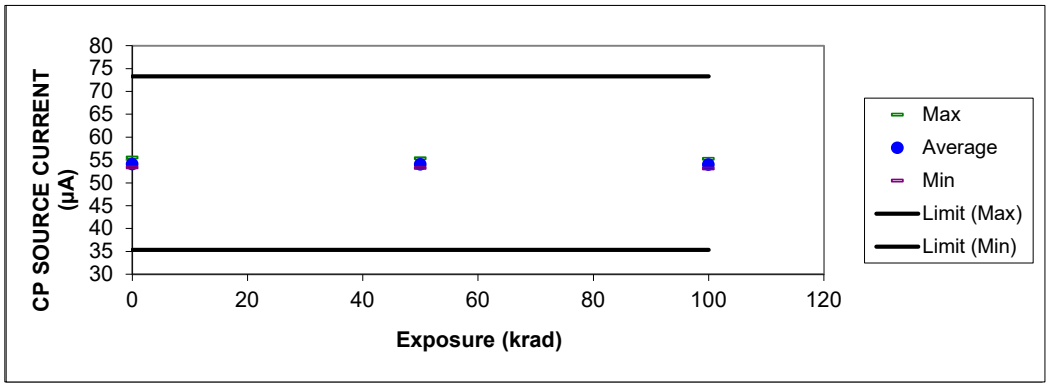
**Low dose rate biased**



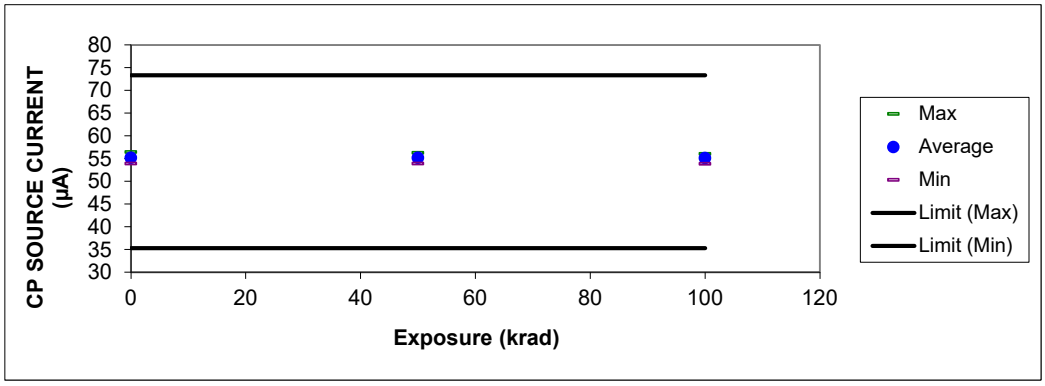

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



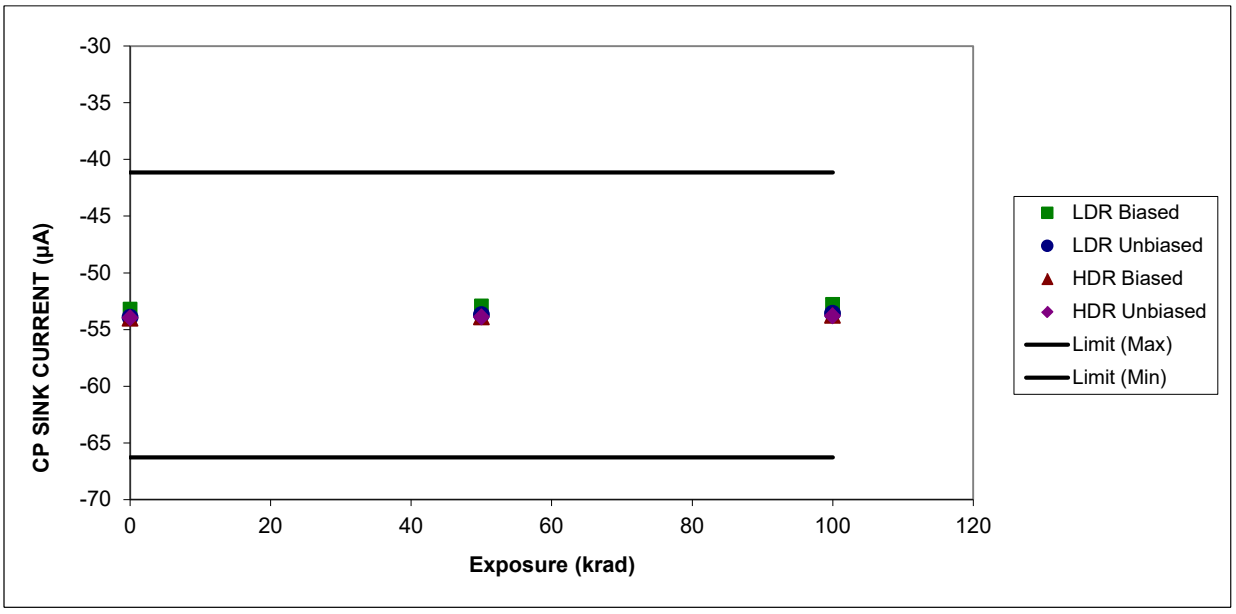
## 12409 ICP1_SINK_X0/3.465 uA

CP SINK CURRENT (μA)

**LOT: L01200248**

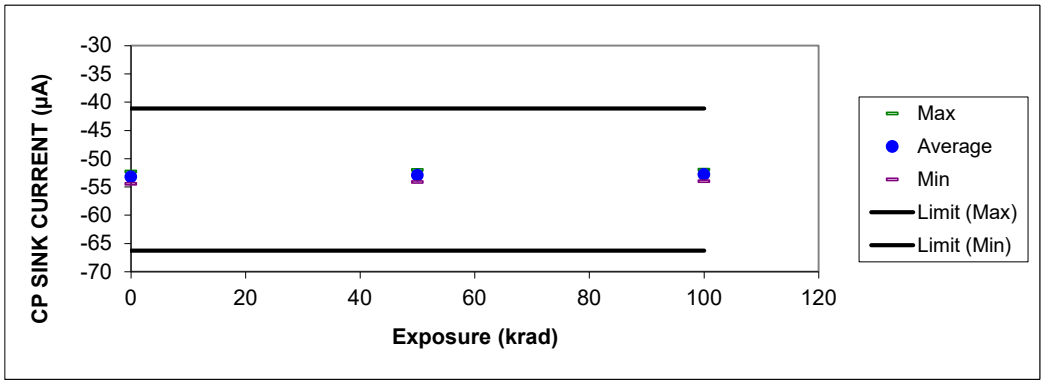
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | -53.197759 | -52.264717 | -54.448917 | 0.95435522 | -41.14 | -66.29 | | |
| LDR BIASED | 50 | 5 | -52.913396 | -52.006603 | -54.132614 | 0.89699179 | -41.14 | -66.29 | 0.258113861 | 2.83 |
| LDR BIASED | 100 | 5 | -52.795109 | -51.949829 | -53.994618 | 0.84405803 | -41.14 | -66.29 | 0.36913681 | 1.62 |
| LDR UNBIAS | 0 | 5 | -53.920752 | -52.721348 | -54.585903 | 0.78665154 | -41.14 | -66.29 | | |
| LDR UNBIAS | 50 | 5 | -53.696747 | -52.570492 | -54.330738 | 0.72516256 | -41.14 | -66.29 | 0.2551651 | 8.38 |
| LDR UNBIAS | 100 | 5 | -53.567414 | -52.535137 | -54.131439 | 0.65593913 | -41.14 | -66.29 | 0.454463959 | 3.14 |
| HDR BIASED | 0 | 5 | -54.013598 | -52.957268 | -54.981648 | 0.93055253 | -41.14 | -66.29 | | |
| HDR BIASED | 50 | 5 | -53.888788 | -52.903996 | -54.738113 | 0.84716478 | -41.14 | -66.29 | 0.091323853 | |
| HDR BIASED | 100 | 5 | -53.760931 | -52.835503 | -54.64679 | 0.81976901 | -41.14 | -66.29 | 0.228317261 | |
| HDR UNBIAS | 0 | 5 | -53.955759 | -53.071426 | -54.464138 | 0.53050854 | -41.14 | -66.29 | | |
| HDR UNBIAS | 50 | 5 | -53.891832 | -53.040985 | -54.334759 | 0.50227143 | -41.14 | -66.29 | 0.030441284 | |
| HDR UNBIAS | 100 | 5 | -53.805072 | -52.987709 | -54.174942 | 0.48527023 | -41.14 | -66.29 | 0.1445961 | |

**Plot of the average readings for each radiation/bias condition**

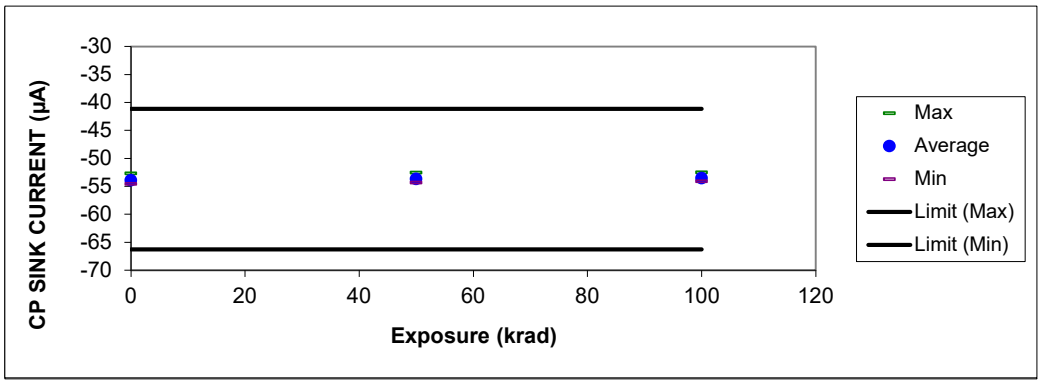


**12409 ICP1_SINK_X0/3.465 uA**

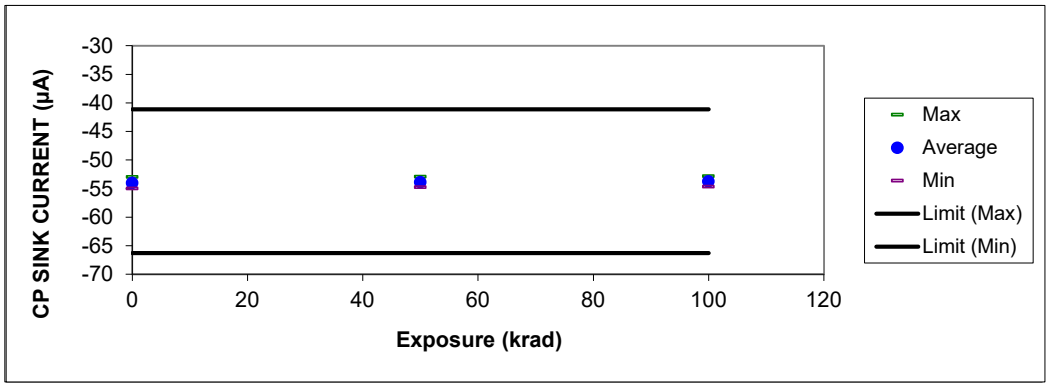
**Low dose rate biased**



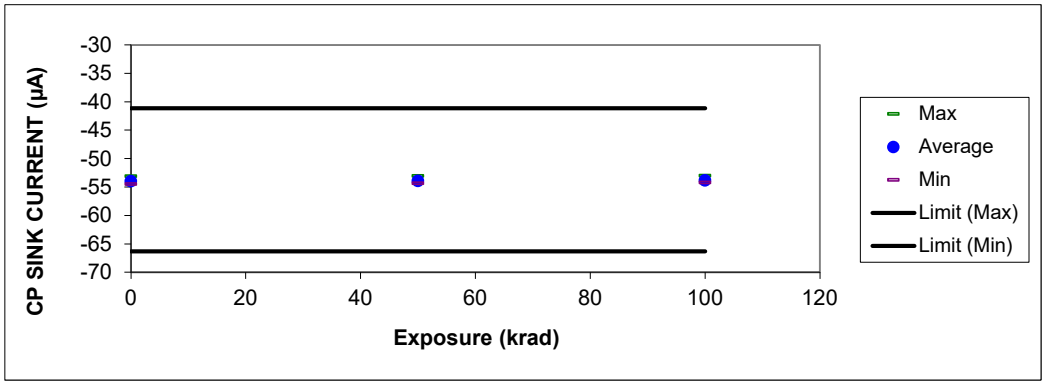

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



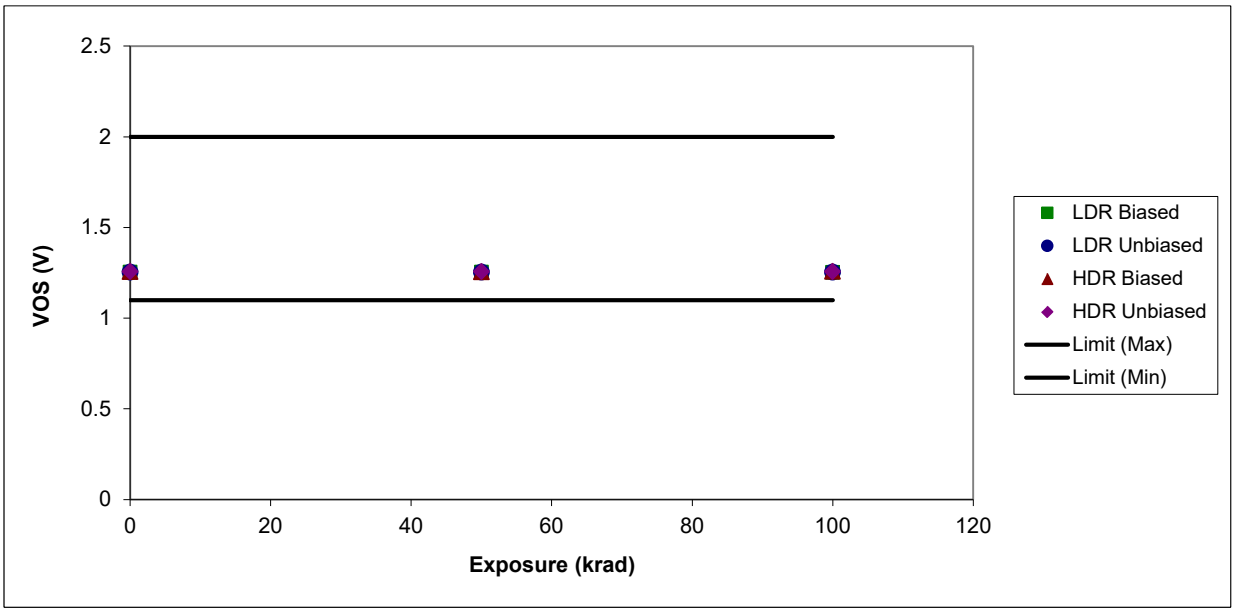
## 11518 VOS/LVDS/CLKOUT6B/3.465 V

VOS (V)

**LOT: L01200248**

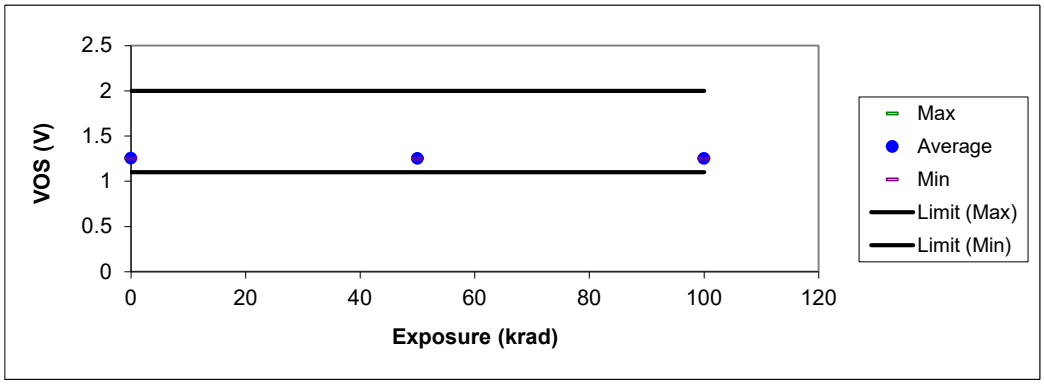
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.25383813 | 1.25753057 | 1.25043559 | 0.00277887 | 2 | 1.1 | | |
| LDR BIASED | 50 | 5 | 1.2535718 | 1.25708413 | 1.24998307 | 0.00284008 | 2 | 1.1 | -0.000375033 | 1.64 |
| LDR BIASED | 100 | 5 | 1.25232618 | 1.25571275 | 1.24907684 | 0.00265244 | 2 | 1.1 | -0.00143528 | -1.45 |
| LDR UNBIAS | 0 | 5 | 1.25469255 | 1.25890374 | 1.25135112 | 0.00355523 | 2 | 1.1 | | |
| LDR UNBIAS | 50 | 5 | 1.25444229 | 1.2586112 | 1.25120485 | 0.0034721 | 2 | 1.1 | -0.00029254 | #DIV/0! |
| LDR UNBIAS | 100 | 5 | 1.25473654 | 1.25899267 | 1.25151777 | 0.00353604 | 2 | 1.1 | 0.00008893 | #DIV/0! |
| HDR BIASED | 0 | 5 | 1.25626416 | 1.26172662 | 1.2490623 | 0.00495086 | 2 | 1.1 | | |
| HDR BIASED | 50 | 5 | 1.25597425 | 1.26165032 | 1.24875712 | 0.00495321 | 2 | 1.1 | -0.000228882 | |
| HDR BIASED | 100 | 5 | 1.25902588 | 1.26699066 | 1.25104594 | 0.00627779 | 2 | 1.1 | 0.000991702 | |
| HDR UNBIAS | 0 | 5 | 1.25635567 | 1.26378632 | 1.25310564 | 0.00424615 | 2 | 1.1 | | |
| HDR UNBIAS | 50 | 5 | 1.25634041 | 1.26371002 | 1.25310564 | 0.00421485 | 2 | 1.1 | 0 | |
| HDR UNBIAS | 100 | 5 | 1.25634043 | 1.26348126 | 1.25310564 | 0.00409371 | 2 | 1.1 | 0 | |

**Plot of the average readings for each radiation/bias condition**

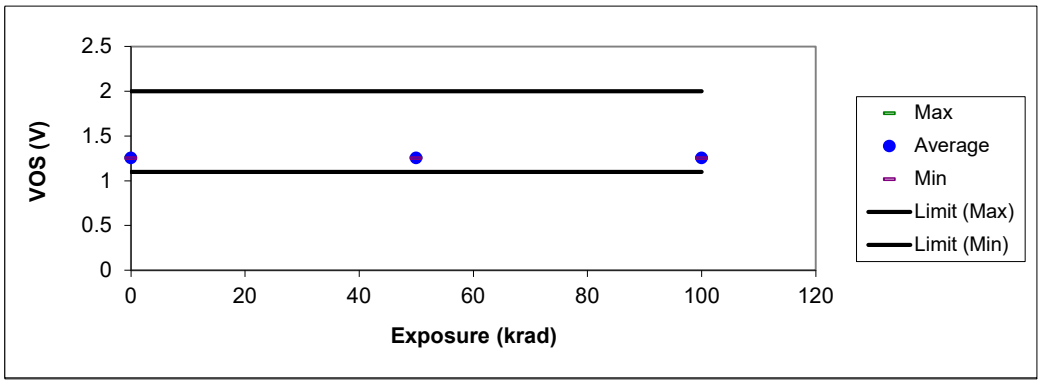


**11518 VOS/LVDS/CLKOUT6B/3.465 V**

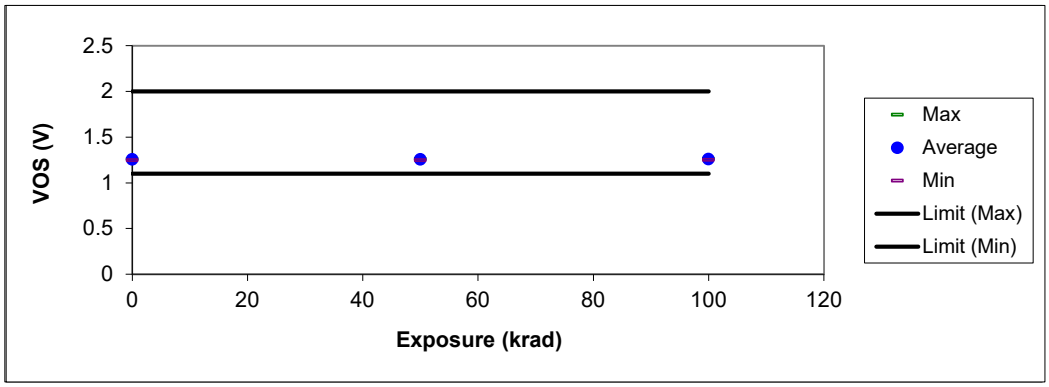
**Low dose rate biased**



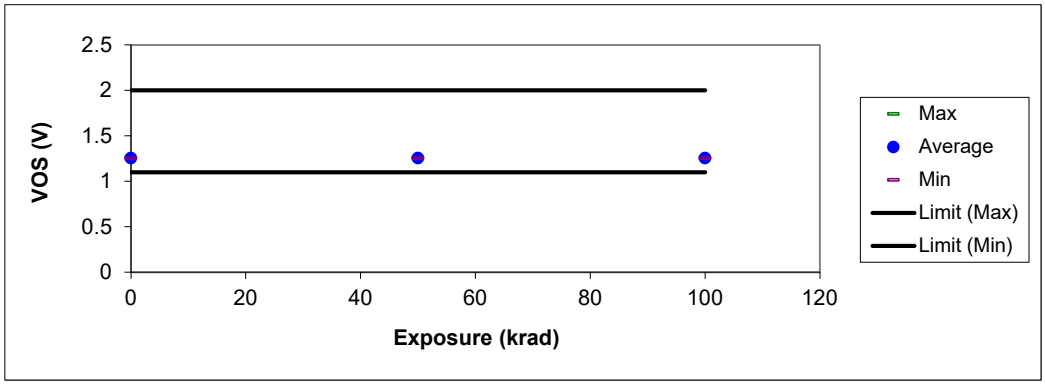

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



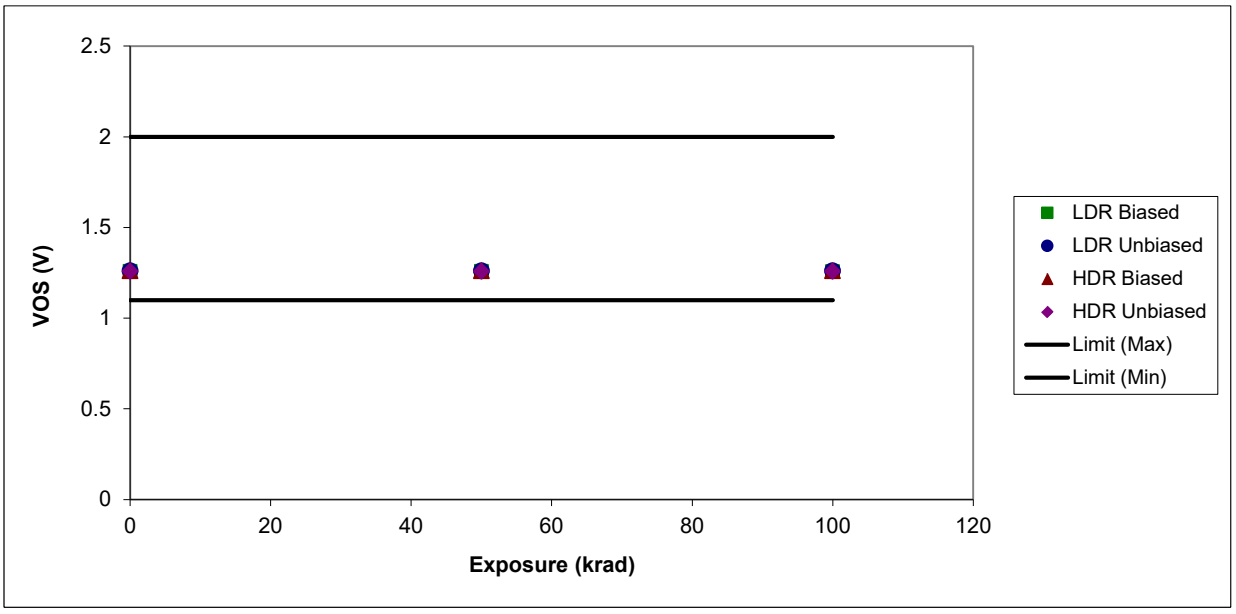
## 11517 VOS/LVDS/CLKOUT5B/3.465 V

VOS (V)

**LOT: L01200248**

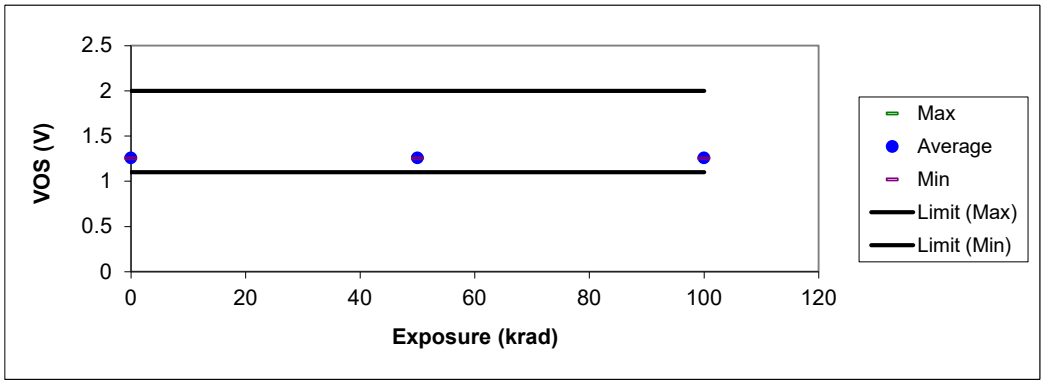
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.25861957 | 1.26322746 | 1.2526232 | 0.00423309 | 2 | 1.1 | | |
| LDR BIASED | 50 | 5 | 1.25868044 | 1.26367426 | 1.25244951 | 0.00443364 | 2 | 1.1 | 0.000135541 | 1.78 |
| LDR BIASED | 100 | 5 | 1.25719833 | 1.26136303 | 1.25106573 | 0.00424775 | 2 | 1.1 | -0.001405597 | -4.61 |
| LDR UNBIAS | 0 | 5 | 1.26090827 | 1.26330376 | 1.25689542 | 0.00240137 | 2 | 1.1 | | |
| LDR UNBIAS | 50 | 5 | 1.26069639 | 1.26306343 | 1.25695479 | 0.00228056 | 2 | 1.1 | -0.000089527 | -0.39 |
| LDR UNBIAS | 100 | 5 | 1.26073749 | 1.26319361 | 1.25709152 | 0.00223841 | 2 | 1.1 | -0.00011015 | -1.44 |
| HDR BIASED | 0 | 5 | 1.26124392 | 1.26696563 | 1.25437784 | 0.00489296 | 2 | 1.1 | | |
| HDR BIASED | 50 | 5 | 1.26125917 | 1.26696563 | 1.25445414 | 0.00482932 | 2 | 1.1 | 0.000076294 | |
| HDR BIASED | 100 | 5 | 1.2614728 | 1.26696563 | 1.25498819 | 0.00466646 | 2 | 1.1 | 0.000305175 | |
| HDR UNBIAS | 0 | 5 | 1.25820763 | 1.26032853 | 1.25498819 | 0.00218755 | 2 | 1.1 | | |
| HDR UNBIAS | 50 | 5 | 1.2583297 | 1.26002335 | 1.25529337 | 0.00203739 | 2 | 1.1 | 0.000228882 | |
| HDR UNBIAS | 100 | 5 | 1.2583602 | 1.25994706 | 1.25506449 | 0.00206788 | 2 | 1.1 | 0.000076293 | |

**Plot of the average readings for each radiation/bias condition**

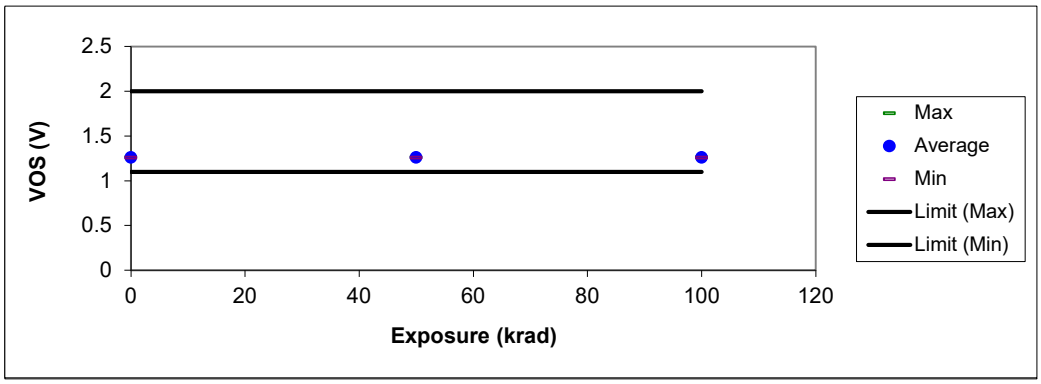


**11517 VOS/LVDS/CLKOUT5B/3.465 V**

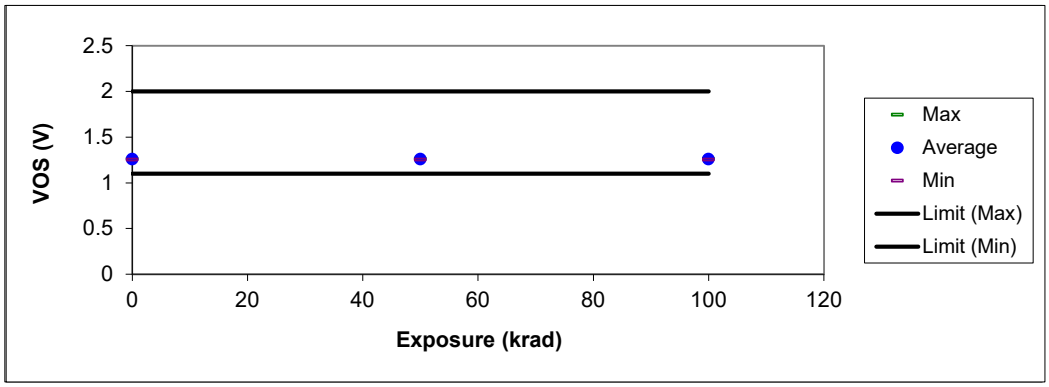
**Low dose rate biased**



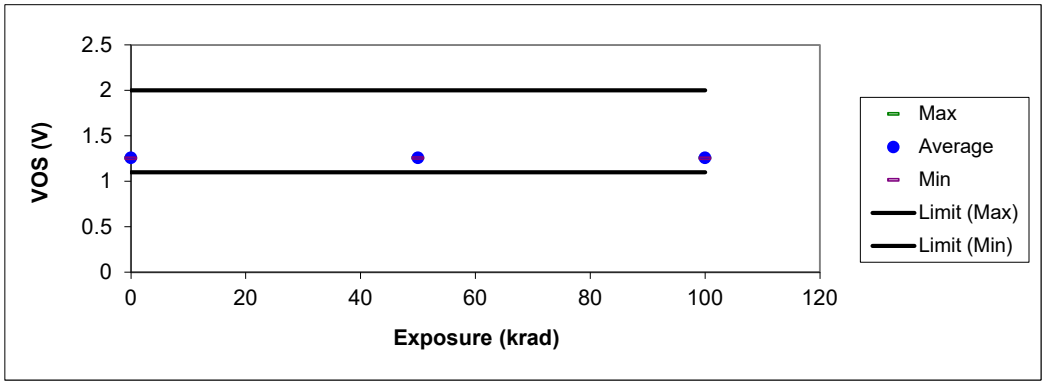

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



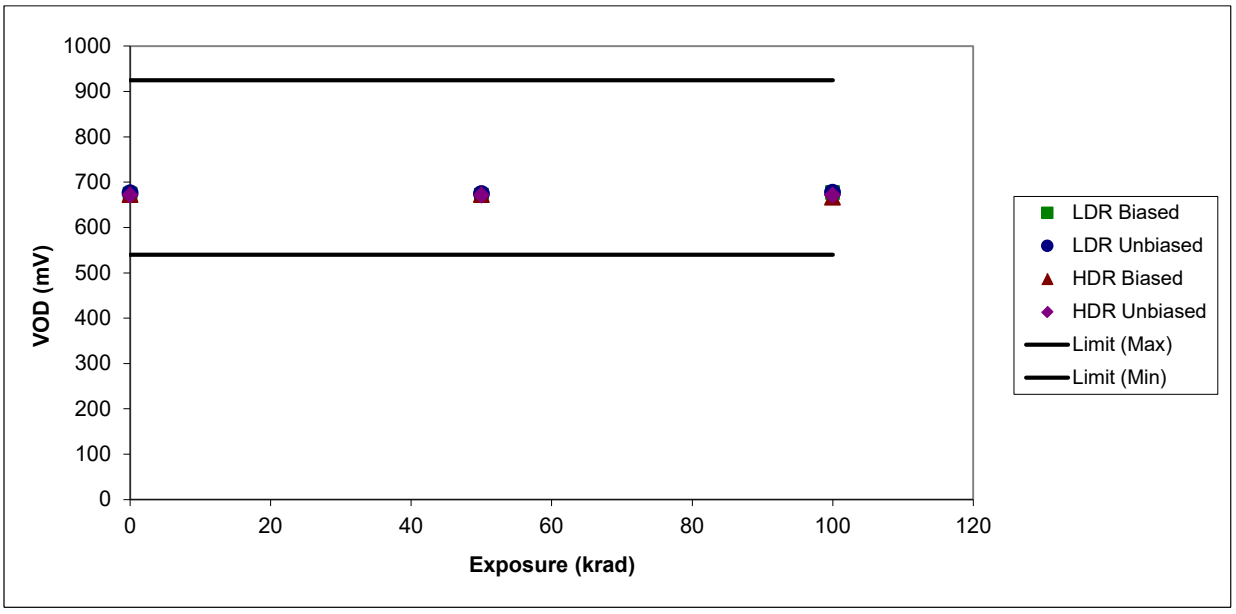
## 11832 VOD/HSDS8M/CLKOUT1/3.465 mV

VOD (mV)

**LOT: L01200248**

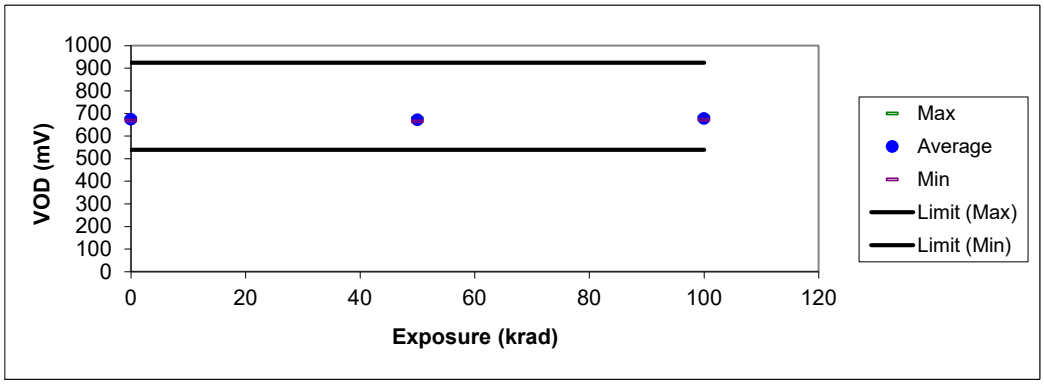
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 673.36333 | 680.107544 | 667.748169 | 5.26296353 | 925 | 540 | | |
| LDR BIASED | 50 | 5 | 671.351111 | 678.681213 | 664.631775 | 5.73125952 | 925 | 540 | -1.88659668 | -6.18 |
| LDR BIASED | 100 | 5 | 677.045569 | 683.849365 | 671.187683 | 5.10940963 | 925 | 540 | 3.74182129 | -0.63 |
| LDR UNBIAS | 0 | 5 | 676.231934 | 681.175659 | 670.036987 | 5.10713106 | 925 | 540 | | |
| LDR UNBIAS | 50 | 5 | 674.741248 | 679.902832 | 668.296875 | 5.29491648 | 925 | 540 | -1.43328857 | -4.70 |
| LDR UNBIAS | 100 | 5 | 677.350708 | 682.781494 | 670.424866 | 5.44992356 | 925 | 540 | 1.60583496 | 2.10 |
| HDR BIASED | 0 | 5 | 672.203687 | 684.074707 | 665.459473 | 7.27972017 | 925 | 540 | | |
| HDR BIASED | 50 | 5 | 672.569849 | 684.379883 | 665.917236 | 7.30382777 | 925 | 540 | 0.305175781 | |
| HDR BIASED | 100 | 5 | 666.649609 | 678.123901 | 654.778564 | 8.73162181 | 925 | 540 | -5.95080566 | |
| HDR UNBIAS | 0 | 5 | 670.983008 | 676.750732 | 664.086182 | 4.91408367 | 925 | 540 | | |
| HDR UNBIAS | 50 | 5 | 671.257666 | 677.055908 | 664.23877 | 4.96780244 | 925 | 540 | 0.305175781 | |
| HDR UNBIAS | 100 | 5 | 671.501807 | 676.598145 | 664.391357 | 4.80775034 | 925 | 540 | 0.762939453 | |

**Plot of the average readings for each radiation/bias condition**

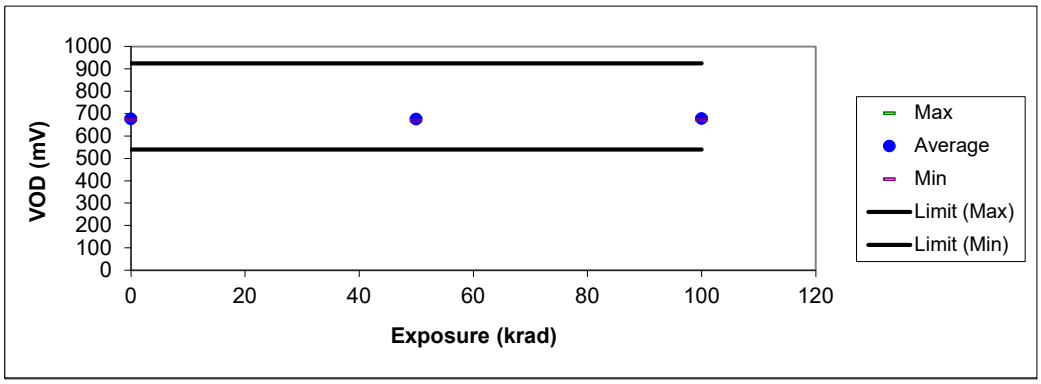


**11832 VOD/HSDS8M/CLKOUT1/3.465 mV**

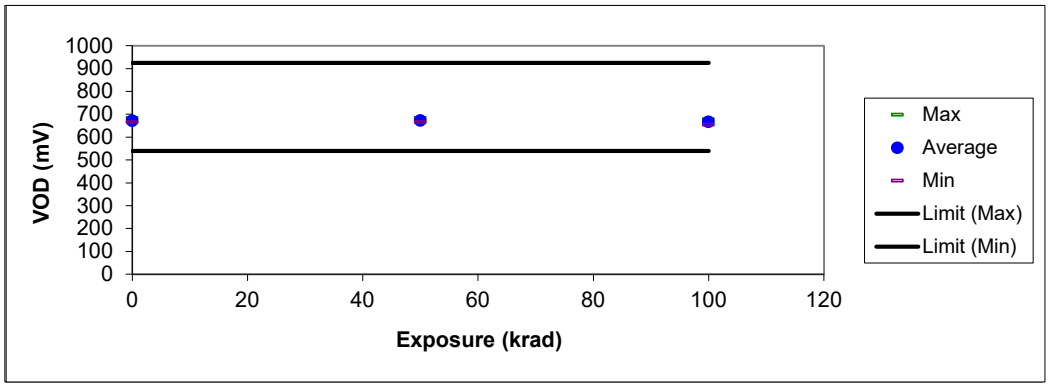
**Low dose rate biased**



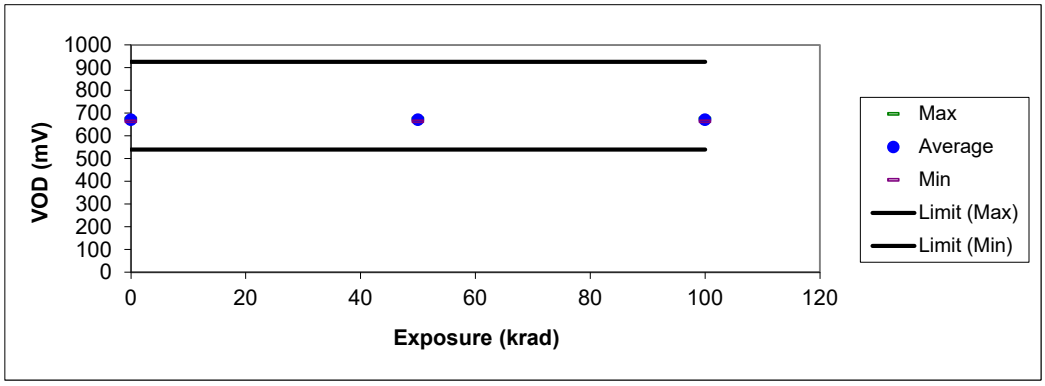

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



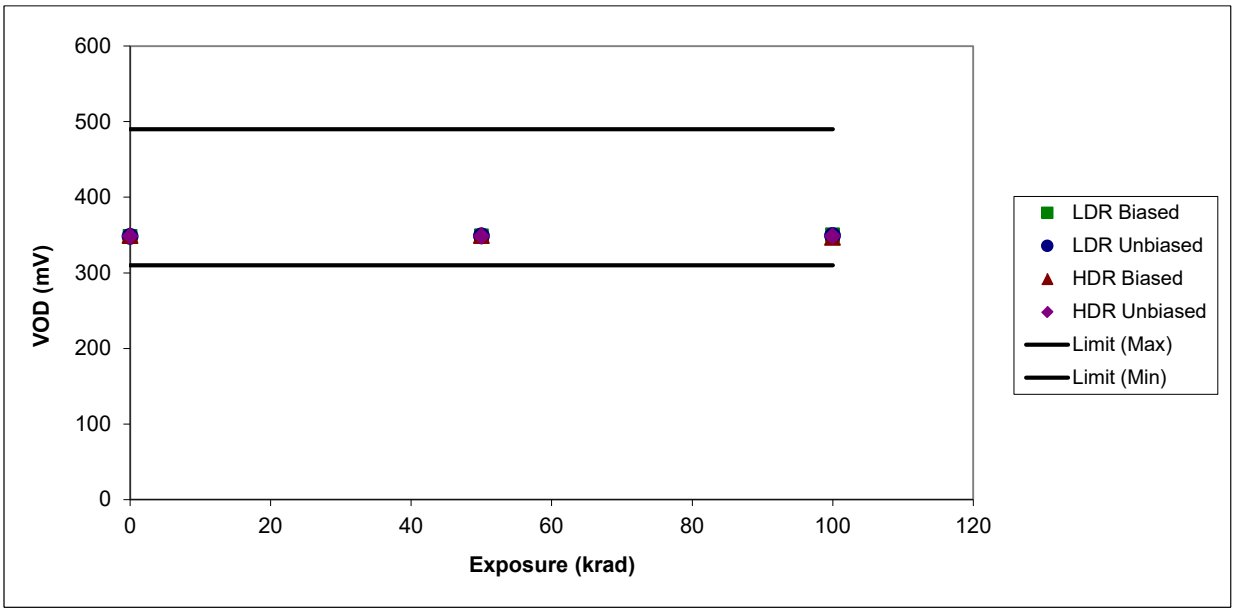
## 11488 VOD/LVDS/CLKOUT6B/3.465 mV

VOD (mV)

**LOT: L01200248**

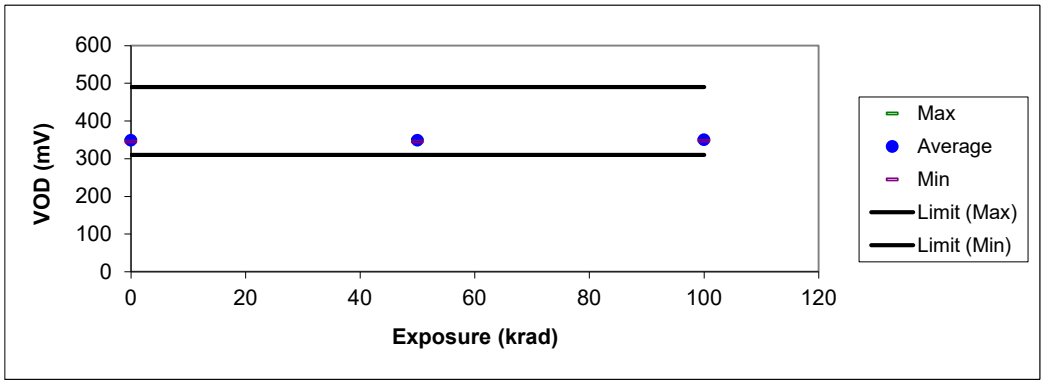
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 348.342615 | 349.99054 | 344.955261 | 2.03112263 | 490 | 310 | | |
| LDR BIASED | 50 | 5 | 348.832526 | 350.573486 | 344.923187 | 2.31745687 | 490 | 310 | 0.581756592 | 3.81 |
| LDR BIASED | 100 | 5 | 350.358038 | 351.730988 | 347.001984 | 1.93260868 | 490 | 310 | 2.04672241 | -2.68 |
| LDR UNBIAS | 0 | 5 | 348.189978 | 351.058411 | 343.73468 | 2.82661183 | 490 | 310 | | |
| LDR UNBIAS | 50 | 5 | 349.015796 | 352.100555 | 344.770477 | 2.76654584 | 490 | 310 | 0.733978271 | NA |
| LDR UNBIAS | 100 | 5 | 349.290118 | 352.493713 | 345.018677 | 2.80670035 | 490 | 310 | 0.978118896 | 6.41 |
| HDR BIASED | 0 | 5 | 349.136047 | 353.957581 | 346.175964 | 3.11500621 | 490 | 310 | | |
| HDR BIASED | 50 | 5 | 349.258142 | 354.110168 | 346.481262 | 3.16097563 | 490 | 310 | 0.152587891 | |
| HDR BIASED | 100 | 5 | 346.908411 | 352.58429 | 339.309998 | 5.06319199 | 490 | 310 | -0.762939453 | |
| HDR UNBIAS | 0 | 5 | 348.556238 | 354.72052 | 344.802917 | 3.95619931 | 490 | 310 | | |
| HDR UNBIAS | 50 | 5 | 348.556238 | 354.567932 | 344.955505 | 3.88643772 | 490 | 310 | 0 | |
| HDR UNBIAS | 100 | 5 | 348.586755 | 354.415344 | 344.955505 | 3.83639242 | 490 | 310 | 0.152587891 | |

**Plot of the average readings for each radiation/bias condition**

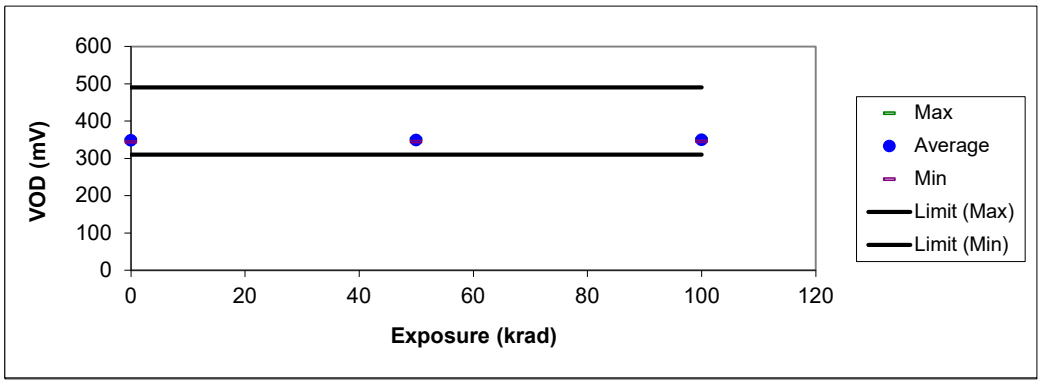


**11488 VOD/LVDS/CLKOUT6B/3.465 mV**

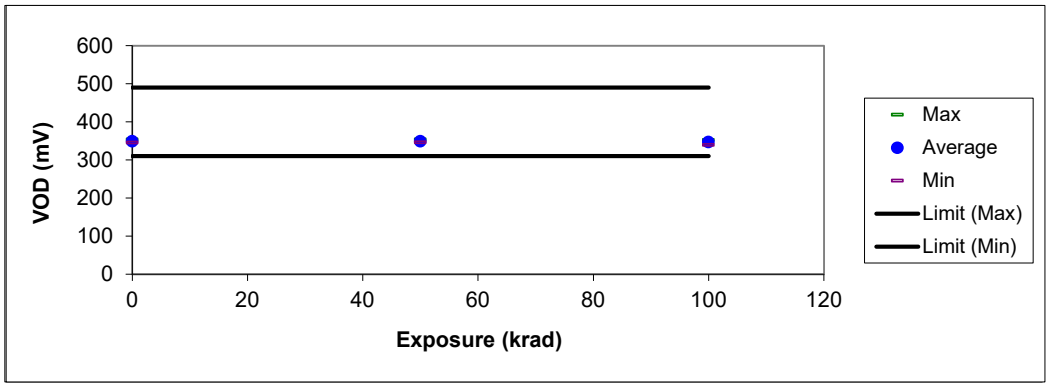
**Low dose rate biased**



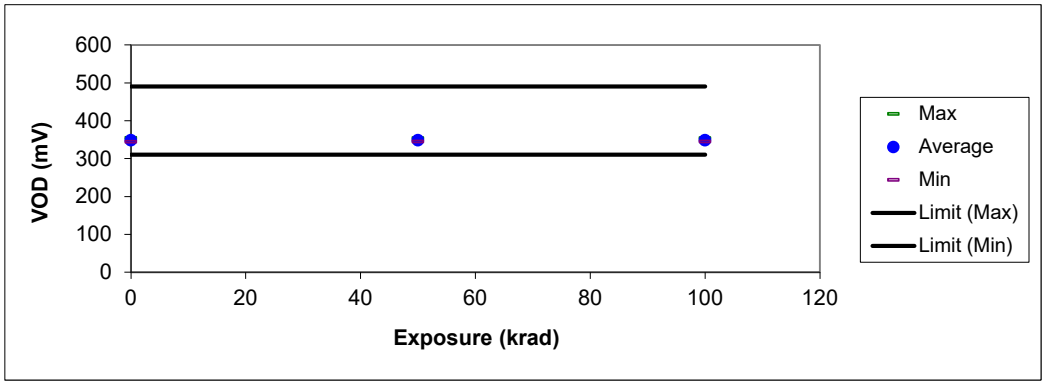

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



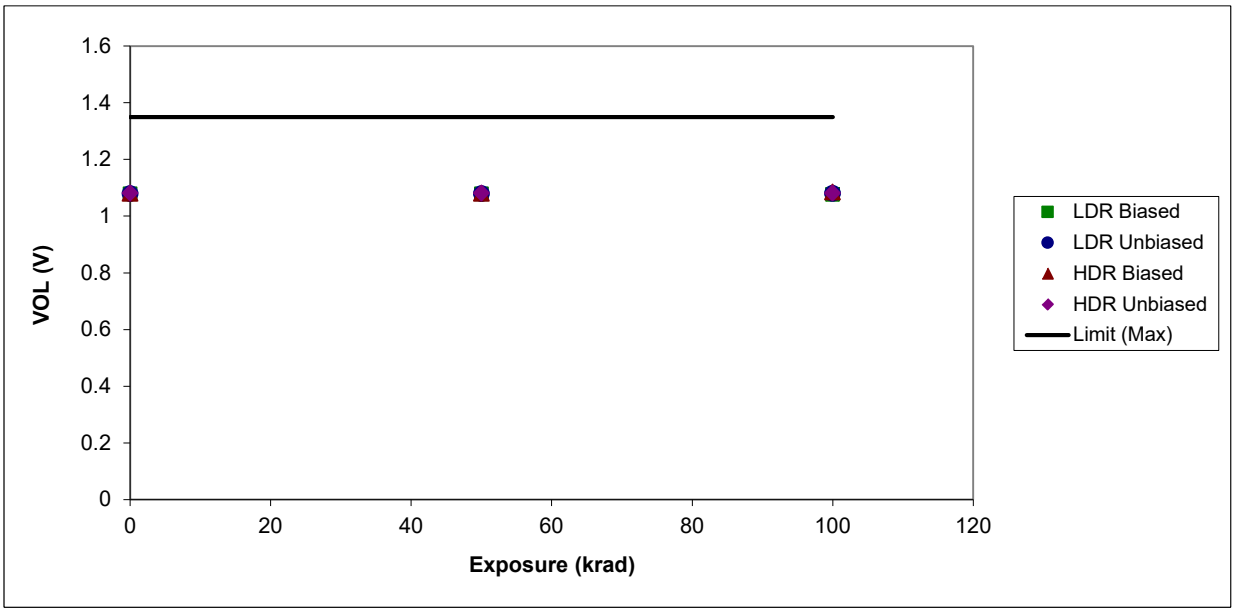
## 11458 VOL/LVDS/CLKOUT6/3.465 V

VOL (V)

**LOT: L01200248**

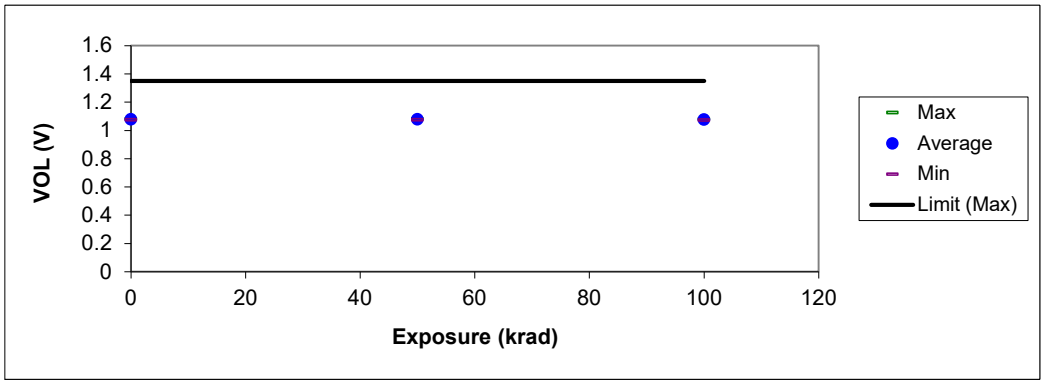
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.07888865 | 1.08252013 | 1.07504356 | 0.00316107 | 1.35 | | | |
| LDR BIASED | 50 | 5 | 1.07844543 | 1.08177447 | 1.07429171 | 0.00333766 | 1.35 | | -0.000597954 | 1.96 |
| LDR BIASED | 100 | 5 | 1.07709379 | 1.08011425 | 1.07340205 | 0.00288717 | 1.35 | | -0.00164175 | -1.20 |
| LDR UNBIAS | 0 | 5 | 1.07998724 | 1.08541918 | 1.07565391 | 0.00450775 | 1.35 | | | |
| LDR UNBIAS | 50 | 5 | 1.07939227 | 1.08452332 | 1.07490253 | 0.00440034 | 1.35 | | -0.000591397 | NA |
| LDR UNBIAS | 100 | 5 | 1.08017533 | 1.08545351 | 1.0755378 | 0.00447962 | 1.35 | | 0.000187278 | NA |
| HDR BIASED | 0 | 5 | 1.08081117 | 1.08755529 | 1.07092392 | 0.00667566 | 1.35 | | | |
| HDR BIASED | 50 | 5 | 1.080445 | 1.08755529 | 1.07061875 | 0.00663476 | 1.35 | | -0.000305176 | |
| HDR BIASED | 100 | 5 | 1.08465626 | 1.09609985 | 1.07367039 | 0.00869782 | 1.35 | | 0.001373291 | |
| HDR UNBIAS | 0 | 5 | 1.08126893 | 1.0909121 | 1.07656944 | 0.00564491 | 1.35 | | | |
| HDR UNBIAS | 50 | 5 | 1.08126893 | 1.09075952 | 1.07687461 | 0.00551979 | 1.35 | | 0 | |
| HDR UNBIAS | 100 | 5 | 1.08129945 | 1.09060693 | 1.0770272 | 0.00542148 | 1.35 | | 0 | |

**Plot of the average readings for each radiation/bias condition**

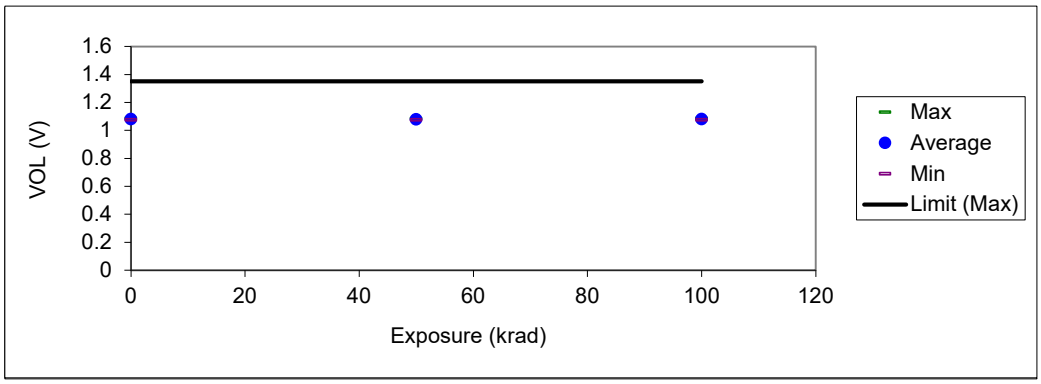


**11458 VOL/LVDS/CLKOUT6/3.465 V**

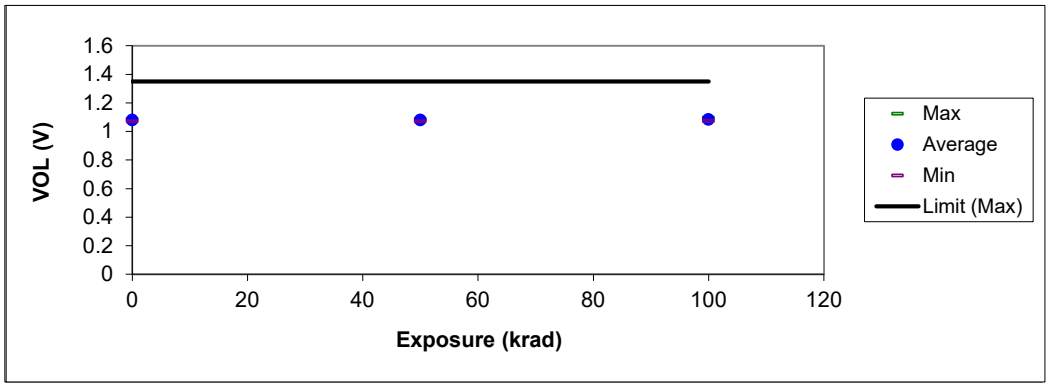
**Low dose rate biased**



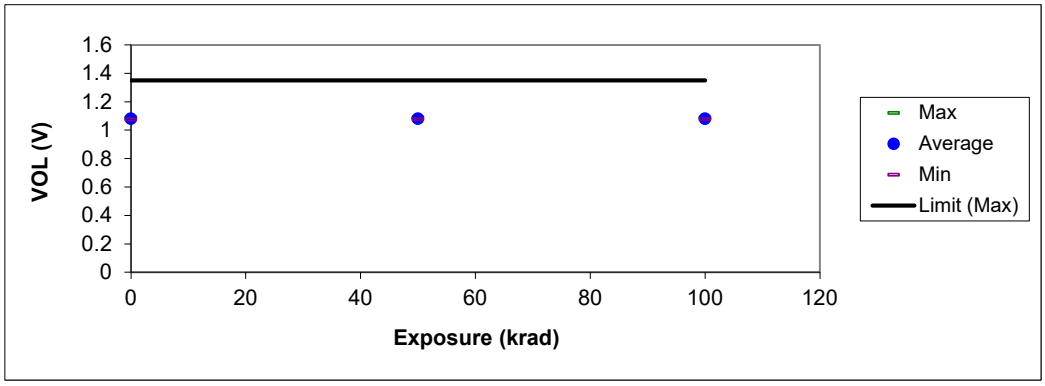

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



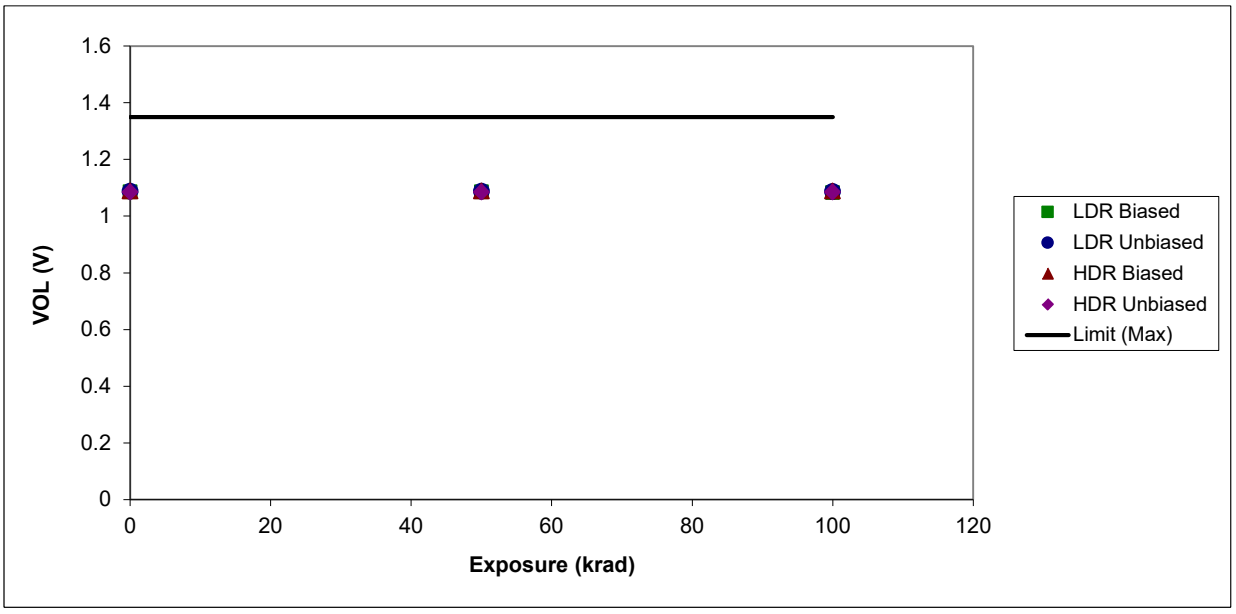
## 11457 VOL/LVDS/CLKOUT5/3.465 V

VOL (V)

**LOT: L01200248**

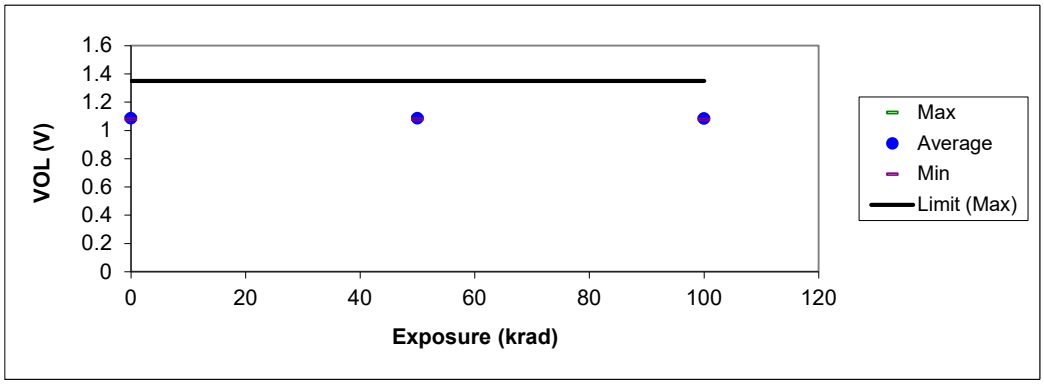
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.08614194 | 1.09300816 | 1.07866538 | 0.00558336 | 1.35 | | | |
| LDR BIASED | 50 | 5 | 1.08603106 | 1.09354472 | 1.07827306 | 0.00588247 | 1.35 | | -8.30888E-05 | -0.54 |
| LDR BIASED | 100 | 5 | 1.0833369 | 1.08968294 | 1.07564843 | 0.00560564 | 1.35 | | -0.002865434 | -9.39 |
| LDR UNBIAS | 0 | 5 | 1.08833909 | 1.09163487 | 1.08385313 | 0.00288015 | 1.35 | | | |
| LDR UNBIAS | 50 | 5 | 1.08777206 | 1.09094858 | 1.08377087 | 0.0025926 | 1.35 | | -0.000536561 | -1.17 |
| LDR UNBIAS | 100 | 5 | 1.08724213 | 1.09059823 | 1.08342838 | 0.00260007 | 1.35 | | -0.001036644 | NA |
| HDR BIASED | 0 | 5 | 1.08861375 | 1.09529686 | 1.07912314 | 0.00635592 | 1.35 | | | |
| HDR BIASED | 50 | 5 | 1.08876634 | 1.09544945 | 1.07927573 | 0.00632379 | 1.35 | | 0.000152588 | |
| HDR BIASED | 100 | 5 | 1.08894942 | 1.09544945 | 1.08003855 | 0.0060733 | 1.35 | | 0.000305176 | |
| HDR UNBIAS | 0 | 5 | 1.08534846 | 1.08736253 | 1.08247995 | 0.00213177 | 1.35 | | | |
| HDR UNBIAS | 50 | 5 | 1.08550105 | 1.08705735 | 1.08293772 | 0.00175102 | 1.35 | | 0.000457764 | |
| HDR UNBIAS | 100 | 5 | 1.08547056 | 1.08736253 | 1.08247995 | 0.00191367 | 1.35 | | 0 | |

**Plot of the average readings for each radiation/bias condition**

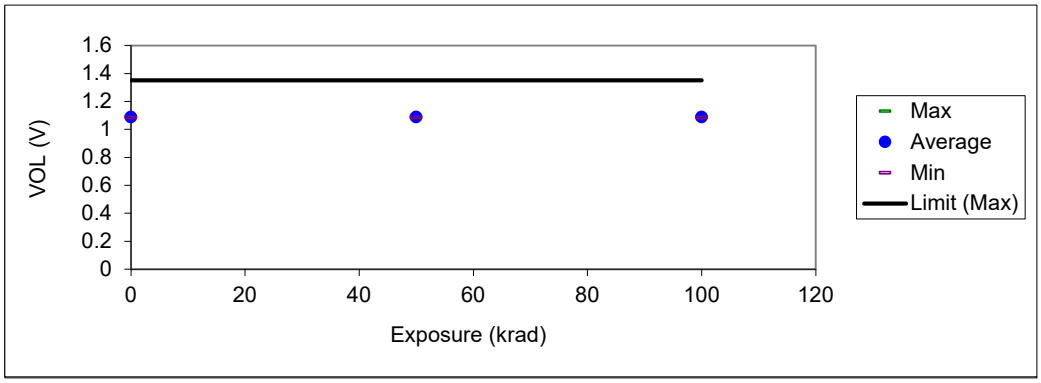


**11457 VOL/LVDS/CLKOUT5/3.465 V**

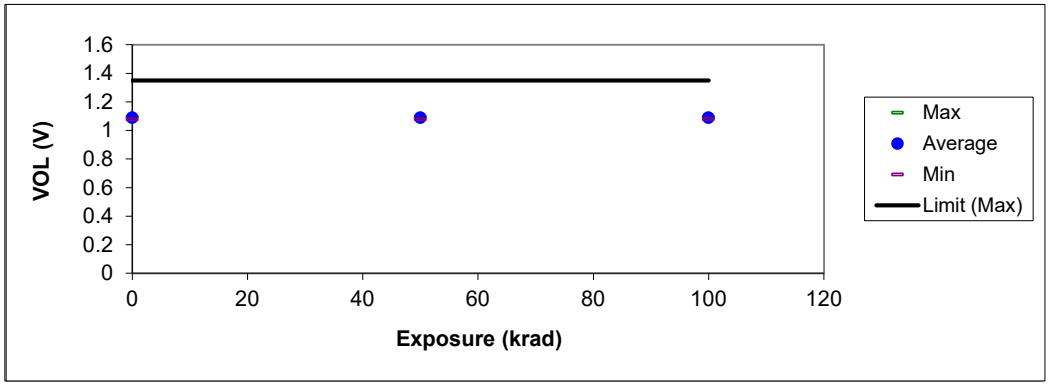
**Low dose rate biased**



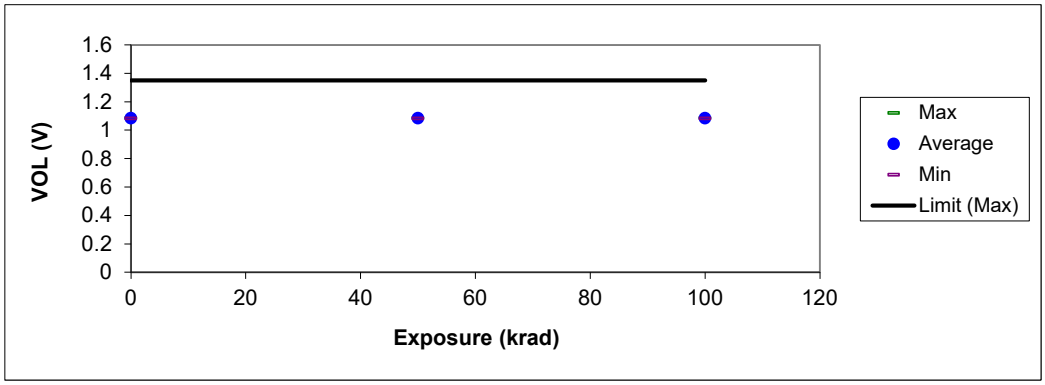

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



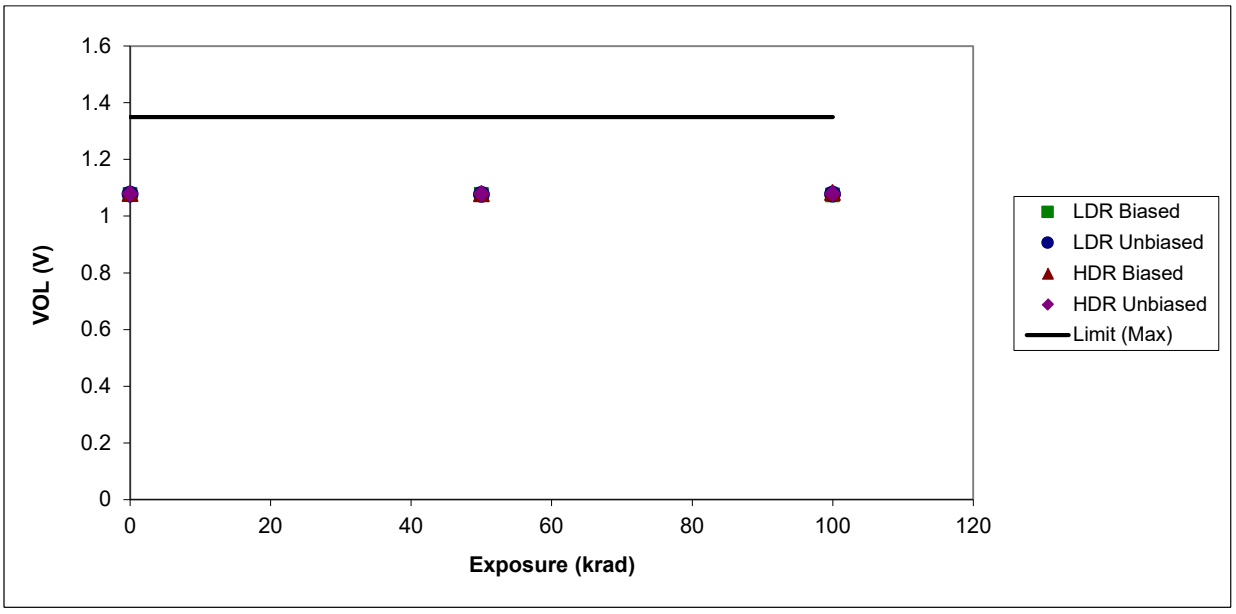
## 11428 VOL/LVDS/CLKOUT6B/3.465 V

VOL (V)

**LOT: L01200248**

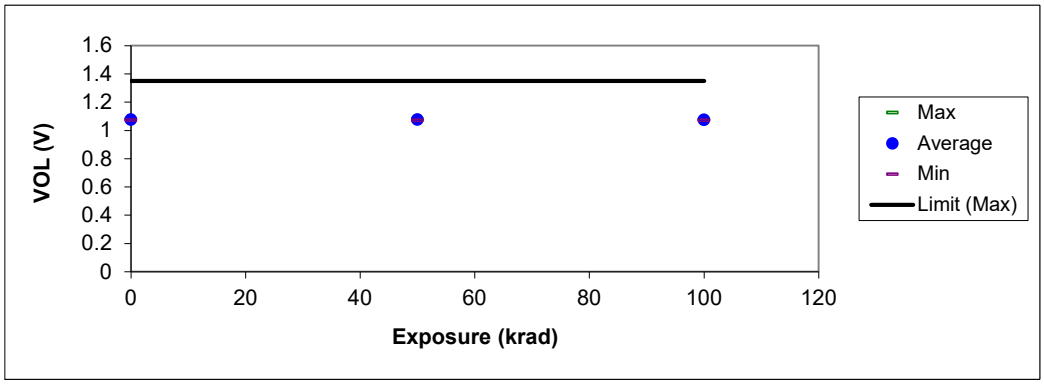
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.0771513 | 1.08093524 | 1.07269597 | 0.00334702 | 1.35 | | | |
| LDR BIASED | 50 | 5 | 1.07653003 | 1.08004236 | 1.07179606 | 0.00349067 | 1.35 | | -0.000745177 | 2.44 |
| LDR BIASED | 100 | 5 | 1.07446129 | 1.07778692 | 1.0703119 | 0.00308968 | 1.35 | | -0.002842188 | -2.07 |
| LDR UNBIAS | 0 | 5 | 1.07800577 | 1.0836817 | 1.07330632 | 0.00466479 | 1.35 | | | |
| LDR UNBIAS | 50 | 5 | 1.07720194 | 1.08248568 | 1.07240689 | 0.00453729 | 1.35 | | -0.000745297 | 4.88 |
| LDR UNBIAS | 100 | 5 | 1.07732928 | 1.08266854 | 1.07244766 | 0.00458921 | 1.35 | | -0.000555277 | NA |
| HDR BIASED | 0 | 5 | 1.07916534 | 1.08551264 | 1.06979692 | 0.00628418 | 1.35 | | | |
| HDR BIASED | 50 | 5 | 1.07889068 | 1.08566523 | 1.06949174 | 0.00631375 | 1.35 | | -0.000305176 | |
| HDR BIASED | 100 | 5 | 1.0830714 | 1.09482002 | 1.07254338 | 0.00859743 | 1.35 | | 0.001373291 | |
| HDR UNBIAS | 0 | 5 | 1.07950103 | 1.08841169 | 1.07467949 | 0.00529279 | 1.35 | | | |
| HDR UNBIAS | 50 | 5 | 1.07947052 | 1.0882591 | 1.07498467 | 0.00518277 | 1.35 | | -0.000152588 | |
| HDR UNBIAS | 100 | 5 | 1.07950103 | 1.08810651 | 1.07513726 | 0.00508413 | 1.35 | | 0 | |

**Plot of the average readings for each radiation/bias condition**

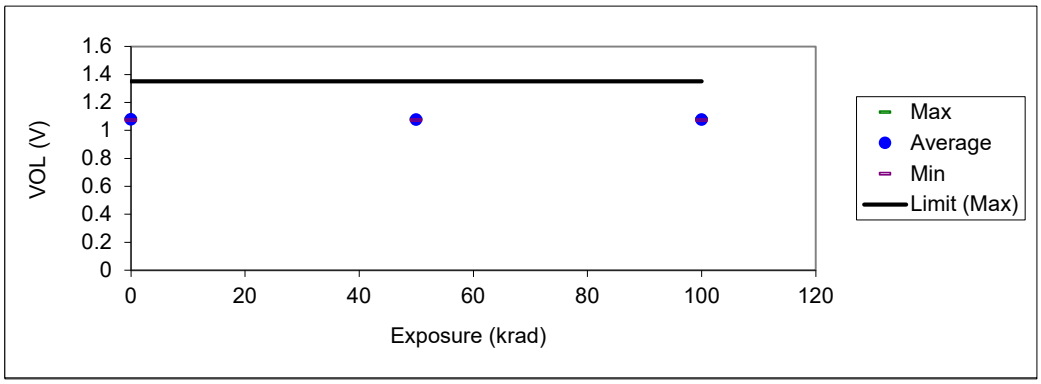


**11428 VOL/LVDS/CLKOUT6B/3.465 V**

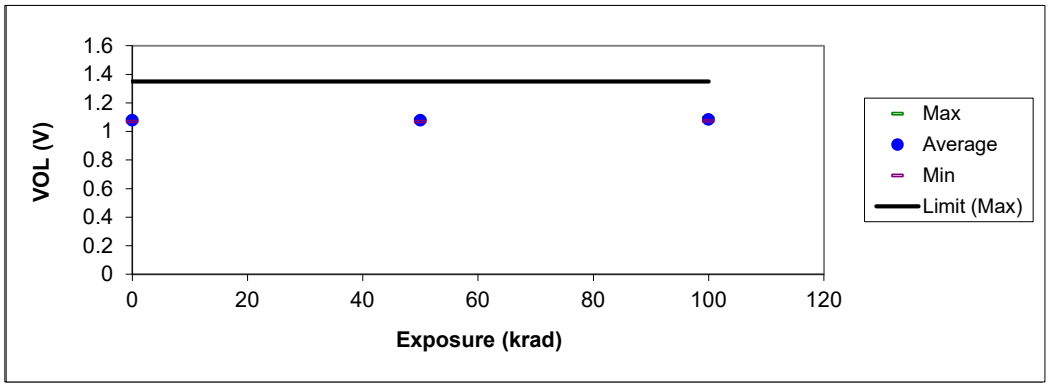
**Low dose rate biased**



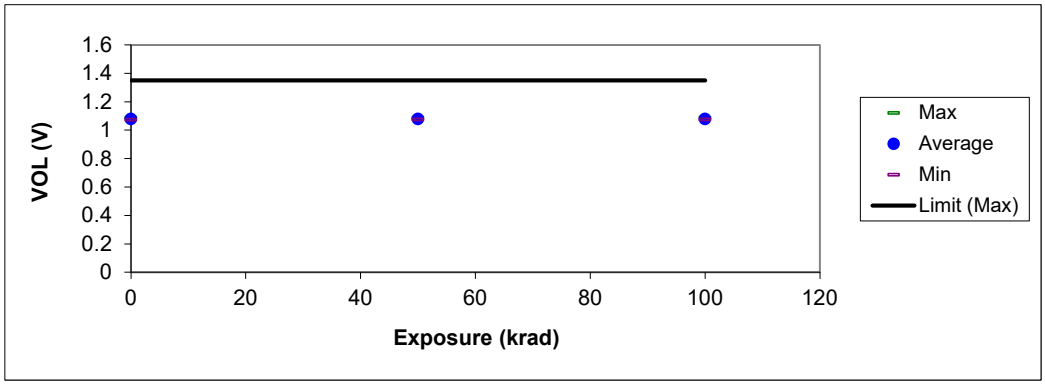

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



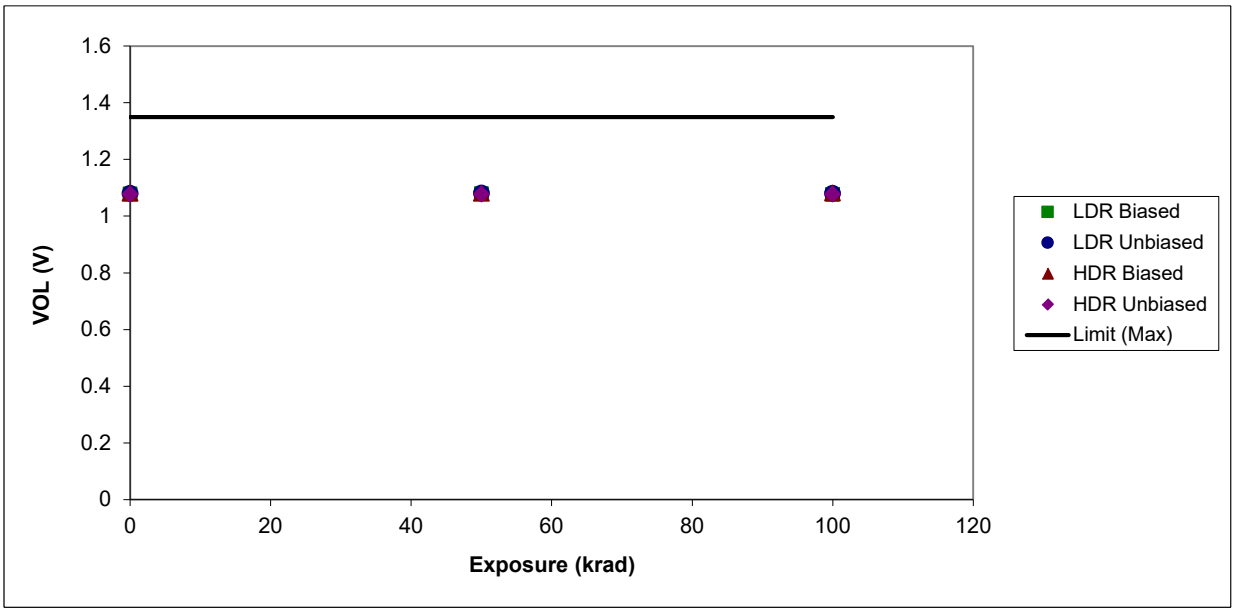
## 11427 VOL/LVDS/CLKOUT5B/3.465 V

VOL (V)

**LOT: L01200248**

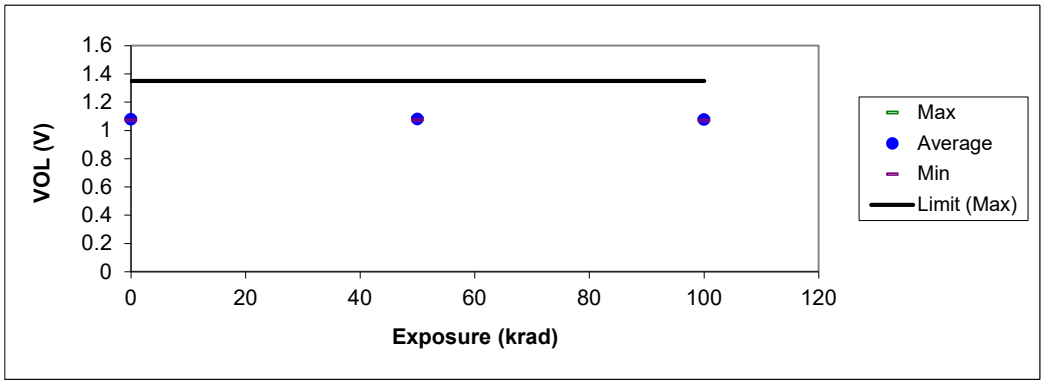
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.07845776 | 1.08532369 | 1.0709815 | 0.00561432 | 1.35 | | | |
| LDR BIASED | 50 | 5 | 1.07971637 | 1.08719969 | 1.07208037 | 0.00582844 | 1.35 | | 0.001109481 | #DIV/0! |
| LDR BIASED | 100 | 5 | 1.0765507 | 1.08283591 | 1.06895351 | 0.00556707 | 1.35 | | -0.001876116 | -6.15 |
| LDR UNBIAS | 0 | 5 | 1.08086848 | 1.08471346 | 1.07571137 | 0.00331378 | 1.35 | | | |
| LDR UNBIAS | 50 | 5 | 1.08164067 | 1.08551979 | 1.07681465 | 0.00315695 | 1.35 | | 0.000803113 | 5.26 |
| LDR UNBIAS | 100 | 5 | 1.08076122 | 1.08466661 | 1.07597101 | 0.00315718 | 1.35 | | -4.68492E-05 | -0.31 |
| HDR BIASED | 0 | 5 | 1.08071589 | 1.08791757 | 1.07052374 | 0.00680073 | 1.35 | | | |
| HDR BIASED | 50 | 5 | 1.08074641 | 1.08791757 | 1.07052374 | 0.00678325 | 1.35 | | 0 | |
| HDR BIASED | 100 | 5 | 1.08111262 | 1.08791757 | 1.07159185 | 0.00644679 | 1.35 | | 0.000305176 | |
| HDR UNBIAS | 0 | 5 | 1.07784746 | 1.08013606 | 1.07525361 | 0.00197172 | 1.35 | | | |
| HDR UNBIAS | 50 | 5 | 1.07800004 | 1.07967842 | 1.07555878 | 0.00180209 | 1.35 | | 0.000152588 | |
| HDR UNBIAS | 100 | 5 | 1.07806106 | 1.07952583 | 1.07540619 | 0.00172488 | 1.35 | | 0.000152588 | |

**Plot of the average readings for each radiation/bias condition**

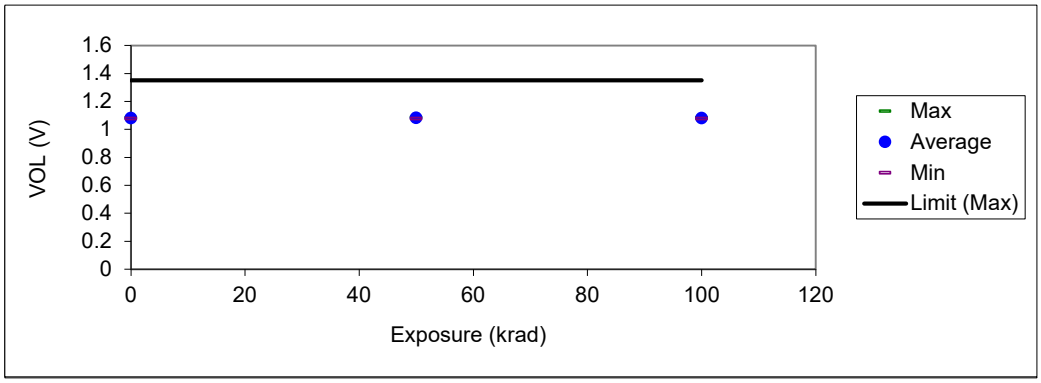


**11427 VOL/LVDS/CLKOUT5B/3.465 V**

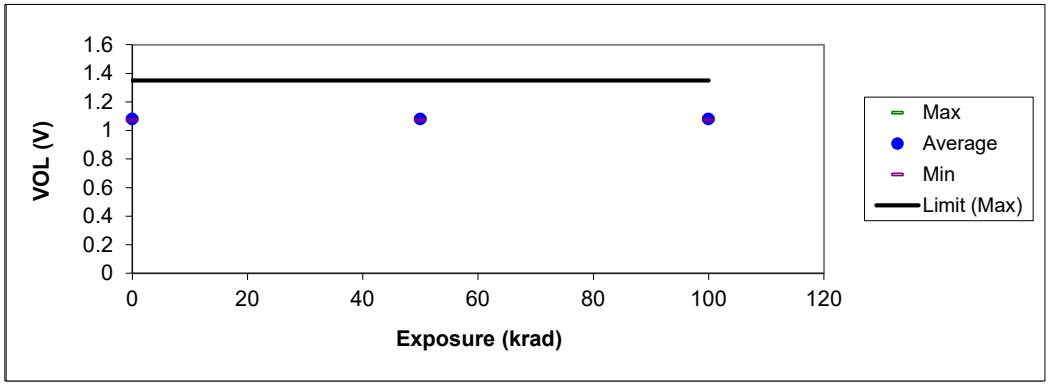
**Low dose rate biased**



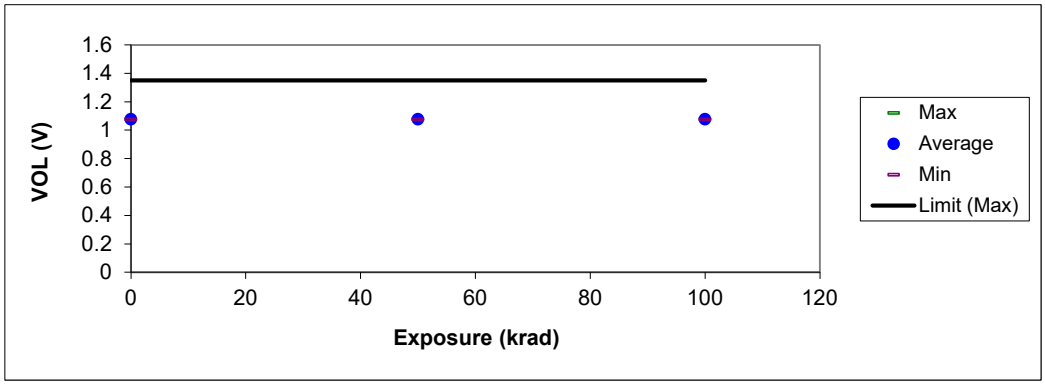

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



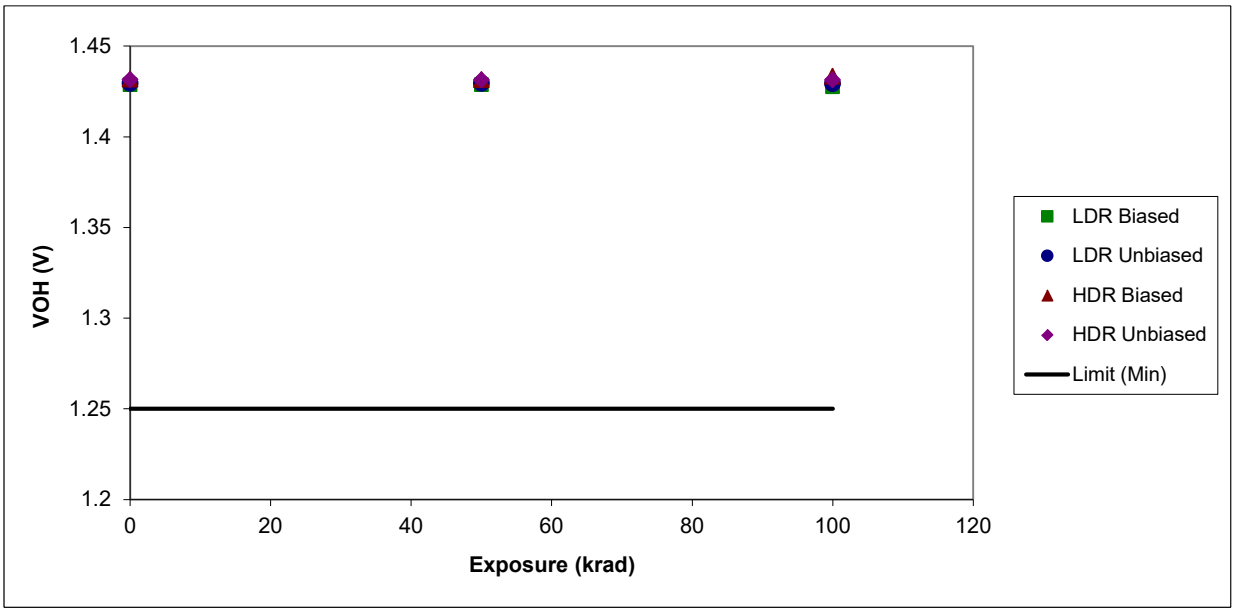
## 11443 VOH/LVDS/CLKOUT6B/3.465 V

VOH (V)

**LOT: L01200248**

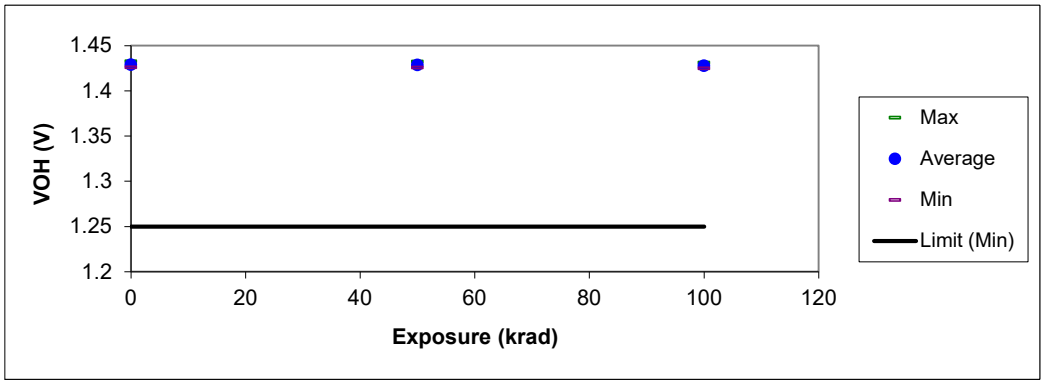
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.42878757 | 1.43254101 | 1.4258275 | 0.0027136 | | 1.25 | | |
| LDR BIASED | 50 | 5 | 1.42869821 | 1.43239379 | 1.42567456 | 0.00276865 | | 1.25 | -0.000151277 | 0.99 |
| LDR BIASED | 100 | 5 | 1.42755861 | 1.43131137 | 1.42475164 | 0.00277667 | | 1.25 | -0.00122869 | -2.01 |
| LDR UNBIAS | 0 | 5 | 1.42939789 | 1.43360913 | 1.42613268 | 0.00288818 | | 1.25 | | |
| LDR UNBIAS | 50 | 5 | 1.42949231 | 1.43361545 | 1.42628539 | 0.00281997 | | 1.25 | 0.000152707 | NA |
| LDR UNBIAS | 100 | 5 | 1.42929771 | 1.43359959 | 1.42612469 | 0.00288112 | | 1.25 | -0.000009537 | NA |
| HDR BIASED | 0 | 5 | 1.43171713 | 1.43589783 | 1.42720079 | 0.00326998 | | 1.25 | | |
| HDR BIASED | 50 | 5 | 1.43150351 | 1.43574524 | 1.42689562 | 0.00330151 | | 1.25 | -0.000152588 | |
| HDR BIASED | 100 | 5 | 1.43339548 | 1.43788135 | 1.42842138 | 0.00390437 | | 1.25 | 0.000610233 | |
| HDR UNBIAS | 0 | 5 | 1.43144245 | 1.43666065 | 1.4281162 | 0.00354792 | | 1.25 | | |
| HDR UNBIAS | 50 | 5 | 1.43141193 | 1.43666065 | 1.4281162 | 0.00358253 | | 1.25 | 0 | |
| HDR UNBIAS | 100 | 5 | 1.43138144 | 1.43635559 | 1.4281162 | 0.00348874 | | 1.25 | 0 | |

**Plot of the average readings for each radiation/bias condition**

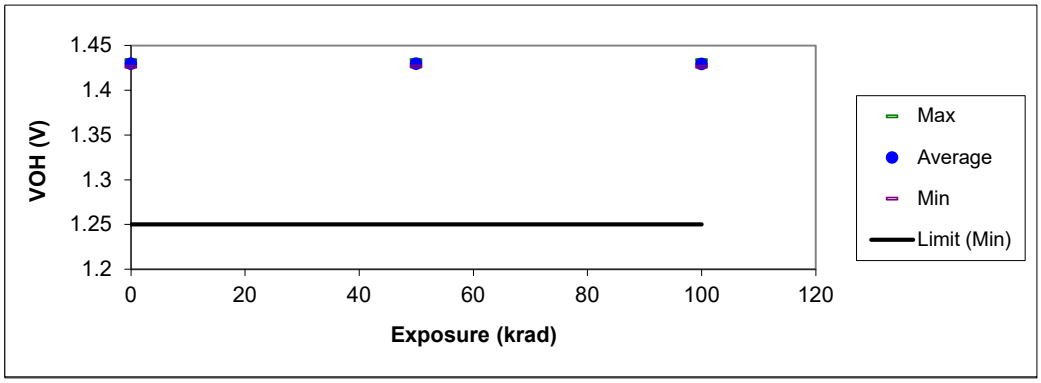


**11443 VOH/LVDS/CLKOUT6B/3.465 V**

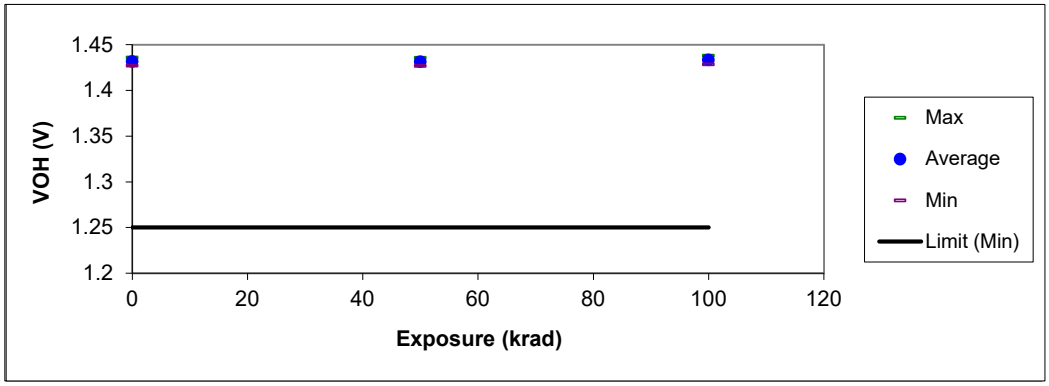
**Low dose rate biased**



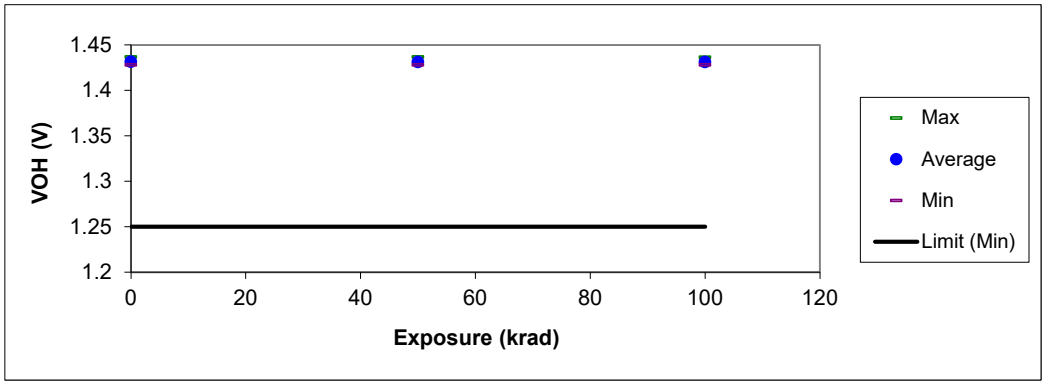

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



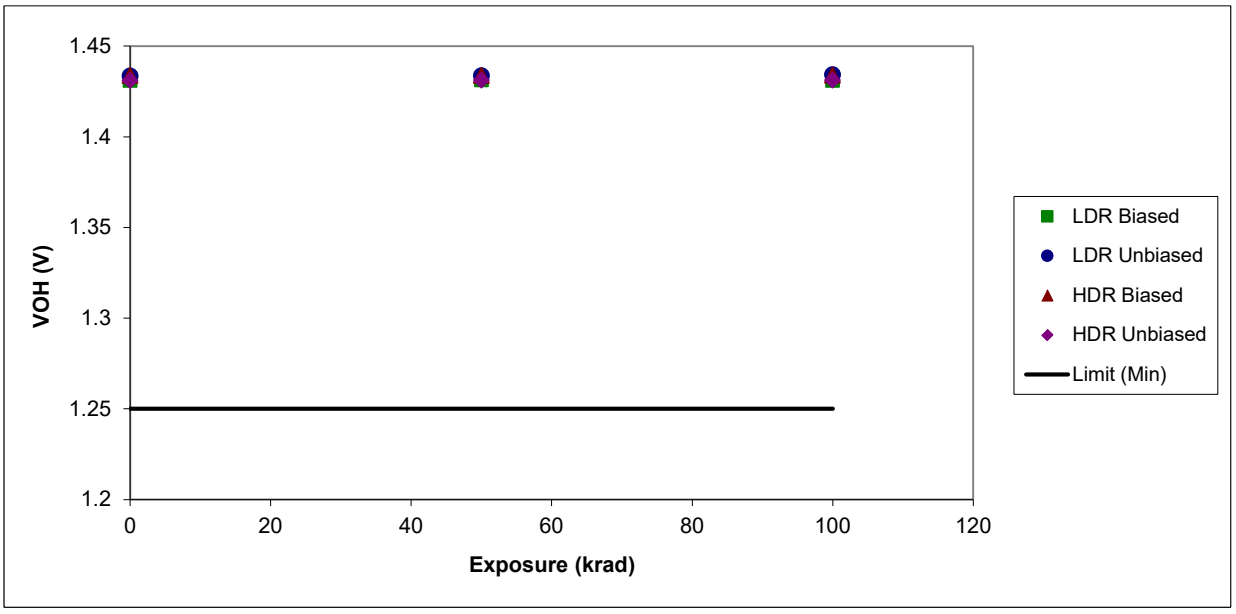
## 11442 VOH/LVDS/CLKOUT5B/3.465 V

VOH (V)

**LOT: L01200248**

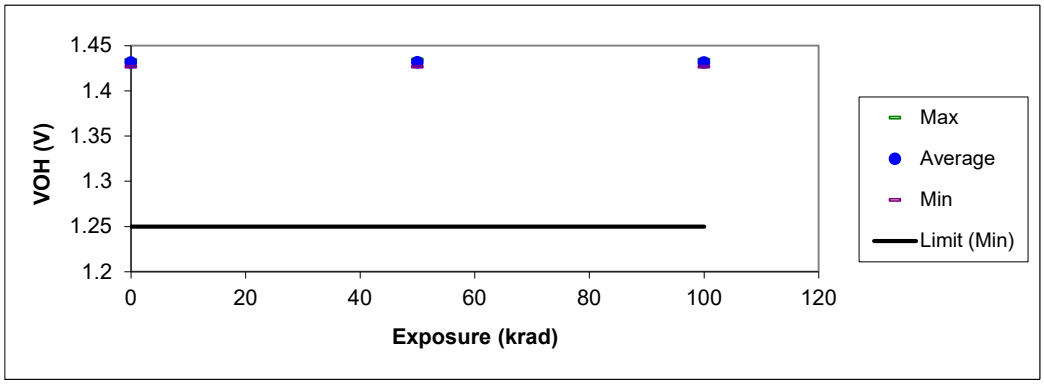
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.43109725 | 1.43420982 | 1.42658102 | 0.00300655 | | 1.25 | | |
| LDR BIASED | 50 | 5 | 1.43132987 | 1.43456757 | 1.42662609 | 0.00313245 | | 1.25 | 0.000354171 | NA |
| LDR BIASED | 100 | 5 | 1.43105977 | 1.43441594 | 1.42648315 | 0.00302234 | | 1.25 | 0.000054121 | 0.18 |
| LDR UNBIAS | 0 | 5 | 1.43347747 | 1.435583 | 1.42993772 | 0.00220153 | | 1.25 | | |
| LDR UNBIAS | 50 | 5 | 1.43362071 | 1.43578935 | 1.43013871 | 0.00223774 | | 1.25 | 0.000205636 | NA |
| LDR UNBIAS | 100 | 5 | 1.43423285 | 1.4363991 | 1.43075466 | 0.00223529 | | 1.25 | 0.000816107 | 5.35 |
| HDR BIASED | 0 | 5 | 1.43387415 | 1.43863451 | 1.42963255 | 0.00351487 | | 1.25 | | |
| HDR BIASED | 50 | 5 | 1.43375211 | 1.43848193 | 1.42963255 | 0.00342701 | | 1.25 | 0 | |
| HDR BIASED | 100 | 5 | 1.43399622 | 1.43848193 | 1.42993772 | 0.00332459 | | 1.25 | 0.000305175 | |
| HDR UNBIAS | 0 | 5 | 1.43106678 | 1.43329441 | 1.42749643 | 0.00239698 | | 1.25 | | |
| HDR UNBIAS | 50 | 5 | 1.4311583 | 1.43344688 | 1.42764902 | 0.00243406 | | 1.25 | 0 | |
| HDR UNBIAS | 100 | 5 | 1.43124983 | 1.43344688 | 1.42764902 | 0.00235779 | | 1.25 | 0.000152588 | |

**Plot of the average readings for each radiation/bias condition**

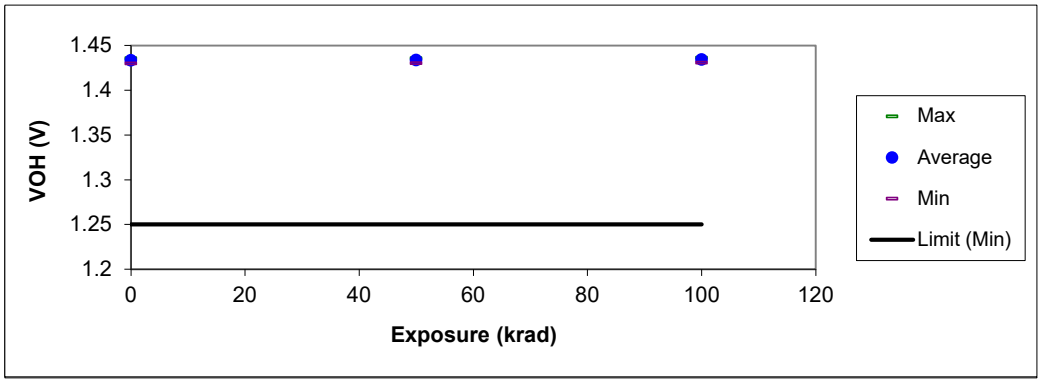


**11442 VOH/LVDS/CLKOUT5B/3.465 V**

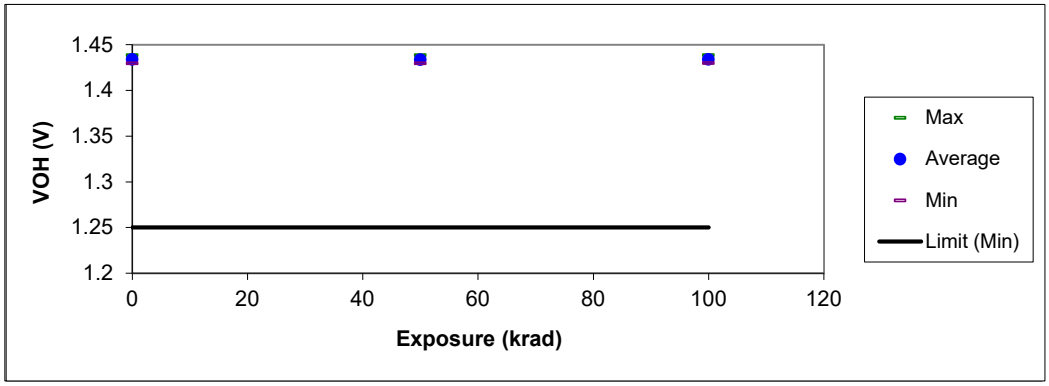
**Low dose rate biased**



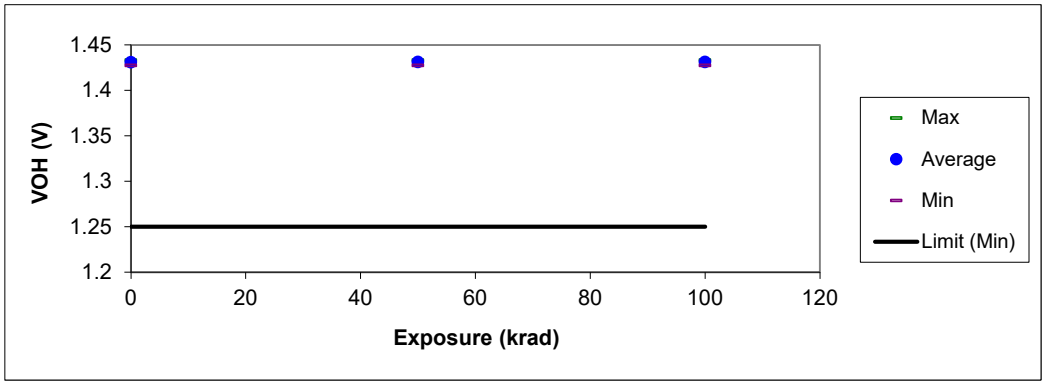

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



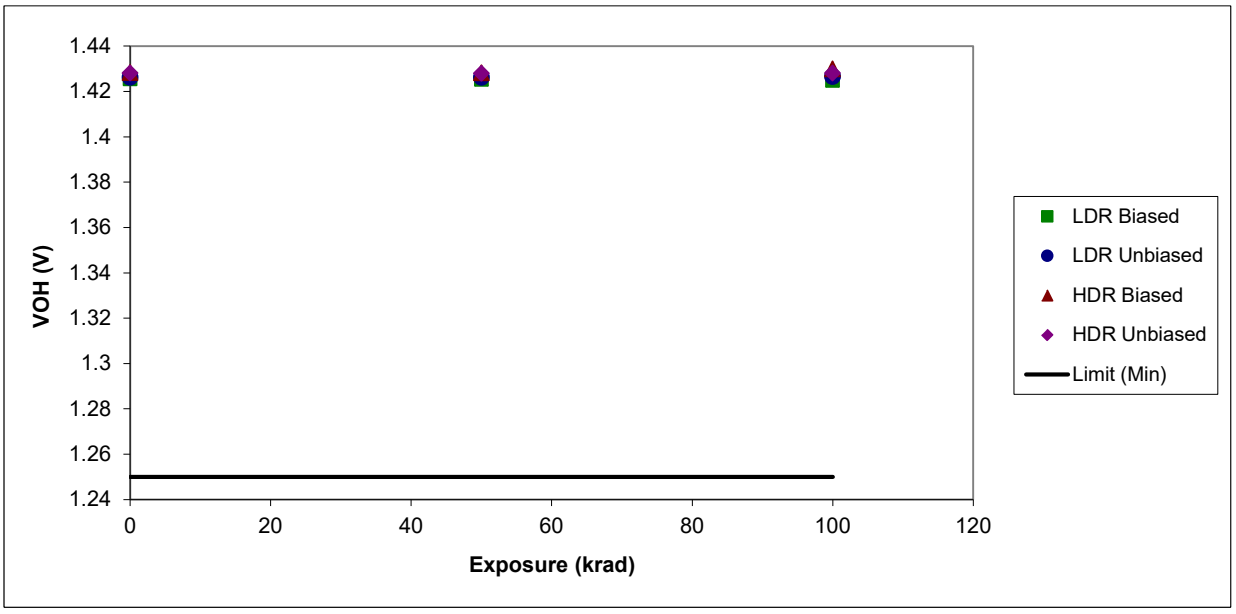
## 11413 VOH/LVDS/CLKOUT6/3.465 V

VOH (V)

**LOT: L01200248**

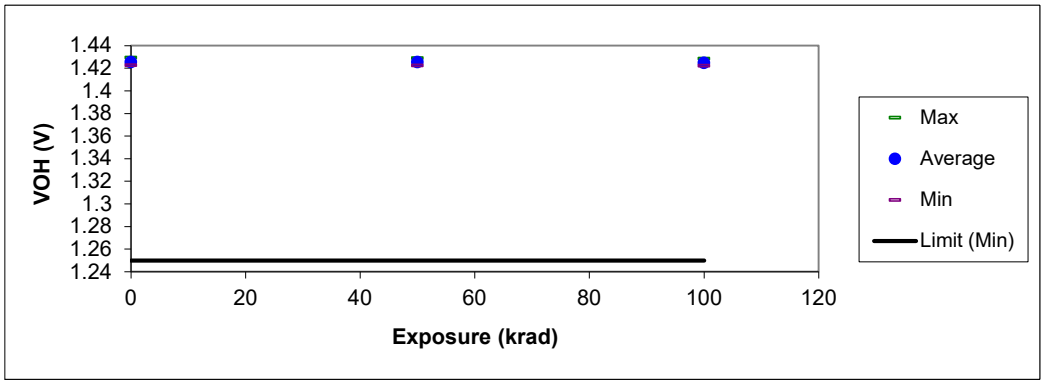
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.42549386 | 1.42924738 | 1.42253375 | 0.00272436 | | 1.25 | | |
| LDR BIASED | 50 | 5 | 1.42536249 | 1.42893589 | 1.42236936 | 0.00272877 | | 1.25 | -0.000163436 | 1.07 |
| LDR BIASED | 100 | 5 | 1.42481928 | 1.42844999 | 1.42204285 | 0.00272976 | | 1.25 | -0.000643731 | -1.05 |
| LDR UNBIAS | 0 | 5 | 1.42619569 | 1.43031537 | 1.42299151 | 0.00283611 | | 1.25 | | |
| LDR UNBIAS | 50 | 5 | 1.42621768 | 1.43031025 | 1.42298019 | 0.00279587 | | 1.25 | -0.000005126 | NA |
| LDR UNBIAS | 100 | 5 | 1.42661934 | 1.43073821 | 1.42341578 | 0.00279629 | | 1.25 | 0.00042367 | 2.78 |
| HDR BIASED | 0 | 5 | 1.42830133 | 1.43229902 | 1.42375445 | 0.0032661 | | 1.25 | | |
| HDR BIASED | 50 | 5 | 1.42814877 | 1.43229902 | 1.42360187 | 0.00325719 | | 1.25 | -0.000152588 | |
| HDR BIASED | 100 | 5 | 1.42997975 | 1.43412995 | 1.42512763 | 0.00368953 | | 1.25 | 0.000610351 | |
| HDR UNBIAS | 0 | 5 | 1.42805722 | 1.43321455 | 1.42466986 | 0.0035134 | | 1.25 | | |
| HDR UNBIAS | 50 | 5 | 1.4280267 | 1.43321455 | 1.42466986 | 0.00359787 | | 1.25 | 0 | |
| HDR UNBIAS | 100 | 5 | 1.42808774 | 1.43306196 | 1.42482245 | 0.00347207 | | 1.25 | 0.000152588 | |

**Plot of the average readings for each radiation/bias condition**

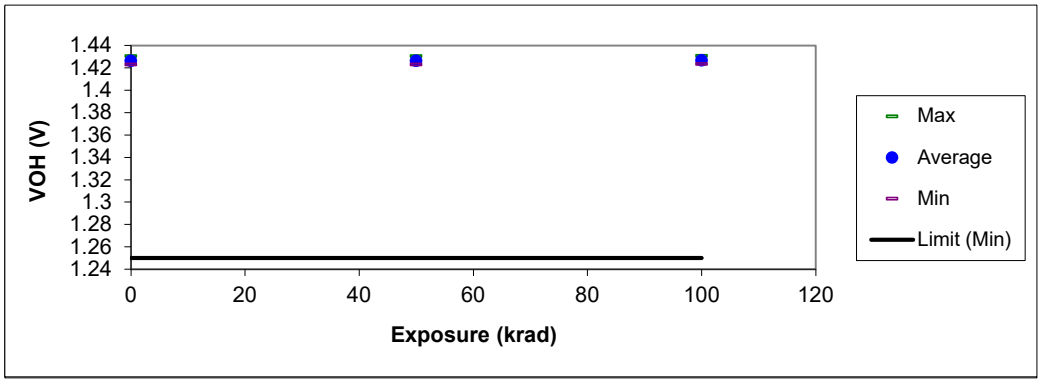


**11413 VOH/LVDS/CLKOUT6/3.465 V**

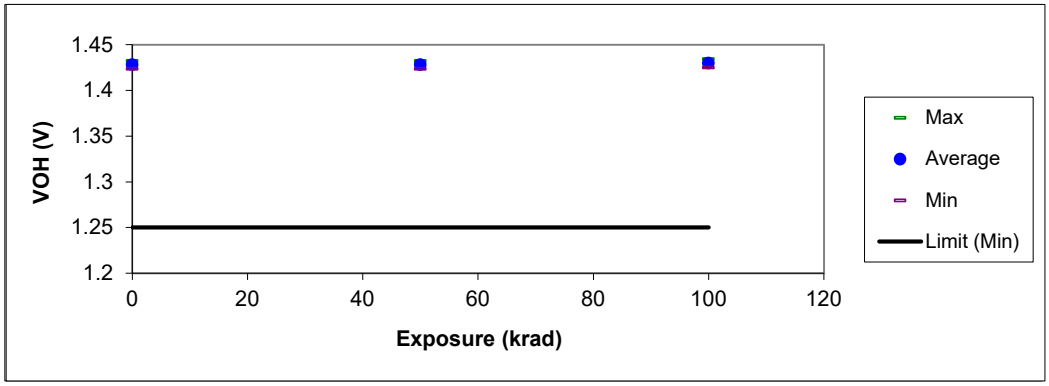
**Low dose rate biased**



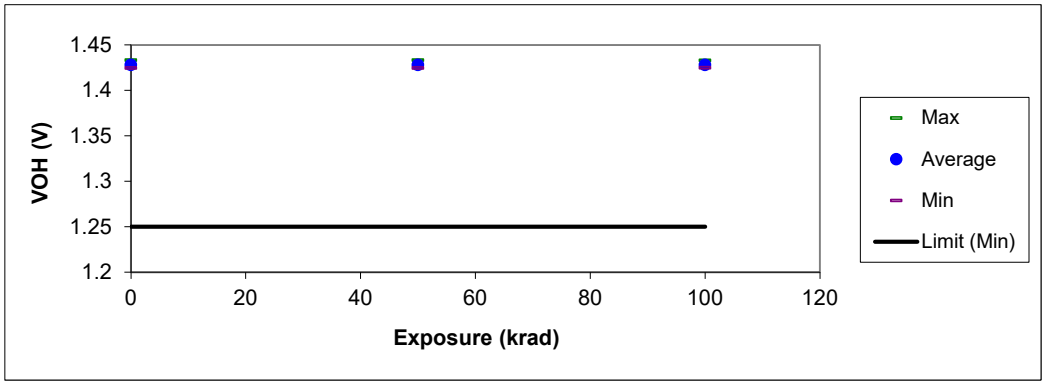

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



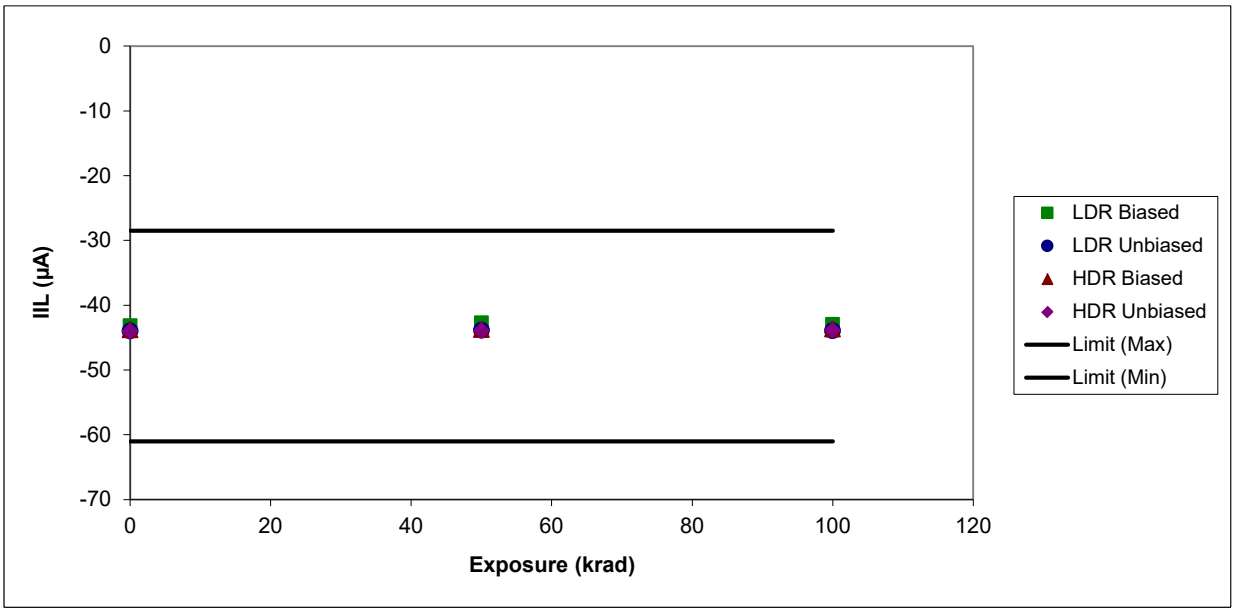
## 11371 IIL/CMOS/CLKIN1P/0.4/3.465 uA

IIL (μA)

**LOT: L01200248**

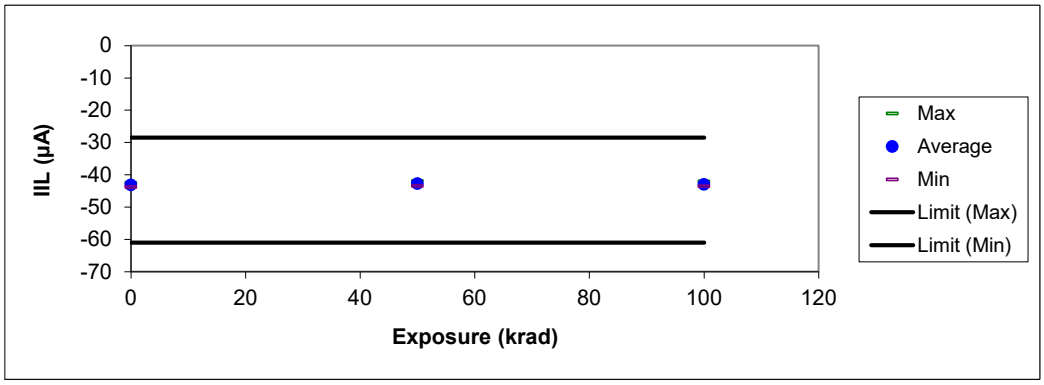
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | -43.160931 | -42.459869 | -43.75531 | 0.64973357 | -28.5 | -61 | | |
| LDR BIASED | 50 | 5 | -42.714225 | -41.891186 | -43.491539 | 0.75132899 | -28.5 | -61 | 0.492477417 | 3.23 |
| LDR BIASED | 100 | 5 | -42.965281 | -42.111767 | -43.559692 | 0.6845887 | -28.5 | -61 | 0.195617676 | 1.28 |
| LDR UNBIAS | 0 | 5 | -43.983916 | -42.993286 | -44.745937 | 0.70667017 | -28.5 | -61 | | |
| LDR UNBIAS | 50 | 5 | -43.857336 | -42.805676 | -44.787067 | 0.76283574 | -28.5 | -61 | 0.18750763 | #DIV/0! |
| LDR UNBIAS | 100 | 5 | -43.940725 | -43.178661 | -44.778996 | 0.68373756 | -28.5 | -61 | 0.043190002 | 0.28 |
| HDR BIASED | 0 | 5 | -43.78579 | -41.850254 | -45.050747 | 1.21159131 | -28.5 | -61 | | |
| HDR BIASED | 50 | 5 | -43.770549 | -42.307468 | -44.669735 | 0.97497055 | -28.5 | -61 | 0.15240097 | |
| HDR BIASED | 100 | 5 | -43.679106 | -42.15506 | -44.745937 | 1.00373167 | -28.5 | -61 | 0.15240097 | |
| HDR UNBIAS | 0 | 5 | -43.999155 | -43.22189 | -45.126949 | 0.80175606 | -28.5 | -61 | | |
| HDR UNBIAS | 50 | 5 | -43.938194 | -43.22189 | -45.126949 | 0.82178493 | -28.5 | -61 | 0 | |
| HDR UNBIAS | 100 | 5 | -43.877231 | -43.069489 | -44.974541 | 0.7744924 | -28.5 | -61 | 0.1524086 | |

**Plot of the average readings for each radiation/bias condition**

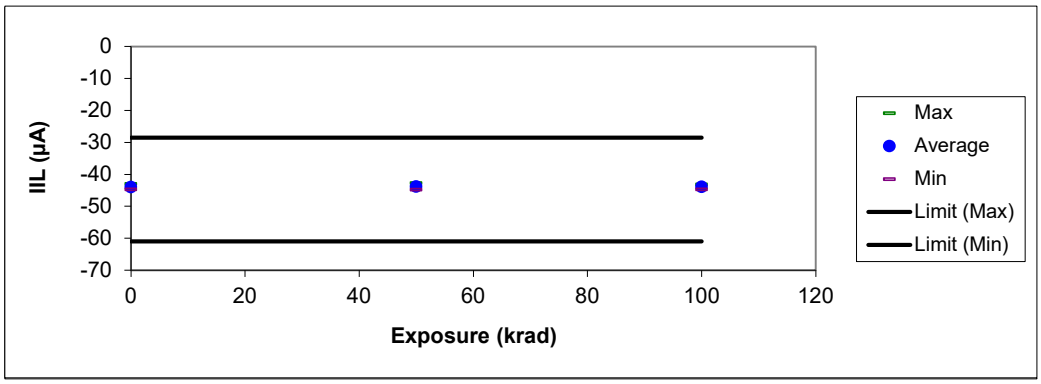


**11371 IIL/CMOS/CLKIN1P/0.4/3.465 uA**

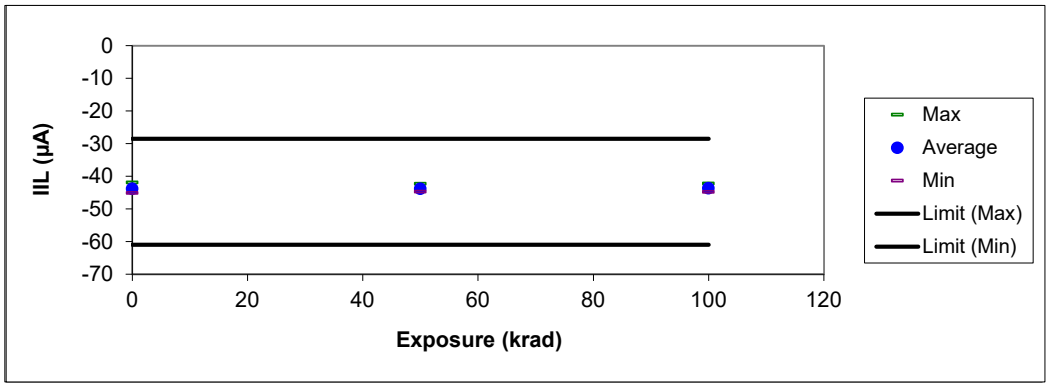
**Low dose rate biased**



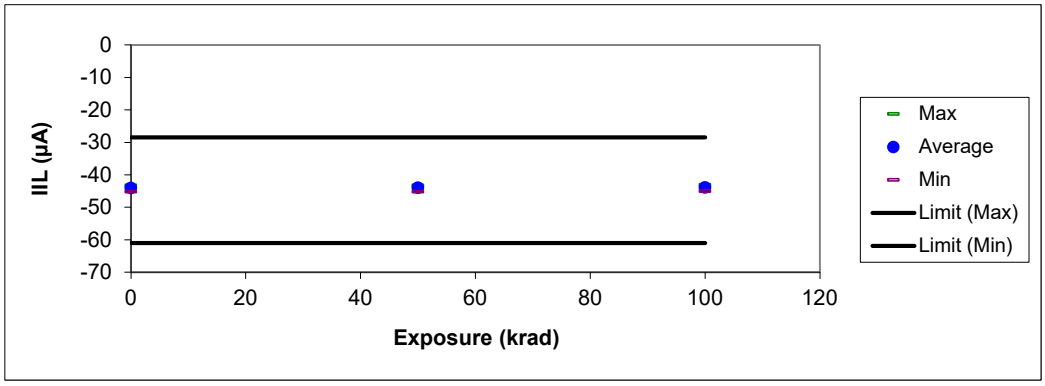

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



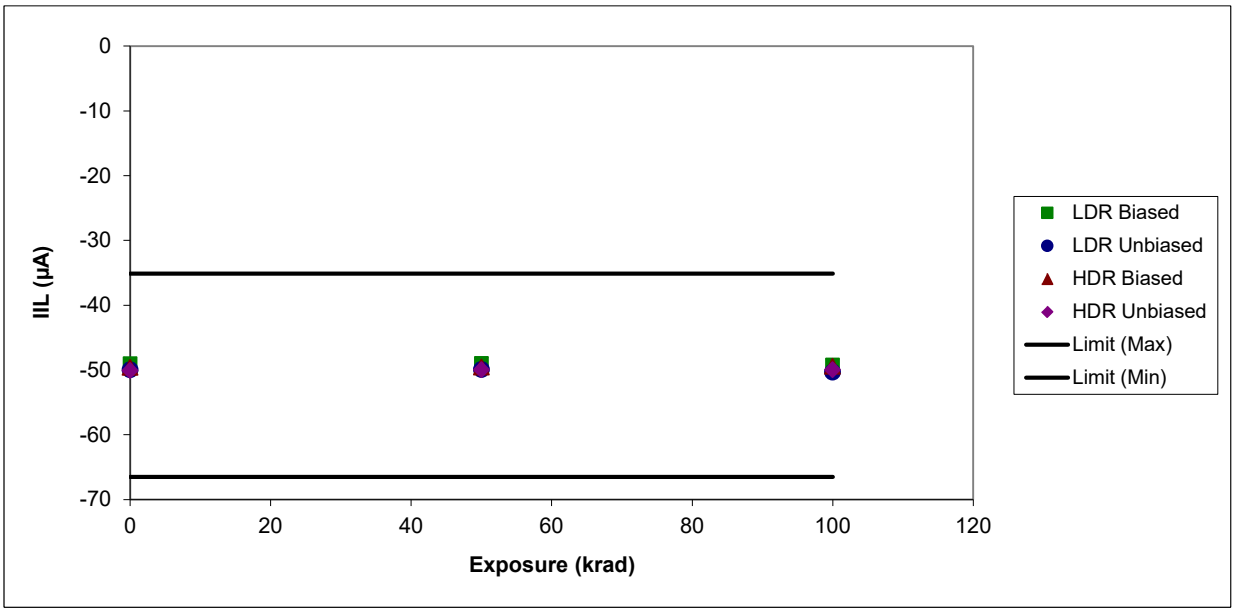
## 11370 IIL/CMOS/CLKIN0P/0.4/3.465 uA

IIL (μA)

**LOT: L01200248**

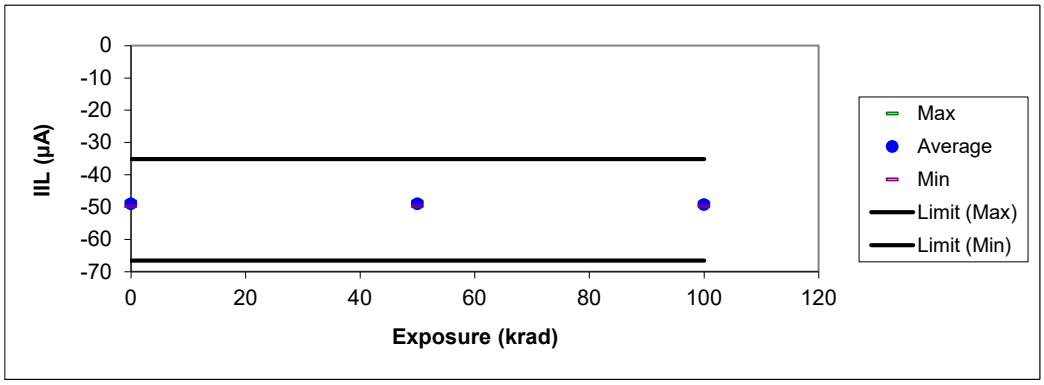
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | -49.031792 | -48.238743 | -49.76384 | 0.68332169 | -35.1 | -66.5 | | |
| LDR BIASED | 50 | 5 | -48.992308 | -48.245728 | -49.69318 | 0.64282084 | -35.1 | -66.5 | 0.145523071 | 1.91 |
| LDR BIASED | 100 | 5 | -49.213842 | -48.573715 | -49.716801 | 0.52961625 | -35.1 | -66.5 | -0.1824646 | -1.20 |
| LDR UNBIAS | 0 | 5 | -49.946848 | -49.153797 | -50.602638 | 0.64614391 | -35.1 | -66.5 | | |
| LDR UNBIAS | 50 | 5 | -49.921722 | -49.236084 | -50.912079 | 0.70235884 | -35.1 | -66.5 | 0.070293427 | 0.46 |
| LDR UNBIAS | 100 | 5 | -50.341692 | -49.716801 | -50.936096 | 0.5558326 | -35.1 | -66.5 | -0.409759521 | -5.37 |
| HDR BIASED | 0 | 5 | -49.611327 | -48.162487 | -50.907658 | 1.0566173 | -35.1 | -66.5 | | |
| HDR BIASED | 50 | 5 | -49.565576 | -48.391251 | -50.678898 | 0.90804161 | -35.1 | -66.5 | 0.076251984 | |
| HDR BIASED | 100 | 5 | -49.443568 | -48.314999 | -50.450131 | 0.86507933 | -35.1 | -66.5 | 0.152511597 | |
| HDR UNBIAS | 0 | 5 | -50.09936 | -49.230057 | -51.212681 | 0.82411712 | -35.1 | -66.5 | | |
| HDR UNBIAS | 50 | 5 | -49.977352 | -49.153797 | -50.983917 | 0.83428539 | -35.1 | -66.5 | 0.152507782 | |
| HDR UNBIAS | 100 | 5 | -49.962101 | -49.001289 | -51.136425 | 0.90161501 | -35.1 | -66.5 | 0.076255799 | |

**Plot of the average readings for each radiation/bias condition**

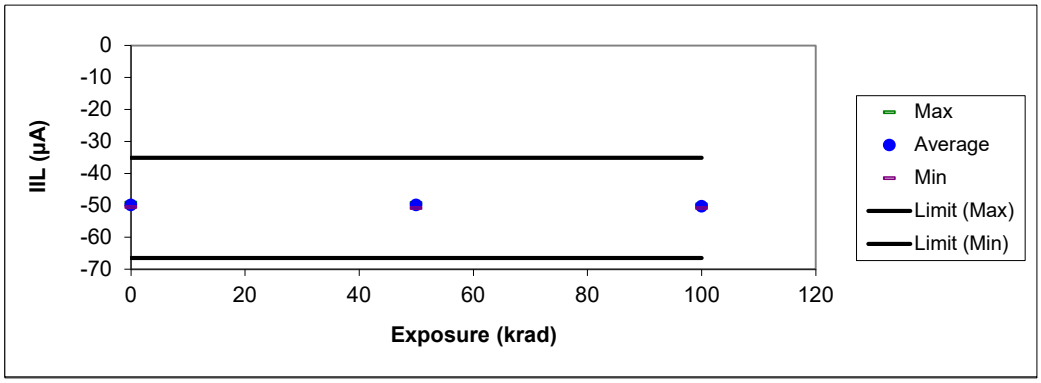


**11370 IIL/CMOS/CLKIN0P/0.4/3.465 uA**

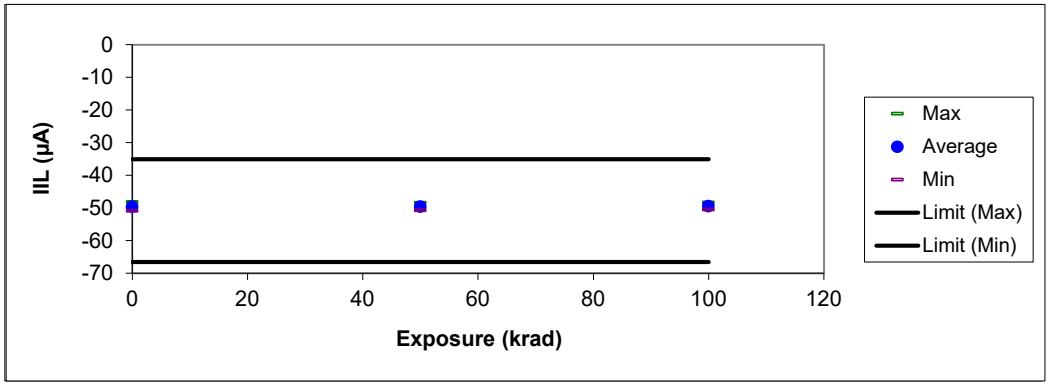
**Low dose rate biased**



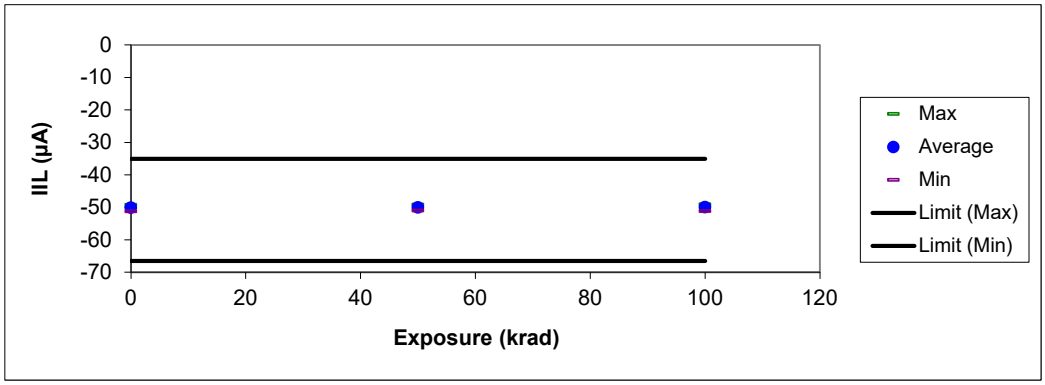

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



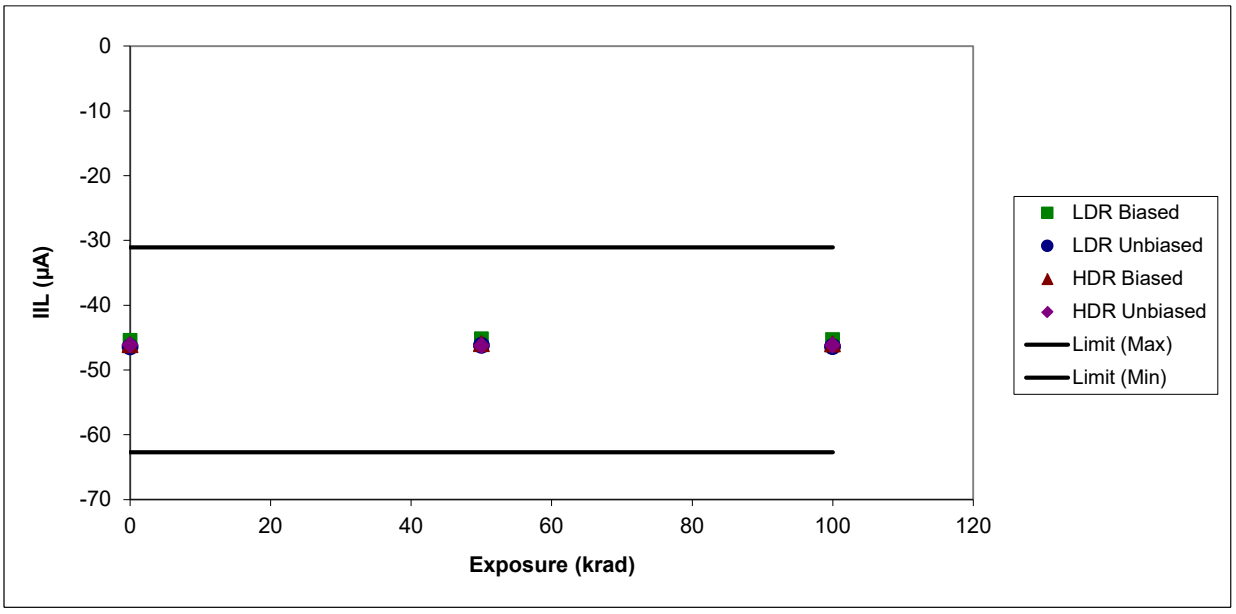
## 11365 IIL/CMOS/CLKIN1B/0.4/3.465 uA

IIL (µA)

**LOT: L01200248**

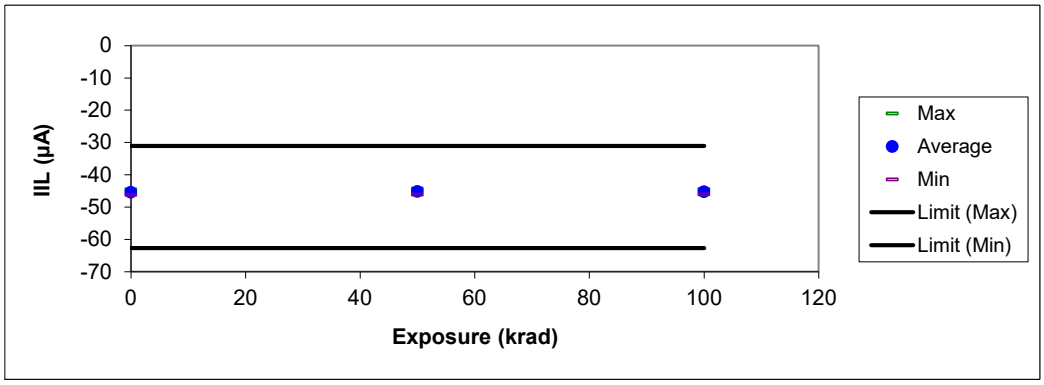
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | -45.442159 | -44.496876 | -46.250221 | 0.77854161 | -31.07 | -62.68 | | |
| LDR BIASED | 50 | 5 | -45.16592 | -44.312439 | -46.141327 | 0.7665962 | -31.07 | -62.68 | 0.260730743 | 1.14 |
| LDR BIASED | 100 | 5 | -45.286408 | -44.463711 | -46.0634 | 0.68642708 | -31.07 | -62.68 | 0.110363006 | 0.72 |
| LDR UNBIAS | 0 | 5 | -46.448426 | -45.640362 | -47.012547 | 0.54334022 | -31.07 | -62.68 | | |
| LDR UNBIAS | 50 | 5 | -46.202288 | -45.150677 | -46.903362 | 0.71159785 | -31.07 | -62.68 | 0.185386657 | -2.43 |
| LDR UNBIAS | 100 | 5 | -46.383338 | -45.53017 | -46.901333 | 0.57612193 | -31.07 | -62.68 | 0.110191345 | NA |
| HDR BIASED | 0 | 5 | -46.113003 | -44.649338 | -47.546173 | 1.05548303 | -31.07 | -62.68 | | |
| HDR BIASED | 50 | 5 | -45.945293 | -44.34441 | -47.317478 | 1.09414258 | -31.07 | -62.68 | 0.228694916 | |
| HDR BIASED | 100 | 5 | -45.975786 | -44.496876 | -47.088779 | 0.97863027 | -31.07 | -62.68 | 0.152462006 | |
| HDR UNBIAS | 0 | 5 | -46.12825 | -45.335434 | -47.165009 | 0.74808747 | -31.07 | -62.68 | | |
| HDR UNBIAS | 50 | 5 | -46.234975 | -45.564129 | -47.46994 | 0.82879805 | -31.07 | -62.68 | -0.07623291 | |
| HDR UNBIAS | 100 | 5 | -46.158743 | -45.335434 | -47.46994 | 0.97535809 | -31.07 | -62.68 | 0 | |

**Plot of the average readings for each radiation/bias condition**

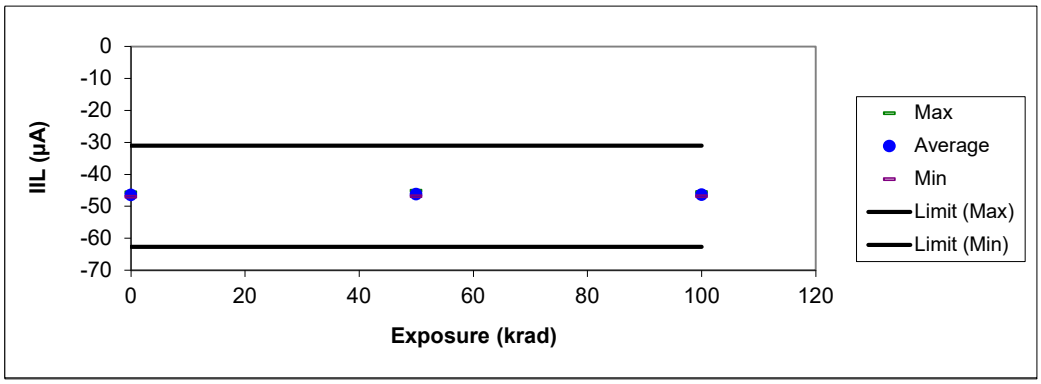


**11365 IIL/CMOS/CLKIN1B/0.4/3.465 uA**

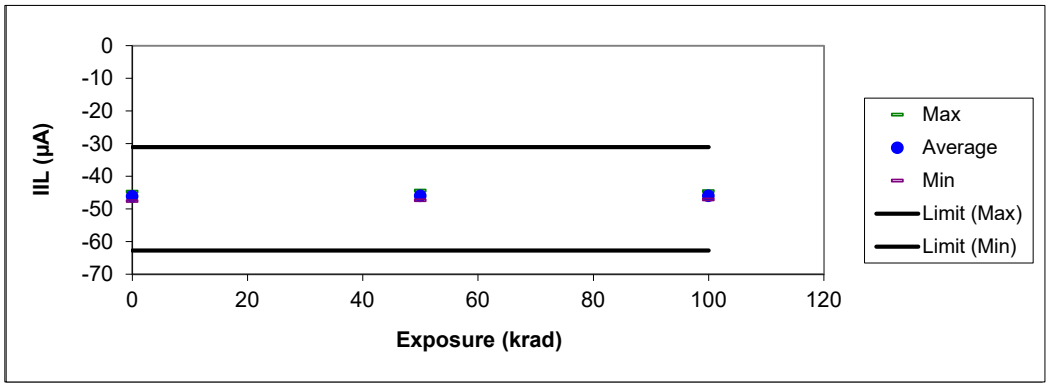
**Low dose rate biased**



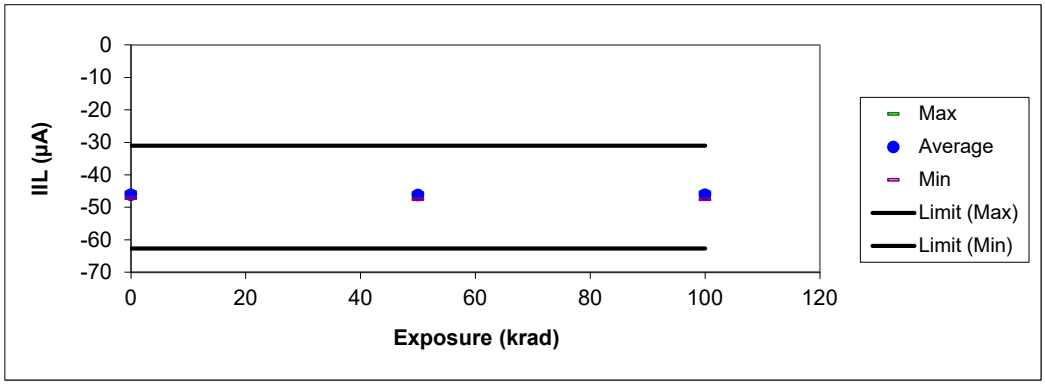

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



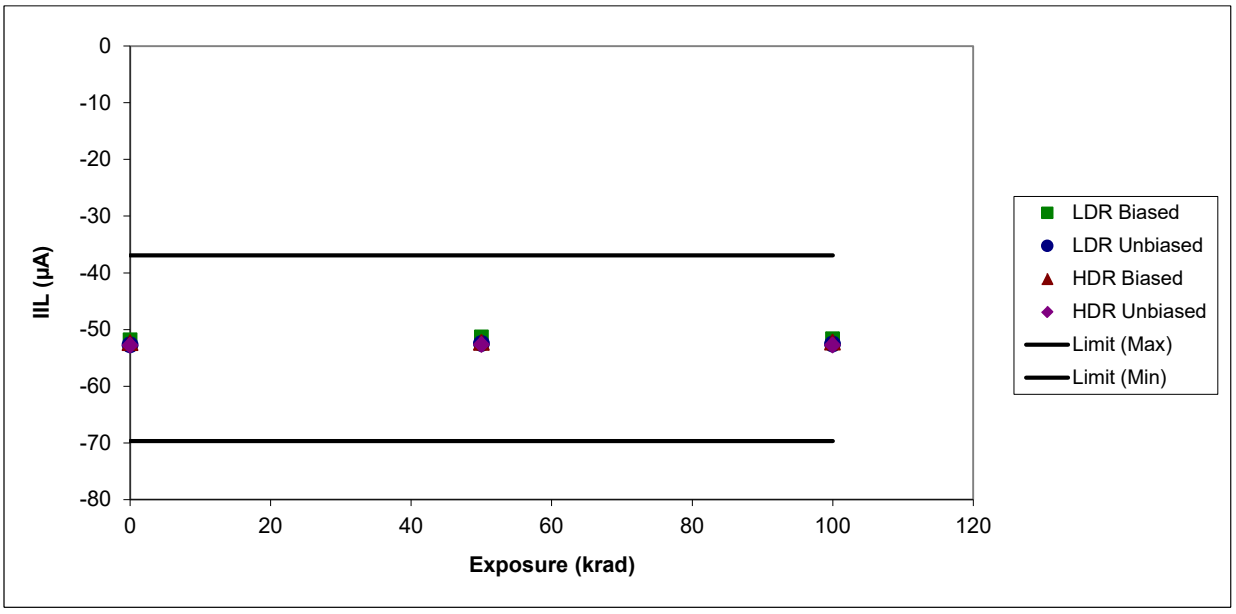
## 11364 IIL/CMOS/CLKIN0B/0.4/3.465 uA

IIL (µA)

**LOT: L01200248**

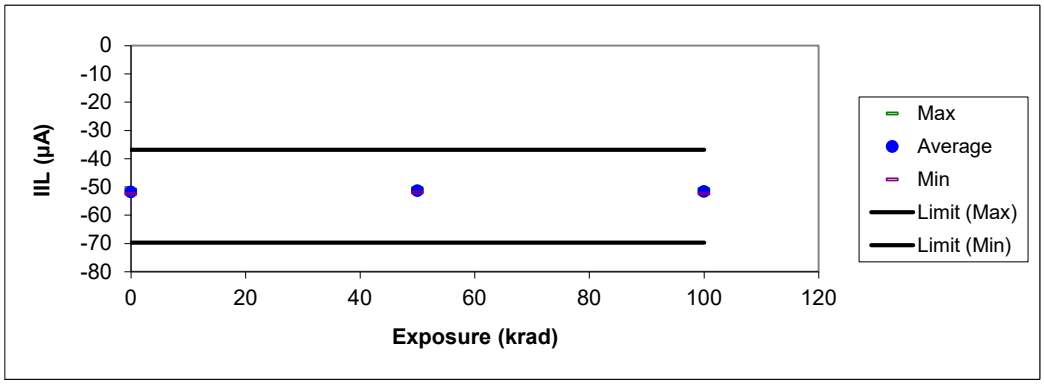
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | -51.807962 | -51.015019 | -52.463665 | 0.67034397 | -36.9 | -69.7 | | |
| LDR BIASED | 50 | 5 | -51.324594 | -50.516571 | -52.041142 | 0.65927748 | -36.9 | -69.7 | 0.346214294 | 4.54 |
| LDR BIASED | 100 | 5 | -51.628722 | -50.805588 | -52.406124 | 0.71780838 | -36.9 | -69.7 | 0.056999206 | 0.75 |
| LDR UNBIAS | 0 | 5 | -52.707645 | -52.006199 | -53.759815 | 0.78201424 | -36.9 | -69.7 | | |
| LDR UNBIAS | 50 | 5 | -52.468019 | -51.812454 | -53.184567 | 0.58700786 | -36.9 | -69.7 | 0.117782593 | 1.54 |
| LDR UNBIAS | 100 | 5 | -52.558558 | -51.872612 | -53.244503 | 0.61447358 | -36.9 | -69.7 | 0.05784607 | NA |
| HDR BIASED | 0 | 5 | -52.326424 | -51.243755 | -53.683571 | 1.04178795 | -36.9 | -69.7 | | |
| HDR BIASED | 50 | 5 | -52.280676 | -51.015019 | -53.531082 | 1.05729793 | -36.9 | -69.7 | 0.076244354 | |
| HDR BIASED | 100 | 5 | -52.250179 | -51.167511 | -53.531082 | 0.94677986 | -36.9 | -69.7 | 0.076244355 | |
| HDR UNBIAS | 0 | 5 | -52.799139 | -52.082443 | -53.836063 | 0.71645354 | -36.9 | -69.7 | | |
| HDR UNBIAS | 50 | 5 | -52.661897 | -51.701218 | -53.759815 | 0.78238745 | -36.9 | -69.7 | 0.076248169 | |
| HDR UNBIAS | 100 | 5 | -52.76864 | -52.158684 | -53.836063 | 0.75670428 | -36.9 | -69.7 | 0 | |

**Plot of the average readings for each radiation/bias condition**

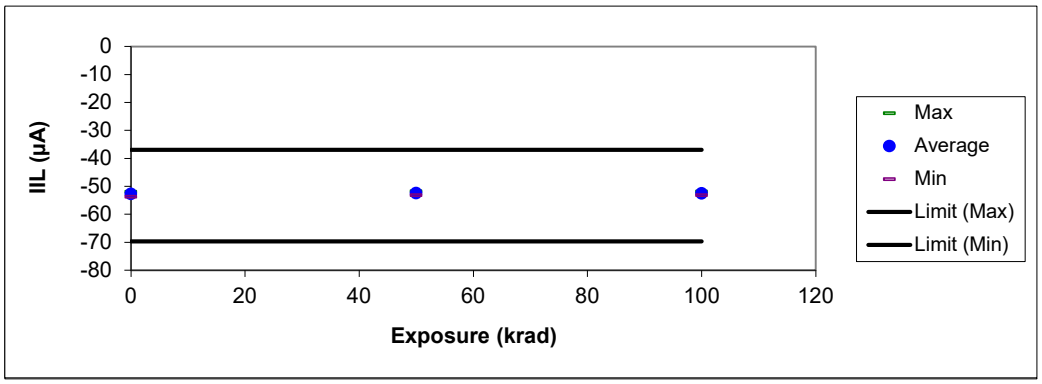


**11364 IIL/CMOS/CLKIN0B/0.4/3.465 uA**

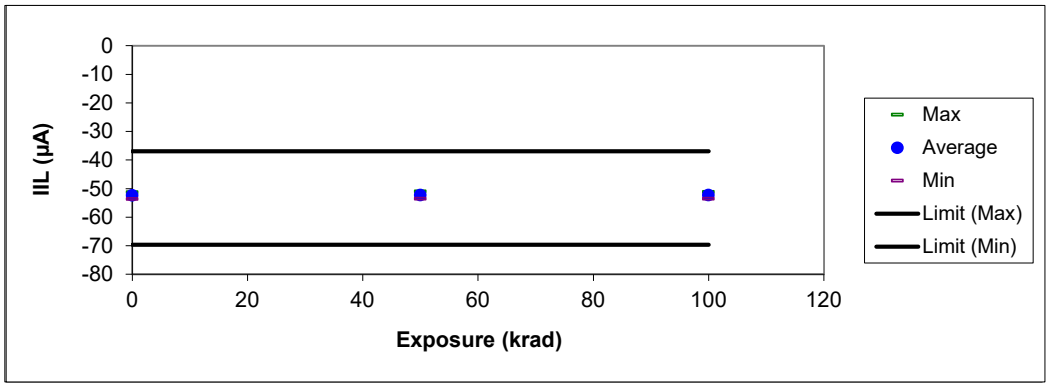
**Low dose rate biased**



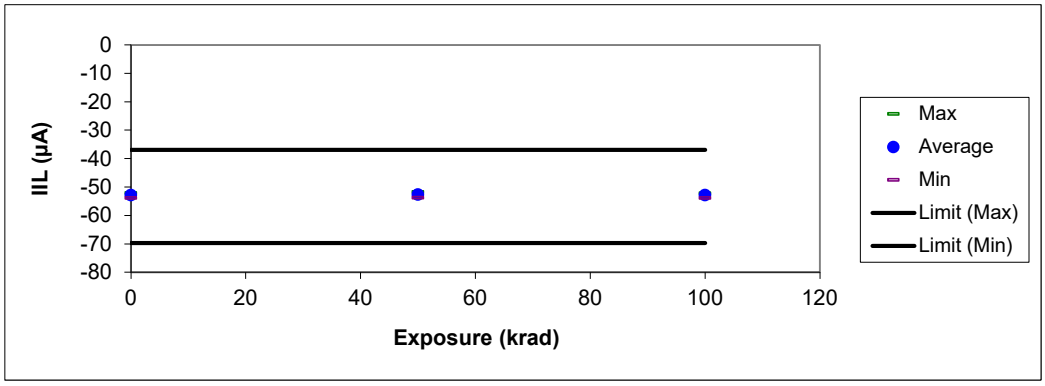

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



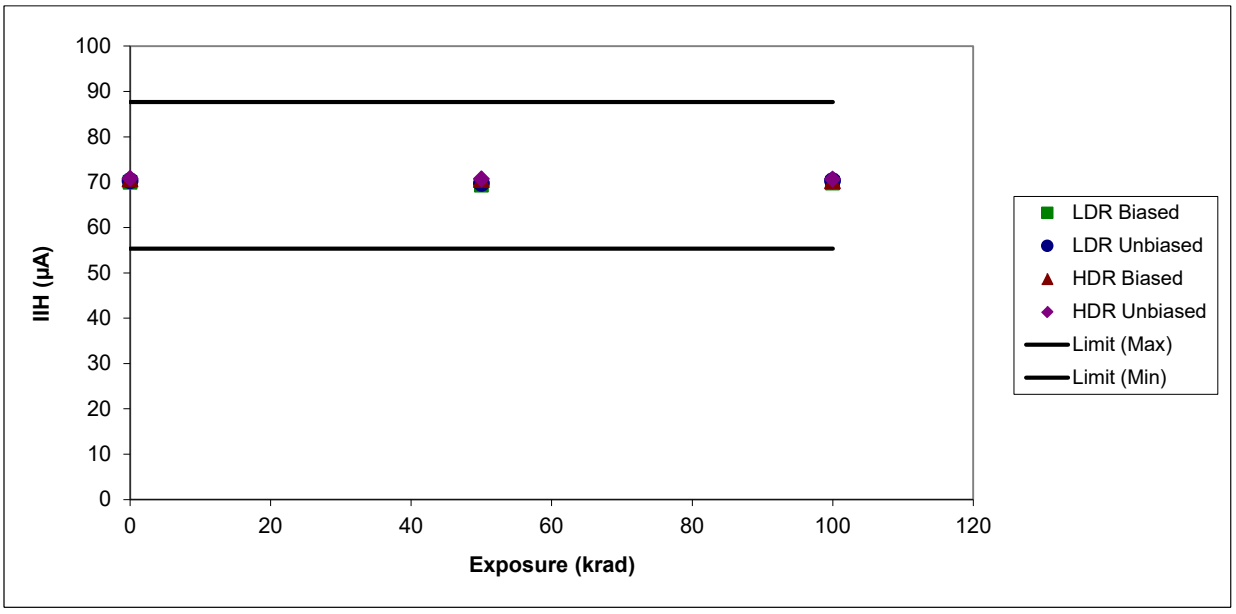
## 11368 IIH/CMOS/CLKIN1B/2.4/3.465 uA

IIH (µA)

**LOT: L01200248**

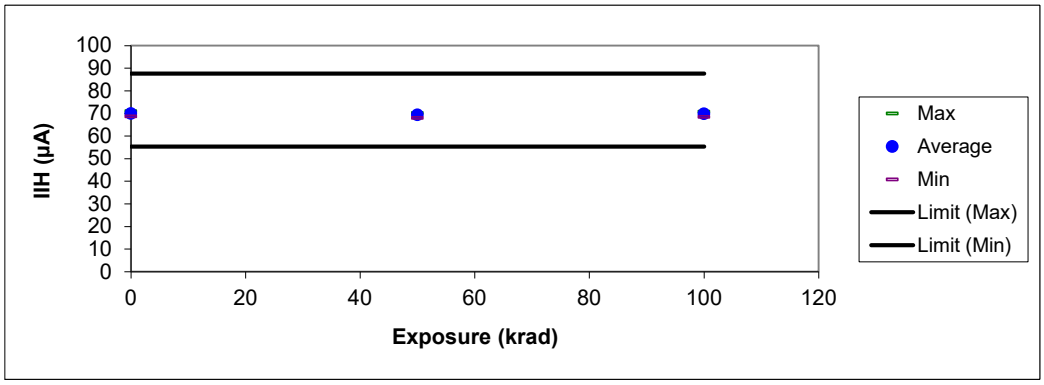
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 69.9585098 | 70.9952698 | 68.7082977 | 0.91256238 | 87.7 | 55.3 | | |
| LDR BIASED | 50 | 5 | 69.3224823 | 70.2216873 | 67.9355698 | 0.93236973 | 87.7 | 55.3 | -0.772727966 | 10.14 |
| LDR BIASED | 100 | 5 | 69.7997238 | 70.7900085 | 68.428566 | 0.91885582 | 87.7 | 55.3 | -0.20526123 | 0.67 |
| LDR UNBIAS | 0 | 5 | 70.3244247 | 71.5289001 | 69.4706192 | 0.8409802 | 87.7 | 55.3 | | |
| LDR UNBIAS | 50 | 5 | 69.7492249 | 70.8313141 | 68.9262238 | 0.93857611 | 87.7 | 55.3 | -0.544570923 | NA |
| LDR UNBIAS | 100 | 5 | 70.3024826 | 71.1708908 | 69.6473694 | 0.72985864 | 87.7 | 55.3 | 0.024116517 | -0.11 |
| HDR BIASED | 0 | 5 | 70.644603 | 71.8338242 | 69.318161 | 0.9666776 | 87.7 | 55.3 | | |
| HDR BIASED | 50 | 5 | 70.568367 | 71.7575912 | 69.1656876 | 1.02928031 | 87.7 | 55.3 | -0.07623291 | |
| HDR BIASED | 100 | 5 | 70.2634399 | 71.5289001 | 69.0894623 | 0.95458008 | 87.7 | 55.3 | -0.304924012 | |
| HDR UNBIAS | 0 | 5 | 70.842804 | 72.0625229 | 69.9280167 | 0.96878067 | 87.7 | 55.3 | | |
| HDR UNBIAS | 50 | 5 | 70.7360794 | 72.0625229 | 69.8517838 | 1.02503395 | 87.7 | 55.3 | -0.07623291 | |
| HDR UNBIAS | 100 | 5 | 70.6445984 | 71.8338242 | 69.8517838 | 0.92834564 | 87.7 | 55.3 | -0.22869873 | |

**Plot of the average readings for each radiation/bias condition**

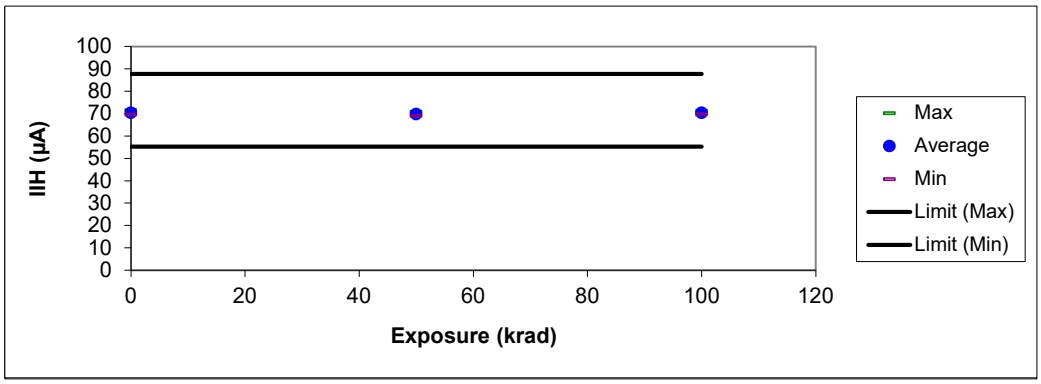


**11368 IIH/CMOS/CLKIN1B/2.4/3.465 uA**

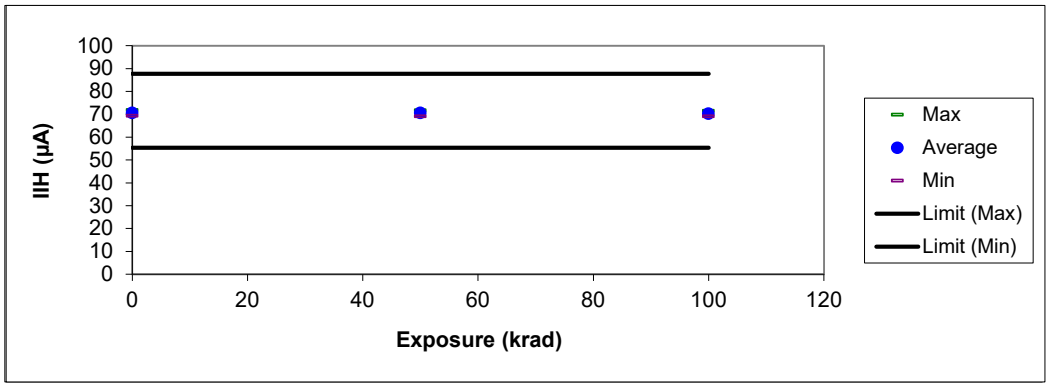
**Low dose rate biased**



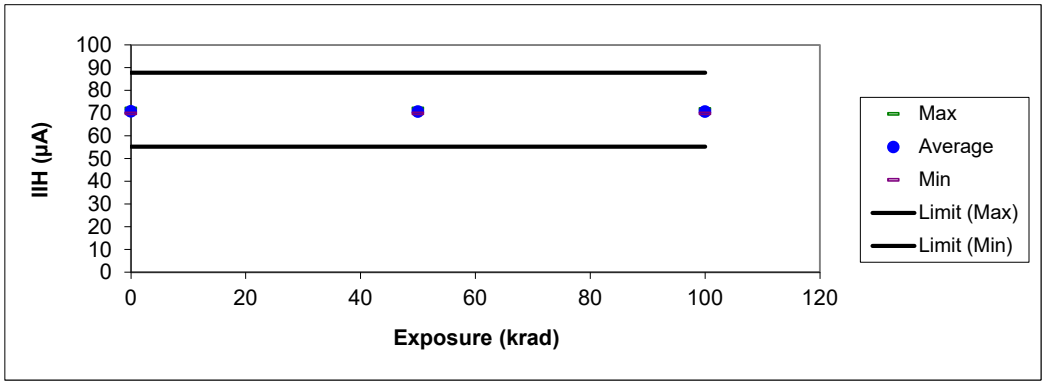

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



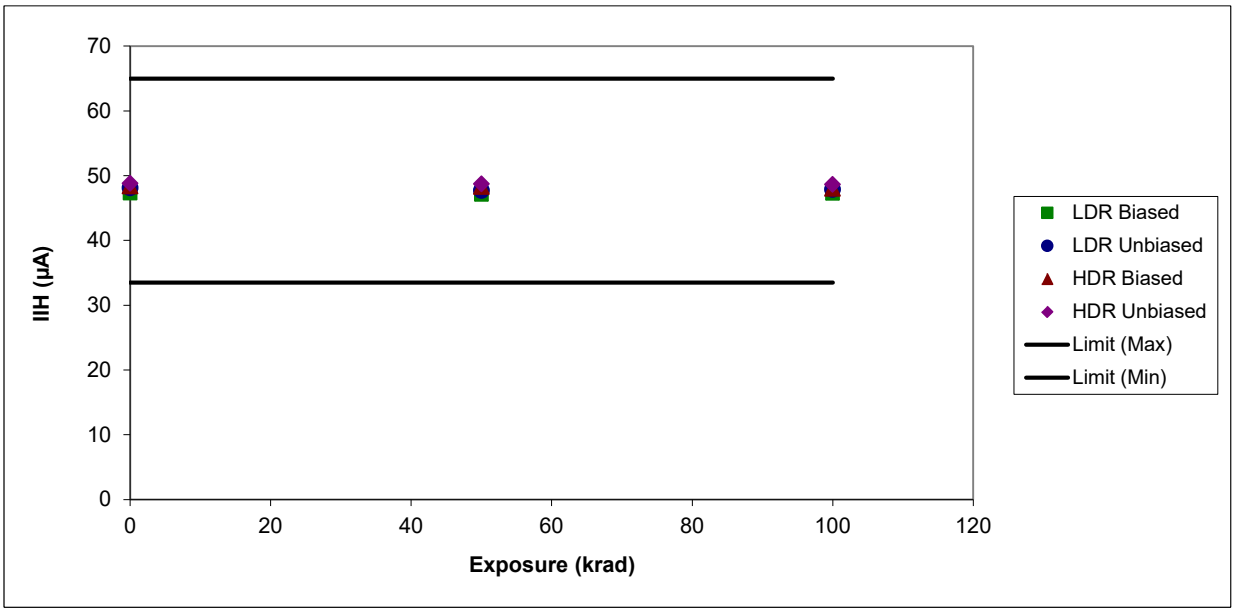
## 11367 IIH/CMOS/CLKIN0B/2.4/3.465 uA

IIH (µA)

**LOT: L01200248**

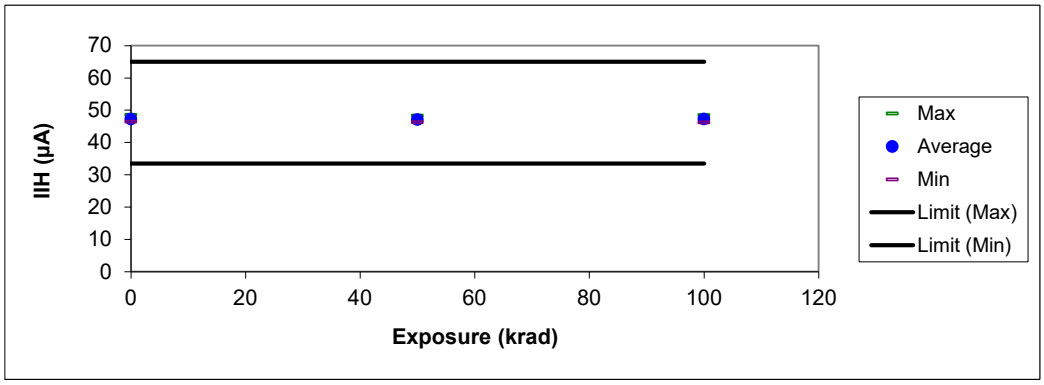
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 47.2943008 | 48.5599556 | 46.4251137 | 0.85175585 | 64.99 | 33.49 | | |
| LDR BIASED | 50 | 5 | 47.1167839 | 48.2754555 | 46.2935181 | 0.85803489 | 64.99 | 33.49 | -0.207874298 | 2.73 |
| LDR BIASED | 100 | 5 | 47.2539215 | 48.5038643 | 46.2173843 | 0.90597734 | 64.99 | 33.49 | -0.056091309 | 0.12 |
| LDR UNBIAS | 0 | 5 | 48.132988 | 49.0174217 | 47.1113129 | 0.82400454 | 64.99 | 33.49 | | |
| LDR UNBIAS | 50 | 5 | 47.726609 | 48.6565933 | 47.0558014 | 0.8163909 | 64.99 | 33.49 | -0.43705368 | NA |
| LDR UNBIAS | 100 | 5 | 47.8788933 | 48.8849449 | 47.0557594 | 0.89110784 | 64.99 | 33.49 | -0.208694458 | 1.37 |
| HDR BIASED | 0 | 5 | 48.4074669 | 50.0848389 | 47.3400497 | 1.11144055 | 64.99 | 33.49 | | |
| HDR BIASED | 50 | 5 | 48.3159744 | 49.9323502 | 47.2638016 | 1.04178698 | 64.99 | 33.49 | -0.076248169 | |
| HDR BIASED | 100 | 5 | 48.0262451 | 49.474884 | 46.8825836 | 0.98381559 | 64.99 | 33.49 | -0.457466126 | |
| HDR UNBIAS | 0 | 5 | 48.8039368 | 50.0085945 | 47.9500008 | 0.97102986 | 64.99 | 33.49 | | |
| HDR UNBIAS | 50 | 5 | 48.7429413 | 50.0085945 | 47.7975159 | 1.06277884 | 64.99 | 33.49 | 0 | |
| HDR UNBIAS | 100 | 5 | 48.6362 | 49.8561096 | 47.7212677 | 0.98823978 | 64.99 | 33.49 | -0.152488709 | |

**Plot of the average readings for each radiation/bias condition**

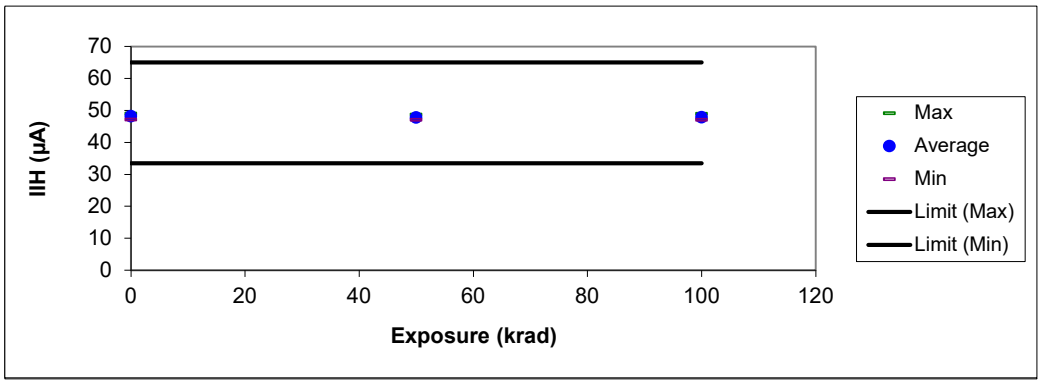


**11367 IIH/CMOS/CLKIN0B/2.4/3.465 uA**

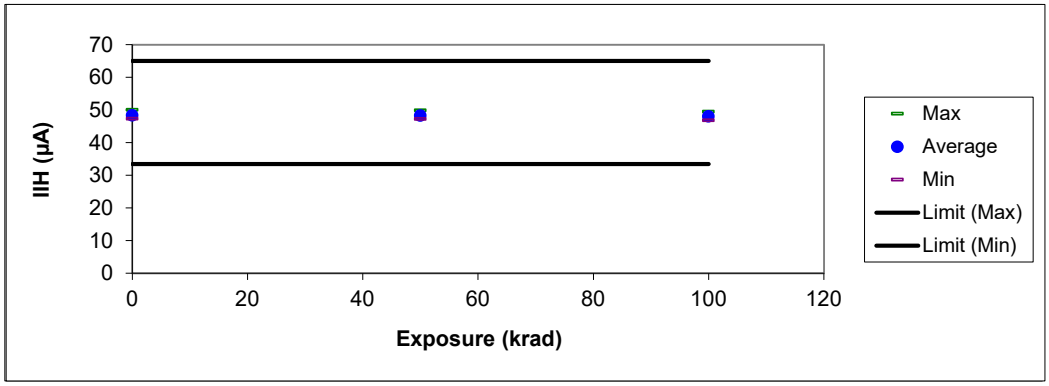
**Low dose rate biased**



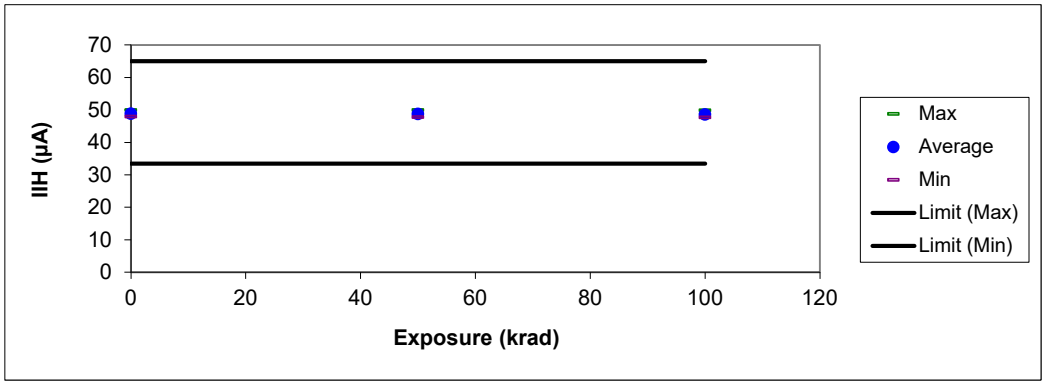

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



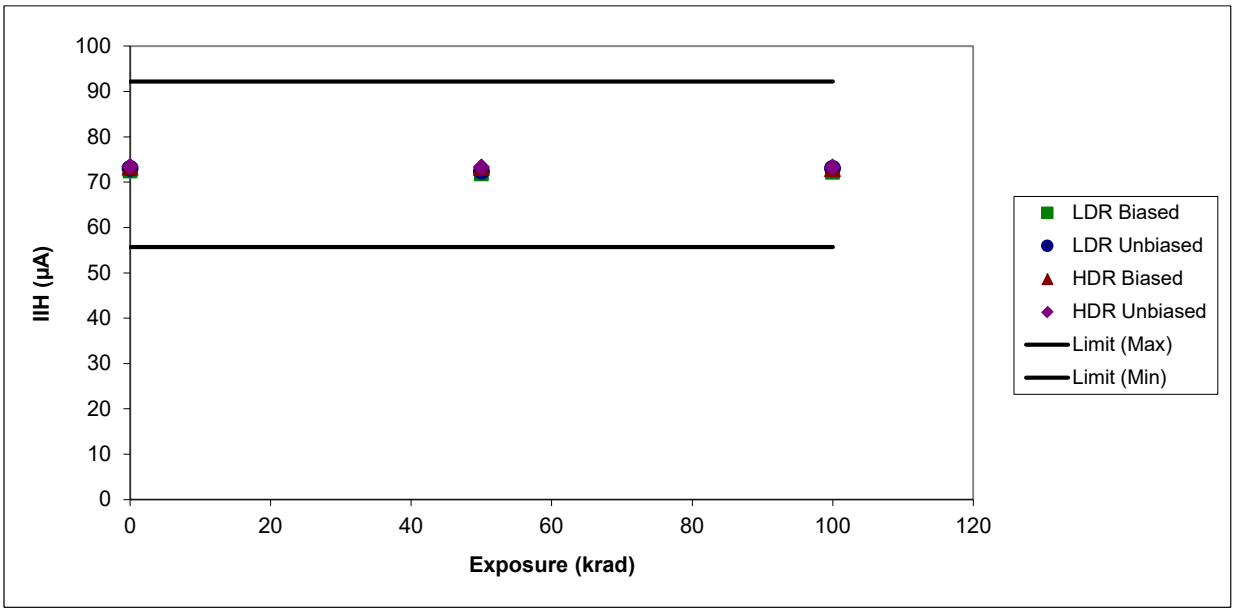
## 11362 IIH/CMOS/CLKIN1P/2.4/3.465 uA

IIH (µA)

**LOT: L01200248**

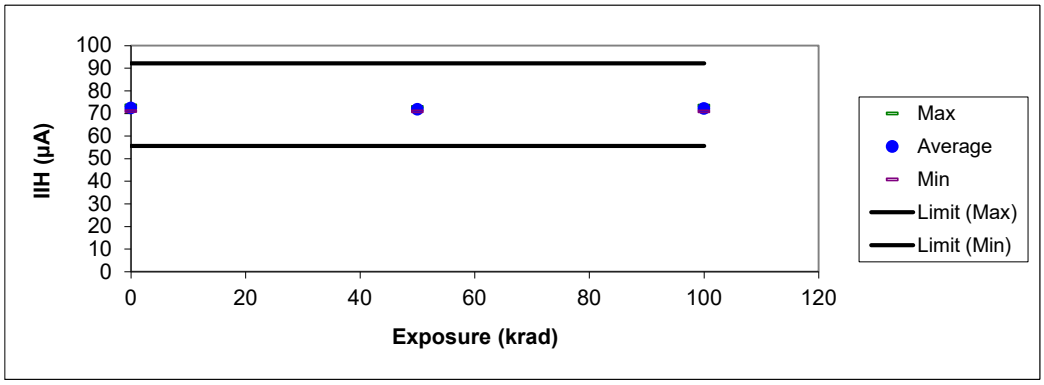
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 72.4225861 | 73.5960999 | 71.0052261 | 0.96177983 | 92.22 | 55.67 | | |
| LDR BIASED | 50 | 5 | 71.8101959 | 72.8008881 | 70.8195038 | 0.79562548 | 92.22 | 55.67 | -0.566680909 | #DIV/0! |
| LDR BIASED | 100 | 5 | 72.1828918 | 73.4174423 | 70.826416 | 0.98833873 | 92.22 | 55.67 | -0.178810119 | 0.47 |
| LDR UNBIAS | 0 | 5 | 73.0322037 | 74.205719 | 72.072052 | 0.87814676 | 92.22 | 55.67 | | |
| LDR UNBIAS | 50 | 5 | 72.4046143 | 73.7915878 | 71.4291611 | 1.07827285 | 92.22 | 55.67 | -0.64289093 | 2.81 |
| LDR UNBIAS | 100 | 5 | 73.0211639 | 74.103302 | 71.8171005 | 0.90554689 | 92.22 | 55.67 | 0.049903869 | -0.33 |
| HDR BIASED | 0 | 5 | 73.2760513 | 74.2819214 | 71.9196472 | 1.03842365 | 92.22 | 55.67 | | |
| HDR BIASED | 50 | 5 | 73.2303284 | 74.4343185 | 71.4624329 | 1.17731895 | 92.22 | 55.67 | 0 | |
| HDR BIASED | 100 | 5 | 72.9255203 | 74.0533066 | 71.3862381 | 1.080888 | 92.22 | 55.67 | -0.381011963 | |
| HDR UNBIAS | 0 | 5 | 73.4284531 | 74.8153305 | 72.6054688 | 1.0412133 | 92.22 | 55.67 | | |
| HDR UNBIAS | 50 | 5 | 73.3065292 | 74.586731 | 72.453064 | 1.10217024 | 92.22 | 55.67 | -0.228599548 | |
| HDR UNBIAS | 100 | 5 | 73.2912933 | 74.586731 | 72.3768692 | 1.02661027 | 92.22 | 55.67 | -0.152397156 | |

**Plot of the average readings for each radiation/bias condition**

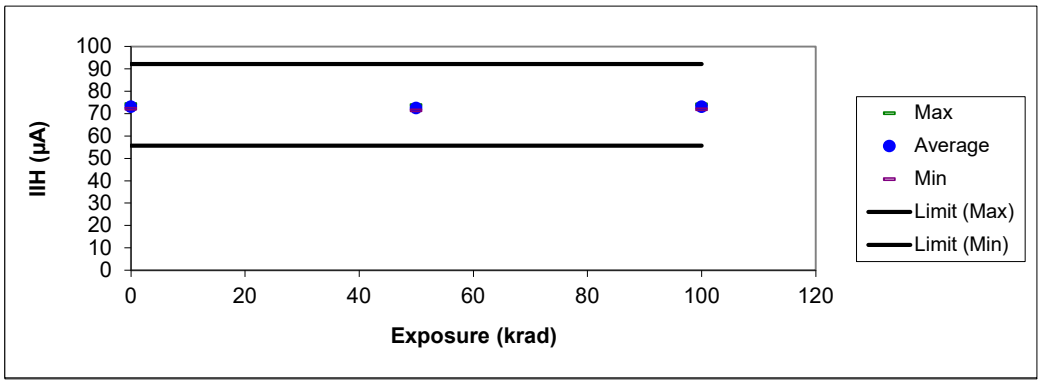


**11362 IIH/CMOS/CLKIN1P/2.4/3.465 uA**

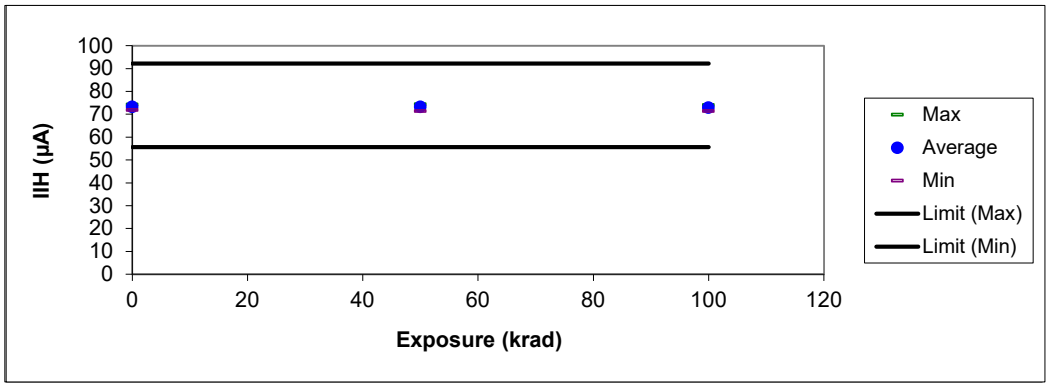
**Low dose rate biased**



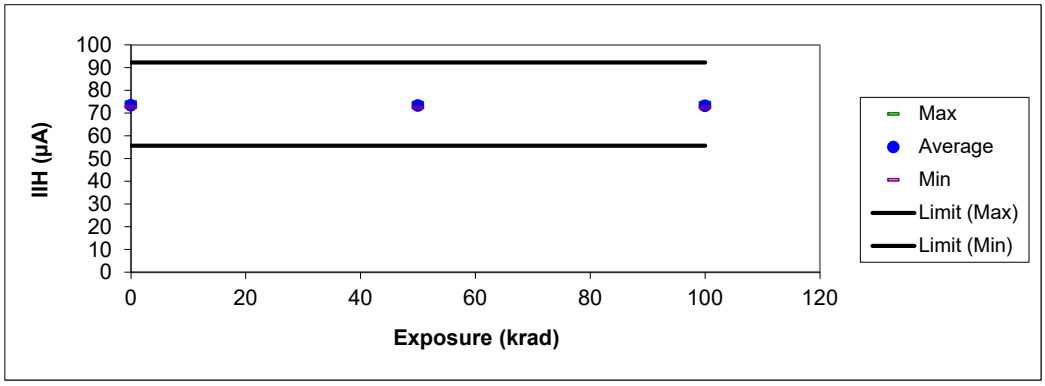

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



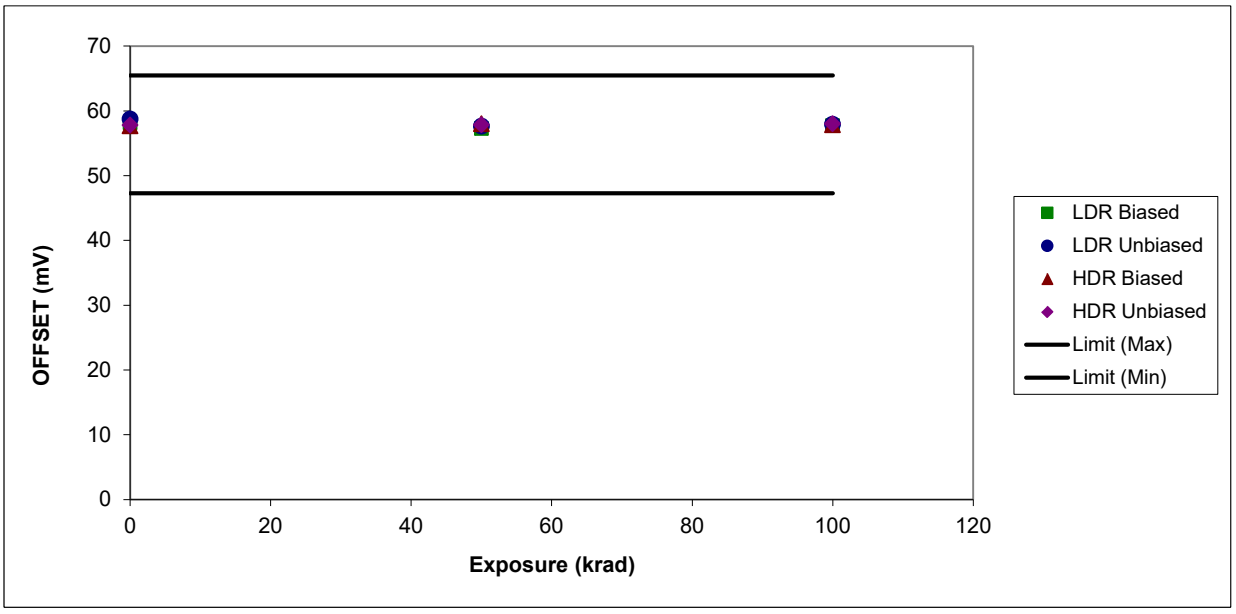
## 11358 OFFSET/CMOS/CLKIN0/3.465 mV

OFFSET (mV)

**LOT: L01200248**

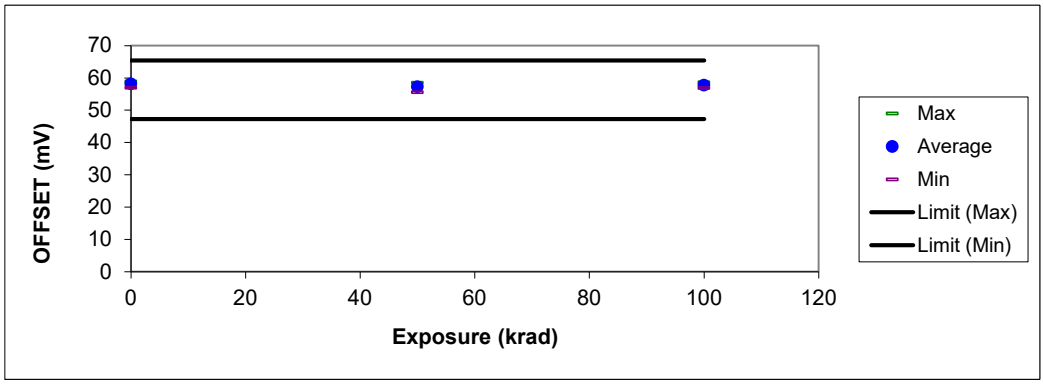
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 58.1783058 | 58.9104881 | 56.9277992 | 0.78069807 | 65.45 | 47.28 | | |
| LDR BIASED | 50 | 5 | 57.2929619 | 58.4840775 | 55.5828819 | 1.08720835 | 65.45 | 47.28 | -1.03807449 | -3.40 |
| LDR BIASED | 100 | 5 | 57.7324394 | 58.6471558 | 56.8187256 | 0.81359175 | 65.45 | 47.28 | -0.263332367 | -0.86 |
| LDR UNBIAS | 0 | 5 | 58.7274078 | 59.2154274 | 58.4528427 | 0.37970432 | 65.45 | 47.28 | | |
| LDR UNBIAS | 50 | 5 | 57.659388 | 58.3313713 | 56.651474 | 0.65329834 | 65.45 | 47.28 | -1.03783417 | 1.03 |
| LDR UNBIAS | 100 | 5 | 57.94561 | 58.4944496 | 57.5798759 | 0.38256518 | 65.45 | 47.28 | -0.873088837 | -2.86 |
| HDR BIASED | 0 | 5 | 57.6903107 | 58.3003769 | 57.0803871 | 0.43133159 | 65.45 | 47.28 | | |
| HDR BIASED | 50 | 5 | 58.0259796 | 58.4528427 | 57.5379143 | 0.33064782 | 65.45 | 47.28 | 0.305175781 | |
| HDR BIASED | 100 | 5 | 57.8428024 | 58.1480255 | 57.5379143 | 0.24120561 | 65.45 | 47.28 | 0.305175782 | |
| HDR UNBIAS | 0 | 5 | 57.8123802 | 58.7580185 | 57.3855629 | 0.55415249 | 65.45 | 47.28 | | |
| HDR UNBIAS | 50 | 5 | 57.8428741 | 58.3004951 | 57.3855629 | 0.38873183 | 65.45 | 47.28 | 0 | |
| HDR UNBIAS | 100 | 5 | 57.9953911 | 59.0631943 | 56.9274445 | 0.94652261 | 65.45 | 47.28 | 0.305175781 | |

**Plot of the average readings for each radiation/bias condition**

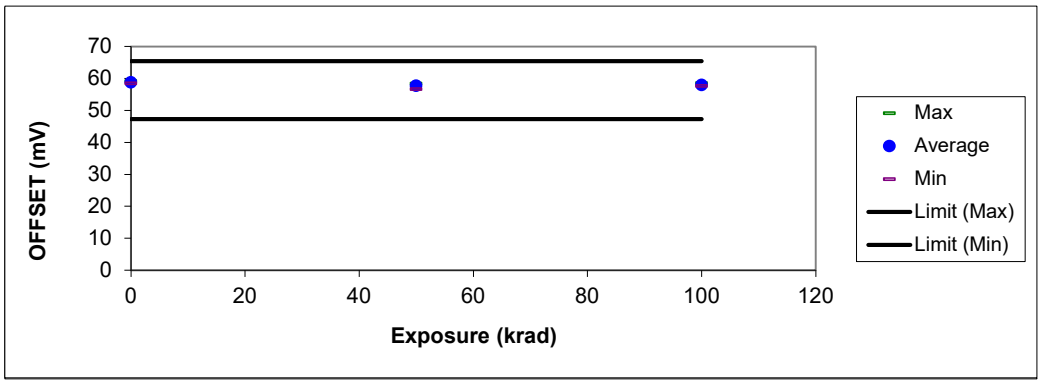


**11358 OFFSET/CMOS/CLKIN0/3.465 mV**

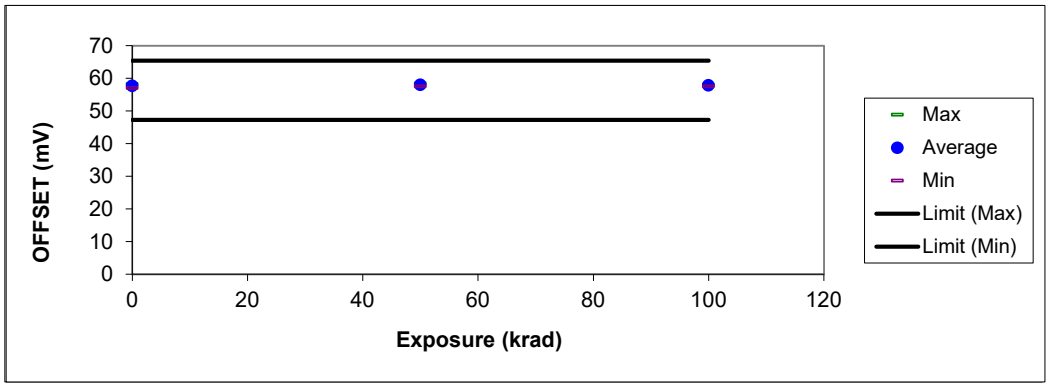
**Low dose rate biased**



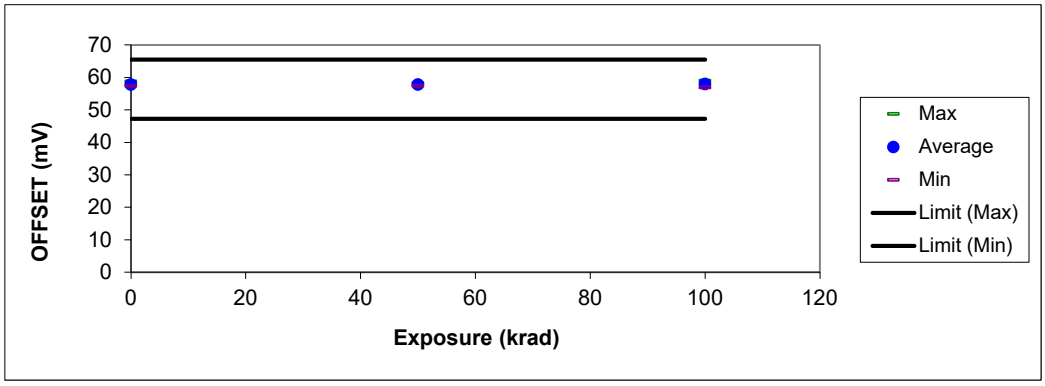

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



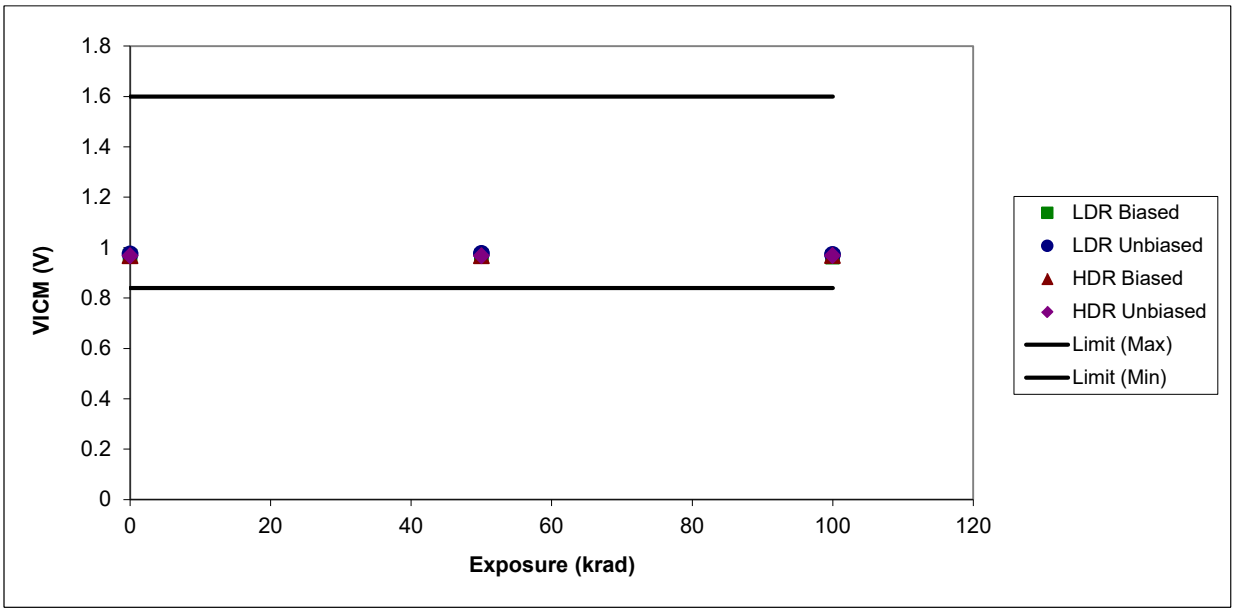
## 11355 VICM/CMOS/CLKIN1B/3.465 V

VICM (V)

**LOT: L01200248**

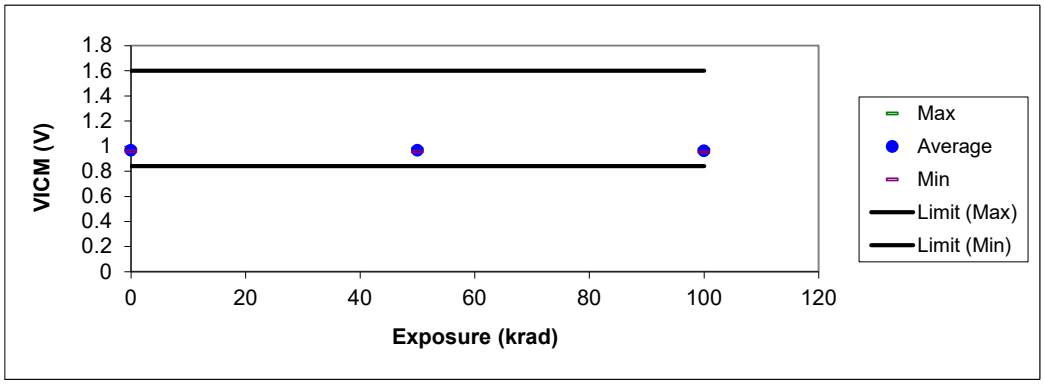
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 0.96641146 | 0.97440678 | 0.95884335 | 0.00616838 | 1.6 | 0.84 | | |
| LDR BIASED | 50 | 5 | 0.96644994 | 0.9763149 | 0.95569927 | 0.00791628 | 1.6 | 0.84 | 0.000071824 | 0.47 |
| LDR BIASED | 100 | 5 | 0.96270558 | 0.97268277 | 0.95147747 | 0.00825821 | 1.6 | 0.84 | -0.003401399 | -7.43 |
| LDR UNBIAS | 0 | 5 | 0.97498661 | 0.98554534 | 0.96952415 | 0.00681807 | 1.6 | 0.84 | | |
| LDR UNBIAS | 50 | 5 | 0.9769868 | 0.98746258 | 0.97142822 | 0.0067422 | 1.6 | 0.84 | 0.001911104 | 6.26 |
| LDR UNBIAS | 100 | 5 | 0.97271326 | 0.98381937 | 0.96703816 | 0.00696633 | 1.6 | 0.84 | -0.00248599 | -2.72 |
| HDR BIASED | 0 | 5 | 0.96732698 | 0.9789843 | 0.96158987 | 0.00715887 | 1.6 | 0.84 | | |
| HDR BIASED | 50 | 5 | 0.96775421 | 0.97959459 | 0.96174246 | 0.00715398 | 1.6 | 0.84 | 0.000152588 | |
| HDR BIASED | 100 | 5 | 0.96815091 | 0.97944206 | 0.96204758 | 0.00692111 | 1.6 | 0.84 | 0.000457704 | |
| HDR UNBIAS | 0 | 5 | 0.9674185 | 0.97288096 | 0.96204758 | 0.00402165 | 1.6 | 0.84 | | |
| HDR UNBIAS | 50 | 5 | 0.9677542 | 0.97318614 | 0.96204758 | 0.00399727 | 1.6 | 0.84 | 0.000305175 | |
| HDR UNBIAS | 100 | 5 | 0.96873072 | 0.9736439 | 0.96387857 | 0.00353651 | 1.6 | 0.84 | 0.000915468 | |

**Plot of the average readings for each radiation/bias condition**

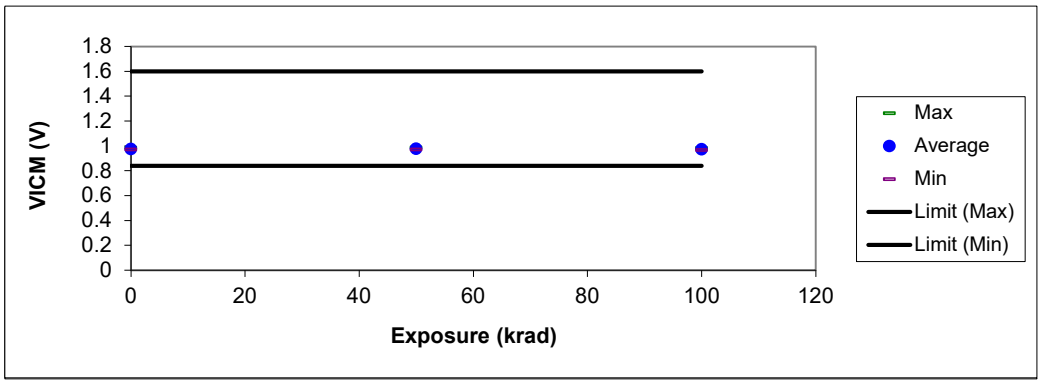


**11355 VICM/CMOS/CLKIN1B/3.465 V**

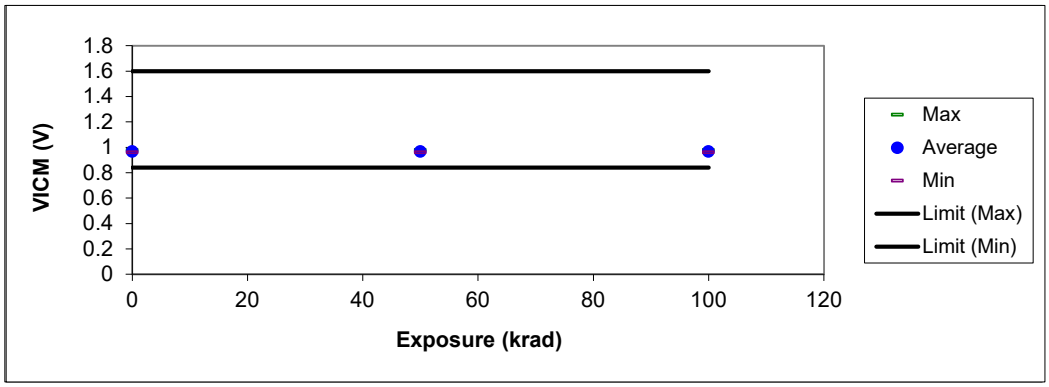
**Low dose rate biased**



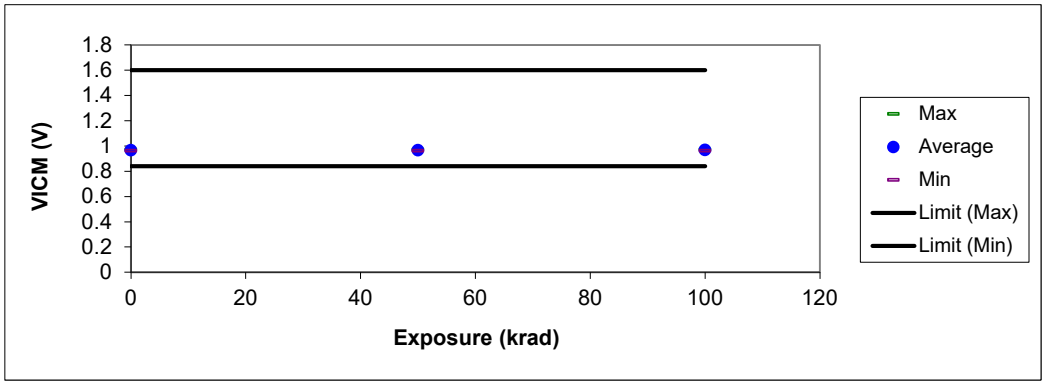

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



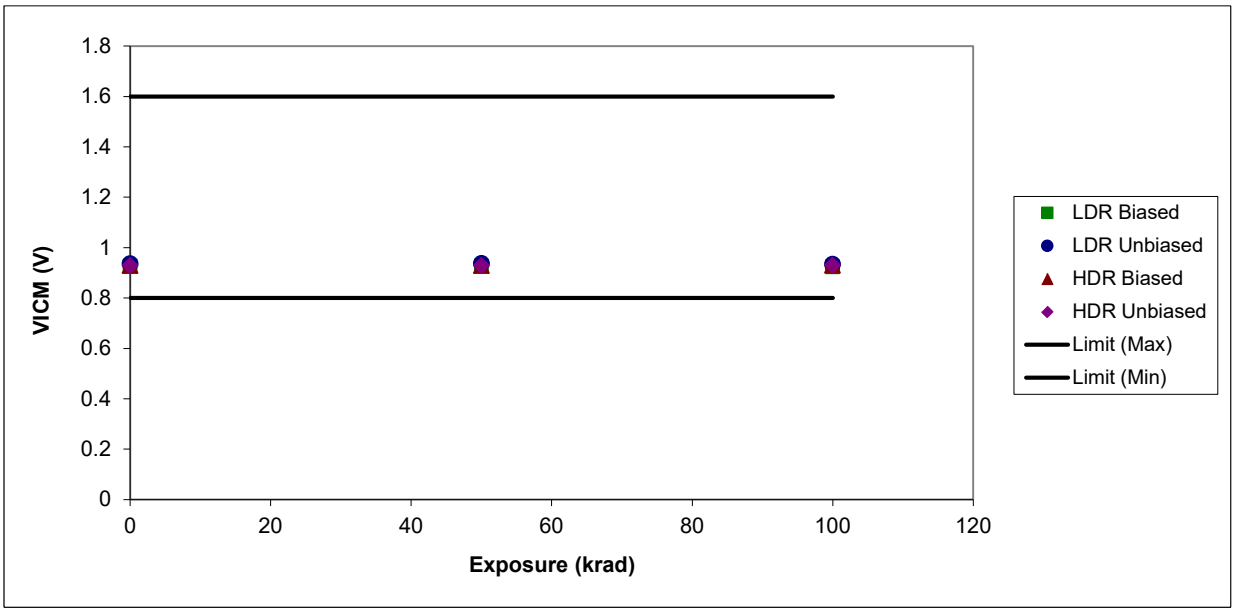
## 11354 VICM/CMOS/CLKIN1P/3.465 V

VICM (V)

**LOT: L01200248**

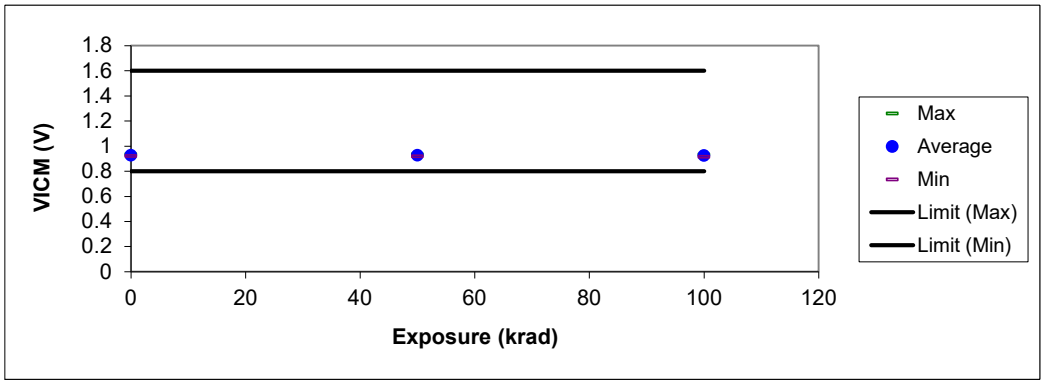
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 0.9272379 | 0.93462288 | 0.92073792 | 0.00574628 | 1.6 | 0.8 | | |
| LDR BIASED | 50 | 5 | 0.92691097 | 0.93576878 | 0.91790044 | 0.00715916 | 1.6 | 0.8 | -0.000538885 | 3.53 |
| LDR BIASED | 100 | 5 | 0.92367197 | 0.93258131 | 0.91396934 | 0.00750994 | 1.6 | 0.8 | -0.002956032 | -6.46 |
| LDR UNBIAS | 0 | 5 | 0.93611819 | 0.9437778 | 0.93141866 | 0.00531896 | 1.6 | 0.8 | | |
| LDR UNBIAS | 50 | 5 | 0.93729595 | 0.9452374 | 0.93225616 | 0.00547135 | 1.6 | 0.8 | 0.001150012 | 3.77 |
| LDR UNBIAS | 100 | 5 | 0.93371023 | 0.94203985 | 0.92876738 | 0.00547146 | 1.6 | 0.8 | -0.002651274 | -3.48 |
| HDR BIASED | 0 | 5 | 0.92897736 | 0.93935293 | 0.92272151 | 0.00635554 | 1.6 | 0.8 | | |
| HDR BIASED | 50 | 5 | 0.92922148 | 0.93920034 | 0.9233318 | 0.0061229 | 1.6 | 0.8 | -0.000152588 | |
| HDR BIASED | 100 | 5 | 0.92977076 | 0.93981063 | 0.92394215 | 0.00624131 | 1.6 | 0.8 | 0.000457704 | |
| HDR UNBIAS | 0 | 5 | 0.92903839 | 0.9361487 | 0.92409474 | 0.00440985 | 1.6 | 0.8 | | |
| HDR UNBIAS | 50 | 5 | 0.92937405 | 0.93584353 | 0.92394215 | 0.00424029 | 1.6 | 0.8 | 0.000305116 | |
| HDR UNBIAS | 100 | 5 | 0.92989283 | 0.93660641 | 0.9250102 | 0.00419391 | 1.6 | 0.8 | 0.00076288 | |

**Plot of the average readings for each radiation/bias condition**

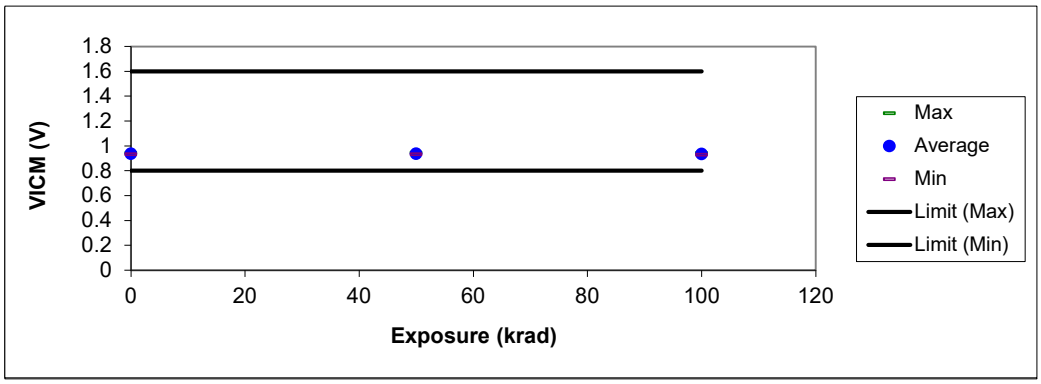


**11354 VICM/CMOS/CLKIN1P/3.465 V**

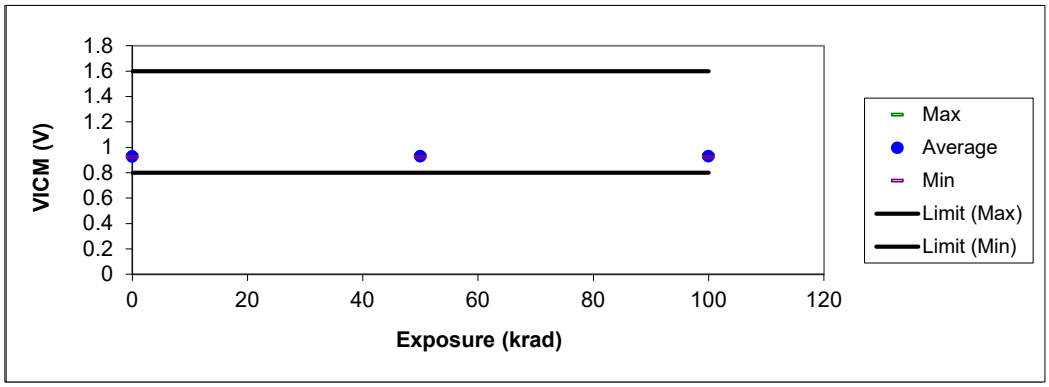
**Low dose rate biased**



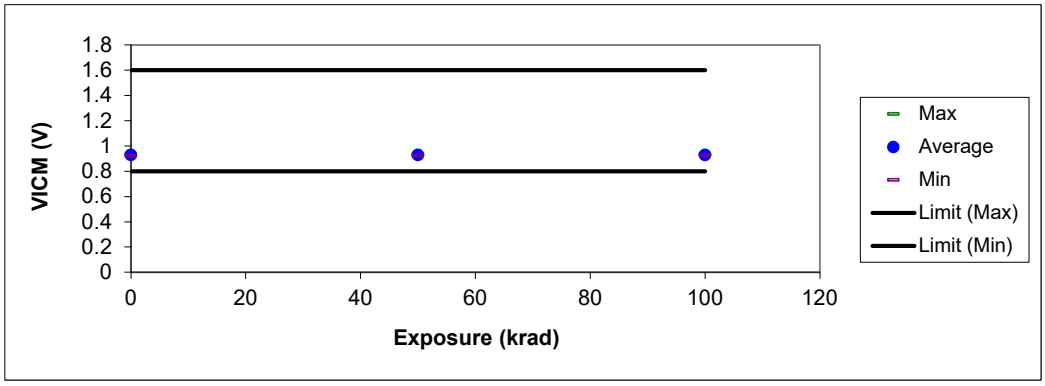

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



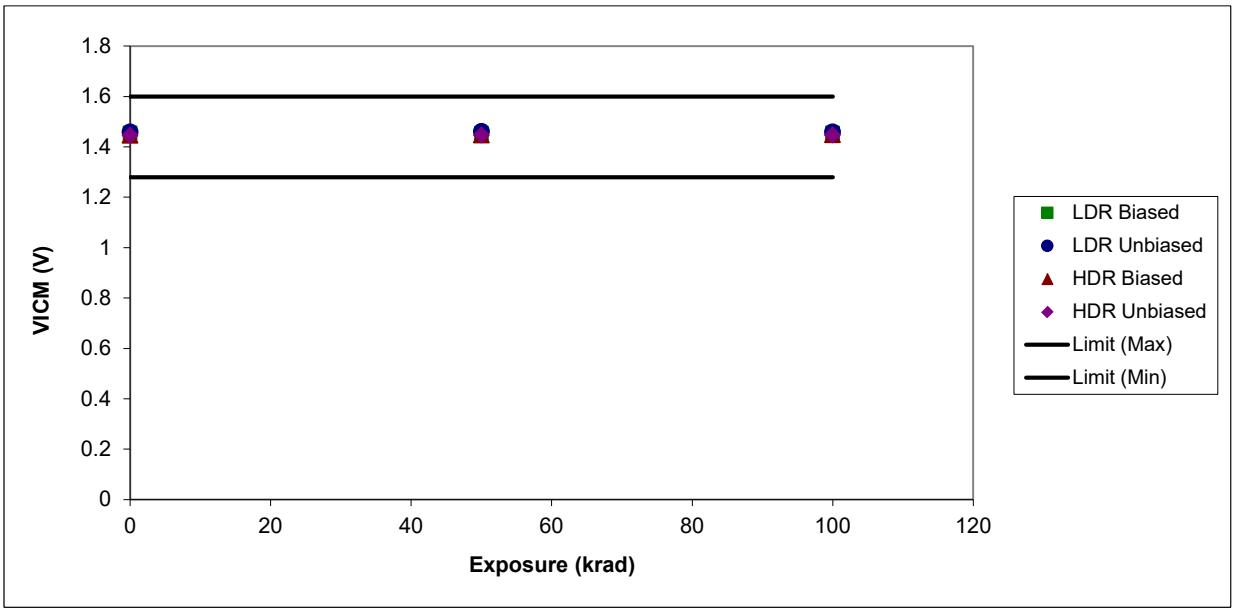
## 11353 VICM/CMOS/CLKIN0B/3.465 V

VICM (V)

**LOT: L01200248**

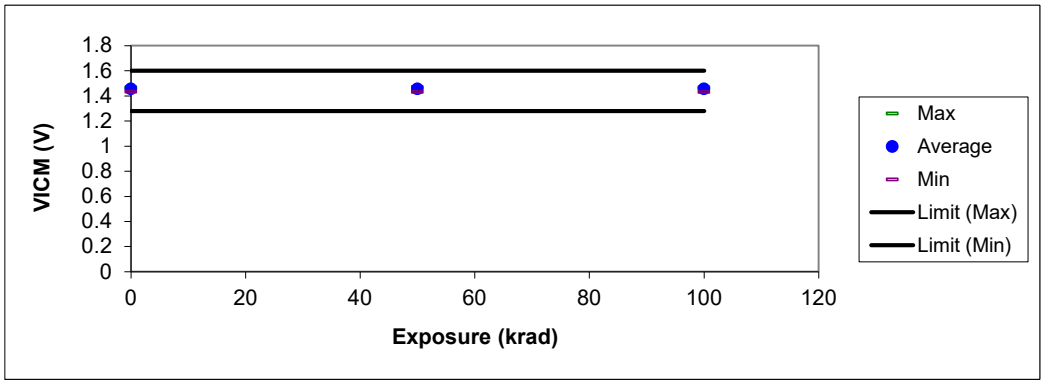
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.45507481 | 1.46831882 | 1.43291998 | 0.01330978 | 1.6 | 1.28 | | |
| LDR BIASED | 50 | 5 | 1.45463798 | 1.46908486 | 1.43060052 | 0.01449577 | 1.6 | 1.28 | -0.000160814 | -0.12 |
| LDR BIASED | 100 | 5 | 1.45471945 | 1.46863162 | 1.43110538 | 0.01438604 | 1.6 | 1.28 | 0.000312805 | 0.11 |
| LDR UNBIAS | 0 | 5 | 1.45956068 | 1.46557236 | 1.45382369 | 0.00553364 | 1.6 | 1.28 | | |
| LDR UNBIAS | 50 | 5 | 1.46114366 | 1.46771049 | 1.45427144 | 0.00617226 | 1.6 | 1.28 | 0.001985073 | 1.86 |
| LDR UNBIAS | 100 | 5 | 1.45978391 | 1.46588576 | 1.45368206 | 0.00570467 | 1.6 | 1.28 | 0.000008345 | 0.00 |
| HDR BIASED | 0 | 5 | 1.44585888 | 1.45733297 | 1.43322515 | 0.01043504 | 1.6 | 1.28 | | |
| HDR BIASED | 50 | 5 | 1.44704905 | 1.45840108 | 1.43459845 | 0.01079914 | 1.6 | 1.28 | 0.001373291 | |
| HDR BIASED | 100 | 5 | 1.44830019 | 1.46023202 | 1.43597162 | 0.01109781 | 1.6 | 1.28 | 0.002746463 | |
| HDR UNBIAS | 0 | 5 | 1.44555373 | 1.45901144 | 1.4326148 | 0.01010005 | 1.6 | 1.28 | | |
| HDR UNBIAS | 50 | 5 | 1.4464082 | 1.45840108 | 1.43459845 | 0.00921859 | 1.6 | 1.28 | 0.001068115 | |
| HDR UNBIAS | 100 | 5 | 1.44732366 | 1.45931661 | 1.43520868 | 0.00949422 | 1.6 | 1.28 | 0.001830935 | |

**Plot of the average readings for each radiation/bias condition**

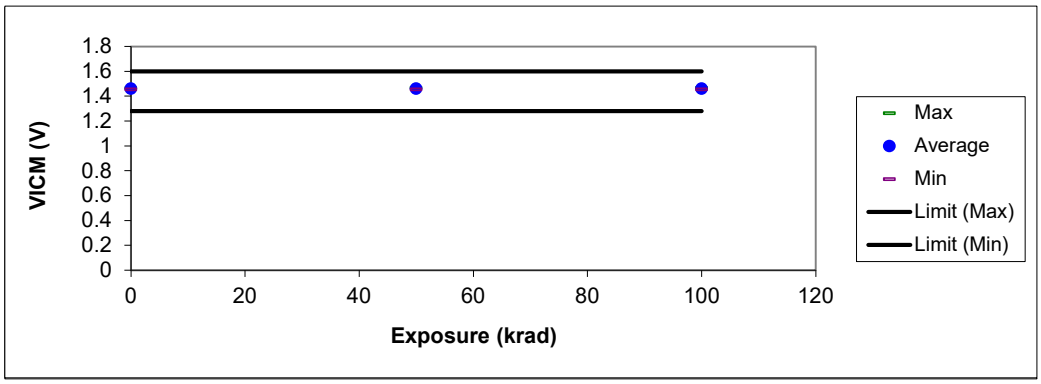


**11353 VICM/CMOS/CLKIN0B/3.465 V**

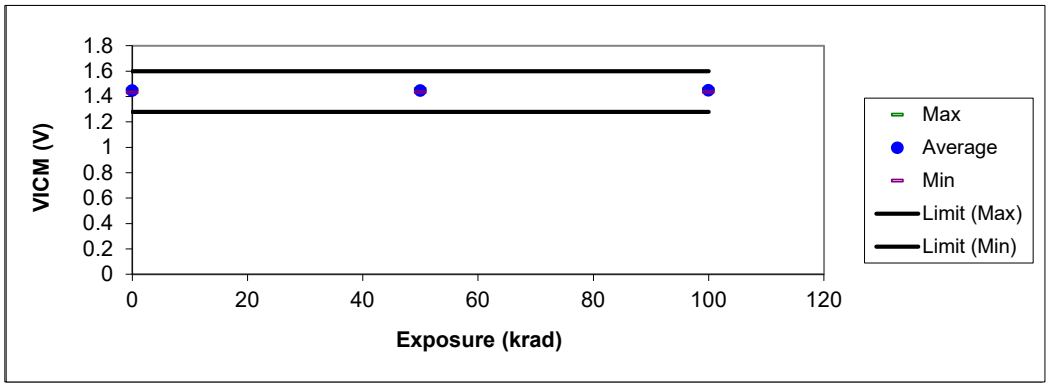
**Low dose rate biased**



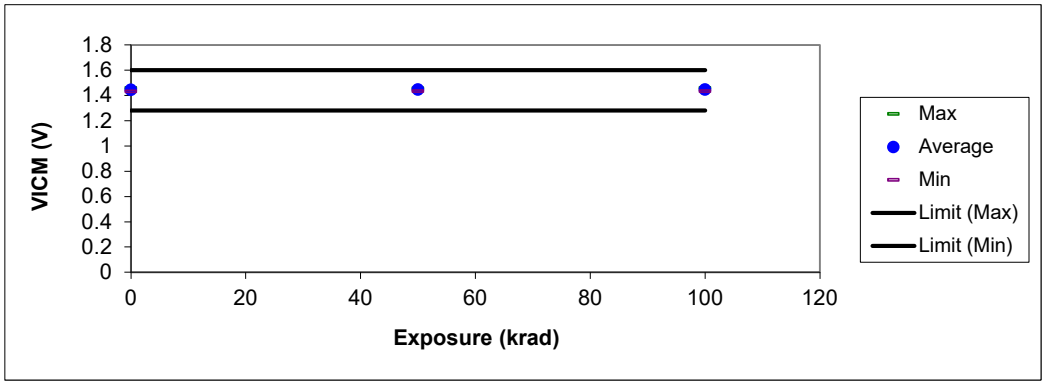

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



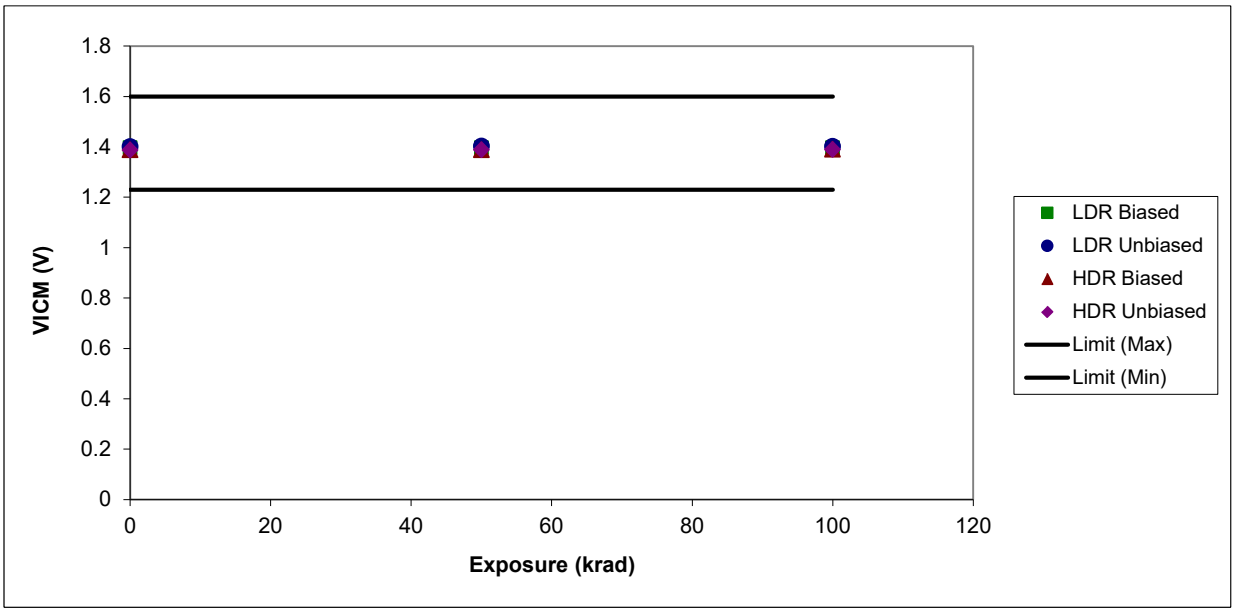
## 11352 VICM/CMOS/CLKIN0P/3.465 V

VICM (V)

**LOT: L01200248**

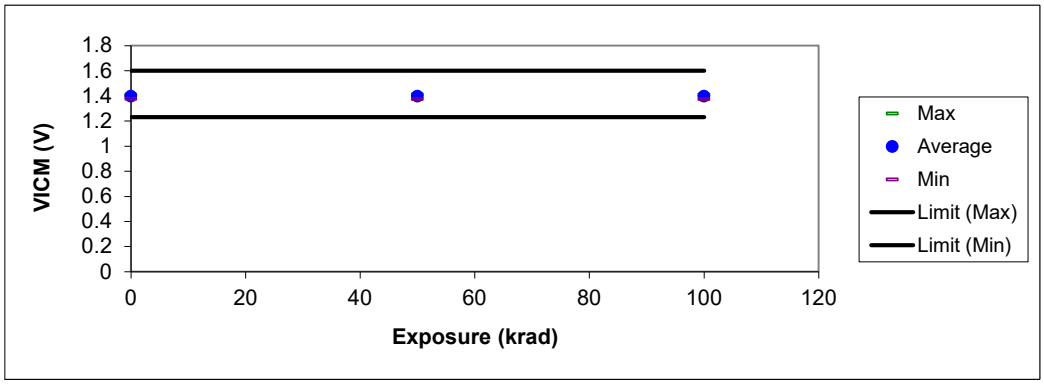
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.39689651 | 1.41017151 | 1.37599218 | 0.01270688 | 1.6 | 1.23 | | |
| LDR BIASED | 50 | 5 | 1.39734502 | 1.41121185 | 1.37501764 | 0.01350213 | 1.6 | 1.23 | 0.000880837 | 2.89 |
| LDR BIASED | 100 | 5 | 1.39698701 | 1.41028988 | 1.37428665 | 0.01371708 | 1.6 | 1.23 | 0.000118375 | 0.06 |
| LDR UNBIAS | 0 | 5 | 1.40083327 | 1.40650952 | 1.39537072 | 0.00517268 | 1.6 | 1.23 | | |
| LDR UNBIAS | 50 | 5 | 1.40348427 | 1.40937913 | 1.39639819 | 0.00577564 | 1.6 | 1.23 | 0.002869606 | 6.27 |
| LDR UNBIAS | 100 | 5 | 1.4018383 | 1.40739131 | 1.39610219 | 0.00536187 | 1.6 | 1.23 | 0.000881791 | 0.48 |
| HDR BIASED | 0 | 5 | 1.38816857 | 1.39964306 | 1.37614477 | 0.01010899 | 1.6 | 1.23 | | |
| HDR BIASED | 50 | 5 | 1.38902307 | 1.400406 | 1.37644994 | 0.01065026 | 1.6 | 1.23 | 0.000305176 | |
| HDR BIASED | 100 | 5 | 1.39045739 | 1.40254223 | 1.37812841 | 0.01105982 | 1.6 | 1.23 | 0.001983642 | |
| HDR UNBIAS | 0 | 5 | 1.38774135 | 1.40025341 | 1.37522924 | 0.00970034 | 1.6 | 1.23 | | |
| HDR UNBIAS | 50 | 5 | 1.38856533 | 1.40025341 | 1.37721288 | 0.00889501 | 1.6 | 1.23 | 0.000457763 | |
| HDR UNBIAS | 100 | 5 | 1.38932827 | 1.40025341 | 1.37812841 | 0.00861443 | 1.6 | 1.23 | 0.001831055 | |

**Plot of the average readings for each radiation/bias condition**

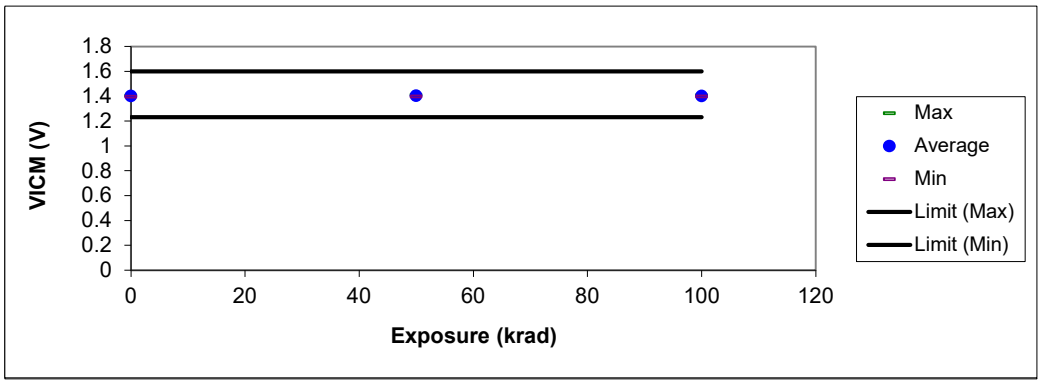


**11352 VICM/CMOS/CLKIN0P/3.465 V**

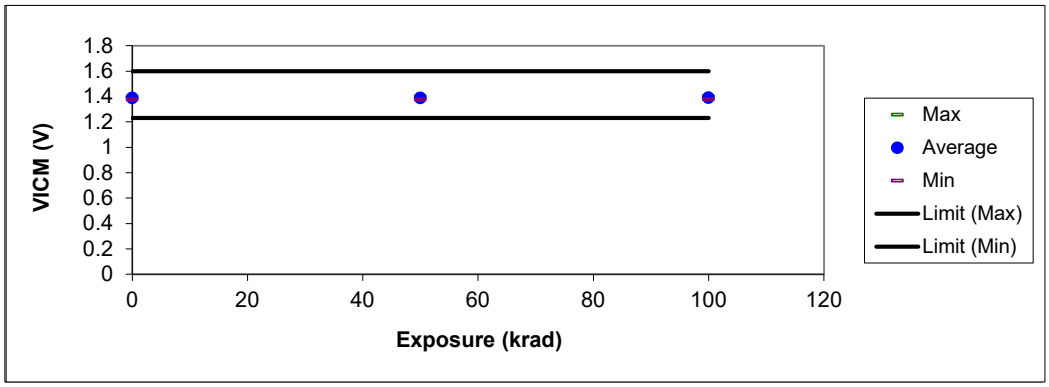
**Low dose rate biased**



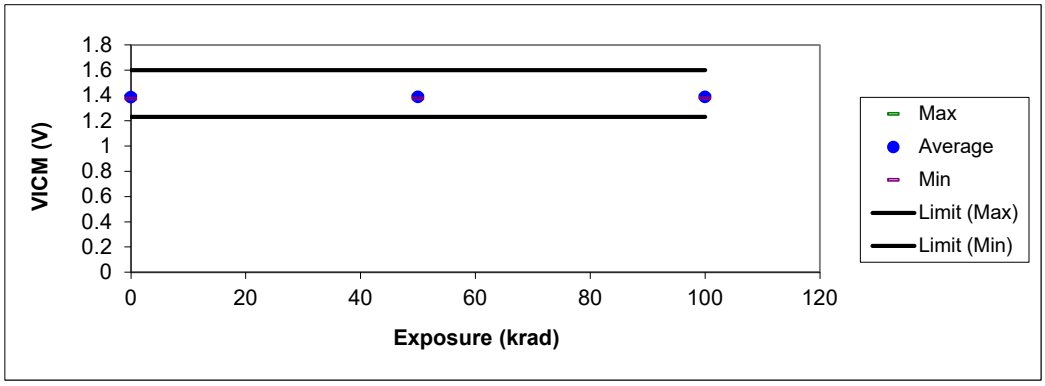

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



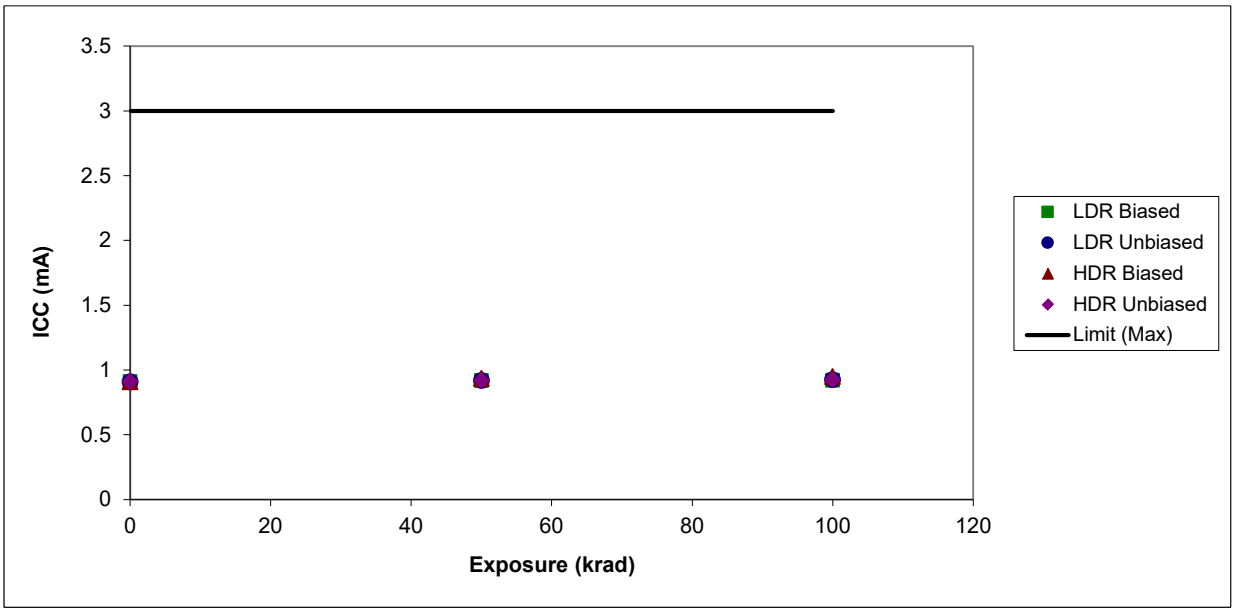
## 10289 ICCVCO/PWRDN/3.465 mA

ICC (mA)

**LOT: L01200248**

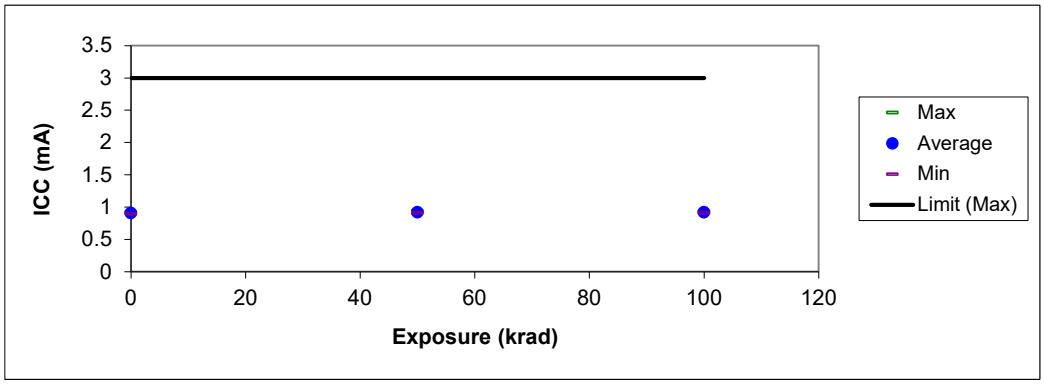
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 0.91006019 | 0.92138994 | 0.89754784 | 0.00848824 | 3 | | | |
| LDR BIASED | 50 | 5 | 0.91926893 | 0.93966246 | 0.90620732 | 0.01240509 | 3 | | -1.60980225 | -12.05 |
| LDR BIASED | 100 | 5 | 0.91987168 | 0.93230003 | 0.90727544 | 0.00884993 | 3 | | 0.534057617 | 1.08 |
| LDR UNBIAS | 0 | 5 | 0.90917518 | 0.91326457 | 0.90506291 | 0.00295455 | 3 | | | |
| LDR UNBIAS | 50 | 5 | 0.91810166 | 0.92222917 | 0.91513377 | 0.00264077 | 3 | | -0.919372558 | -15.06 |
| LDR UNBIAS | 100 | 5 | 0.92429674 | 0.92917198 | 0.91929179 | 0.00353069 | 3 | | -1.48010254 | -4.17 |
| HDR BIASED | 0 | 5 | 0.90899971 | 0.91925371 | 0.90452886 | 0.00634389 | 3 | | | |
| HDR BIASED | 50 | 5 | 0.93530606 | 0.94717747 | 0.92531908 | 0.00881642 | 3 | | 0.133544922 | |
| HDR BIASED | 100 | 5 | 0.94841344 | 0.9831503 | 0.92863792 | 0.02096152 | 3 | | 0.495910645 | |
| HDR UNBIAS | 0 | 5 | 0.91012884 | 0.9186433 | 0.90410924 | 0.0056936 | 3 | | | |
| HDR UNBIAS | 50 | 5 | 0.91970382 | 0.93142271 | 0.91318828 | 0.0068893 | 3 | | 0.061035156 | |
| HDR UNBIAS | 100 | 5 | 0.92500631 | 0.93477964 | 0.91830003 | 0.00601702 | 3 | | 0.354797363 | |

**Plot of the average readings for each radiation/bias condition**

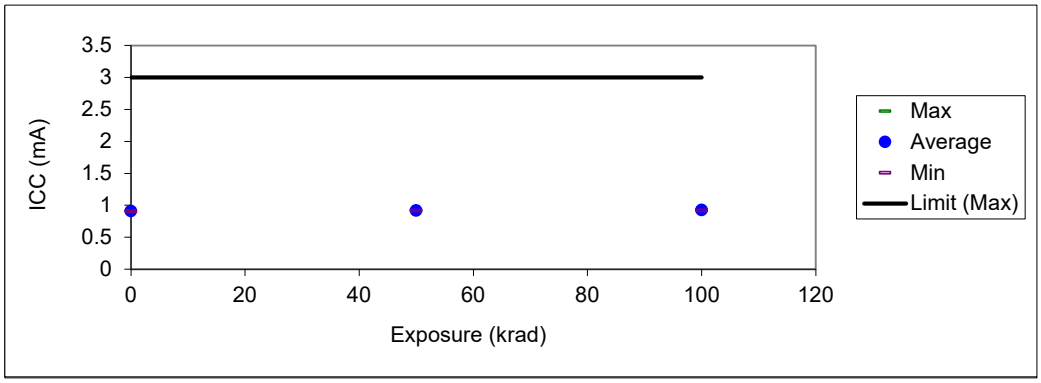


**10289 ICCVCO/PWRDN/3.465 mA**

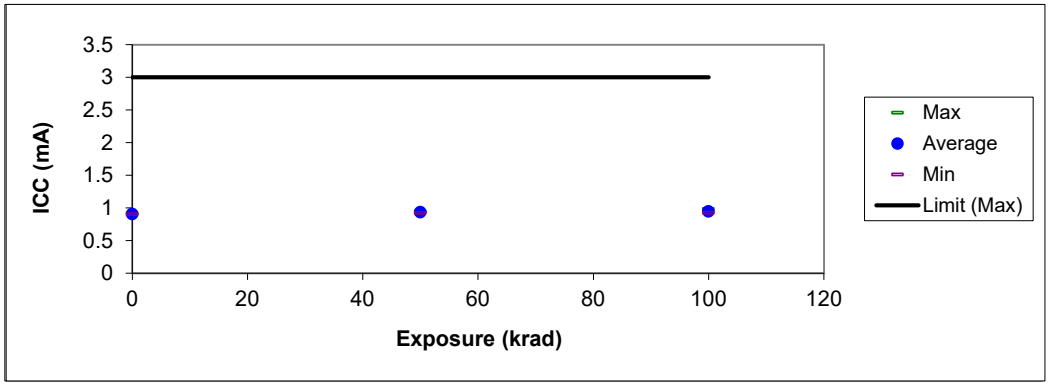
**Low dose rate biased**



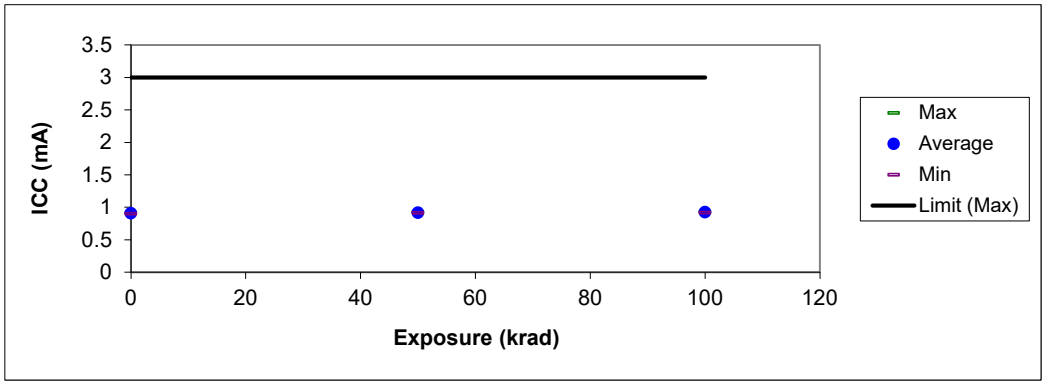

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



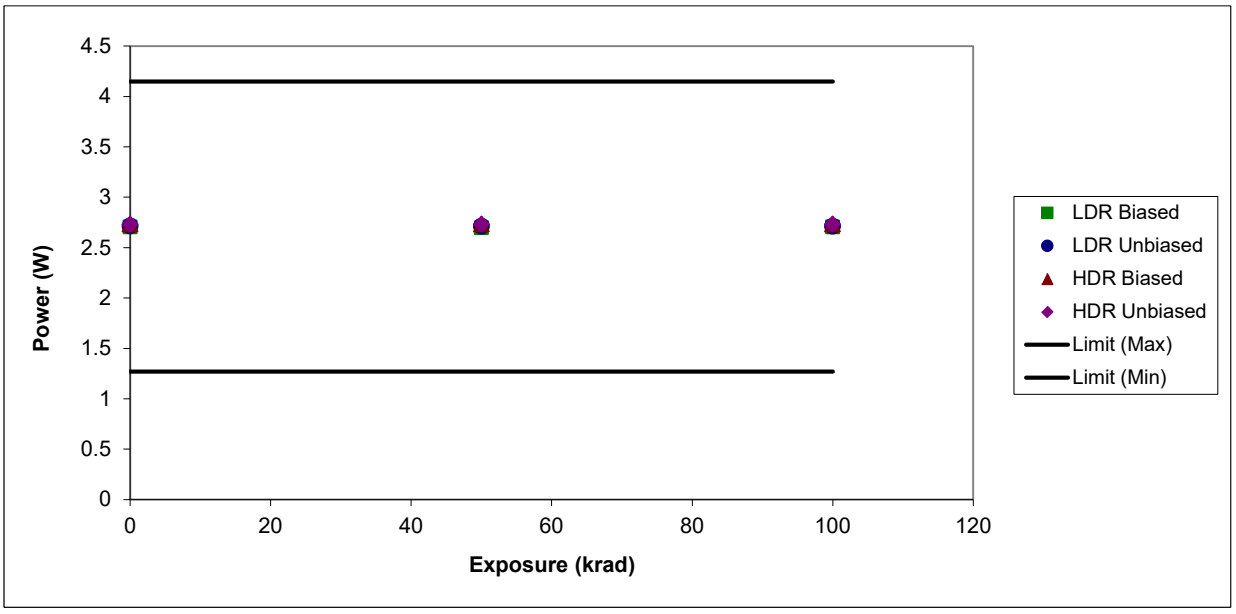
## 10207 POWER/LVDS/3.465 W

Power (W)

**LOT: L01200248**

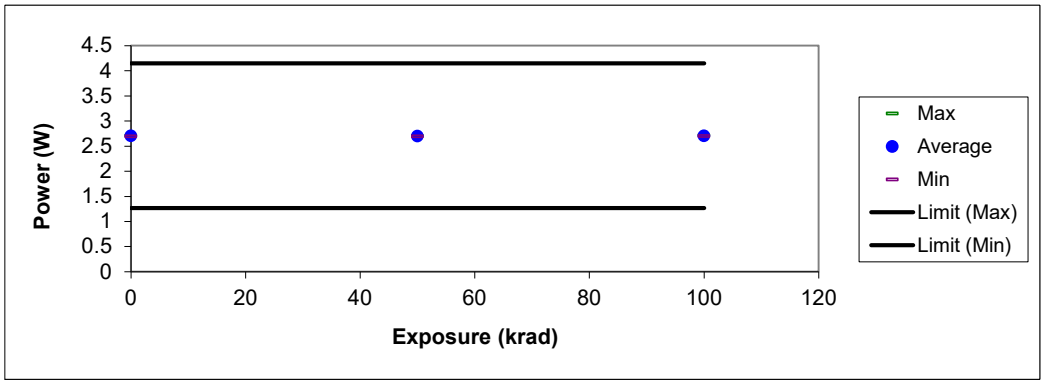
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 2.70450077 | 2.70968223 | 2.69374132 | 0.00630834 | 4.15 | 1.27 | | |
| LDR BIASED | 50 | 5 | 2.69853415 | 2.70352268 | 2.69149423 | 0.00463656 | 4.15 | 1.27 | -0.005578041 | -12.05 |
| LDR BIASED | 100 | 5 | 2.70542078 | 2.71195579 | 2.69605446 | 0.00594878 | 4.15 | 1.27 | 0.001850605 | 1.08 |
| LDR UNBIAS | 0 | 5 | 2.71707907 | 2.73617125 | 2.6997819 | 0.0132941 | 4.15 | 1.27 | | |
| LDR UNBIAS | 50 | 5 | 2.71428218 | 2.73574829 | 2.69547296 | 0.01481567 | 4.15 | 1.27 | -0.003185511 | -15.06 |
| LDR UNBIAS | 100 | 5 | 2.71357632 | 2.73640919 | 2.69465351 | 0.01595052 | 4.15 | 1.27 | -0.005128384 | -4.17 |
| HDR BIASED | 0 | 5 | 2.73299627 | 2.75967288 | 2.72193551 | 0.01516439 | 4.15 | 1.27 | | |
| HDR BIASED | 50 | 5 | 2.73332939 | 2.75955391 | 2.72071934 | 0.01509078 | 4.15 | 1.27 | 0.00046277 | |
| HDR BIASED | 100 | 5 | 2.73480186 | 2.76045275 | 2.72015095 | 0.01523731 | 4.15 | 1.27 | 0.001718283 | |
| HDR UNBIAS | 0 | 5 | 2.73155813 | 2.75568104 | 2.70107746 | 0.02327782 | 4.15 | 1.27 | | |
| HDR UNBIAS | 50 | 5 | 2.73169823 | 2.75442529 | 2.70253134 | 0.02247271 | 4.15 | 1.27 | 0.000211477 | |
| HDR UNBIAS | 100 | 5 | 2.73271866 | 2.75580001 | 2.7038796 | 0.0228382 | 4.15 | 1.27 | 0.001229286 | |

**Plot of the average readings for each radiation/bias condition**

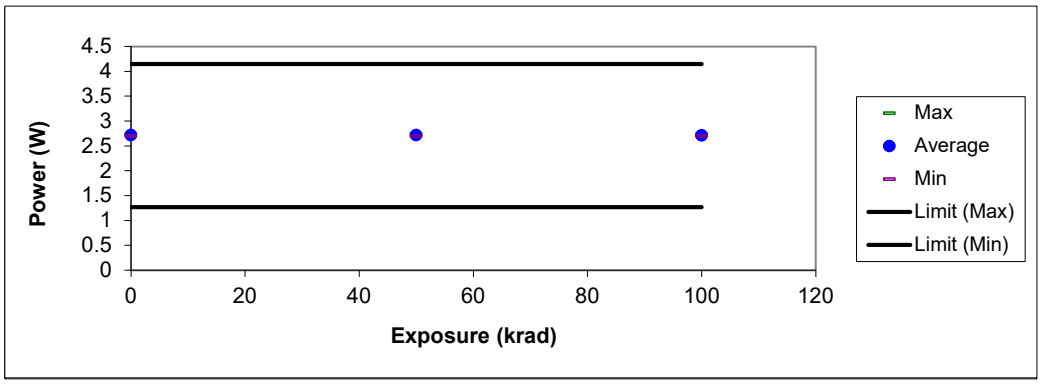


**10207 POWER/LVDS/3.465 W**

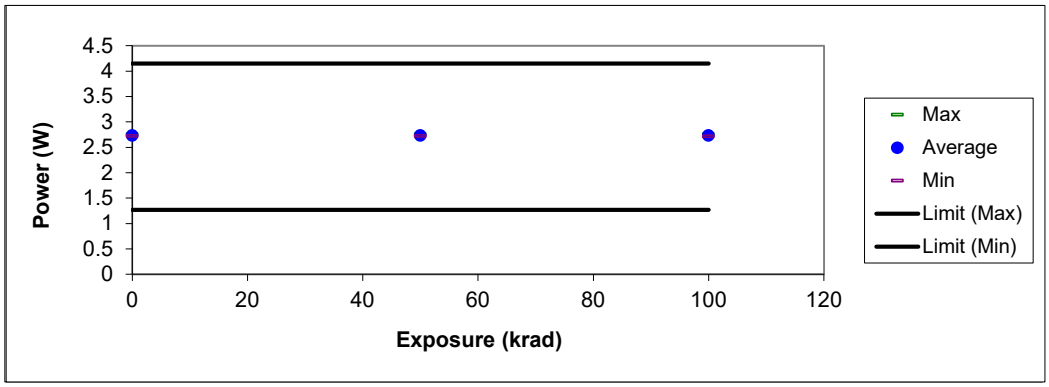
**Low dose rate biased**



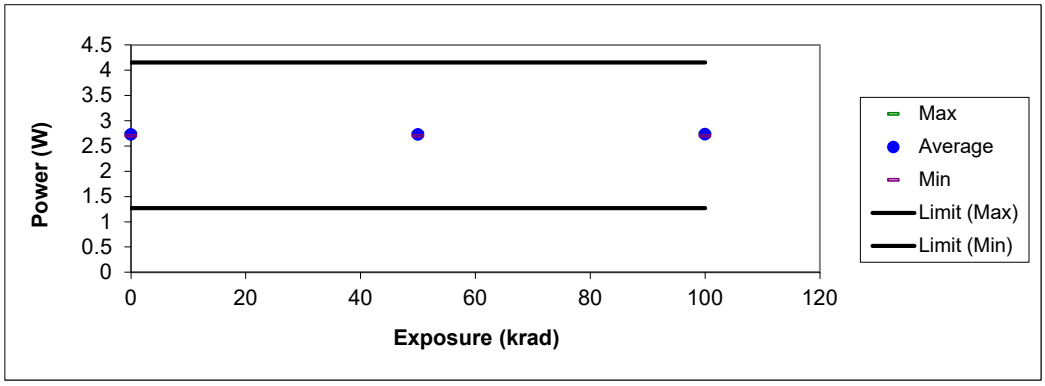

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



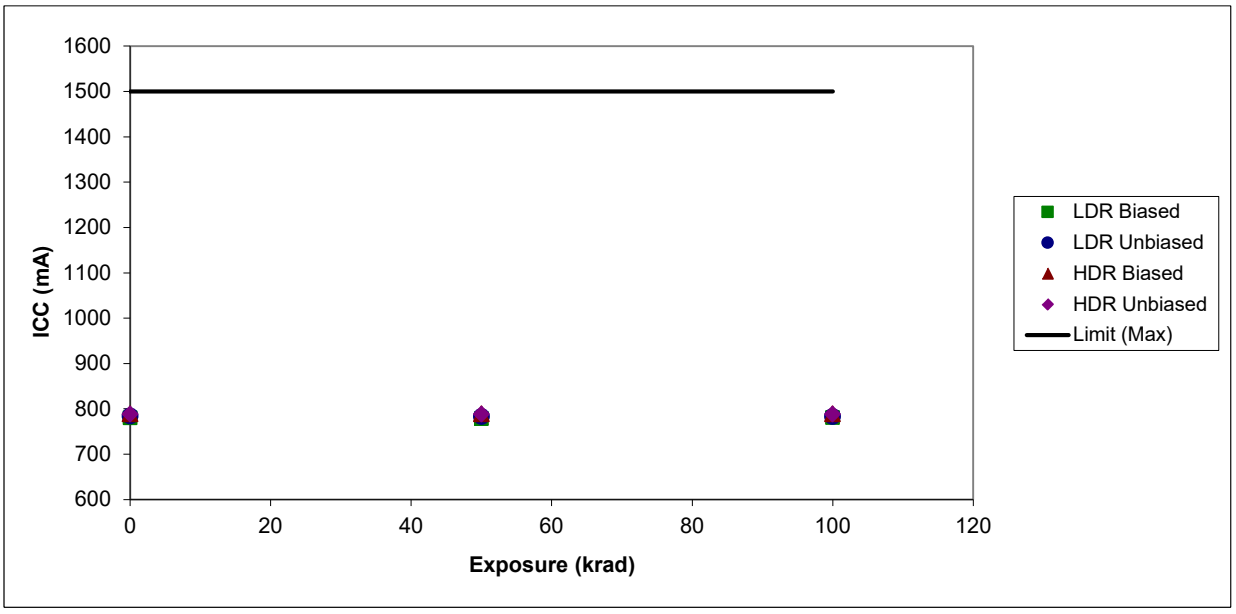
## 10206 ICCTOTAL/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

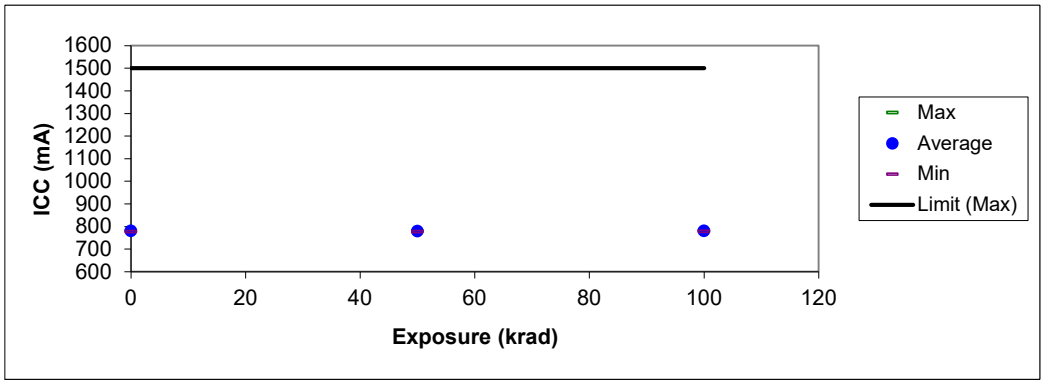
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 780.519714 | 782.015076 | 777.414551 | 1.820582 | 1500 | | | |
| LDR BIASED | 50 | 5 | 778.797754 | 780.237427 | 776.765991 | 1.3381238 | 1500 | | -1.60980225 | -12.05 |
| LDR BIASED | 100 | 5 | 780.785229 | 782.671204 | 778.082153 | 1.71678856 | 1500 | | 0.534057617 | 1.08 |
| LDR UNBIAS | 0 | 5 | 784.149829 | 789.65979 | 779.157898 | 3.83665873 | 1500 | | | |
| LDR UNBIAS | 50 | 5 | 783.342615 | 789.53772 | 777.914307 | 4.2757853 | 1500 | | -0.919372558 | -15.06 |
| LDR UNBIAS | 100 | 5 | 783.138916 | 789.728455 | 777.677795 | 4.60331648 | 1500 | | -1.48010254 | -4.17 |
| HDR BIASED | 0 | 5 | 788.743518 | 796.442383 | 785.551392 | 4.37643876 | 1500 | | | |
| HDR BIASED | 50 | 5 | 788.839661 | 796.408081 | 785.200439 | 4.35520551 | 1500 | | 0.133544922 | |
| HDR BIASED | 100 | 5 | 789.2646 | 796.66748 | 785.036316 | 4.39751099 | 1500 | | 0.495910645 | |
| HDR UNBIAS | 0 | 5 | 788.328467 | 795.290344 | 779.531738 | 6.71798562 | 1500 | | | |
| HDR UNBIAS | 50 | 5 | 788.368909 | 794.927979 | 779.951355 | 6.48562987 | 1500 | | 0.061035156 | |
| HDR UNBIAS | 100 | 5 | 788.663403 | 795.324707 | 780.340454 | 6.59112312 | 1500 | | 0.354797363 | |

**Plot of the average readings for each radiation/bias condition**

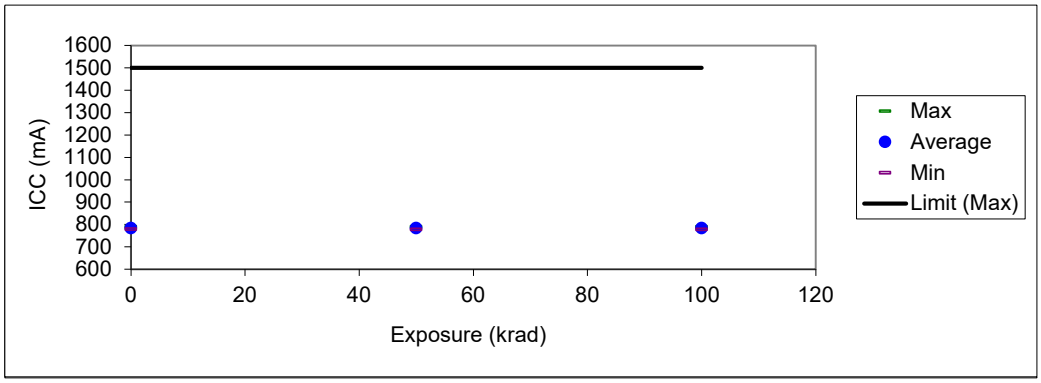


**10206 ICCTOTAL/LVDS/3.465 mA**

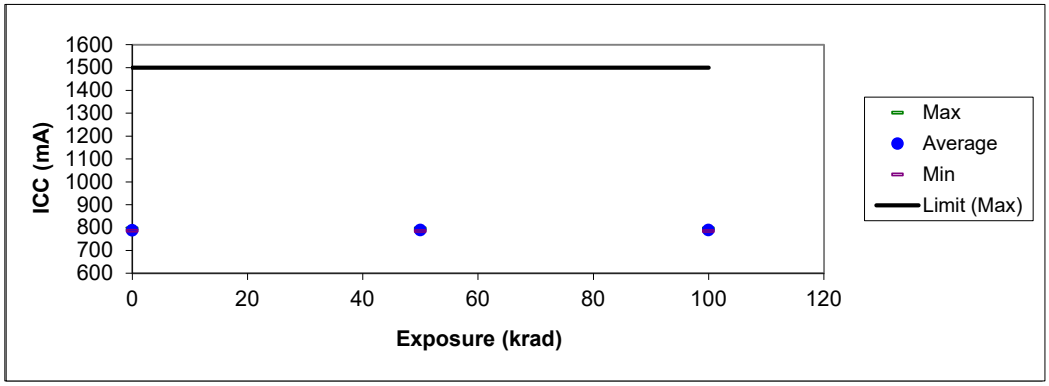
**Low dose rate biased**



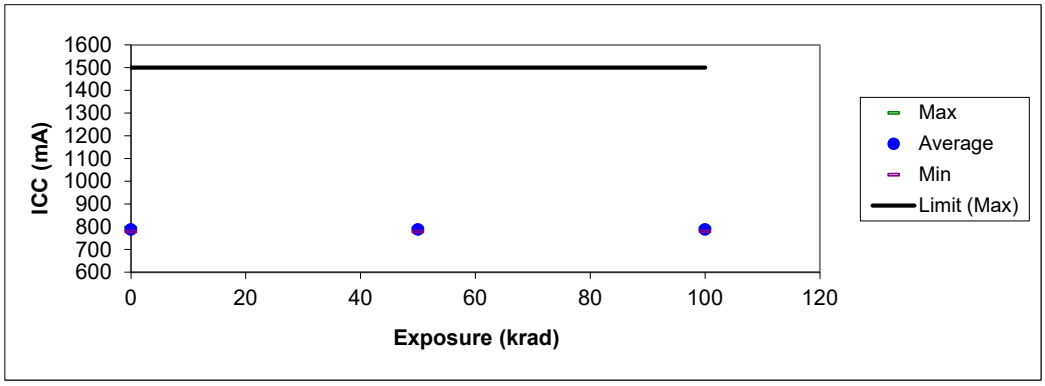

**Low dose rate unbiased**




**High dose rate biased**



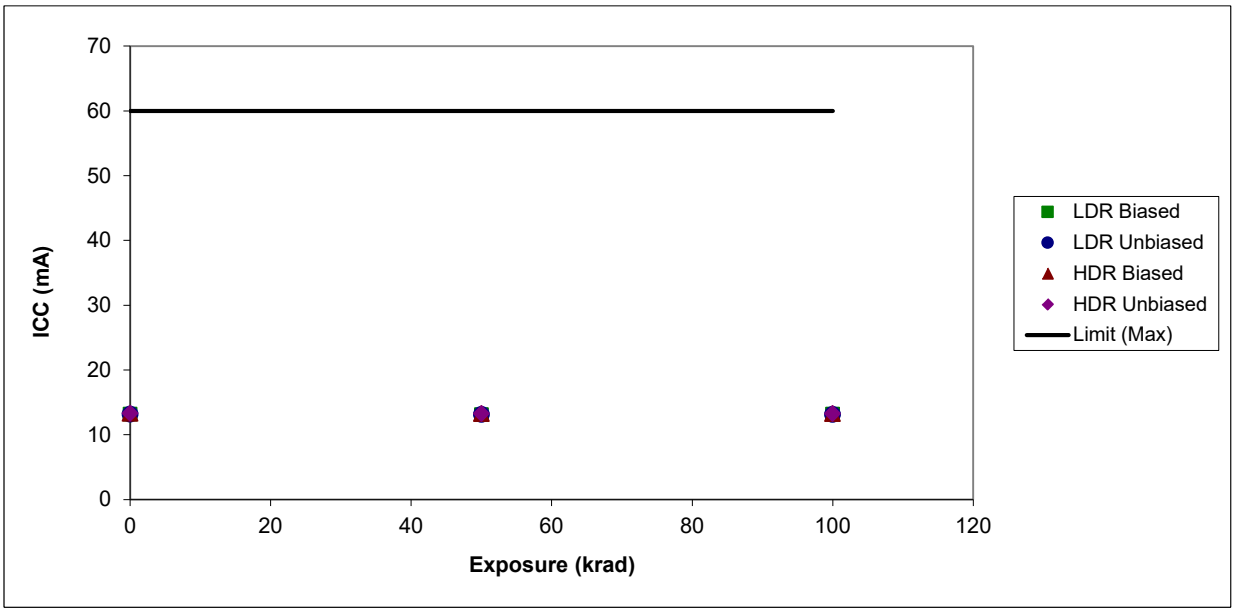

**High dose rate unbiased**



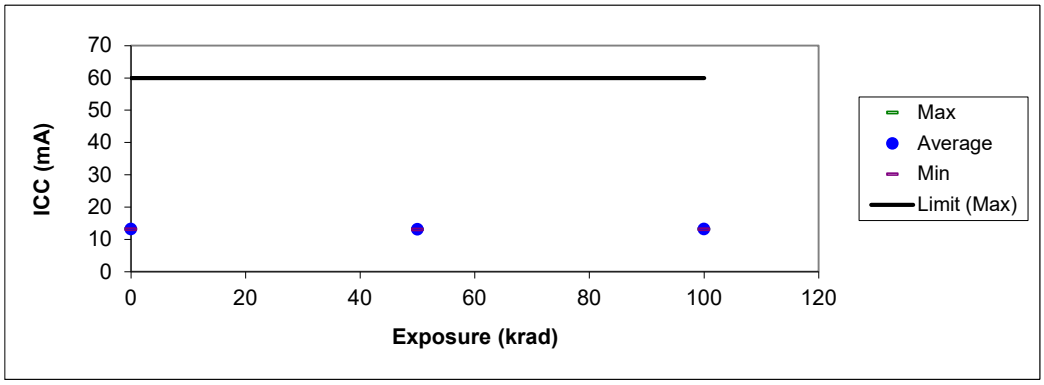
ICC (mA)
**LOT: L01200248**

| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 13.1871273 | 13.2466373 | 13.1245661 | 0.04985474 | 60 | | | |
| LDR BIASED | 50 | 5 | 13.0978626 | 13.1627131 | 13.0177536 | 0.06496237 | 60 | | -0.099183082 | 26.00 |
| LDR BIASED | 100 | 5 | 13.1871271 | 13.239007 | 13.1283808 | 0.05107992 | 60 | | 0.007629395 | -0.29 |
| LDR UNBIAS | 0 | 5 | 13.1749201 | 13.3801527 | 13.0520859 | 0.12418112 | 60 | | | |
| LDR UNBIAS | 50 | 5 | 13.1382988 | 13.3381901 | 12.987236 | 0.12790977 | 60 | | -0.038146973 | 1.00 |
| LDR UNBIAS | 100 | 5 | 13.1375357 | 13.364893 | 13.0101242 | 0.13887363 | 60 | | -0.04196167 | 0.85 |
| HDR BIASED | 0 | 5 | 13.2939396 | 13.5251122 | 13.1817865 | 0.15861204 | 60 | | | |
| HDR BIASED | 50 | 5 | 13.2809694 | 13.5212975 | 13.1741571 | 0.15151244 | 60 | | -0.003814697 | |
| HDR BIASED | 100 | 5 | 13.2679995 | 13.4945946 | 13.113121 | 0.16594308 | 60 | | -0.026702881 | |
| HDR UNBIAS | 0 | 5 | 13.3107241 | 13.4793348 | 13.1093063 | 0.16083947 | 60 | | | |
| HDR UNBIAS | 50 | 5 | 13.2618959 | 13.4221144 | 13.0406418 | 0.15353984 | 60 | | -0.038146973 | |
| HDR UNBIAS | 100 | 5 | 13.2634218 | 13.4297438 | 13.0559006 | 0.15557823 | 60 | | -0.049591064 | |

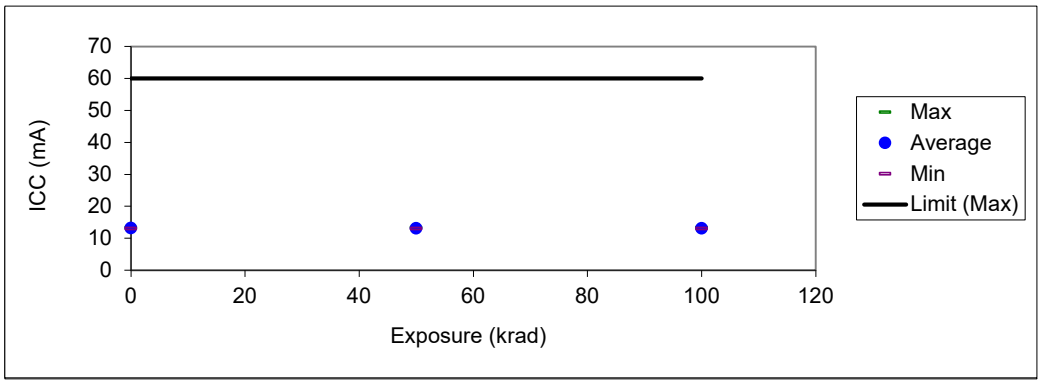
**Plot of the average readings for each radiation/bias condition**



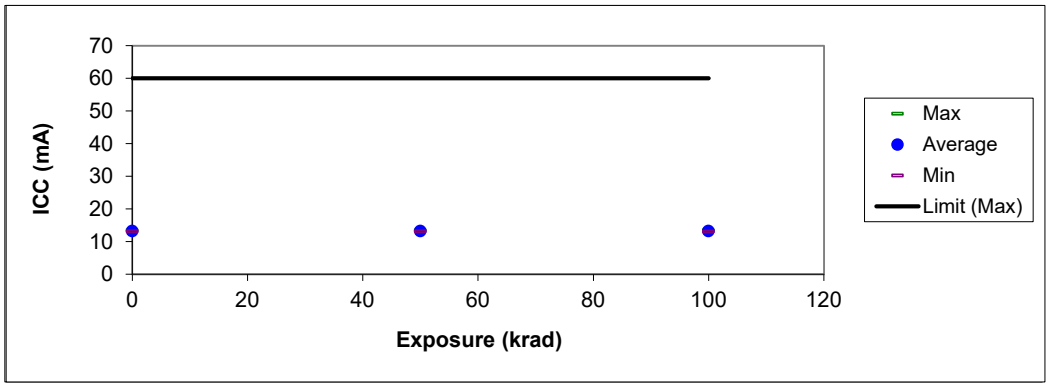
**Low dose rate biased**



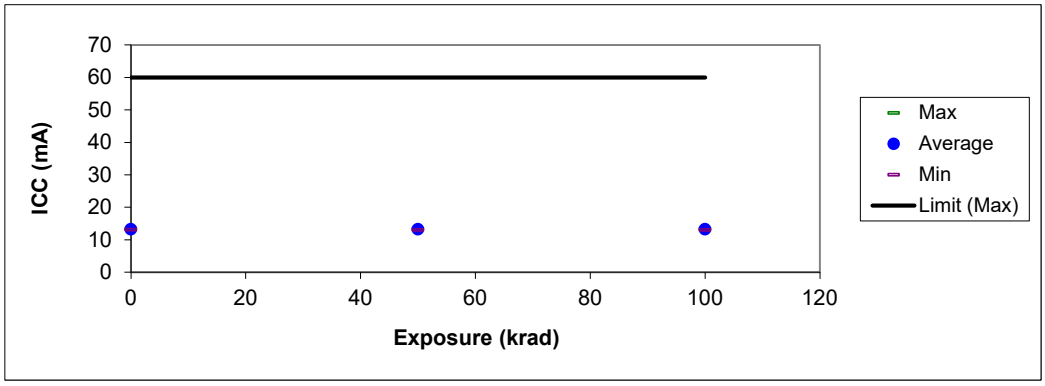

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



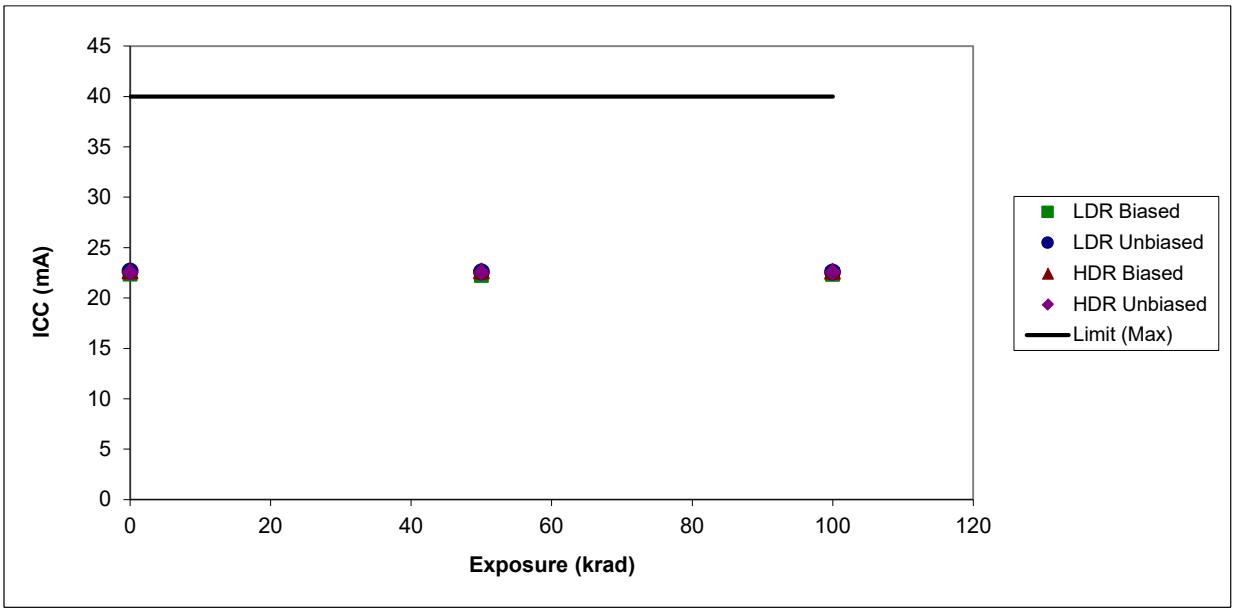
## 10204 ICC_PLL2N/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

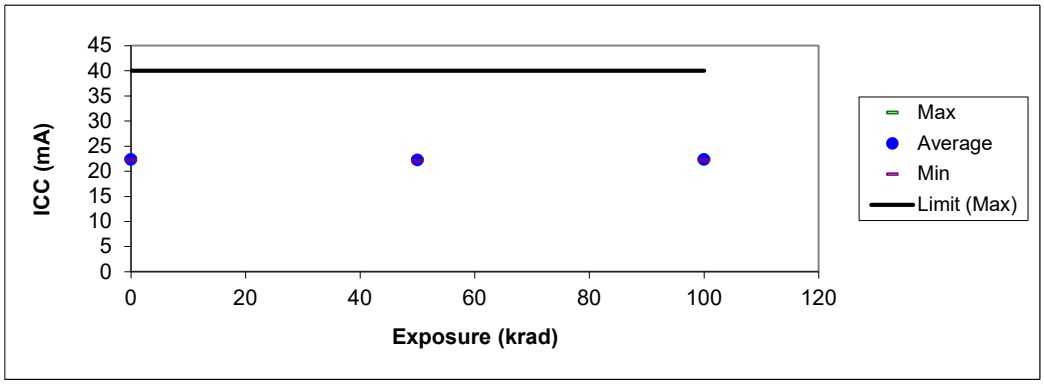
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 22.3569672 | 22.5850887 | 22.1654682 | 0.15454154 | 40 | | | |
| LDR BIASED | 50 | 5 | 22.2379475 | 22.4553871 | 22.0624695 | 0.1439777 | 40 | | -0.118255615 | -5.17 |
| LDR BIASED | 100 | 5 | 22.3386562 | 22.5049782 | 22.1730976 | 0.1310012 | 40 | | 0.007629394 | #DIV/0! |
| LDR UNBIAS | 0 | 5 | 22.6766411 | 22.8864517 | 22.3218708 | 0.22320251 | 40 | | | |
| LDR UNBIAS | 50 | 5 | 22.5950062 | 22.8483047 | 22.2074299 | 0.242747 | 40 | | -0.068666458 | 18.00 |
| LDR UNBIAS | 100 | 5 | 22.5690659 | 22.7338619 | 22.2036152 | 0.21846429 | 40 | | -0.099182129 | -6.50 |
| HDR BIASED | 0 | 5 | 22.6659603 | 22.8864517 | 22.3523903 | 0.20193535 | 40 | | | |
| HDR BIASED | 50 | 5 | 22.6743526 | 22.9474869 | 22.3752785 | 0.21030497 | 40 | | 0.022888184 | |
| HDR BIASED | 100 | 5 | 22.6636711 | 22.8750076 | 22.3905373 | 0.19097652 | 40 | | 0 | |
| HDR UNBIAS | 0 | 5 | 22.5370224 | 22.8292313 | 22.2303181 | 0.21455297 | 40 | | | |
| HDR UNBIAS | 50 | 5 | 22.5286297 | 22.783453 | 22.2379475 | 0.19892246 | 40 | | -0.003814697 | |
| HDR UNBIAS | 100 | 5 | 22.5522812 | 22.7948971 | 22.2608356 | 0.19373784 | 40 | | 0.015258789 | |

**Plot of the average readings for each radiation/bias condition**

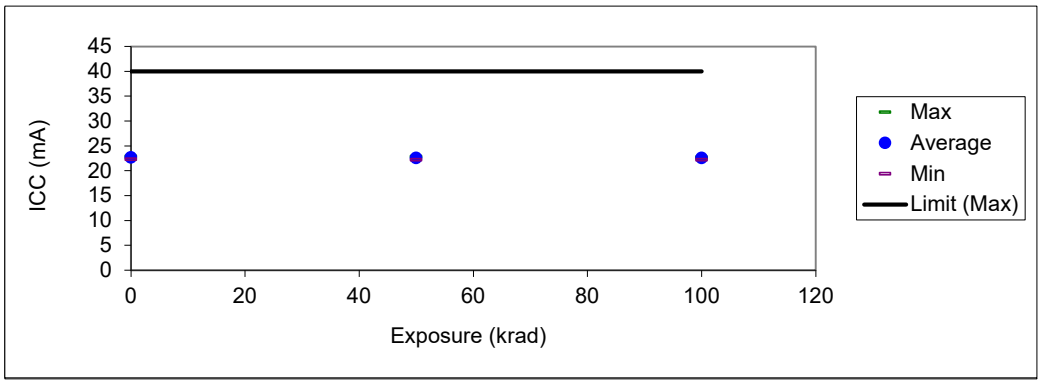


**10204 ICC_PLL2N/LVDS/3.465 mA**

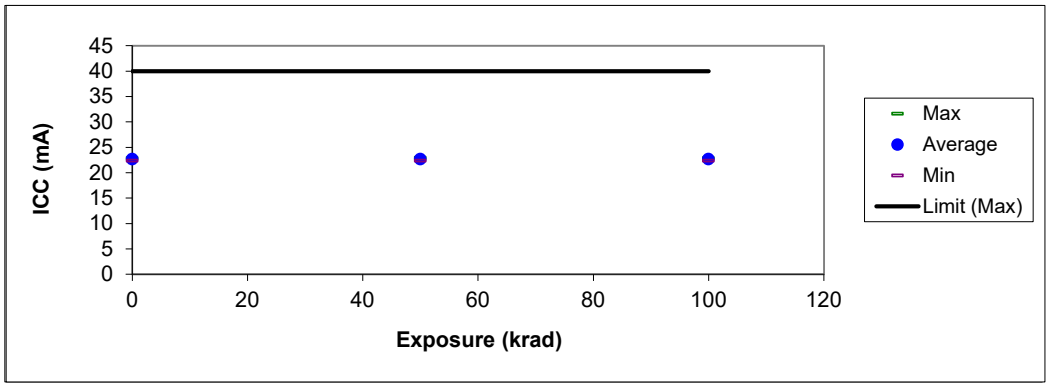
**Low dose rate biased**



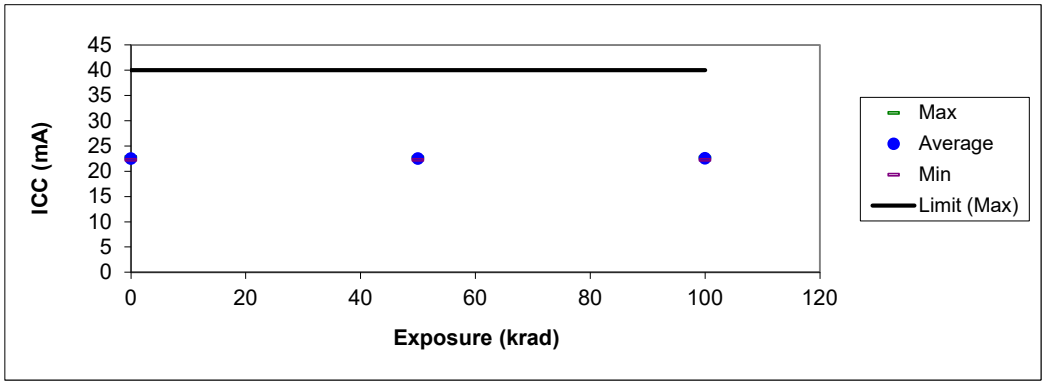

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



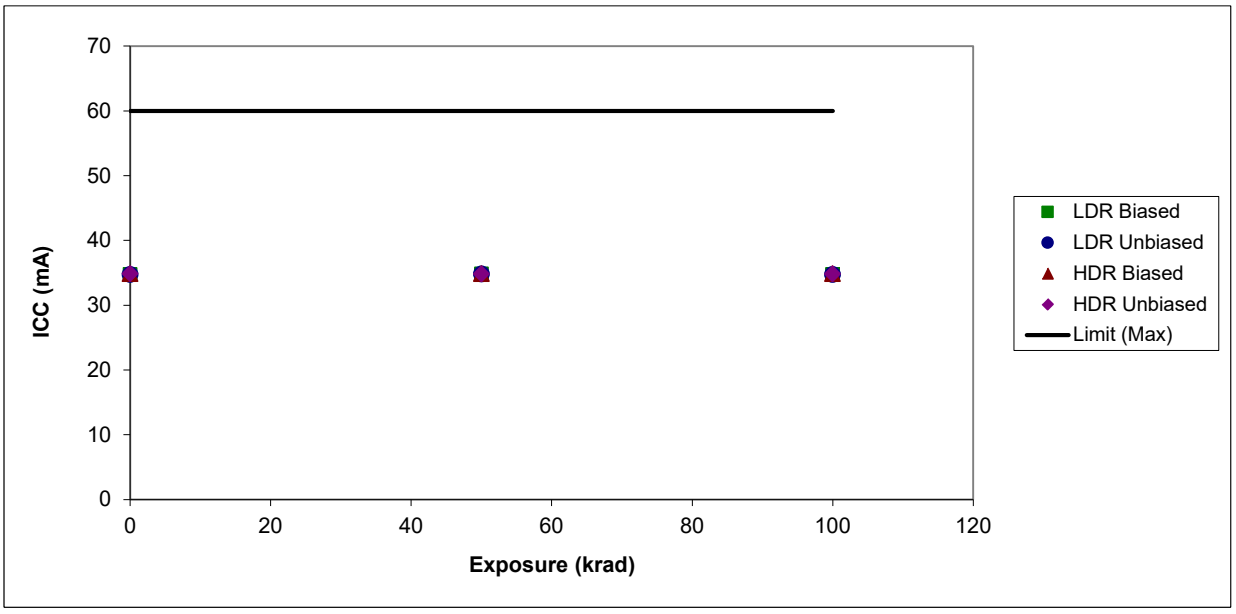
## 10203 ICC_OSCOUT/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

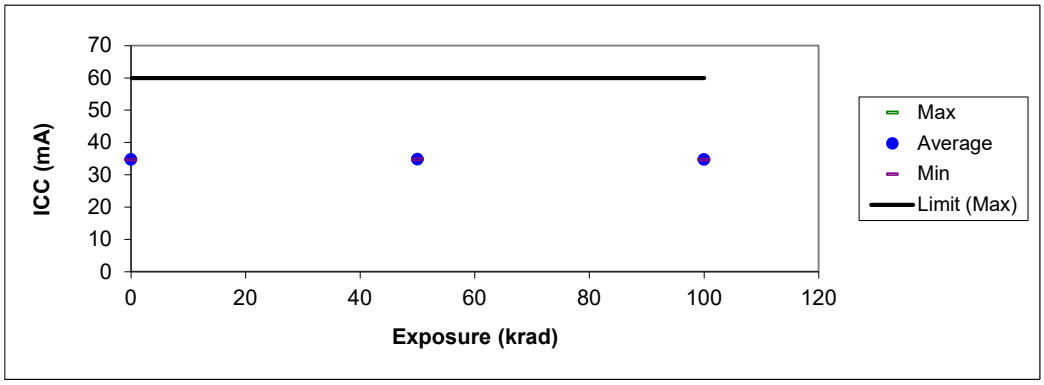
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 34.7662697 | 34.8875771 | 34.635807 | 0.11365622 | 60 | | | |
| LDR BIASED | 50 | 5 | 34.8143349 | 34.8913918 | 34.7693214 | 0.06046024 | 60 | | 0.045776368 | -6.00 |
| LDR BIASED | 100 | 5 | 34.7586403 | 34.8570595 | 34.6815834 | 0.06686066 | 60 | | 0.01525879 | -0.67 |
| LDR UNBIAS | 0 | 5 | 34.7418564 | 34.9371719 | 34.5595131 | 0.13542044 | 60 | | | |
| LDR UNBIAS | 50 | 5 | 34.8150986 | 35.0401688 | 34.586216 | 0.16894973 | 60 | | 0.076293946 | -2.50 |
| LDR UNBIAS | 100 | 5 | 34.7304123 | 34.9600601 | 34.5022926 | 0.16444089 | 60 | | -0.007629394 | 0.22 |
| HDR BIASED | 0 | 5 | 34.8868149 | 35.0134659 | 34.7769508 | 0.08471863 | 60 | | | |
| HDR BIASED | 50 | 5 | 34.8807114 | 35.0363541 | 34.761692 | 0.10011094 | 60 | | -0.007629395 | |
| HDR BIASED | 100 | 5 | 34.8707932 | 35.0096512 | 34.7464333 | 0.09720506 | 60 | | -0.022888184 | |
| HDR UNBIAS | 0 | 5 | 34.8570618 | 34.9715042 | 34.6586952 | 0.14752286 | 60 | | | |
| HDR UNBIAS | 50 | 5 | 34.8242554 | 34.9409866 | 34.6434364 | 0.1454016 | 60 | | -0.030517578 | |
| HDR UNBIAS | 100 | 5 | 34.8234917 | 34.986763 | 34.6243629 | 0.1586537 | 60 | | -0.034332275 | |

**Plot of the average readings for each radiation/bias condition**

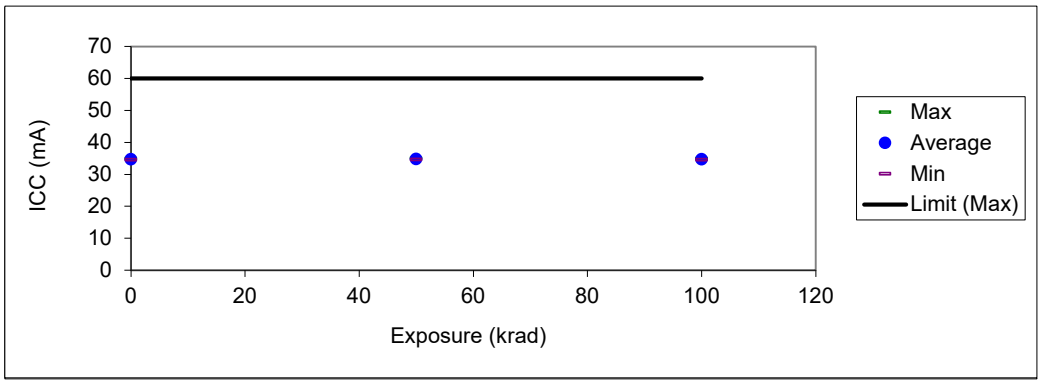


**10203 ICC_OSCOUT/LVDS/3.465 mA**

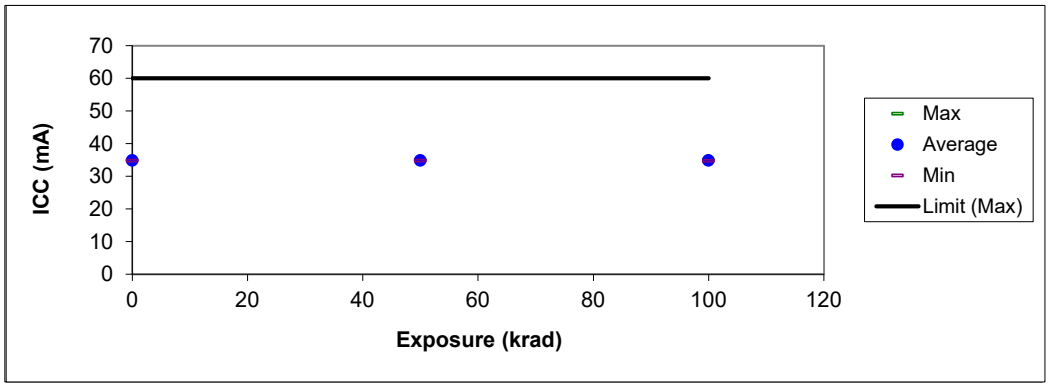
**Low dose rate biased**



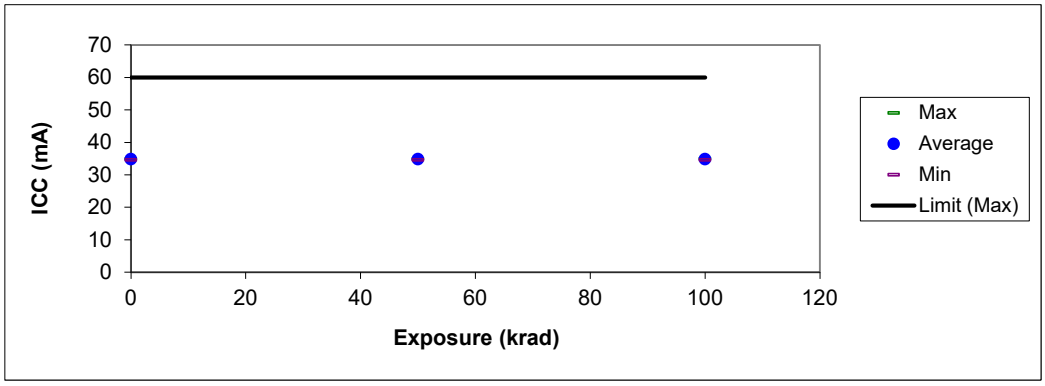

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



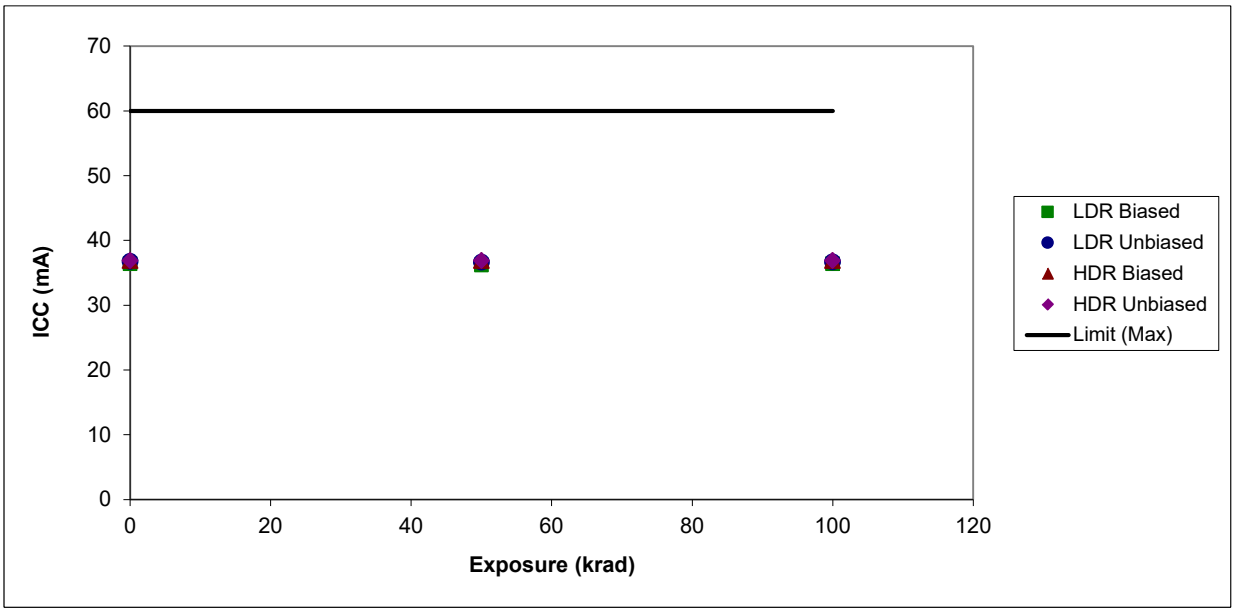
## 10202 ICC_OSCIN/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

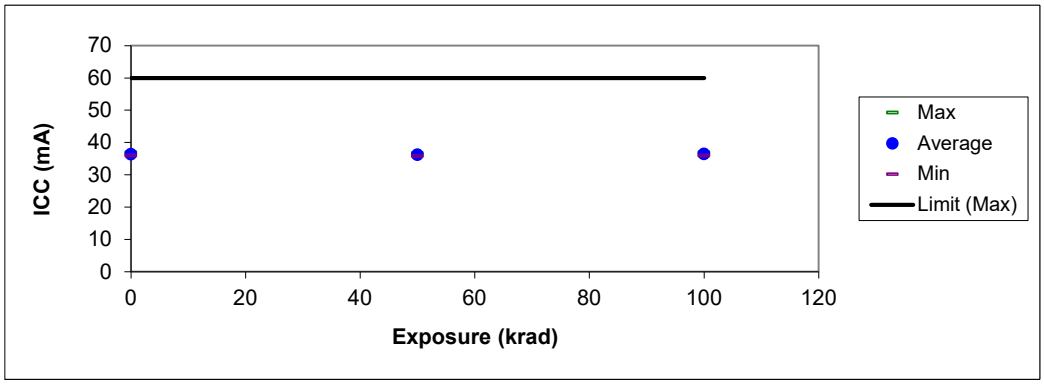
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 36.3943962 | 36.9017563 | 35.9251862 | 0.37879315 | 60 | | | |
| LDR BIASED | 50 | 5 | 36.2074745 | 36.6576118 | 35.7611504 | 0.36102142 | 60 | | -0.171661377 | -11.25 |
| LDR BIASED | 100 | 5 | 36.4157585 | 36.9132004 | 35.9366302 | 0.38791862 | 60 | | 0.011444092 | 1.50 |
| LDR UNBIAS | 0 | 5 | 36.7873138 | 36.9246445 | 36.4592476 | 0.19631975 | 60 | | | |
| LDR UNBIAS | 50 | 5 | 36.6698189 | 36.7911263 | 36.4020271 | 0.15872075 | 60 | | -0.106815338 | #DIV/0! |
| LDR UNBIAS | 100 | 5 | 36.6972847 | 36.844532 | 36.4439888 | 0.15426194 | 60 | | -0.061035156 | -16.00 |
| HDR BIASED | 0 | 5 | 36.9048065 | 37.0924911 | 36.3142853 | 0.33106331 | 60 | | | |
| HDR BIASED | 50 | 5 | 36.9040436 | 37.1153793 | 36.2952118 | 0.34237752 | 60 | | 0.015258789 | |
| HDR BIASED | 100 | 5 | 36.9116737 | 37.0657883 | 36.3791389 | 0.29826371 | 60 | | 0.007629395 | |
| HDR UNBIAS | 0 | 5 | 36.9017548 | 37.2107468 | 36.3448029 | 0.35106918 | 60 | | | |
| HDR UNBIAS | 50 | 5 | 36.9025169 | 37.2107468 | 36.3600616 | 0.33574423 | 60 | | 0 | |
| HDR UNBIAS | 100 | 5 | 36.9147247 | 37.2641525 | 36.3600616 | 0.35759497 | 60 | | 0.003814697 | |

**Plot of the average readings for each radiation/bias condition**

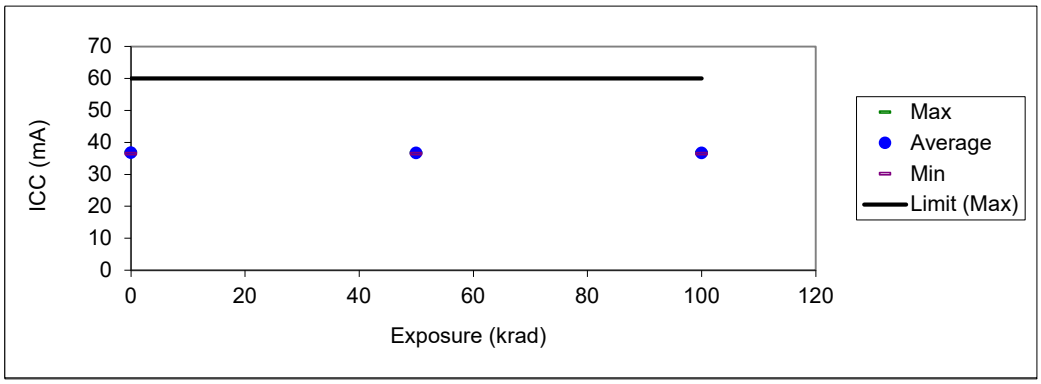


**10202 ICC_OSCIN/LVDS/3.465 mA**

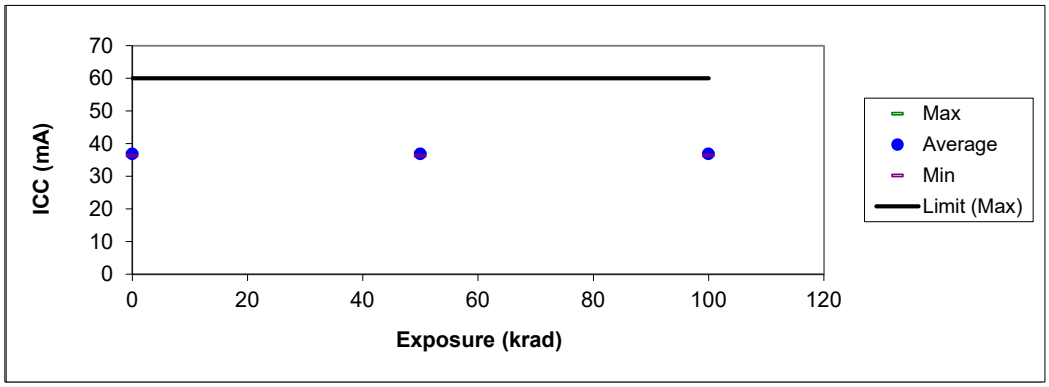
**Low dose rate biased**



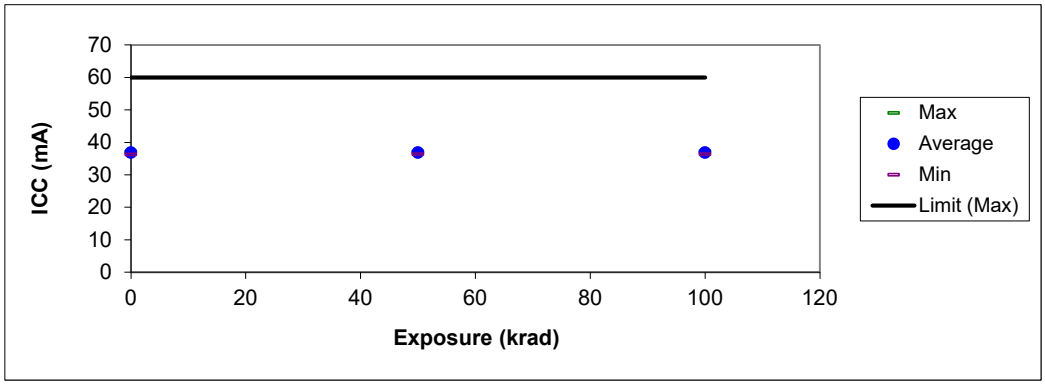

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



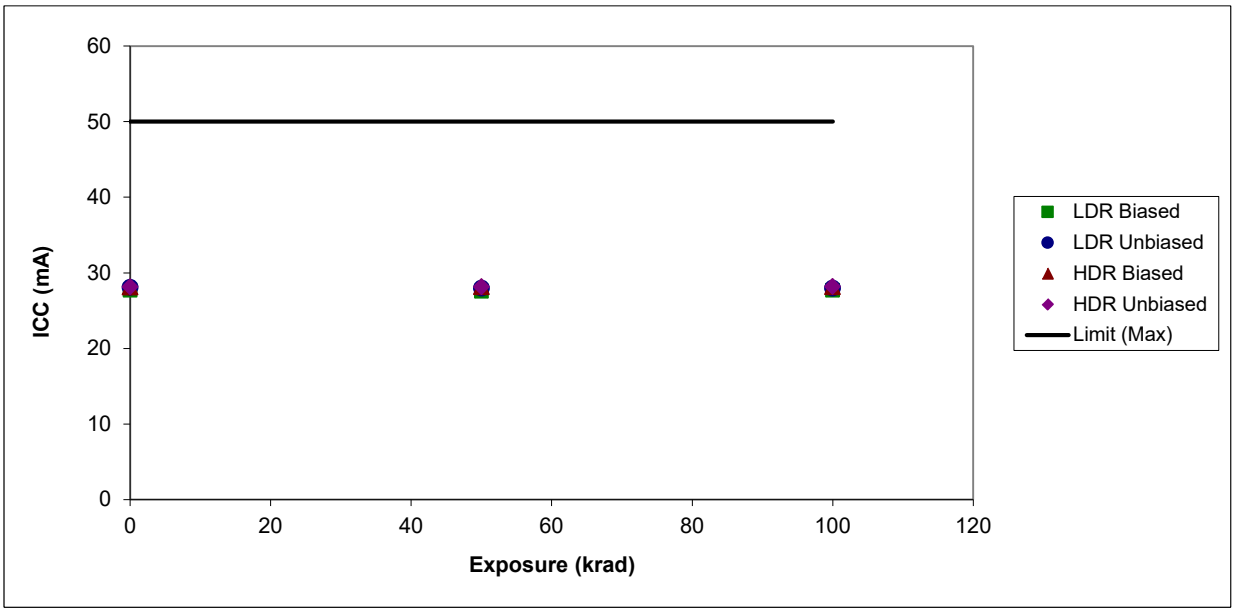
## 10201 ICC_CLKIN/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

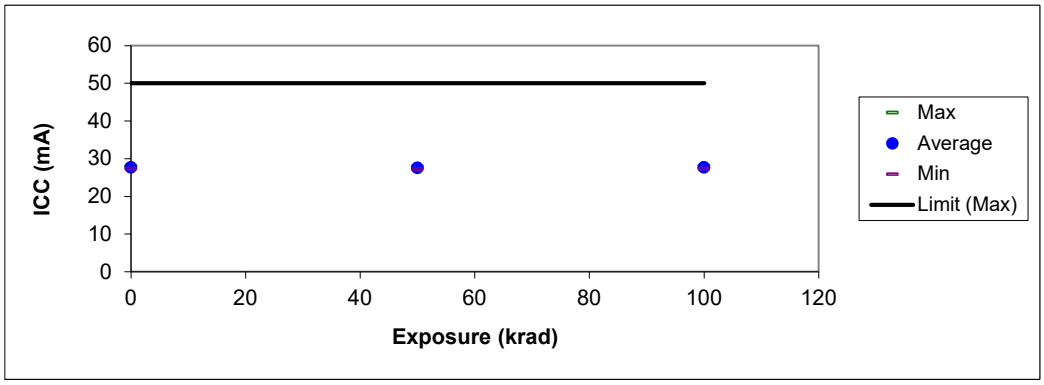
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 27.7166569 | 28.05159 | 27.361124 | 0.32303139 | 50 | | | |
| LDR BIASED | 50 | 5 | 27.5778008 | 27.8990002 | 27.2810154 | 0.28664281 | 50 | | -0.152589798 | -4.44 |
| LDR BIASED | 100 | 5 | 27.6991089 | 28.0554047 | 27.361124 | 0.31377847 | 50 | | -0.003814697 | -0.08 |
| LDR UNBIAS | 0 | 5 | 28.0782928 | 28.4712105 | 27.8188915 | 0.26573367 | 50 | | | |
| LDR UNBIAS | 50 | 5 | 27.9646141 | 28.3453236 | 27.7464123 | 0.2421583 | 50 | | -0.125886917 | 11.00 |
| LDR UNBIAS | 100 | 5 | 27.9813988 | 28.3453236 | 27.7654858 | 0.22839978 | 50 | | -0.12588501 | -11.00 |
| HDR BIASED | 0 | 5 | 28.12407 | 28.5513191 | 27.3878269 | 0.43516352 | 50 | | | |
| HDR BIASED | 50 | 5 | 28.1690834 | 28.5703926 | 27.4450474 | 0.42504212 | 50 | | 0.034332275 | |
| HDR BIASED | 100 | 5 | 28.1568764 | 28.4940987 | 27.4641209 | 0.39889594 | 50 | | 0.049591064 | |
| HDR UNBIAS | 0 | 5 | 28.1645054 | 28.3949146 | 27.9180737 | 0.18774901 | 50 | | | |
| HDR UNBIAS | 50 | 5 | 28.1606907 | 28.4178028 | 27.9180737 | 0.19373784 | 50 | | -0.011444091 | |
| HDR UNBIAS | 100 | 5 | 28.1774757 | 28.4063587 | 27.9600372 | 0.19400751 | 50 | | 0.011444092 | |

**Plot of the average readings for each radiation/bias condition**

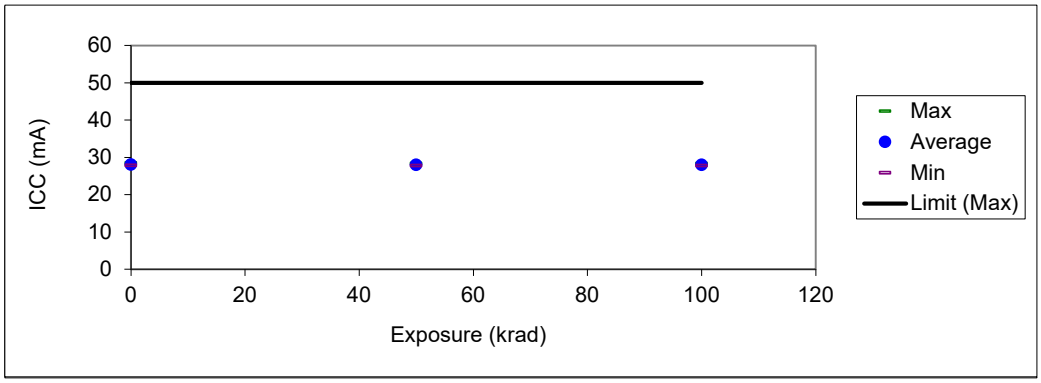


**10201 ICC_CLKIN/LVDS/3.465 mA**

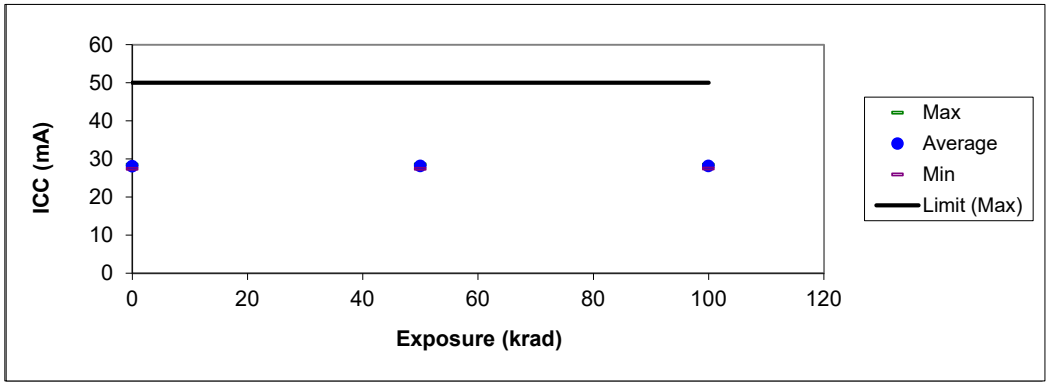
**Low dose rate biased**



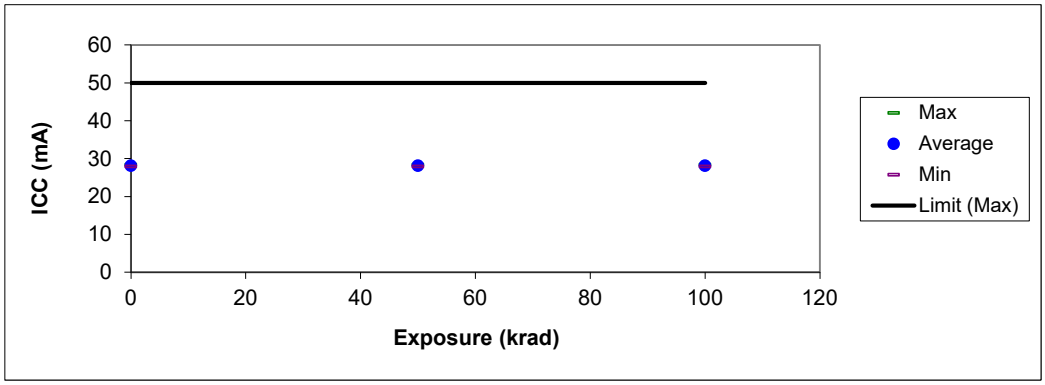

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



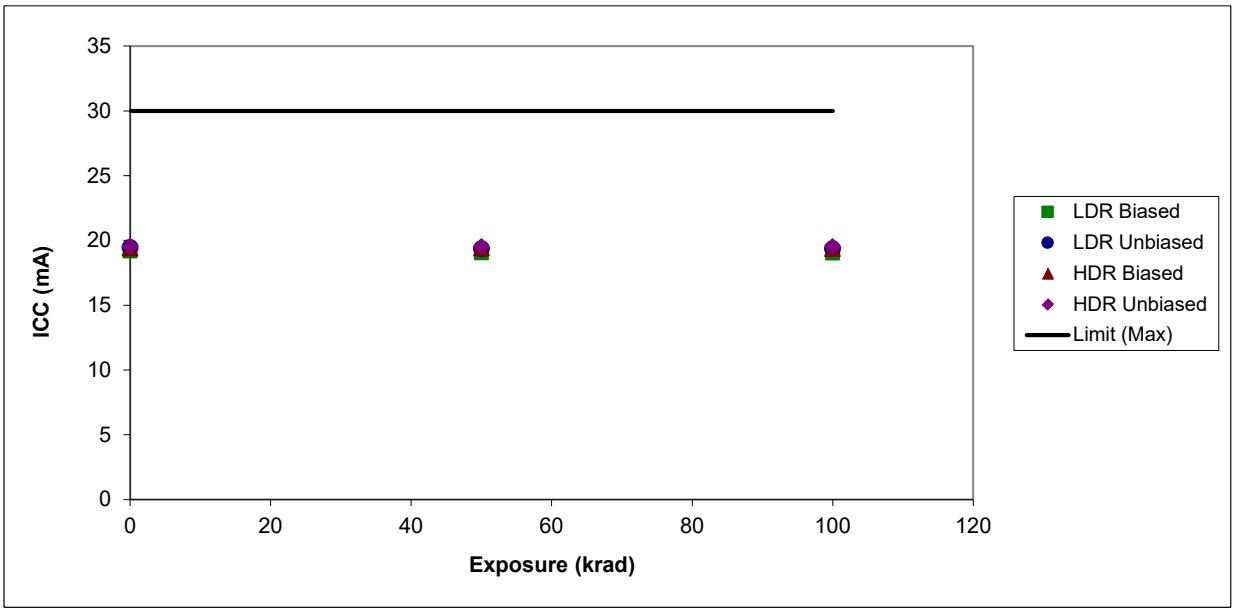
## 10200 ICC_CP2/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

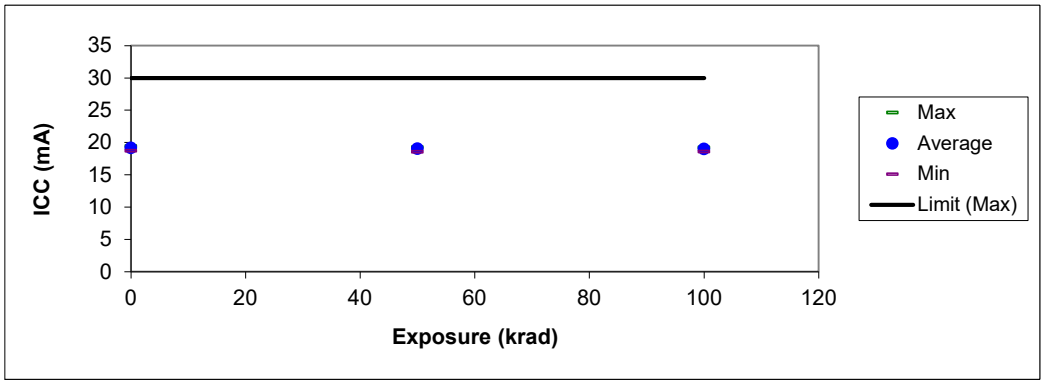
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 19.1770107 | 19.4608269 | 18.6978817 | 0.33481214 | 30 | 5 | | |
| LDR BIASED | 50 | 5 | 19.0297619 | 19.2662754 | 18.5643654 | 0.29940149 | 30 | 5 | -0.137329101 | 36.00 |
| LDR BIASED | 100 | 5 | 19.015266 | 19.2548313 | 18.5834389 | 0.27589494 | 30 | 5 | -0.19454956 | 4.25 |
| LDR UNBIAS | 0 | 5 | 19.459301 | 19.6706371 | 19.1899815 | 0.21796768 | 30 | 5 | | |
| LDR UNBIAS | 50 | 5 | 19.3616432 | 19.5638237 | 19.1136856 | 0.20309606 | 30 | 5 | -0.102998733 | 3.86 |
| LDR UNBIAS | 100 | 5 | 19.3532513 | 19.598156 | 19.083168 | 0.21313703 | 30 | 5 | -0.099182129 | 2.89 |
| HDR BIASED | 0 | 5 | 19.40742 | 19.8270397 | 19.0183182 | 0.31819224 | 30 | 5 | | |
| HDR BIASED | 50 | 5 | 19.3936871 | 19.7660046 | 19.0259476 | 0.30303173 | 30 | 5 | -0.003814697 | |
| HDR BIASED | 100 | 5 | 19.369273 | 19.7049694 | 18.9992447 | 0.31385299 | 30 | 5 | -0.045776367 | |
| HDR UNBIAS | 0 | 5 | 19.5416985 | 19.8079662 | 19.3311253 | 0.20438914 | 30 | 5 | | |
| HDR UNBIAS | 50 | 5 | 19.5157581 | 19.7927074 | 19.3044224 | 0.19795452 | 30 | 5 | -0.02670288 | |
| HDR UNBIAS | 100 | 5 | 19.5203365 | 19.7583752 | 19.2853489 | 0.1920025 | 30 | 5 | -0.034332275 | |

**Plot of the average readings for each radiation/bias condition**

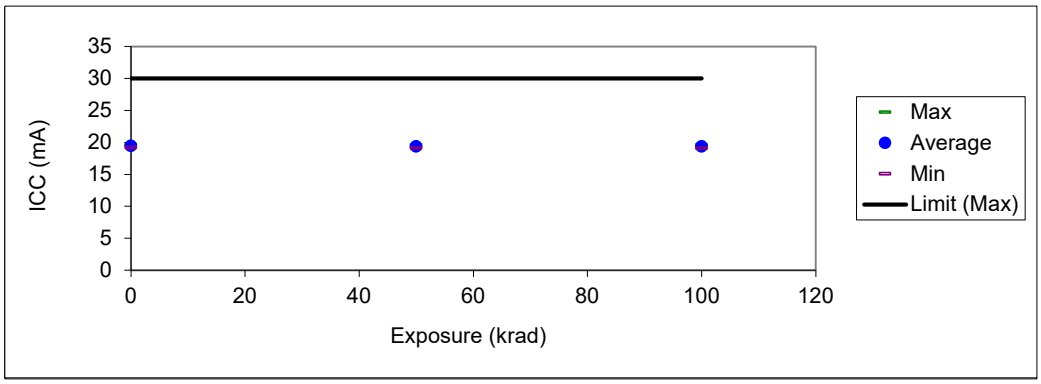


**10200 ICC_CP2/LVDS/3.465 mA**

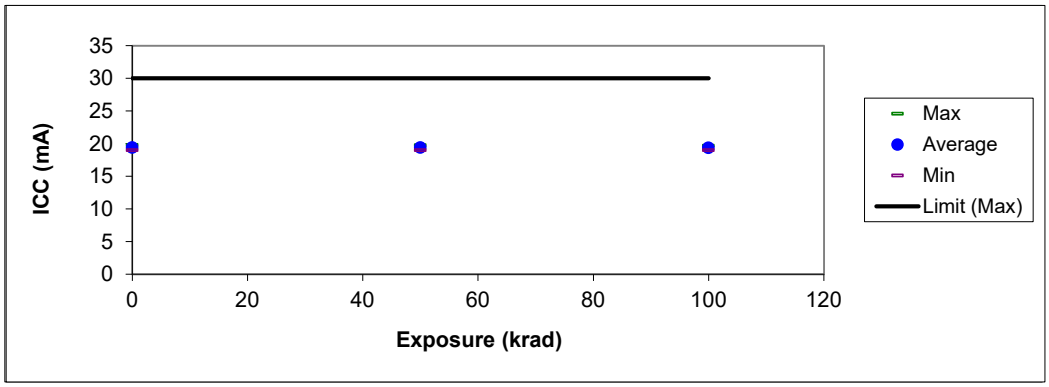
**Low dose rate biased**



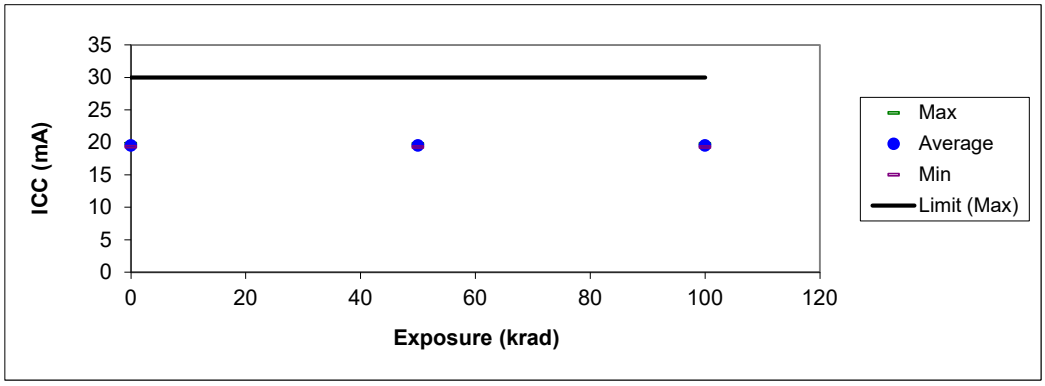

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



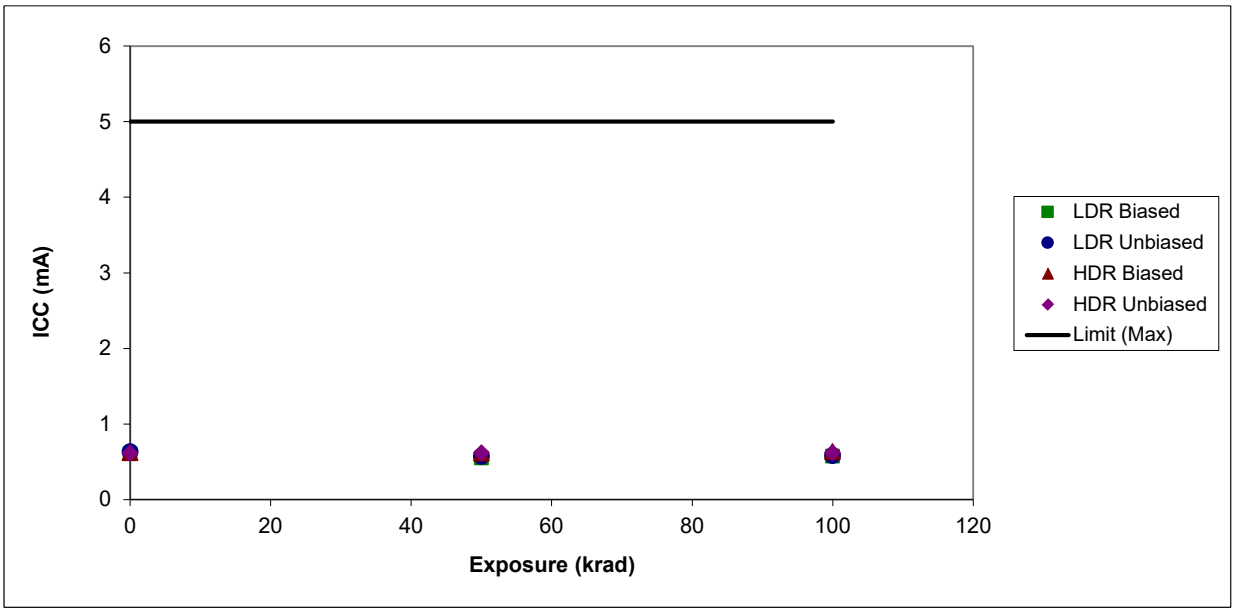
## 10199 ICC_DIG/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

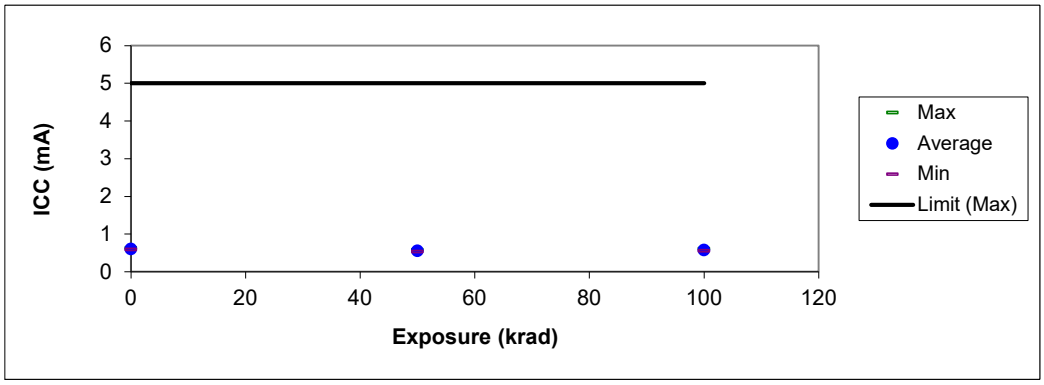
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 0.60463412 | 0.62752247 | 0.5893752 | 0.01549549 | 5 | -1 | | |
| LDR BIASED | 50 | 5 | 0.55046499 | 0.58174574 | 0.53596902 | 0.01837415 | 5 | -1 | -0.057220936 | 3.75 |
| LDR BIASED | 100 | 5 | 0.57564219 | 0.60844886 | 0.55122793 | 0.02421677 | 5 | -1 | -0.034332514 | 9.00 |
| LDR UNBIAS | 0 | 5 | 0.63515195 | 0.65804029 | 0.62370777 | 0.01427339 | 5 | -1 | | |
| LDR UNBIAS | 50 | 5 | 0.56953864 | 0.59318996 | 0.54741323 | 0.02025761 | 5 | -1 | -0.072479784 | -9.50 |
| LDR UNBIAS | 100 | 5 | 0.58174576 | 0.60844886 | 0.55885738 | 0.02336034 | 5 | -1 | -0.061035633 | -16.00 |
| HDR BIASED | 0 | 5 | 0.62141892 | 0.64659613 | 0.60081941 | 0.01880471 | 5 | -1 | | |
| HDR BIASED | 50 | 5 | 0.61226357 | 0.63896668 | 0.57411629 | 0.02656651 | 5 | -1 | -0.015258909 | |
| HDR BIASED | 100 | 5 | 0.63362604 | 0.73814958 | 0.59700465 | 0.05901126 | 5 | -1 | -0.003814757 | |
| HDR UNBIAS | 0 | 5 | 0.61455241 | 0.63133723 | 0.57793105 | 0.02168027 | 5 | -1 | | |
| HDR UNBIAS | 50 | 5 | 0.61531537 | 0.63133723 | 0.60081941 | 0.01276652 | 5 | -1 | 0.007629454 | |
| HDR UNBIAS | 100 | 5 | 0.61913009 | 0.63133723 | 0.60081941 | 0.01359456 | 5 | -1 | 0.003814698 | |

**Plot of the average readings for each radiation/bias condition**

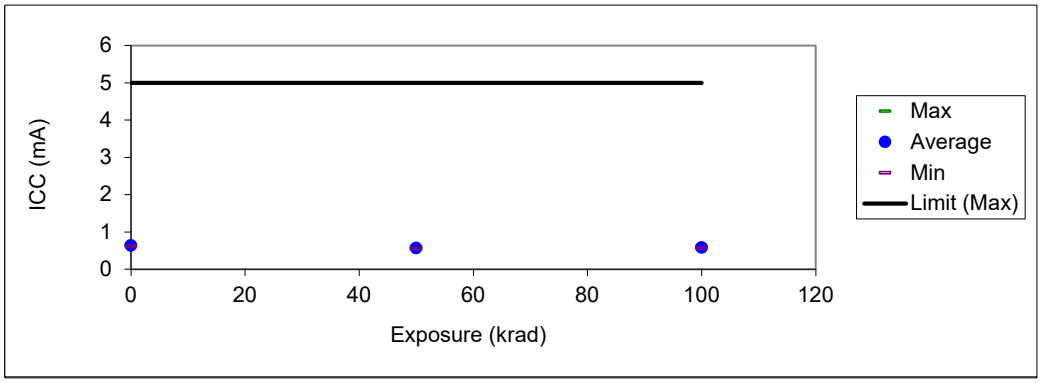


**10199 ICC_DIG/LVDS/3.465 mA**

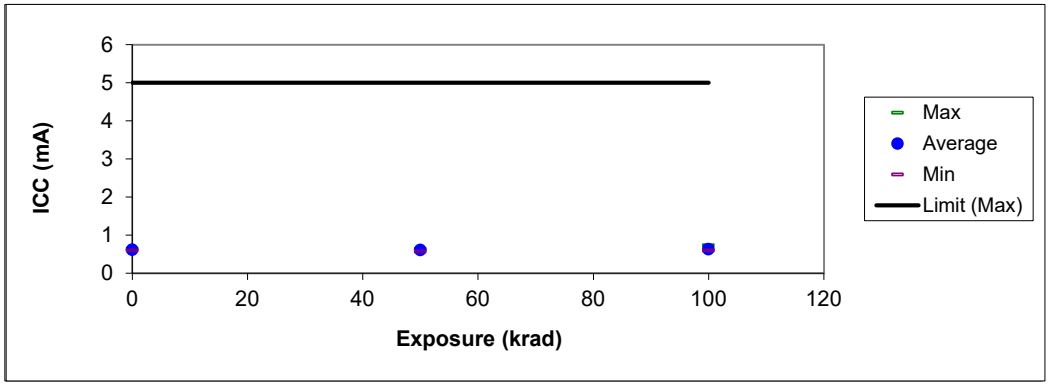
**Low dose rate biased**



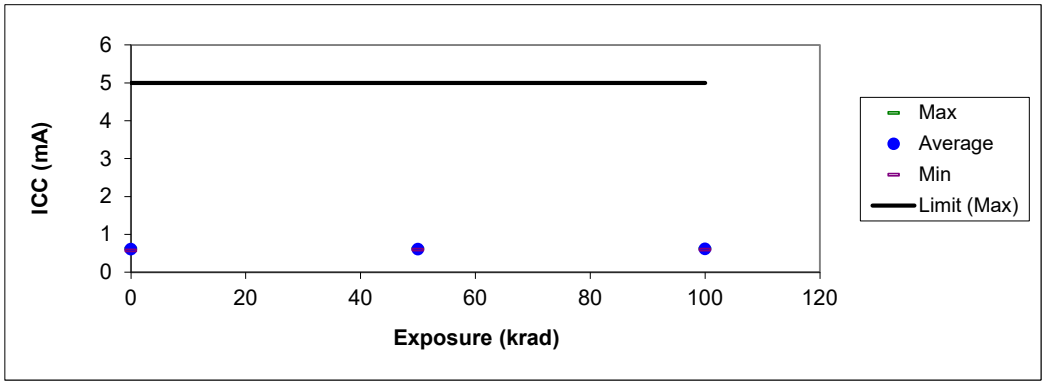

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



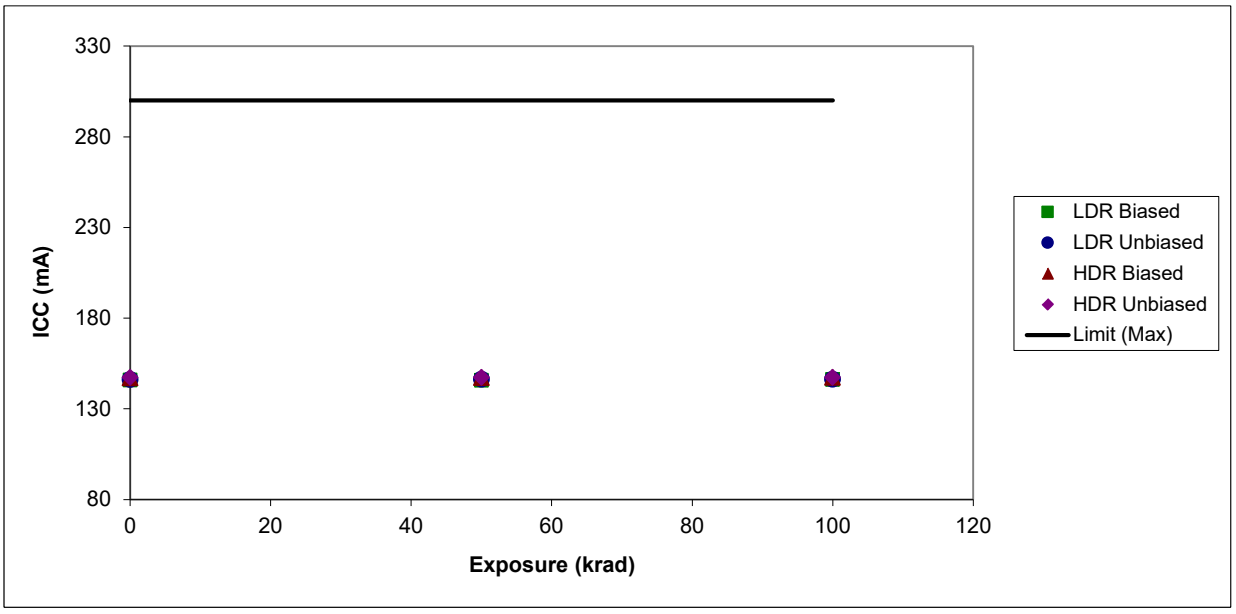
## 10198 ICCCG3/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

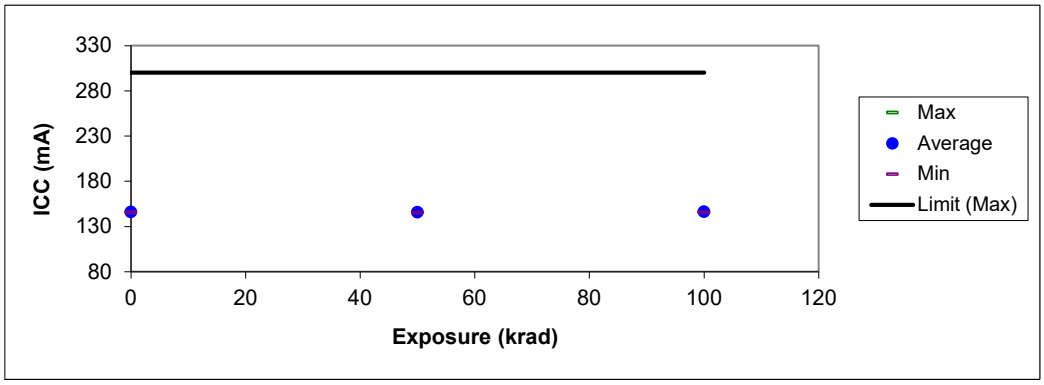
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 145.904507 | 146.208923 | 145.453598 | 0.28268519 | 300 | 10 | | |
| LDR BIASED | 50 | 5 | 145.745053 | 146.086853 | 145.037796 | 0.41549865 | 300 | 10 | -0.122070313 | -1.19 |
| LDR BIASED | 100 | 5 | 146.244016 | 146.594208 | 145.503189 | 0.42594282 | 300 | 10 | 0.385284424 | 1.87 |
| LDR UNBIAS | 0 | 5 | 146.278348 | 147.311371 | 145.468857 | 0.81301504 | 300 | 10 | | |
| LDR UNBIAS | 50 | 5 | 146.311157 | 147.536453 | 145.499374 | 0.90075147 | 300 | 10 | 0.022888183 | 0.22 |
| LDR UNBIAS | 100 | 5 | 146.363037 | 147.597488 | 145.404007 | 0.9816451 | 300 | 10 | 0.007629394 | 0.10 |
| HDR BIASED | 0 | 5 | 147.135898 | 149.291214 | 145.941895 | 1.27238385 | 300 | 10 | | |
| HDR BIASED | 50 | 5 | 147.220584 | 149.264511 | 146.144073 | 1.20597098 | 300 | 10 | 0.102996826 | |
| HDR BIASED | 100 | 5 | 147.381567 | 149.340805 | 146.18222 | 1.20163215 | 300 | 10 | 0.205993652 | |
| HDR UNBIAS | 0 | 5 | 147.319769 | 149.203476 | 146.083038 | 1.28907104 | 300 | 10 | | |
| HDR UNBIAS | 50 | 5 | 147.430396 | 149.241623 | 146.205109 | 1.25314353 | 300 | 10 | 0.102996826 | |
| HDR UNBIAS | 100 | 5 | 147.42887 | 149.199661 | 146.227997 | 1.22720595 | 300 | 10 | 0.080108643 | |

**Plot of the average readings for each radiation/bias condition**

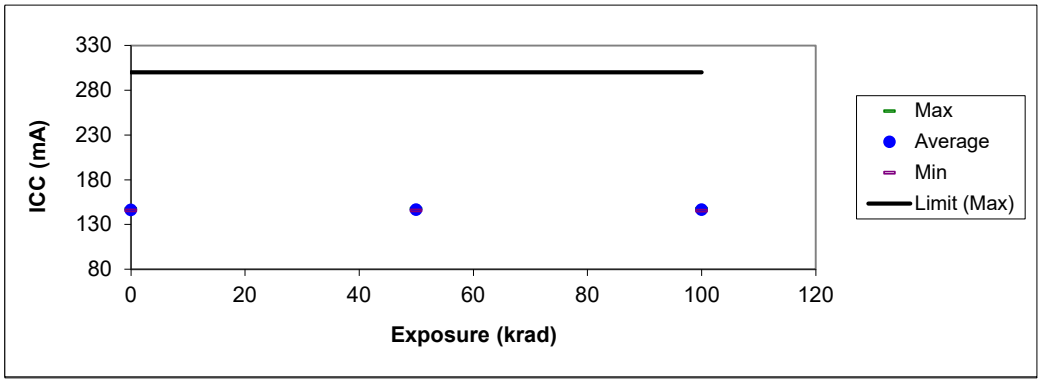


**10198 ICCCG3/LVDS/3.465 mA**

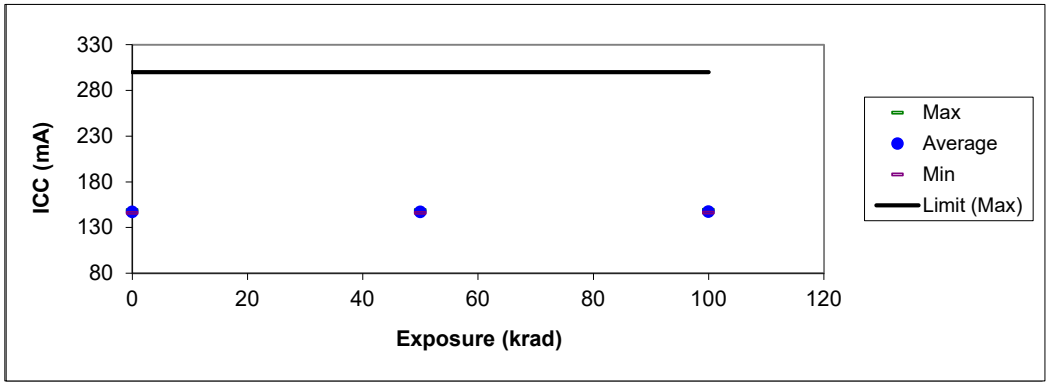
**Low dose rate biased**



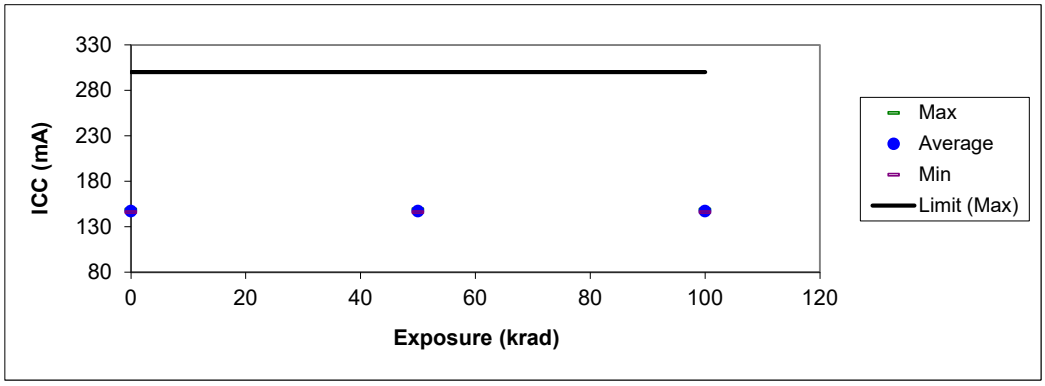

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



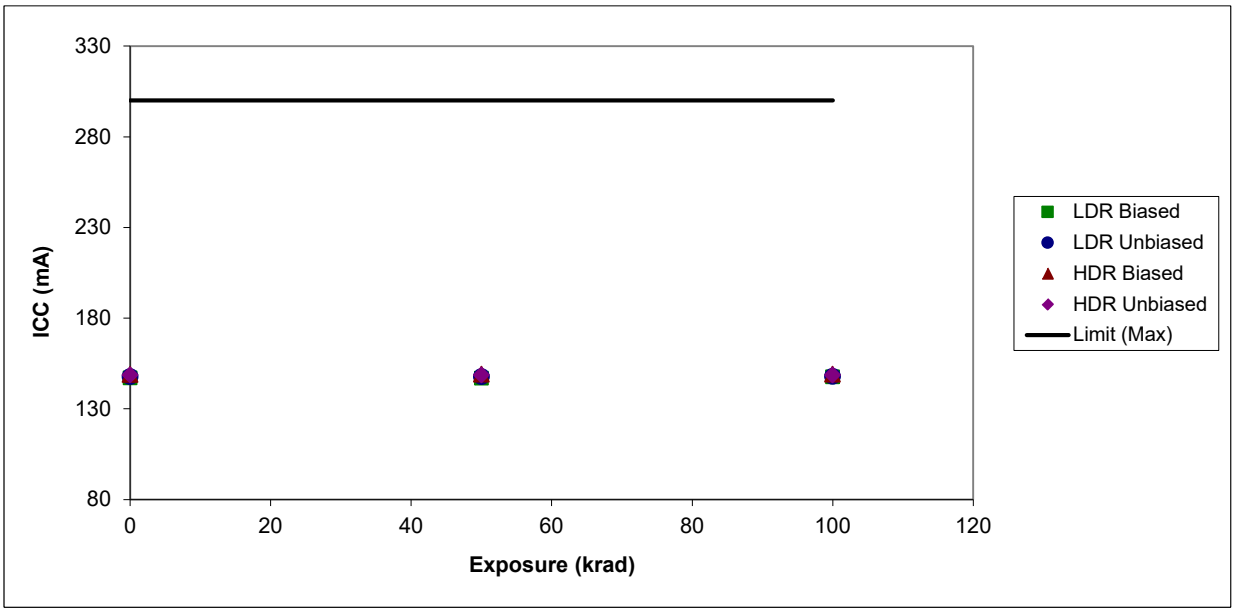
## 10197 ICCCG2/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

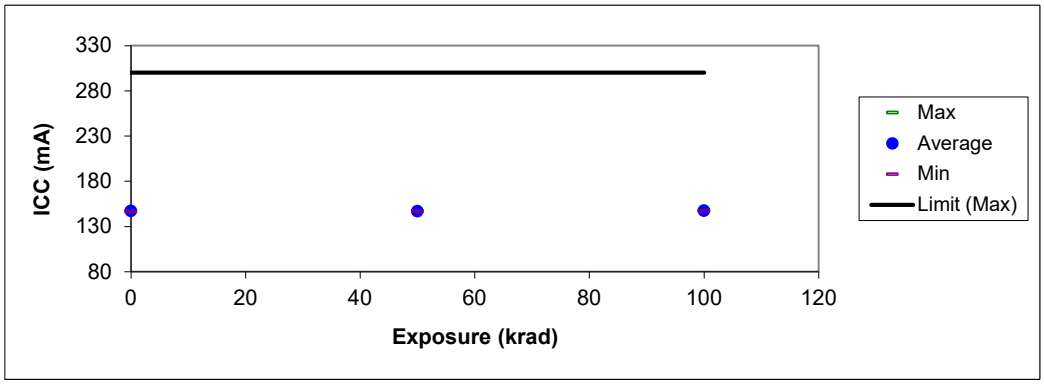
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 147.120639 | 147.608932 | 146.704834 | 0.38351002 | 300 | | | |
| LDR BIASED | 50 | 5 | 146.941345 | 147.307556 | 146.632355 | 0.28064611 | 300 | | -0.129699707 | -1.70 |
| LDR BIASED | 100 | 5 | 147.603586 | 147.902664 | 147.296112 | 0.27407644 | 300 | | 0.46157837 | 3.46 |
| LDR UNBIAS | 0 | 5 | 147.872906 | 149.310287 | 146.479767 | 1.01251243 | 300 | | | |
| LDR UNBIAS | 50 | 5 | 147.836285 | 149.371323 | 146.392029 | 1.0705923 | 300 | | -0.087738037 | -1.05 |
| LDR UNBIAS | 100 | 5 | 147.999557 | 149.611664 | 146.468323 | 1.13569405 | 300 | | 0.026702881 | 0.19 |
| HDR BIASED | 0 | 5 | 148.98299 | 150.416565 | 147.402924 | 1.15924225 | 300 | | | |
| HDR BIASED | 50 | 5 | 149.043262 | 150.466156 | 147.406738 | 1.17429488 | 300 | | 0.076293945 | |
| HDR BIASED | 100 | 5 | 149.105823 | 150.565338 | 147.368591 | 1.24444479 | 300 | | 0.133514404 | |
| HDR UNBIAS | 0 | 5 | 148.617538 | 150.668335 | 146.651428 | 1.6755498 | 300 | | | |
| HDR UNBIAS | 50 | 5 | 148.692307 | 150.683594 | 146.735352 | 1.65504826 | 300 | | 0.083923339 | |
| HDR UNBIAS | 100 | 5 | 148.729691 | 150.702667 | 146.788757 | 1.67043273 | 300 | | 0.137329101 | |

**Plot of the average readings for each radiation/bias condition**

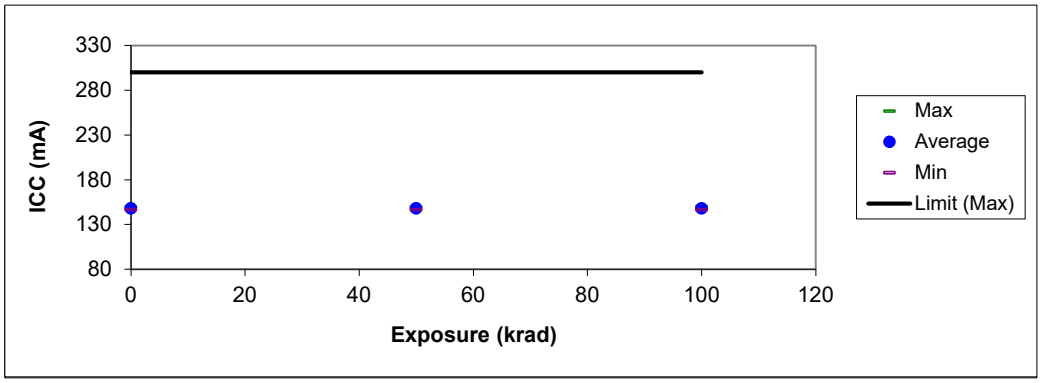


**10197 ICCCG2/LVDS/3.465 mA**

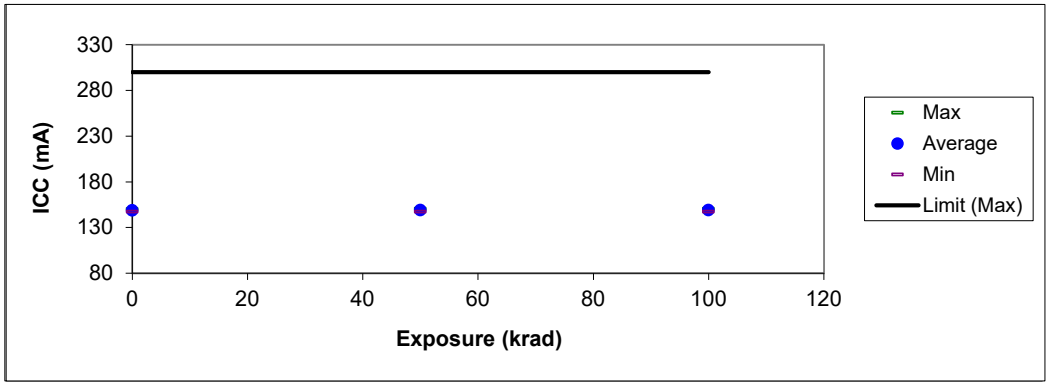
**Low dose rate biased**



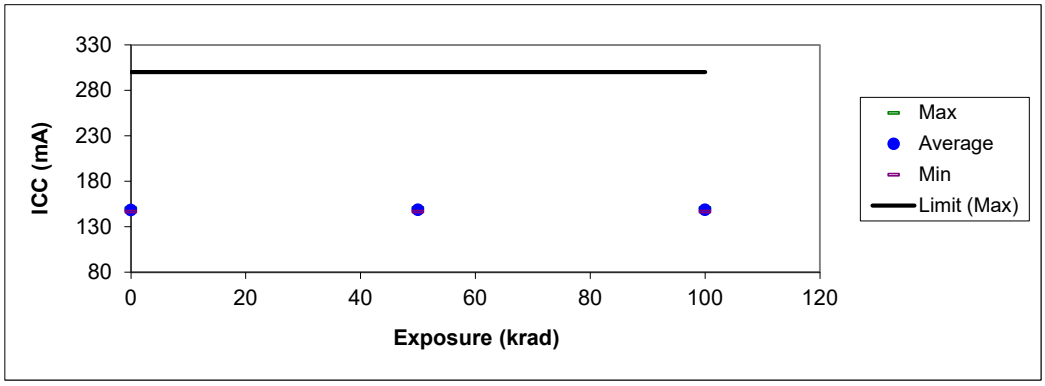

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



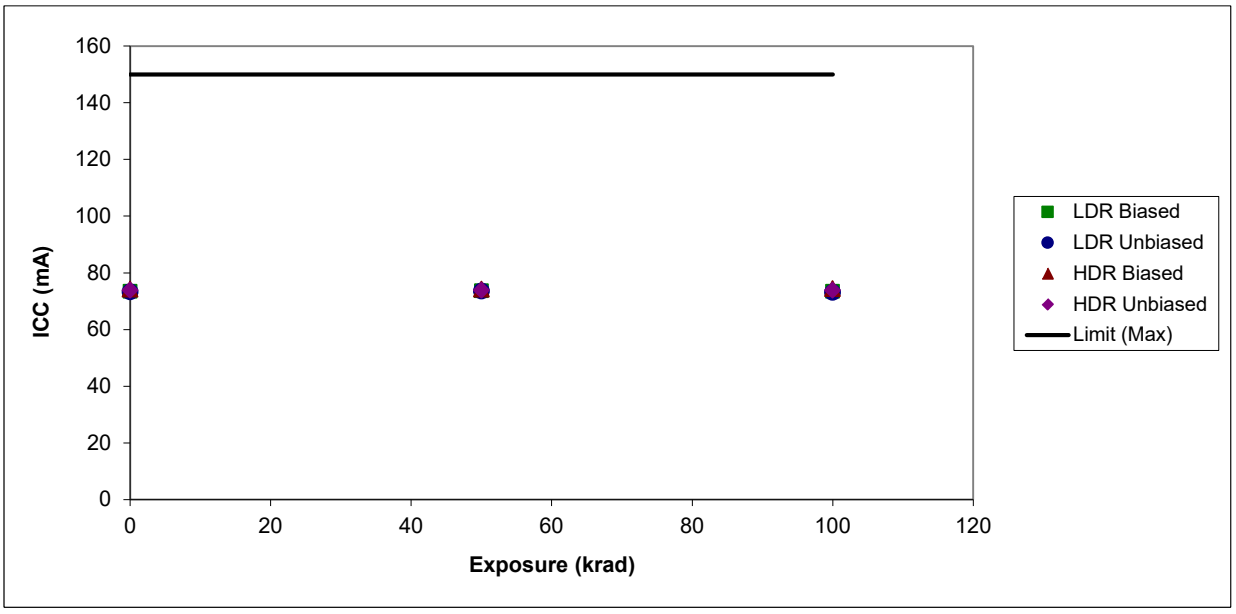
## 10196 ICCCG1/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

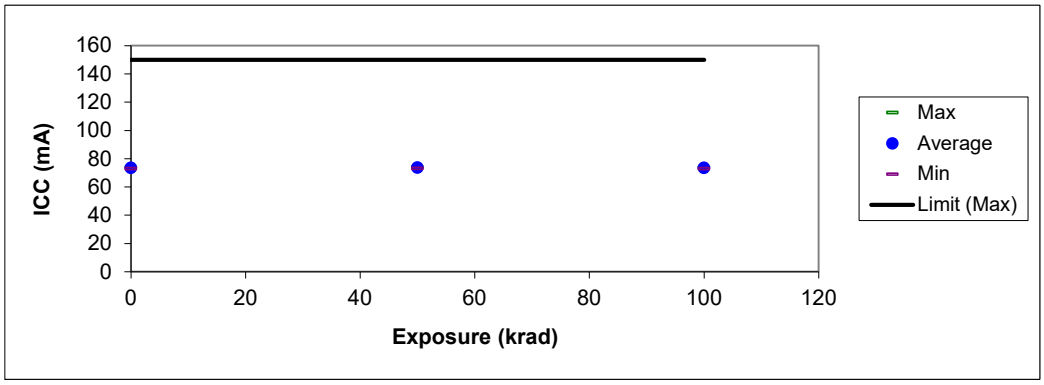
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 73.4544632 | 73.8893433 | 72.8708115 | 0.40623753 | 150 | | | |
| LDR BIASED | 50 | 5 | 73.7047073 | 74.0304871 | 73.1645432 | 0.35657667 | 150 | | 0.255584717 | 2.91 |
| LDR BIASED | 100 | 5 | 73.4651443 | 73.8702698 | 72.9165878 | 0.37431458 | 150 | | 0.026702881 | 0.11 |
| LDR UNBIAS | 0 | 5 | 73.324762 | 73.8244934 | 73.1454697 | 0.28646144 | 150 | | | |
| LDR UNBIAS | 50 | 5 | 73.5559326 | 74.1105957 | 73.3285751 | 0.32208665 | 150 | | 0.209808349 | 3.44 |
| LDR UNBIAS | 100 | 5 | 73.0920639 | 73.7062302 | 72.8746262 | 0.34953953 | 150 | | -0.270843506 | -3.09 |
| HDR BIASED | 0 | 5 | 74.2059647 | 74.7400284 | 73.7825317 | 0.43790399 | 150 | | | |
| HDR BIASED | 50 | 5 | 74.2586075 | 74.8315811 | 73.893158 | 0.41856374 | 150 | | 0.087738038 | |
| HDR BIASED | 100 | 5 | 74.4264557 | 75.0185013 | 74.0343018 | 0.45571595 | 150 | | 0.232704162 | |
| HDR UNBIAS | 0 | 5 | 73.8283051 | 74.3776245 | 73.0882492 | 0.65312557 | 150 | | | |
| HDR UNBIAS | 50 | 5 | 73.8878143 | 74.4386597 | 73.1073227 | 0.68905403 | 150 | | 0.061035156 | |
| HDR UNBIAS | 100 | 5 | 73.9084137 | 74.4386597 | 73.1645432 | 0.67427283 | 150 | | 0.087738038 | |

**Plot of the average readings for each radiation/bias condition**

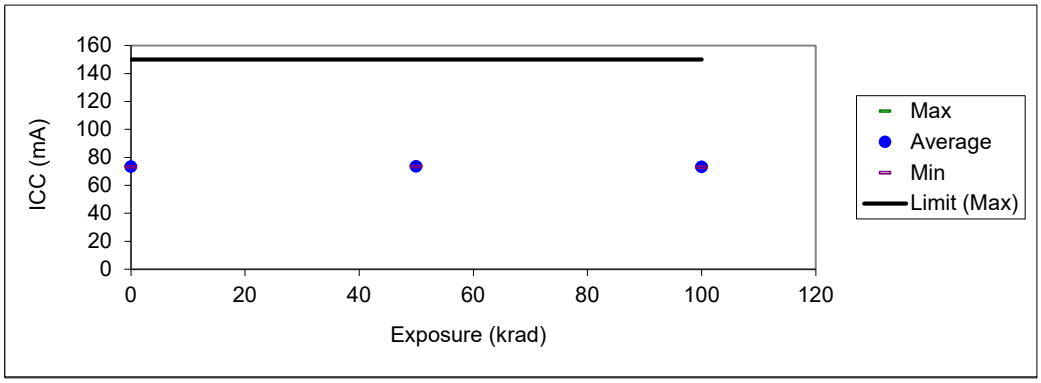


**10196 ICCCG1/LVDS/3.465 mA**

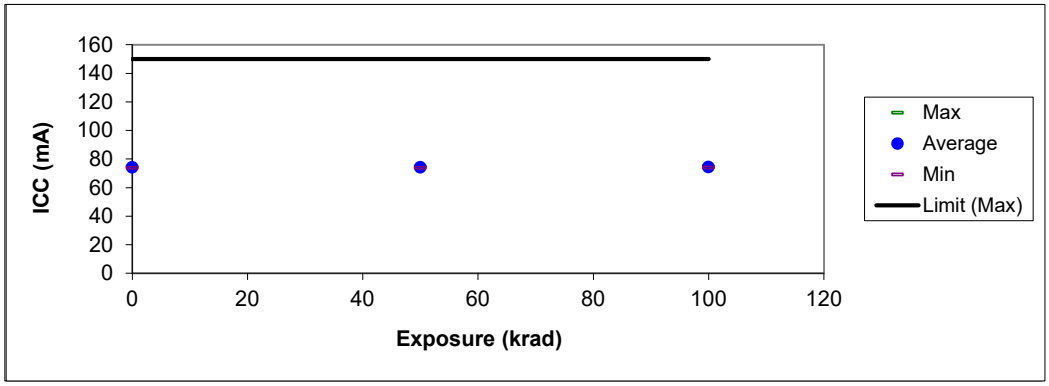
**Low dose rate biased**



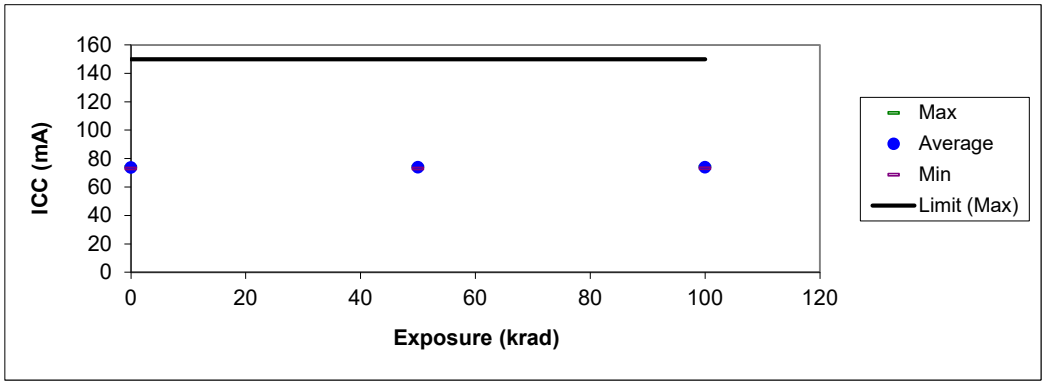

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



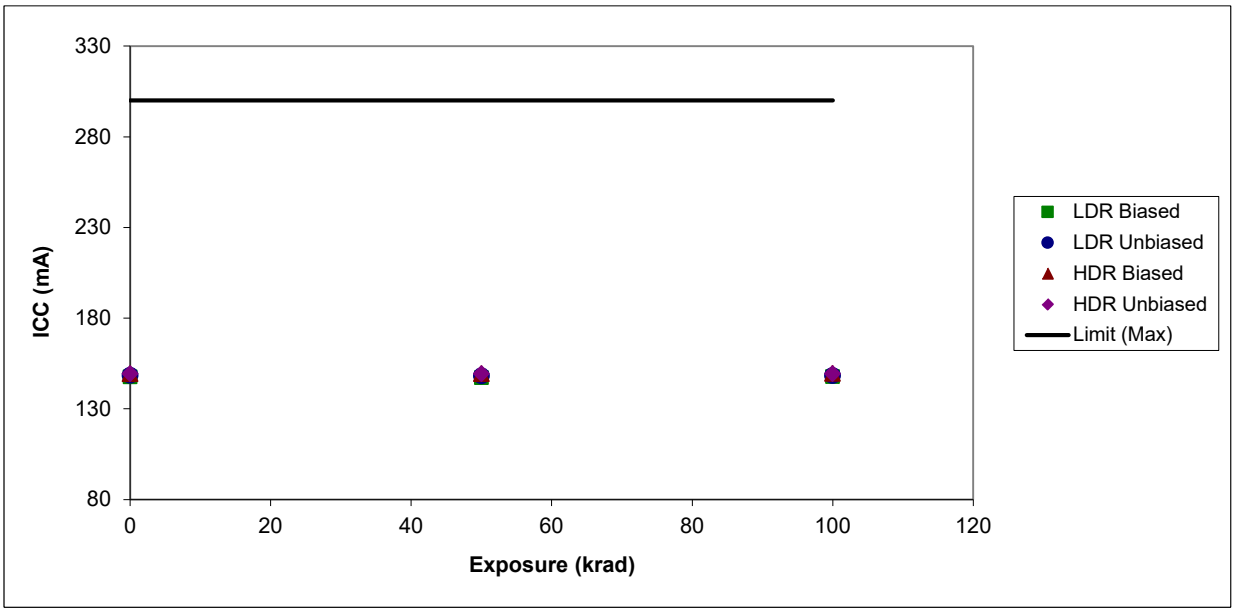
## 10195 ICCCG0/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

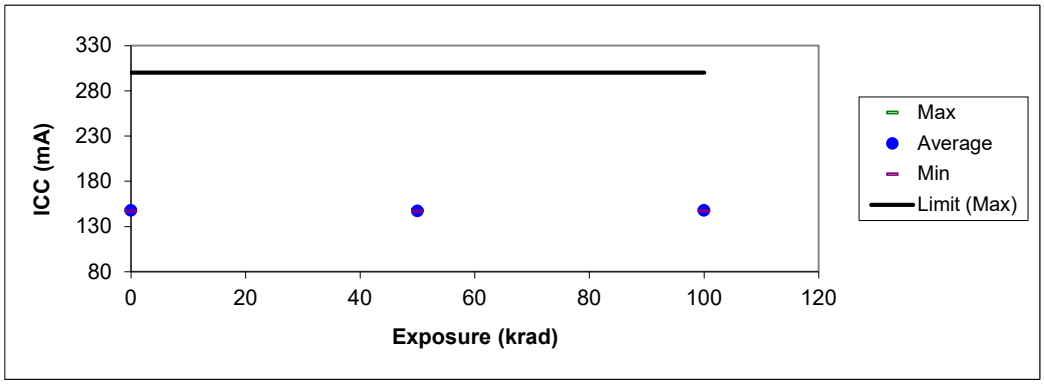
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 147.686746 | 148.677048 | 146.94516 | 0.65083804 | 300 | | | |
| LDR BIASED | 50 | 5 | 147.256442 | 148.287949 | 146.704834 | 0.6245842 | 300 | | -0.389099121 | -3.92 |
| LDR BIASED | 100 | 5 | 147.751599 | 148.696121 | 147.113007 | 0.59683416 | 300 | | 0.152587891 | 0.78 |
| LDR UNBIAS | 0 | 5 | 148.466479 | 149.996948 | 147.723373 | 0.89068078 | 300 | | | |
| LDR UNBIAS | 50 | 5 | 148.257434 | 149.84436 | 147.505936 | 0.92744487 | 300 | | -0.190734863 | -2.50 |
| LDR UNBIAS | 100 | 5 | 148.372638 | 150.042725 | 147.528824 | 0.99393601 | 300 | | -0.190734863 | -1.72 |
| HDR BIASED | 0 | 5 | 149.364462 | 150.862885 | 148.326096 | 1.12405761 | 300 | | | |
| HDR BIASED | 50 | 5 | 149.442282 | 150.912476 | 148.303207 | 1.12955649 | 300 | | 0.099182129 | |
| HDR BIASED | 100 | 5 | 149.506369 | 151.065063 | 148.307022 | 1.18984068 | 300 | | 0.194549561 | |
| HDR UNBIAS | 0 | 5 | 149.324026 | 150.942993 | 147.32663 | 1.46752301 | 300 | | | |
| HDR UNBIAS | 50 | 5 | 149.402612 | 150.98877 | 147.467789 | 1.44049263 | 300 | | 0.076293946 | |
| HDR UNBIAS | 100 | 5 | 149.436945 | 150.931549 | 147.528824 | 1.41516892 | 300 | | 0.110626221 | |

**Plot of the average readings for each radiation/bias condition**

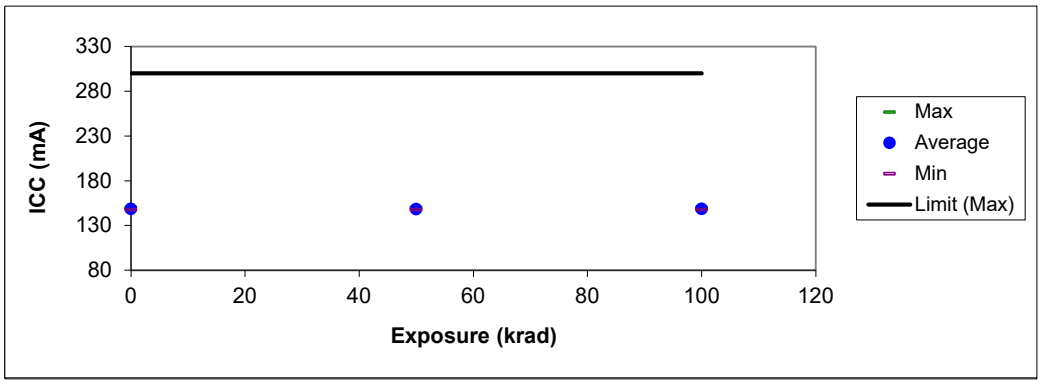


**10195 ICCCG0/LVDS/3.465 mA**

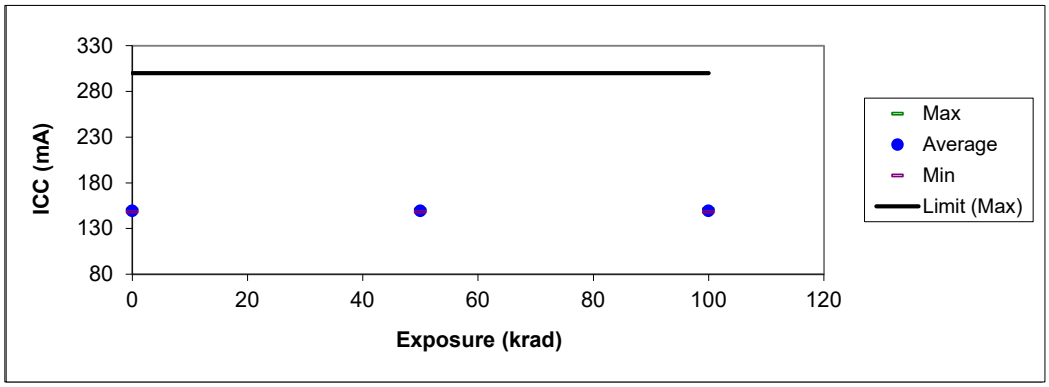
**Low dose rate biased**



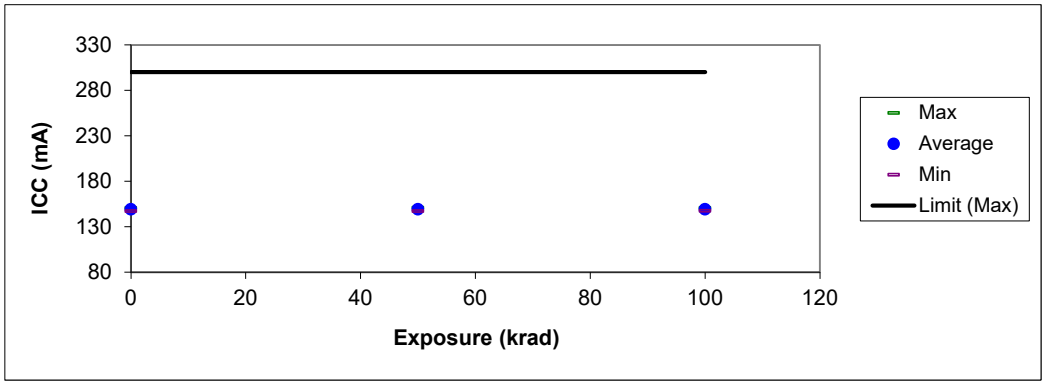

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



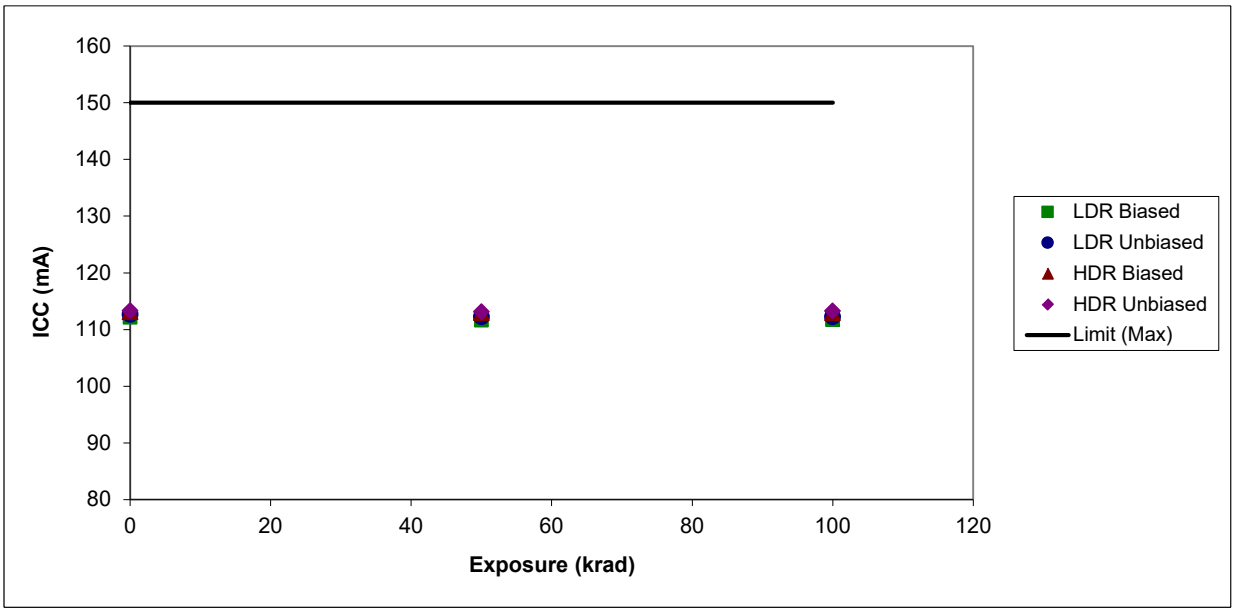
## 10194 ICCVCO/LVDS/3.465 mA

ICC (mA)

**LOT: L01200248**

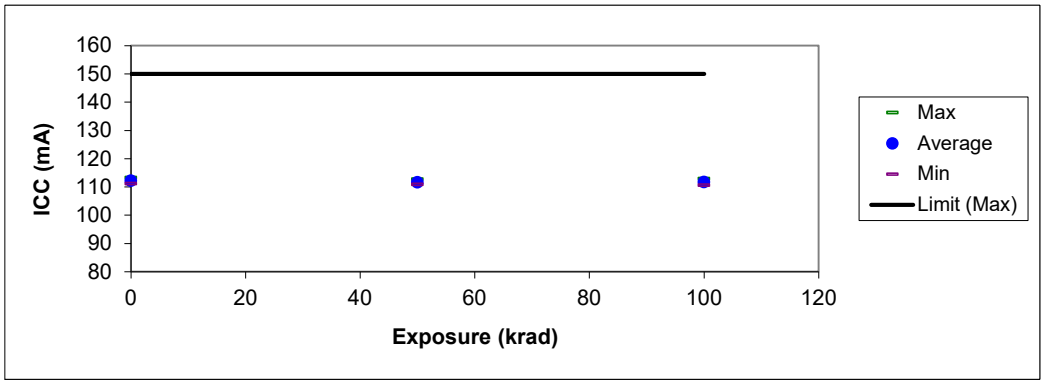
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 112.150284 | 113.314537 | 111.124886 | 0.91562773 | 150 | | | |
| LDR BIASED | 50 | 5 | 111.634532 | 112.727066 | 110.907448 | 0.77945691 | 150 | 50 | -0.587471008 | 6.42 |
| LDR BIASED | 100 | 5 | 111.730663 | 112.906364 | 110.648041 | 0.91793446 | 150 | 50 | -0.408172607 | 7.13 |
| LDR UNBIAS | 0 | 5 | 112.653827 | 113.852417 | 110.957039 | 1.13451817 | 150 | 50 | | |
| LDR UNBIAS | 50 | 5 | 112.267776 | 113.413719 | 110.484009 | 1.20755702 | 150 | 50 | -0.47303009 | 6.20 |
| LDR UNBIAS | 100 | 5 | 112.260909 | 113.707451 | 110.499268 | 1.31688005 | 150 | 50 | -0.457771301 | 30.00 |
| HDR BIASED | 0 | 5 | 113.149741 | 114.638245 | 112.1129 | 0.98805856 | 150 | 50 | | |
| HDR BIASED | 50 | 5 | 112.959769 | 114.233887 | 112.021347 | 0.86338021 | 150 | 50 | -0.091552734 | |
| HDR BIASED | 100 | 5 | 112.97045 | 114.199554 | 112.1129 | 0.82634135 | 150 | 50 | -0.057220459 | |
| HDR UNBIAS | 0 | 5 | 113.311485 | 114.680206 | 111.742867 | 1.34665634 | 150 | 50 | | |
| HDR UNBIAS | 50 | 5 | 113.14669 | 114.363586 | 111.666573 | 1.2330048 | 150 | 50 | -0.076293945 | |
| HDR UNBIAS | 100 | 5 | 113.288597 | 114.668762 | 111.620796 | 1.35084805 | 150 | 50 | -0.015258789 | |

**Plot of the average readings for each radiation/bias condition**

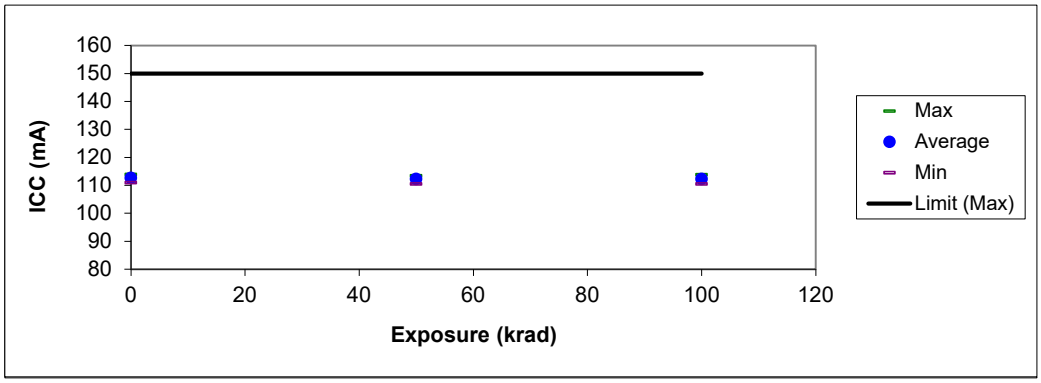


**10194 ICCVCO/LVDS/3.465 mA**

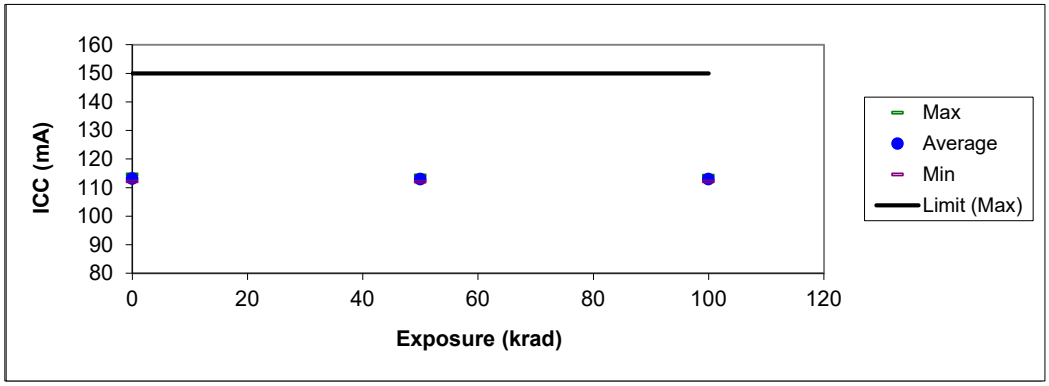
**Low dose rate biased**



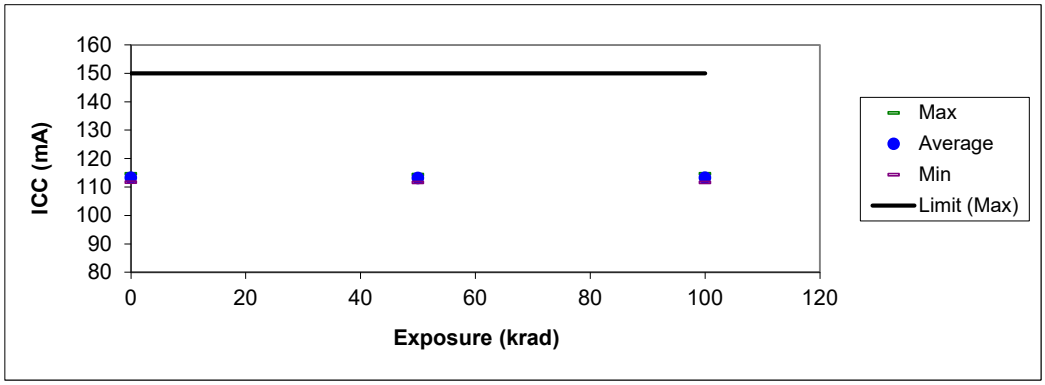

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



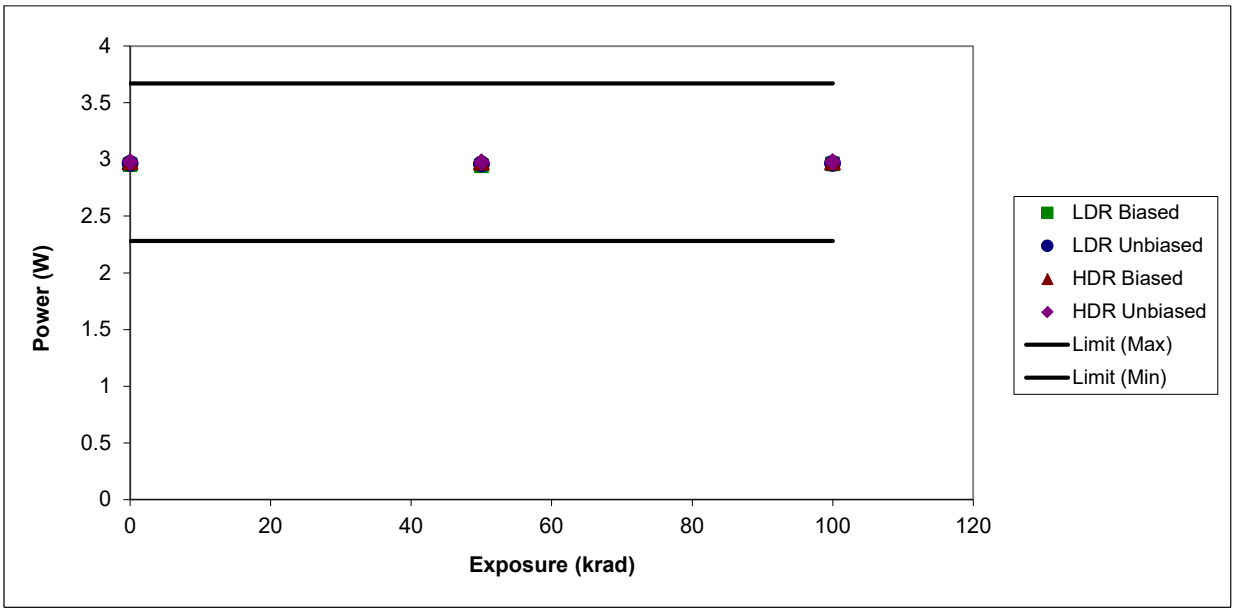
## 10177 POWER/SCK_DIS_MODE2/JESD204B_STEADY_OUTPUT_NOMINAL_VCM_/3.465 W

Power (W)

**LOT: L01200248**

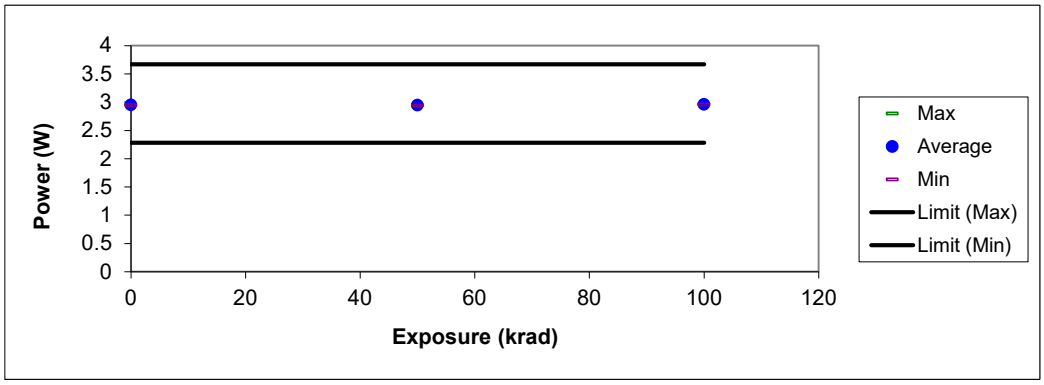
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 2.95249219 | 2.95806217 | 2.94487071 | 0.00502171 | 3.67 | 2.28 | | |
| LDR BIASED | 50 | 5 | 2.94475965 | 2.95175719 | 2.93880367 | 0.00484748 | 3.67 | 2.28 | -0.006304979 | 12.56 |
| LDR BIASED | 100 | 5 | 2.96059747 | 2.96649528 | 2.9537797 | 0.00469907 | 3.67 | 2.28 | 0.008908987 | -3.90 |
| LDR UNBIAS | 0 | 5 | 2.96479287 | 2.98892641 | 2.9458487 | 0.01641813 | 3.67 | 2.28 | | |
| LDR UNBIAS | 50 | 5 | 2.95994716 | 2.98601842 | 2.93958354 | 0.01806393 | 3.67 | 2.28 | -0.005842209 | 5.67 |
| LDR UNBIAS | 100 | 5 | 2.96499643 | 2.99253488 | 2.94457984 | 0.01874307 | 3.67 | 2.28 | -0.001268863 | 10.67 |
| HDR BIASED | 0 | 5 | 2.97871404 | 3.01151586 | 2.96333623 | 0.01899902 | 3.67 | 2.28 | | |
| HDR BIASED | 50 | 5 | 2.97791042 | 3.01101375 | 2.96093059 | 0.01919852 | 3.67 | 2.28 | -0.00050211 | |
| HDR BIASED | 100 | 5 | 2.97645121 | 3.00837016 | 2.96110249 | 0.01842353 | 3.67 | 2.28 | -0.002286672 | |
| HDR UNBIAS | 0 | 5 | 2.97916617 | 3.0053432 | 2.94962907 | 0.02474438 | 3.67 | 2.28 | | |
| HDR UNBIAS | 50 | 5 | 2.9776144 | 3.00432539 | 2.94859815 | 0.02419661 | 3.67 | 2.28 | -0.001030922 | |
| HDR UNBIAS | 100 | 5 | 2.97870359 | 3.00522423 | 2.9501183 | 0.0246279 | 3.67 | 2.28 | -0.000118971 | |

**Plot of the average readings for each radiation/bias condition**

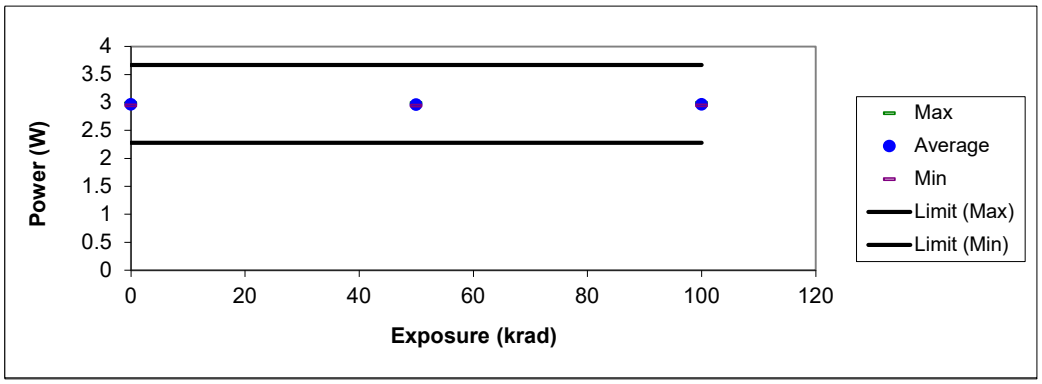


**10177 POWER/SCK_DIS_MODE2/JESD204B_STEADY_OUTPUT_NOMINAL_VCM_/3.465 W**

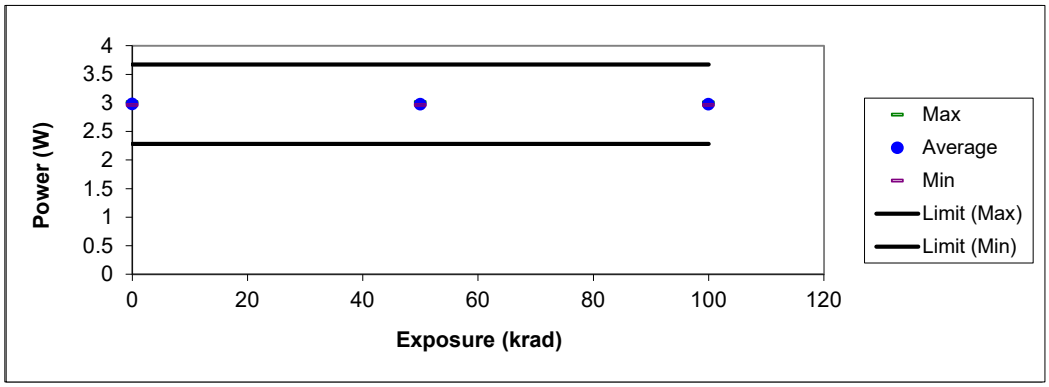
**Low dose rate biased**



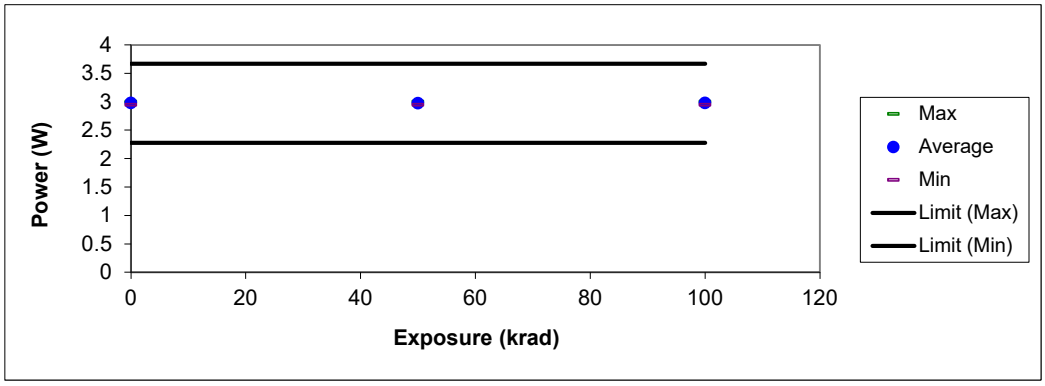

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



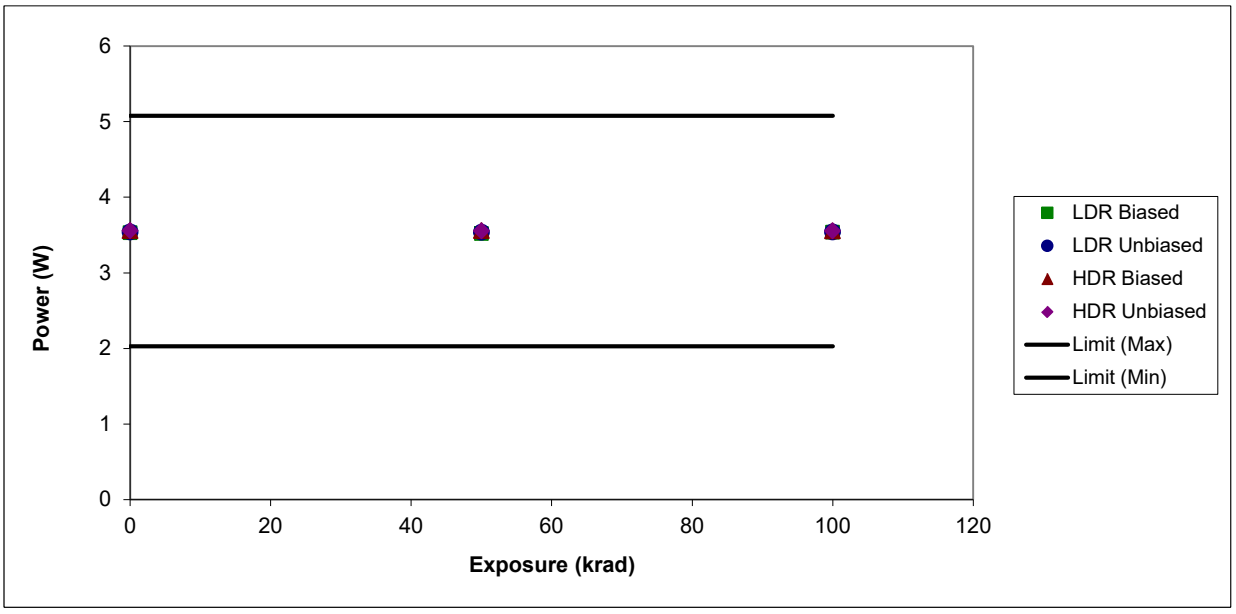
## 10149 POWER/SCK_DIS_MODE1/JESD204B_STEADY_OUTPUT_LOW_/3.465 W

Power (W)

**LOT: L01200248**

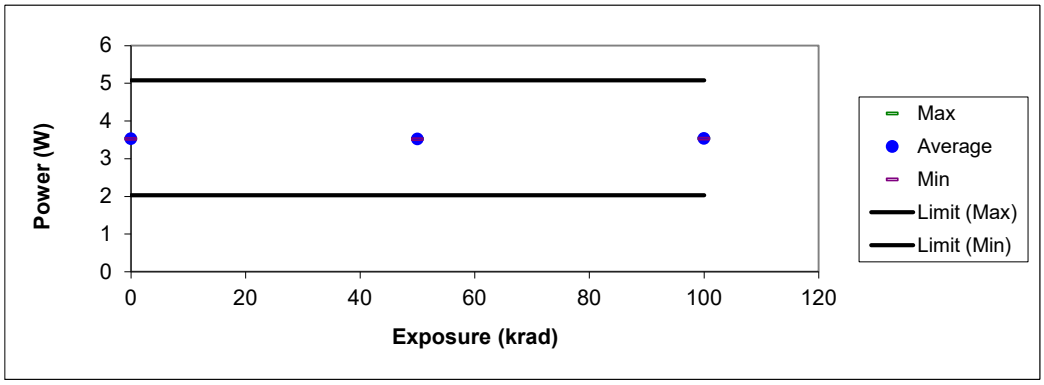
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 3.52936654 | 3.53479123 | 3.51887679 | 0.00641929 | 5.08 | 2.03 | | |
| LDR BIASED | 50 | 5 | 3.52047071 | 3.52666211 | 3.51193714 | 0.00534441 | 5.08 | 2.03 | -0.007639885 | 10.32 |
| LDR BIASED | 100 | 5 | 3.53819084 | 3.54299951 | 3.52871084 | 0.00549291 | 5.08 | 2.03 | 0.009834051 | -2.77 |
| LDR UNBIAS | 0 | 5 | 3.54156675 | 3.56919765 | 3.51978874 | 0.01858591 | 5.08 | 2.03 | | |
| LDR UNBIAS | 50 | 5 | 3.53611302 | 3.56609154 | 3.51185799 | 0.02094669 | 5.08 | 2.03 | -0.006410838 | 2.30 |
| LDR UNBIAS | 100 | 5 | 3.5426929 | 3.57492113 | 3.51799107 | 0.0217046 | 5.08 | 2.03 | -0.000462532 | 0.38 |
| HDR BIASED | 0 | 5 | 3.55836158 | 3.59124541 | 3.54196858 | 0.01924891 | 5.08 | 2.03 | | |
| HDR BIASED | 50 | 5 | 3.55725656 | 3.59115291 | 3.53851867 | 0.01986766 | 5.08 | 2.03 | -0.00074029 | |
| HDR BIASED | 100 | 5 | 3.55541396 | 3.58832431 | 3.53841281 | 0.01919017 | 5.08 | 2.03 | -0.003555775 | |
| HDR UNBIAS | 0 | 5 | 3.55817914 | 3.58589196 | 3.52531385 | 0.02680798 | 5.08 | 2.03 | | |
| HDR UNBIAS | 50 | 5 | 3.55480599 | 3.58310318 | 3.52248526 | 0.02630907 | 5.08 | 2.03 | -0.002788782 | |
| HDR UNBIAS | 100 | 5 | 3.55665383 | 3.58468914 | 3.52475882 | 0.02689765 | 5.08 | 2.03 | -0.001202822 | |

**Plot of the average readings for each radiation/bias condition**

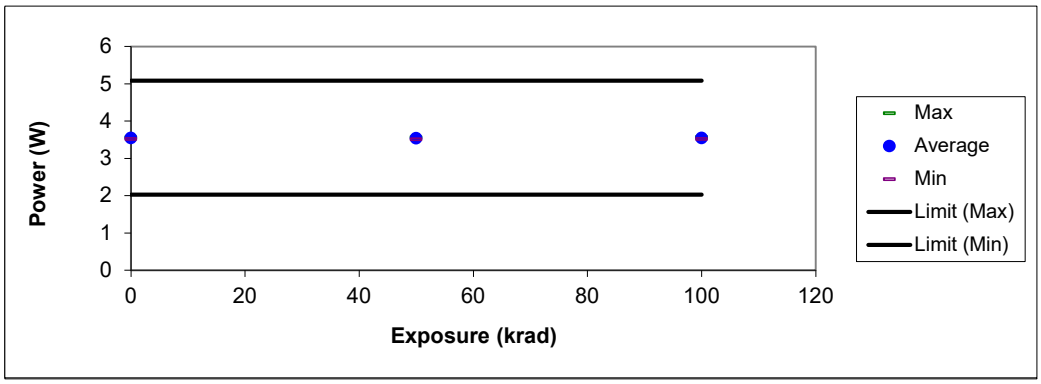


**10149 POWER/SCK_DIS_MODE1/JESD204B_STEADY_OUTPUT_LOW_/3.465 W**

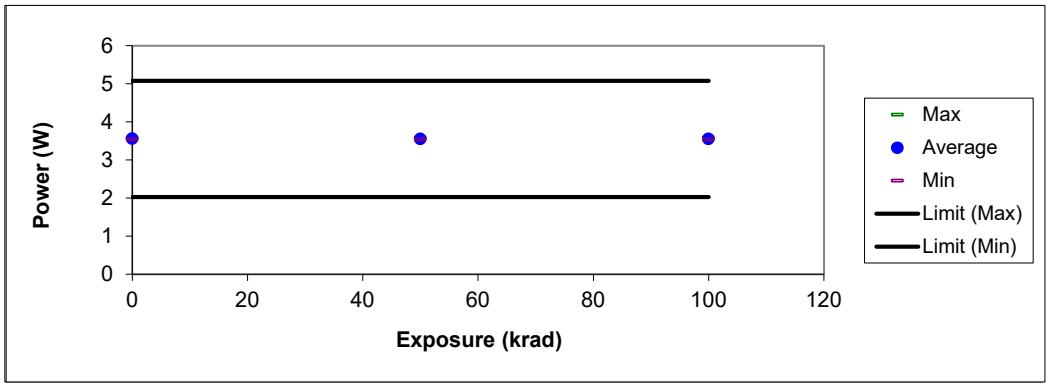
**Low dose rate biased**



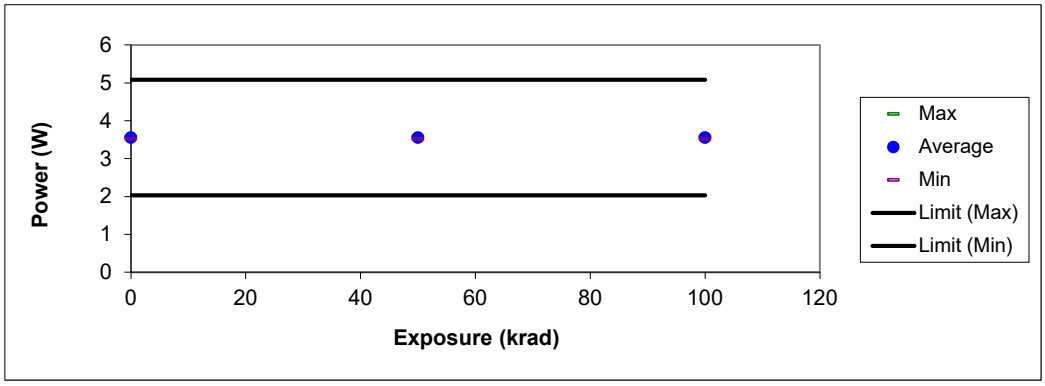

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



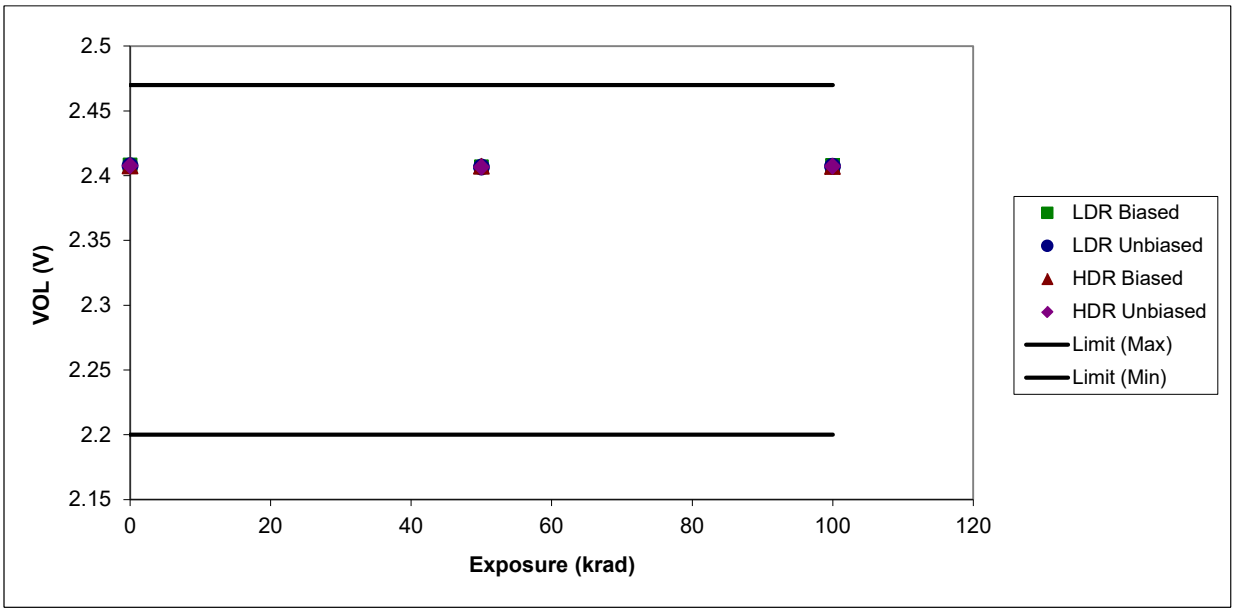
## 10135 VOH_SCLK_DIS_MODE1/CLKOUT13B / 3.465 V

VOL (V)

**LOT: L01200248**

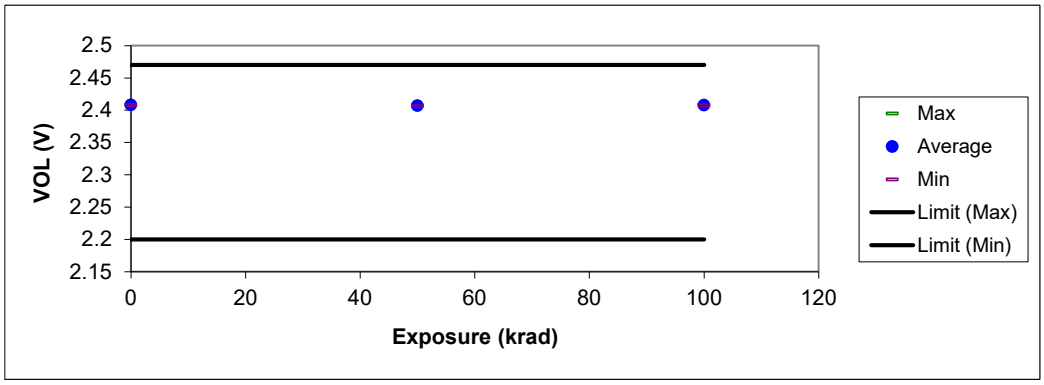
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 2.4082737 | 2.40870094 | 2.407938 | 0.00027296 | 2.47 | 2.2 | | |
| LDR BIASED | 50 | 5 | 2.40683332 | 2.40787101 | 2.4061923 | 0.00065995 | 2.47 | 2.2 | -0.001440286 | -9.44 |
| LDR BIASED | 100 | 5 | 2.4077703 | 2.40865493 | 2.40728211 | 0.00052173 | 2.47 | 2.2 | -0.000655889 | 1.43 |
| LDR UNBIAS | 0 | 5 | 2.40754128 | 2.40839577 | 2.40641213 | 0.0007444 | 2.47 | 2.2 | | |
| LDR UNBIAS | 50 | 5 | 2.40655861 | 2.40756583 | 2.40542936 | 0.00079003 | 2.47 | 2.2 | -0.000982762 | 0.72 |
| LDR UNBIAS | 100 | 5 | 2.4071907 | 2.40804481 | 2.40636706 | 0.00061578 | 2.47 | 2.2 | -0.000350475 | 0.46 |
| HDR BIASED | 0 | 5 | 2.4074192 | 2.40824318 | 2.40625954 | 0.00081173 | 2.47 | 2.2 | | |
| HDR BIASED | 50 | 5 | 2.40726662 | 2.40778542 | 2.40686989 | 0.00036748 | 2.47 | 2.2 | 0.000152588 | |
| HDR BIASED | 100 | 5 | 2.40693092 | 2.40778542 | 2.40641213 | 0.00059685 | 2.47 | 2.2 | -0.000457763 | |
| HDR UNBIAS | 0 | 5 | 2.40772443 | 2.40885377 | 2.4067173 | 0.00080461 | 2.47 | 2.2 | | |
| HDR UNBIAS | 50 | 5 | 2.40668678 | 2.40732765 | 2.40595436 | 0.00062356 | 2.47 | 2.2 | -0.001373291 | |
| HDR UNBIAS | 100 | 5 | 2.40717506 | 2.40763283 | 2.40656471 | 0.00056064 | 2.47 | 2.2 | -0.000762939 | |

**Plot of the average readings for each radiation/bias condition**

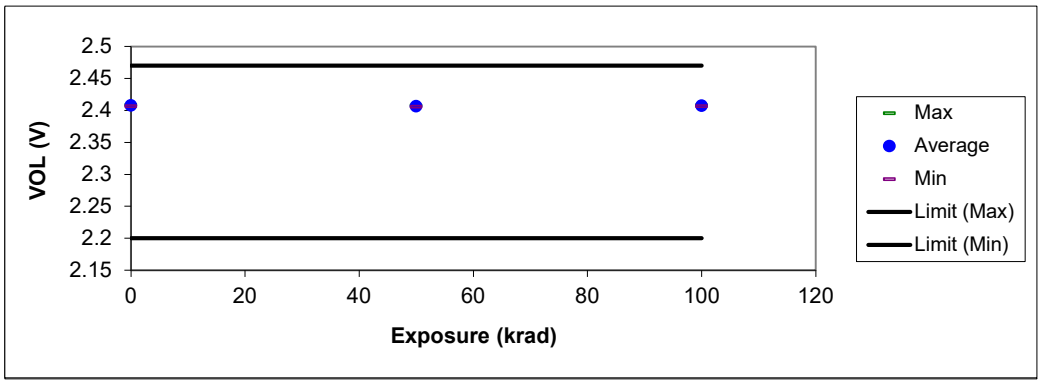


**10135 VOH_SCLK_DIS_MODE1/CLKOUT13B / 3.465 V**

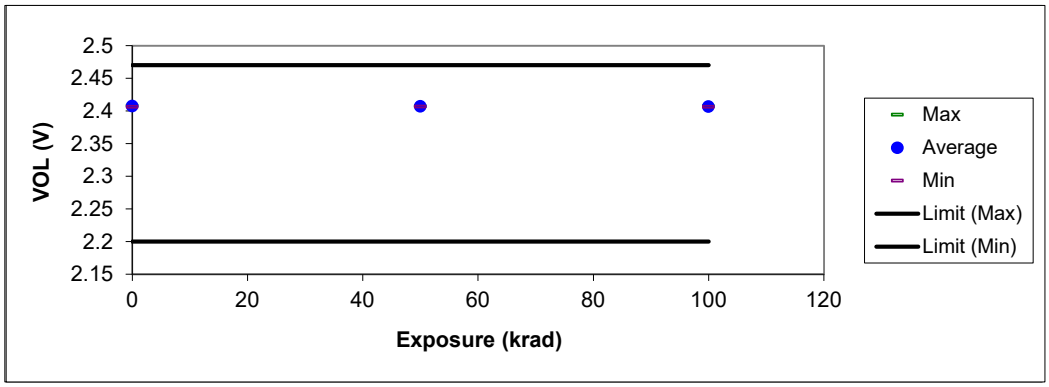
**Low dose rate biased**



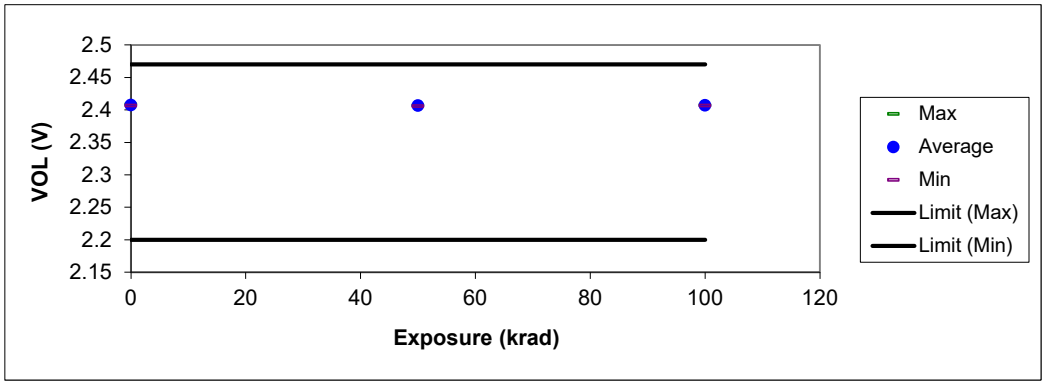

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



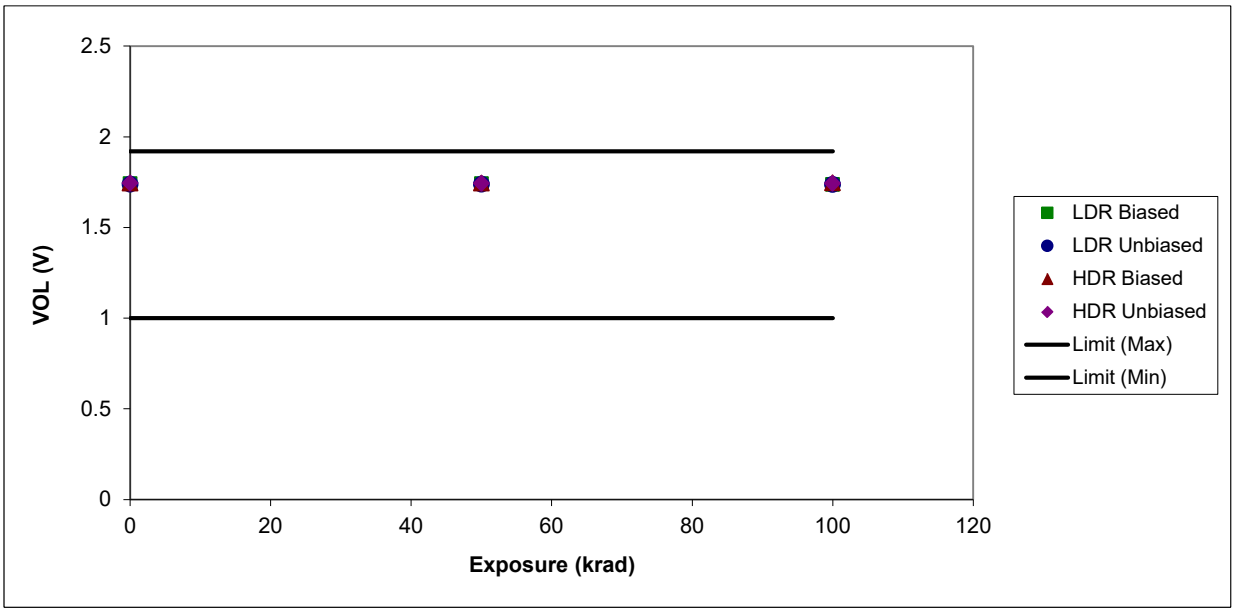
## 10128 VOL_SCLK_DIS_MODE1/CLKOUT13 / 3.465 V

VOL (V)

**LOT: L01200248**

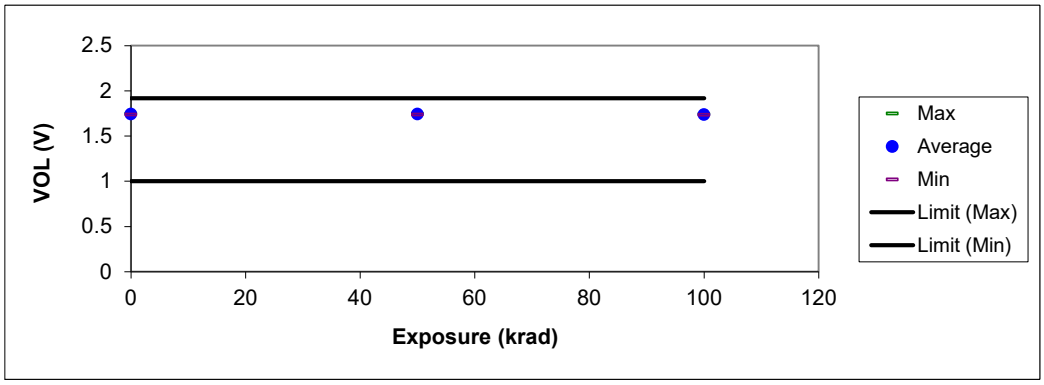
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.74176524 | 1.74915135 | 1.73770595 | 0.00468451 | 1.92 | 1 | | |
| LDR BIASED | 50 | 5 | 1.74146497 | 1.74955308 | 1.73658156 | 0.00513333 | 1.92 | 1 | -0.000208735 | 0.46 |
| LDR BIASED | 100 | 5 | 1.73772833 | 1.74364626 | 1.73373222 | 0.00375995 | 1.92 | 1 | -0.003976107 | -4.34 |
| LDR UNBIAS | 0 | 5 | 1.73877425 | 1.74457324 | 1.73419607 | 0.00418482 | 1.92 | 1 | | |
| LDR UNBIAS | 50 | 5 | 1.73819919 | 1.74451709 | 1.73475027 | 0.00399059 | 1.92 | 1 | -0.000361443 | 0.24 |
| LDR UNBIAS | 100 | 5 | 1.7380029 | 1.74440885 | 1.73388481 | 0.00429237 | 1.92 | 1 | -0.000922799 | 0.55 |
| HDR BIASED | 0 | 5 | 1.74439006 | 1.75159299 | 1.73297524 | 0.00707384 | 1.92 | 1 | | |
| HDR BIASED | 50 | 5 | 1.74411535 | 1.75113511 | 1.7337383 | 0.00653082 | 1.92 | 1 | -0.000457883 | |
| HDR BIASED | 100 | 5 | 1.74588559 | 1.75052476 | 1.73572218 | 0.00605685 | 1.92 | 1 | 0.000915646 | |
| HDR UNBIAS | 0 | 5 | 1.74515309 | 1.75235605 | 1.73938465 | 0.00514055 | 1.92 | 1 | | |
| HDR UNBIAS | 50 | 5 | 1.74365759 | 1.75037217 | 1.73785865 | 0.00482214 | 1.92 | 1 | -0.001525998 | |
| HDR UNBIAS | 100 | 5 | 1.74390173 | 1.75037217 | 1.73907948 | 0.0043787 | 1.92 | 1 | -0.001678705 | |

**Plot of the average readings for each radiation/bias condition**

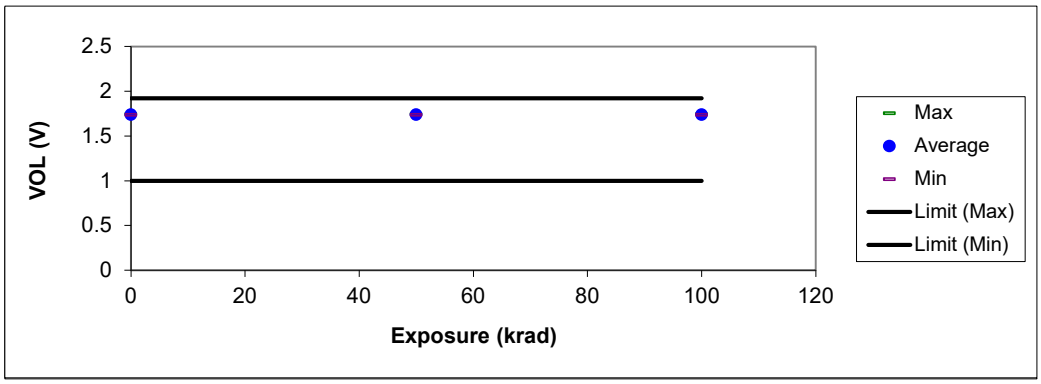


**10128 VOL_SCLK_DIS_MODE1/CLKOUT13 / 3.465 V**

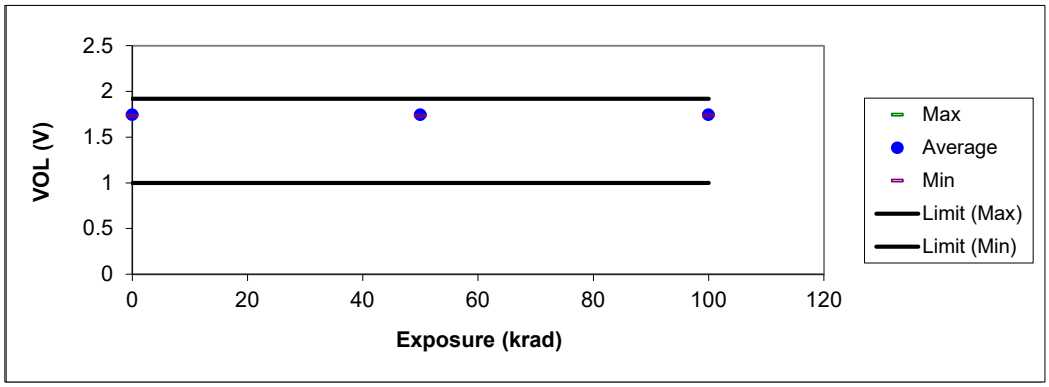
**Low dose rate biased**



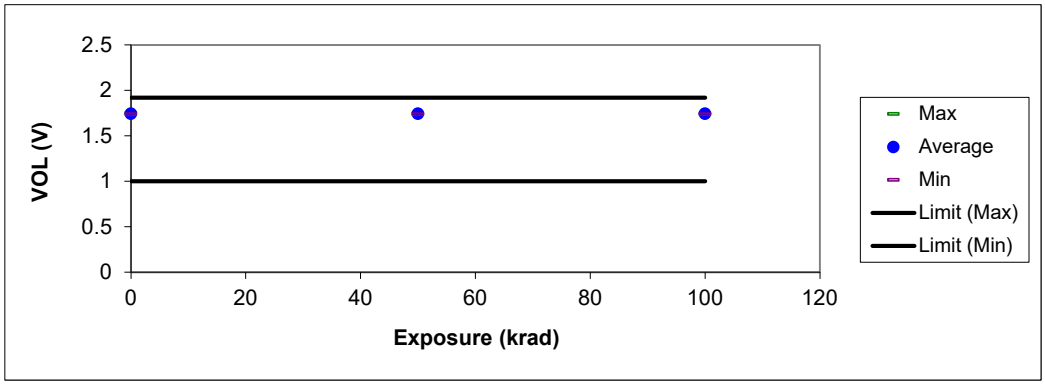

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



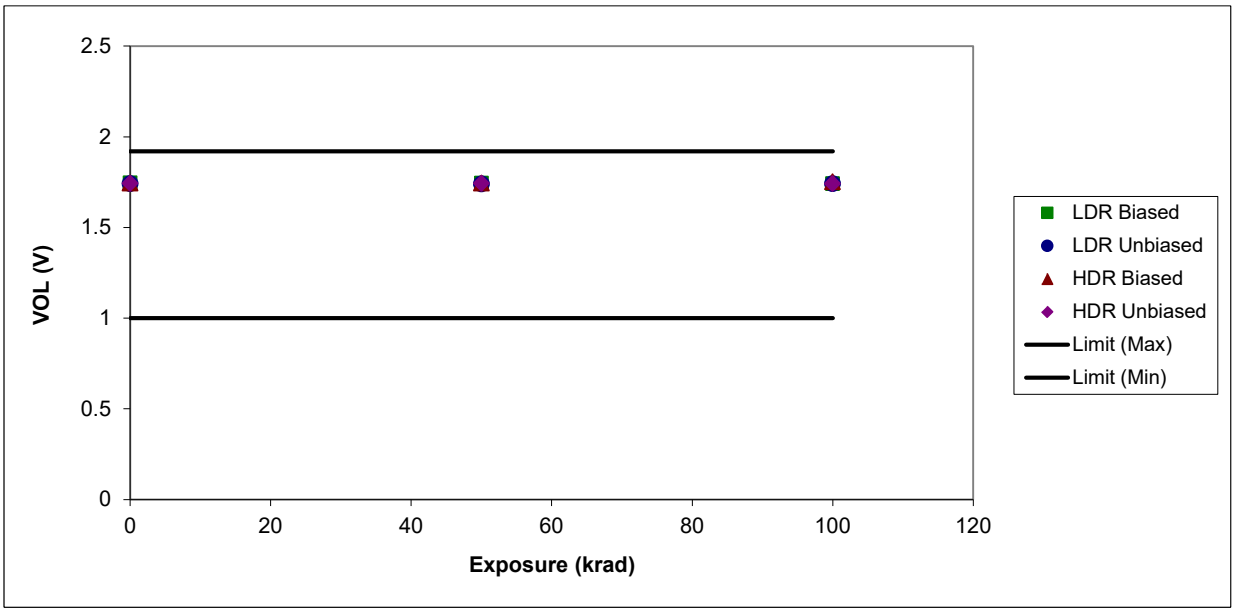
## 10126 VOL_SCLK_DIS_MODE1/CLKOUT9 / 3.465 V

VOL (V)

**LOT: L01200248**

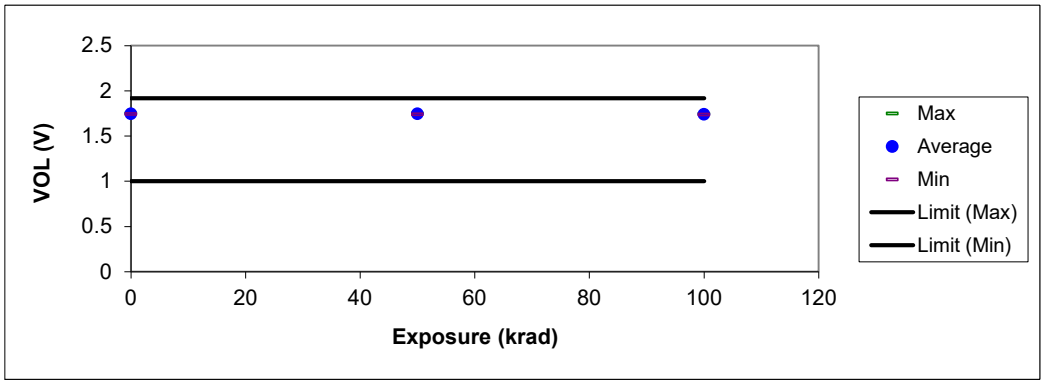
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.74635859 | 1.75265002 | 1.74241877 | 0.00411937 | 1.92 | 1 | | |
| LDR BIASED | 50 | 5 | 1.74459837 | 1.75070608 | 1.74062836 | 0.00424804 | 1.92 | 1 | -0.001943946 | -12.73 |
| LDR BIASED | 100 | 5 | 1.74110954 | 1.74598873 | 1.73745012 | 0.00365782 | 1.92 | 1 | -0.005274295 | -1.73 |
| LDR UNBIAS | 0 | 5 | 1.74125826 | 1.74990129 | 1.73493636 | 0.00552018 | 1.92 | 1 | | |
| LDR UNBIAS | 50 | 5 | 1.74068947 | 1.74841571 | 1.73360455 | 0.00528457 | 1.92 | 1 | -0.000721573 | 0.68 |
| LDR UNBIAS | 100 | 5 | 1.74144502 | 1.75025809 | 1.7345531 | 0.00580549 | 1.92 | 1 | 0.000217319 | -0.16 |
| HDR BIASED | 0 | 5 | 1.74446504 | 1.75173378 | 1.73417282 | 0.00660133 | 1.92 | 1 | | |
| HDR BIASED | 50 | 5 | 1.74461775 | 1.75081754 | 1.73524177 | 0.00591576 | 1.92 | 1 | 0.000152708 | |
| HDR BIASED | 100 | 5 | 1.7523751 | 1.7637974 | 1.73722684 | 0.01106838 | 1.92 | 1 | 0.003054023 | |
| HDR UNBIAS | 0 | 5 | 1.74357936 | 1.750054 | 1.73860121 | 0.0044659 | 1.92 | 1 | | |
| HDR UNBIAS | 50 | 5 | 1.74266312 | 1.74822152 | 1.73814309 | 0.00410968 | 1.92 | 1 | -0.001068949 | |
| HDR UNBIAS | 100 | 5 | 1.74189959 | 1.7479161 | 1.73722684 | 0.00442261 | 1.92 | 1 | -0.001374364 | |

**Plot of the average readings for each radiation/bias condition**

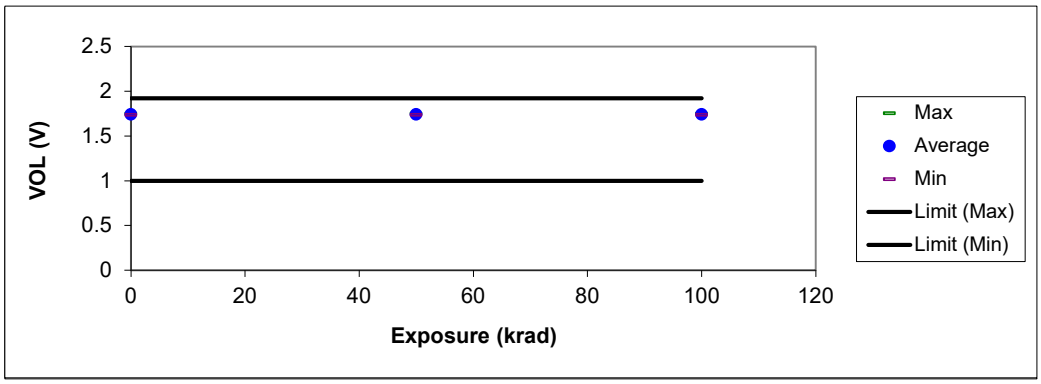


**10126 VOL_SCLK_DIS_MODE1/CLKOUT9 / 3.465 V**

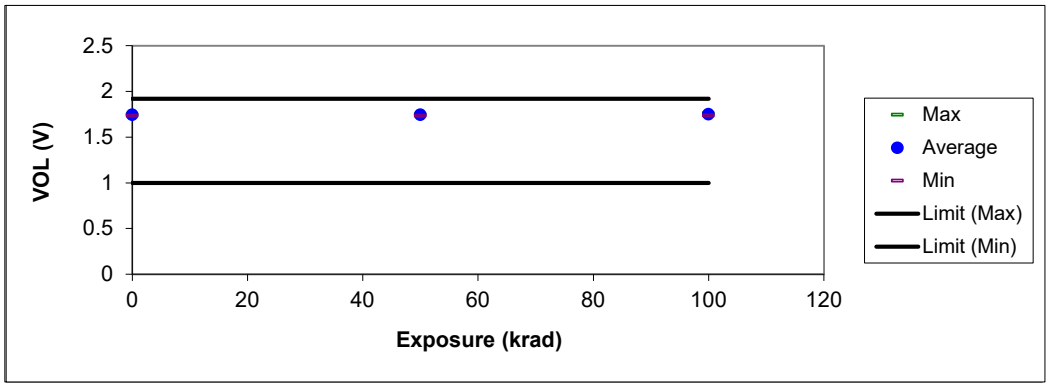
**Low dose rate biased**



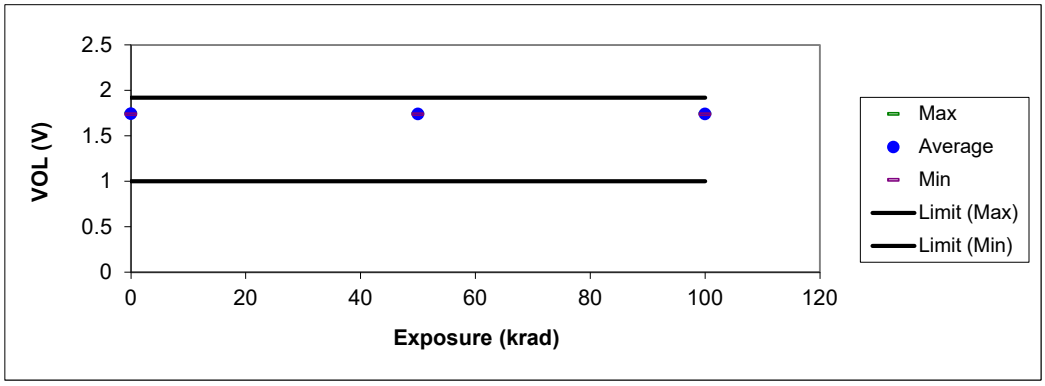

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



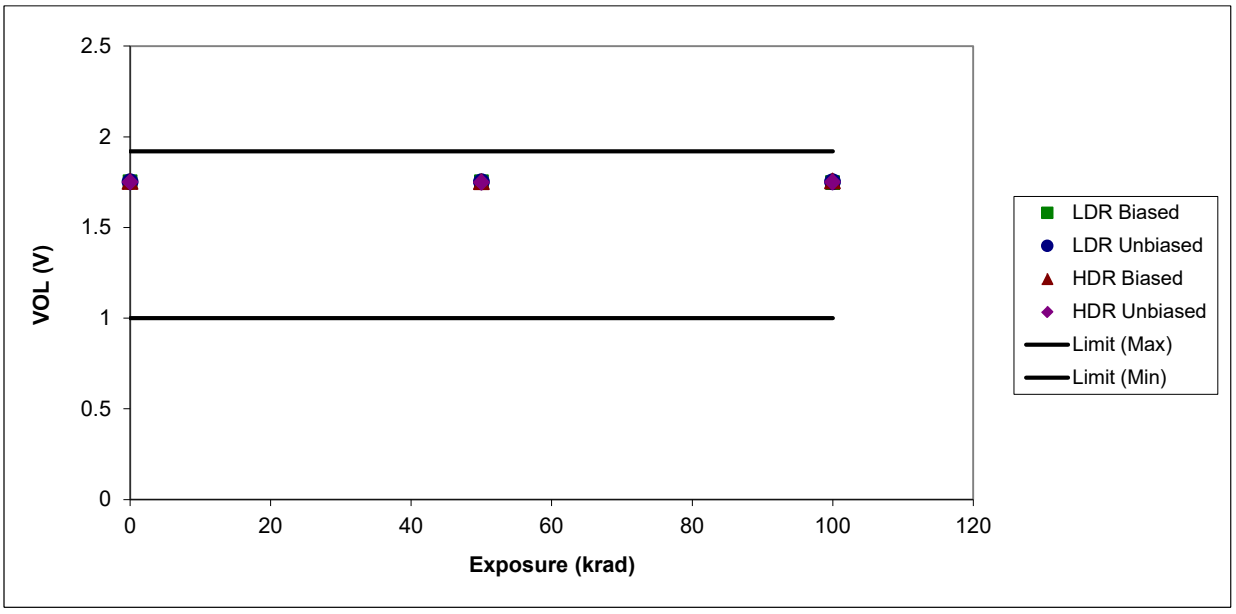
## 10124 VOL_SCLK_DIS_MODE1/CLKOUT5 / 3.465 V

VOL (V)

**LOT: L01200248**

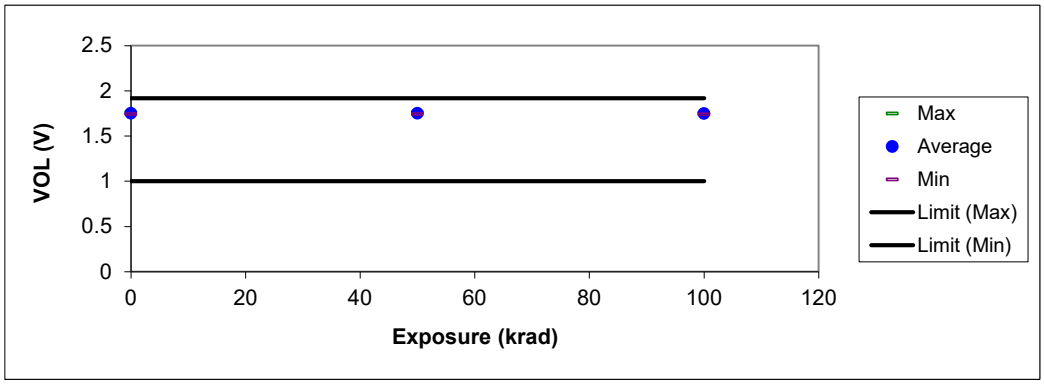
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.75137327 | 1.76220667 | 1.74404931 | 0.00719975 | 1.92 | 1 | | |
| LDR BIASED | 50 | 5 | 1.75159972 | 1.76225936 | 1.74393332 | 0.00735139 | 1.92 | 1 | 0.000042796 | -0.04 |
| LDR BIASED | 100 | 5 | 1.74808617 | 1.75736117 | 1.7405808 | 0.00692495 | 1.92 | 1 | -0.003468514 | -4.55 |
| LDR UNBIAS | 0 | 5 | 1.75207517 | 1.75823951 | 1.74786389 | 0.00467387 | 1.92 | 1 | | |
| LDR UNBIAS | 50 | 5 | 1.7516608 | 1.75767791 | 1.74729311 | 0.00453497 | 1.92 | 1 | -0.000570416 | 0.47 |
| LDR UNBIAS | 100 | 5 | 1.75199141 | 1.75858152 | 1.74729288 | 0.00481847 | 1.92 | 1 | 0.000039101 | -0.03 |
| HDR BIASED | 0 | 5 | 1.75369256 | 1.75946021 | 1.74115026 | 0.00769174 | 1.92 | 1 | | |
| HDR BIASED | 50 | 5 | 1.75231929 | 1.75823951 | 1.74145544 | 0.00736784 | 1.92 | 1 | -0.001220703 | |
| HDR BIASED | 100 | 5 | 1.75573711 | 1.77075124 | 1.74374414 | 0.0106166 | 1.92 | 1 | 0.00076282 | |
| HDR UNBIAS | 0 | 5 | 1.75097656 | 1.75335681 | 1.74786389 | 0.00200864 | 1.92 | 1 | | |
| HDR UNBIAS | 50 | 5 | 1.74945076 | 1.75213623 | 1.74557519 | 0.00244274 | 1.92 | 1 | -0.001220703 | |
| HDR UNBIAS | 100 | 5 | 1.75012209 | 1.75244141 | 1.74633801 | 0.0024542 | 1.92 | 1 | -0.001220584 | |

**Plot of the average readings for each radiation/bias condition**

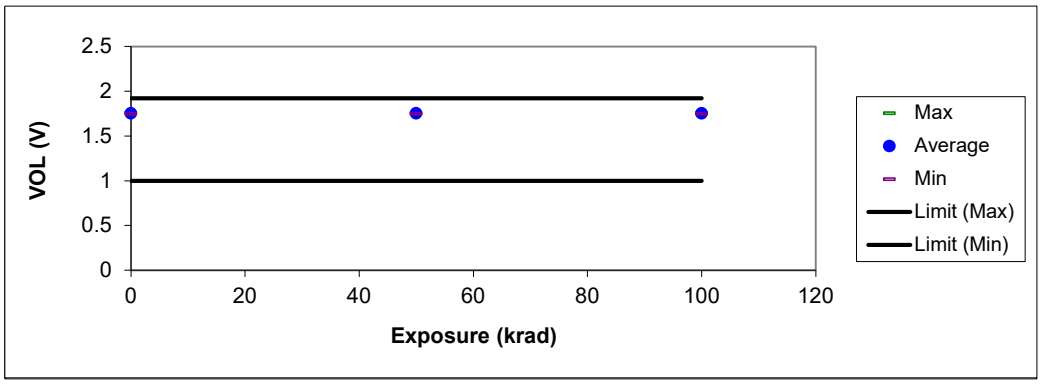


**10124 VOL_SCLK_DIS_MODE1/CLKOUT5 / 3.465 V**

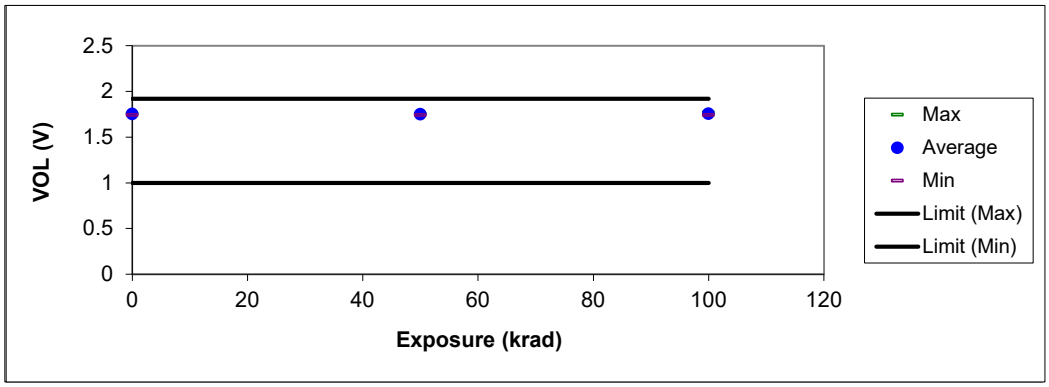
**Low dose rate biased**



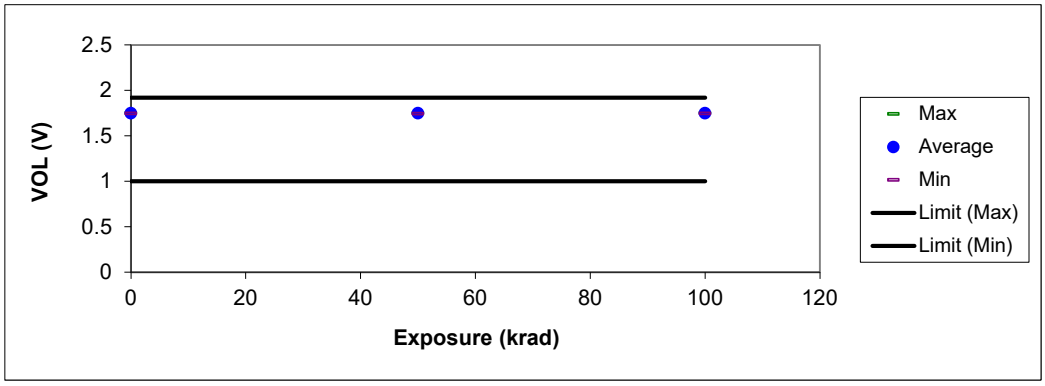

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



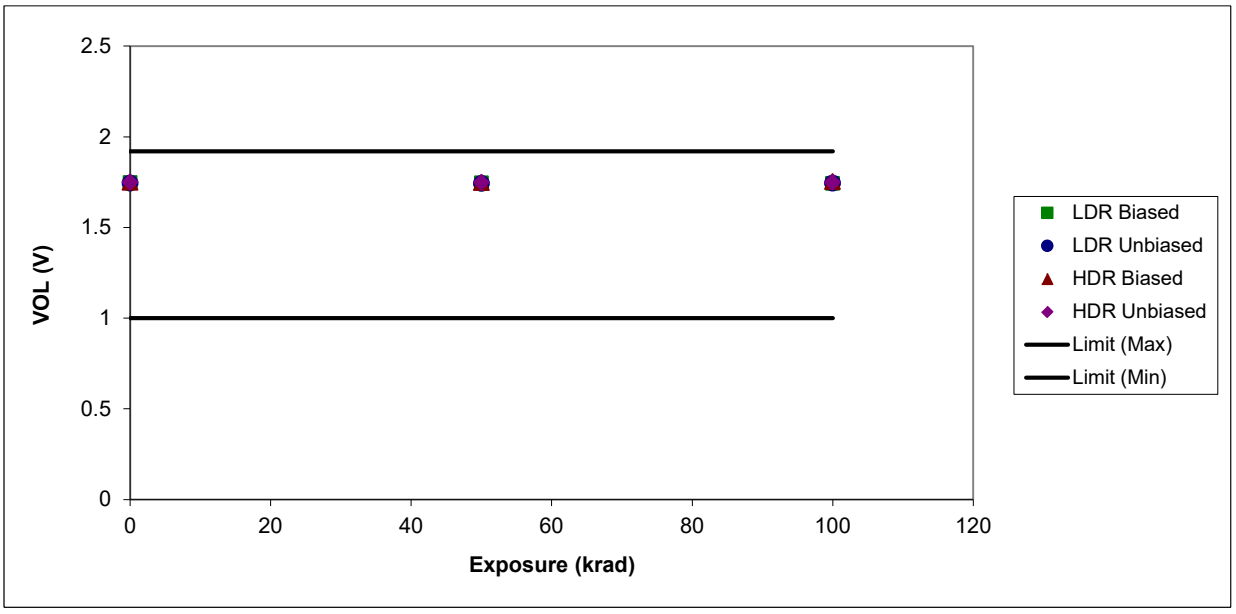
## 10122 VOL_SCLK_DIS_MODE1/CLKOUT1 / 3.465 V

VOL (V)

**LOT: L01200248**

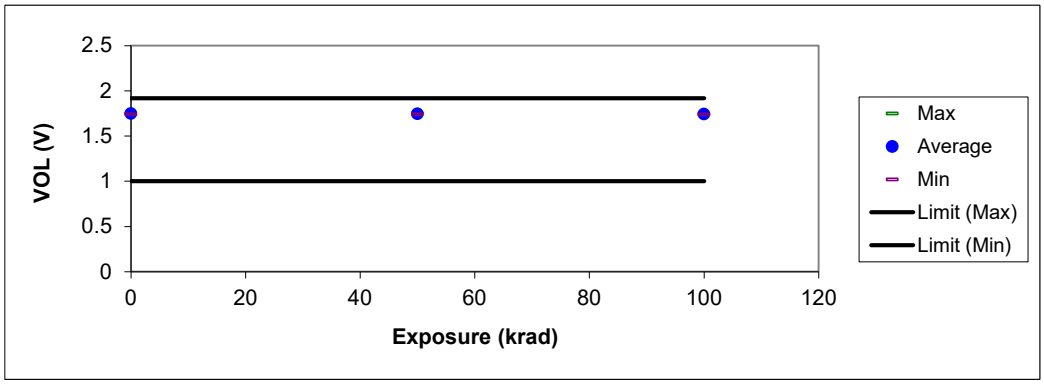
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.74743311 | 1.7513088 | 1.7413907 | 0.00439675 | 1.92 | 1 | | |
| LDR BIASED | 50 | 5 | 1.74663515 | 1.75176597 | 1.73970234 | 0.00494771 | 1.92 | 1 | -0.000918031 | 1.20 |
| LDR BIASED | 100 | 5 | 1.74367614 | 1.74718487 | 1.73757386 | 0.00395912 | 1.92 | 1 | -0.004123926 | -0.77 |
| LDR UNBIAS | 0 | 5 | 1.74477811 | 1.75024068 | 1.73864412 | 0.00516138 | 1.92 | 1 | | |
| LDR UNBIAS | 50 | 5 | 1.74373379 | 1.74917006 | 1.73710644 | 0.00496887 | 1.92 | 1 | -0.001070619 | 1.00 |
| LDR UNBIAS | 100 | 5 | 1.74413378 | 1.74977839 | 1.73742127 | 0.00539692 | 1.92 | 1 | -0.00076735 | 0.56 |
| HDR BIASED | 0 | 5 | 1.74844017 | 1.7575649 | 1.73574495 | 0.00795167 | 1.92 | 1 | | |
| HDR BIASED | 50 | 5 | 1.74813502 | 1.75649679 | 1.73650789 | 0.00740903 | 1.92 | 1 | -0.00076294 | |
| HDR BIASED | 100 | 5 | 1.75283468 | 1.76168466 | 1.74108553 | 0.00780804 | 1.92 | 1 | 0.005340576 | |
| HDR UNBIAS | 0 | 5 | 1.74990504 | 1.75542867 | 1.7439847 | 0.00467994 | 1.92 | 1 | | |
| HDR UNBIAS | 50 | 5 | 1.74892848 | 1.75451314 | 1.742764 | 0.00487153 | 1.92 | 1 | -0.001068116 | |
| HDR UNBIAS | 100 | 5 | 1.74886744 | 1.75405538 | 1.74337435 | 0.00462942 | 1.92 | 1 | -0.001373291 | |

**Plot of the average readings for each radiation/bias condition**

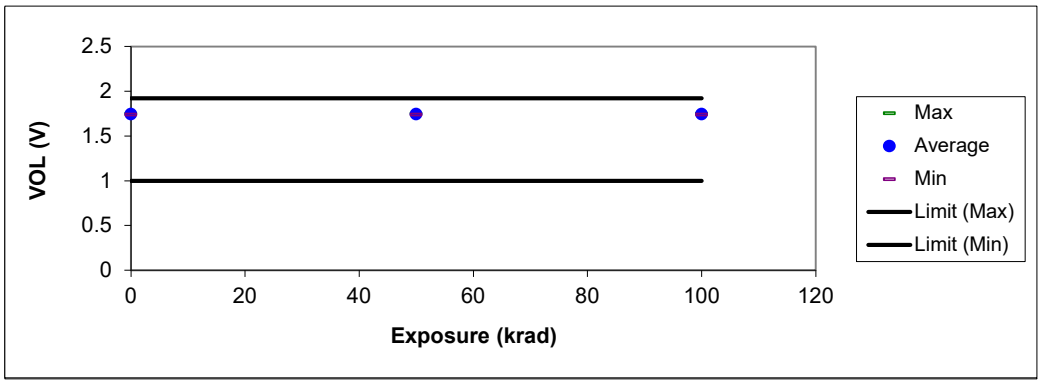


**10122 VOL_SCLK_DIS_MODE1/CLKOUT1 / 3.465 V**

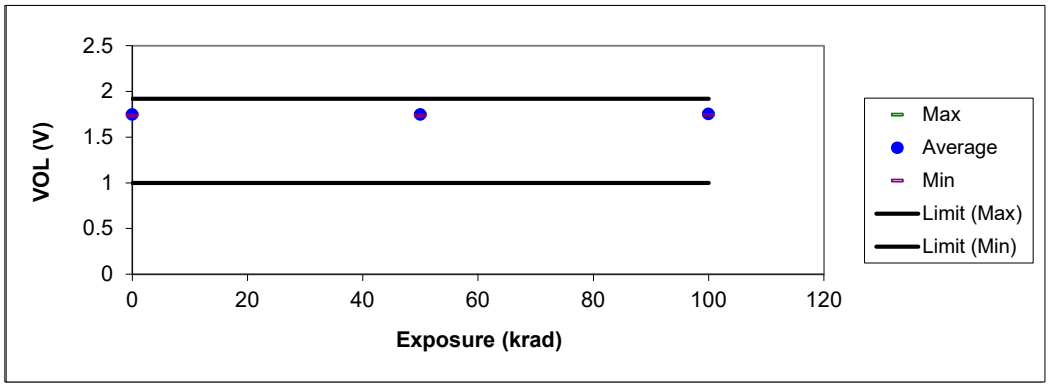
**Low dose rate biased**



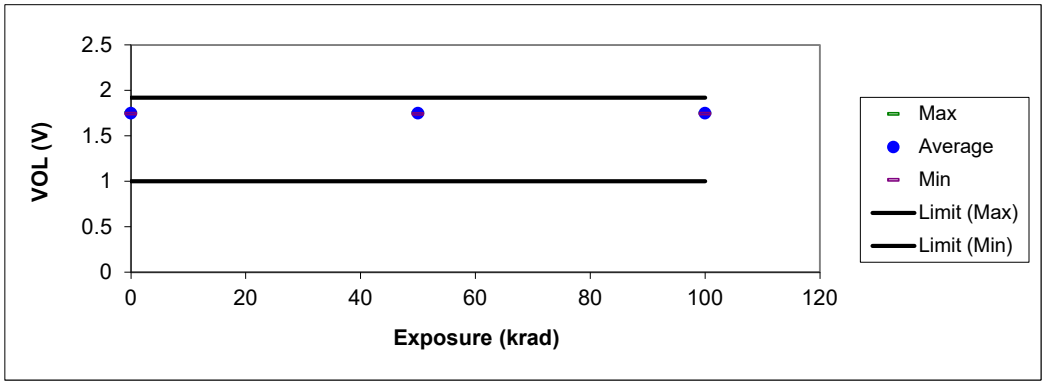

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



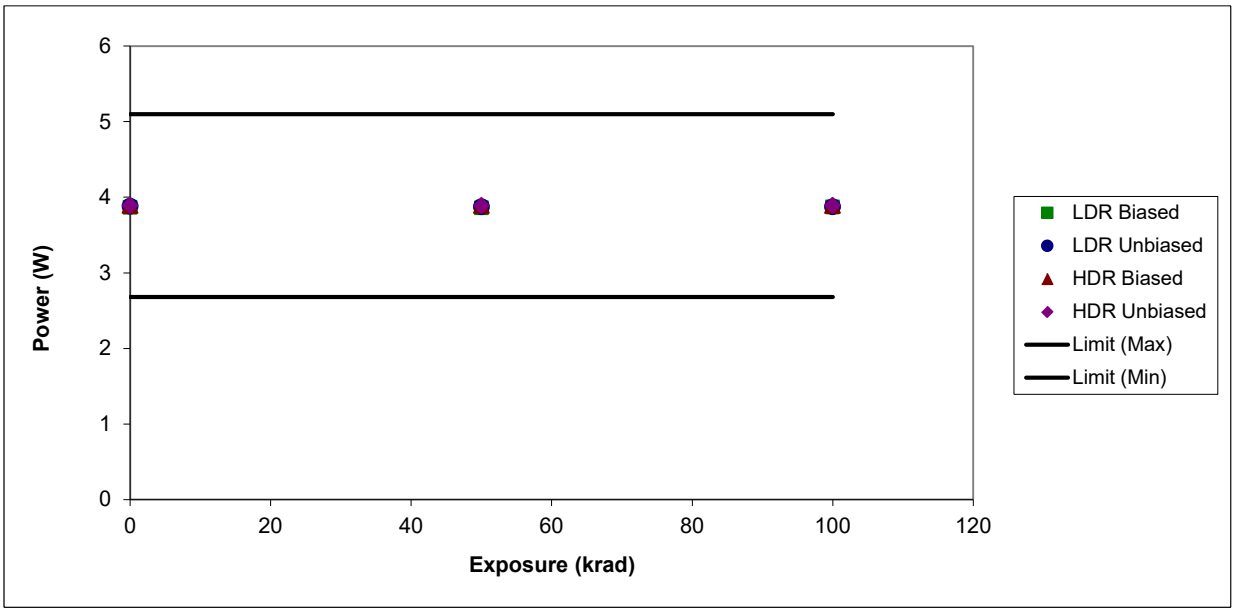
**10121 POWER/JESD204B_WORST/JESD204B_WORST_CASE_/3.465 W**

Power (W)

**LOT: L01200248**

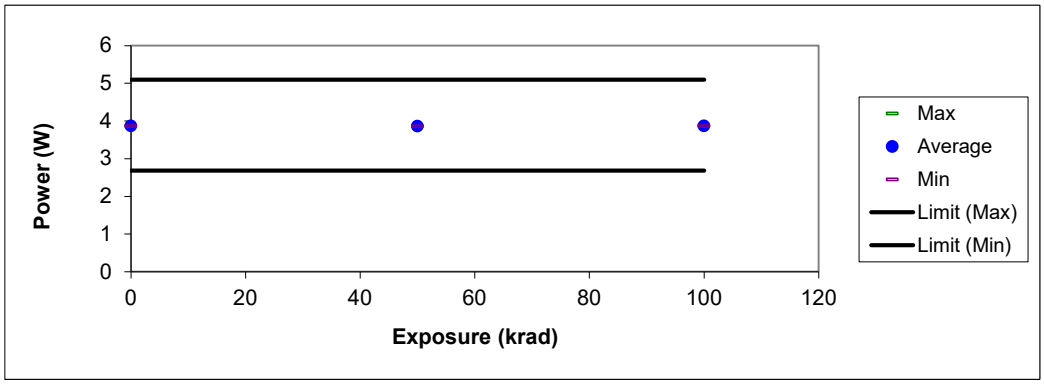
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 3.86889529 | 3.8744812 | 3.85926723 | 0.00603411 | 5.1 | 2.68 | | |
| LDR BIASED | 50 | 5 | 3.86219912 | 3.8686521 | 3.85466743 | 0.00506585 | 5.1 | 2.68 | -0.005829096 | 7.60 |
| LDR BIASED | 100 | 5 | 3.87109747 | 3.87651682 | 3.86277008 | 0.005431 | 5.1 | 2.68 | 0.002524614 | -0.96 |
| LDR UNBIAS | 0 | 5 | 3.88015447 | 3.90012431 | 3.86362934 | 0.01368224 | 5.1 | 2.68 | | |
| LDR UNBIAS | 50 | 5 | 3.87589827 | 3.89794326 | 3.8572979 | 0.01559639 | 5.1 | 2.68 | -0.005419255 | 3.73 |
| LDR UNBIAS | 100 | 5 | 3.87541442 | 3.89855123 | 3.85691452 | 0.01587225 | 5.1 | 2.68 | -0.005815983 | -43.95 |
| HDR BIASED | 0 | 5 | 3.89311337 | 3.91792893 | 3.88377356 | 0.01428048 | 5.1 | 2.68 | | |
| HDR BIASED | 50 | 5 | 3.892241 | 3.91716218 | 3.88072014 | 0.01438056 | 5.1 | 2.68 | -0.000766754 | |
| HDR BIASED | 100 | 5 | 3.89105396 | 3.91531181 | 3.88042927 | 0.01398453 | 5.1 | 2.68 | -0.002617121 | |
| HDR UNBIAS | 0 | 5 | 3.89174929 | 3.90940332 | 3.86616707 | 0.02063803 | 5.1 | 2.68 | | |
| HDR UNBIAS | 50 | 5 | 3.88984327 | 3.90838551 | 3.86471319 | 0.02044106 | 5.1 | 2.68 | -0.001453876 | |
| HDR UNBIAS | 100 | 5 | 3.89086103 | 3.90973377 | 3.86629939 | 0.0207508 | 5.1 | 2.68 | 0.000132323 | |

**Plot of the average readings for each radiation/bias condition**

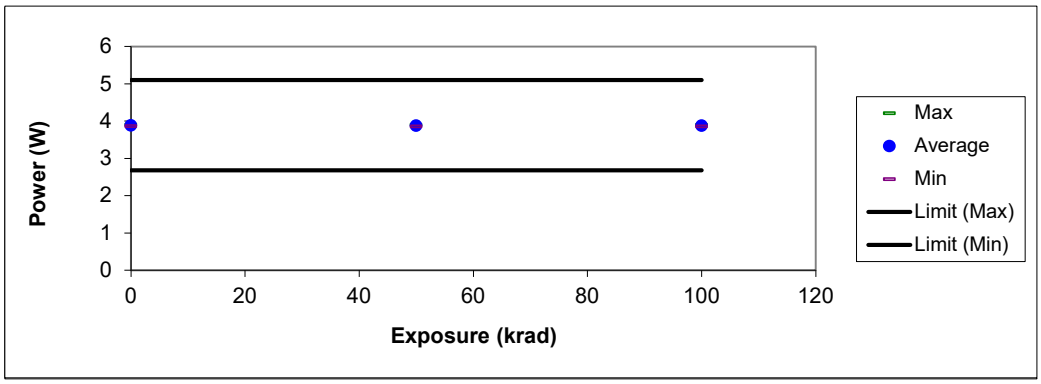


**10121 POWER/JESD204B_WORST/JESD204B_WORST_CASE_/3.465 W**

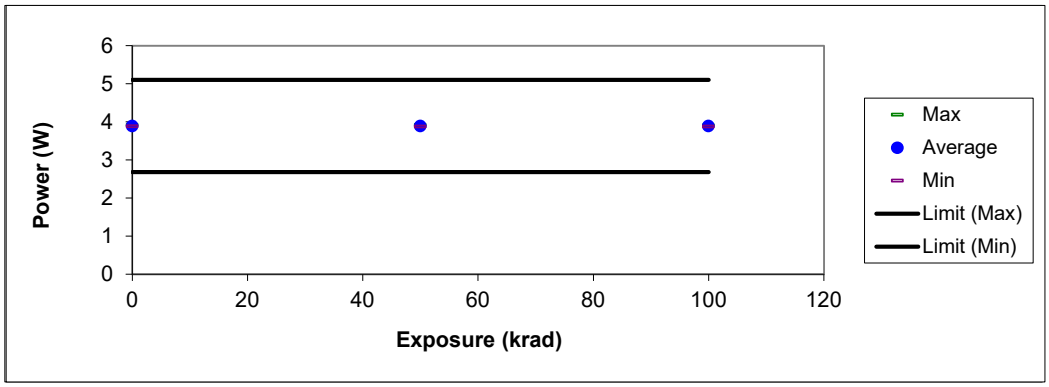
**Low dose rate biased**



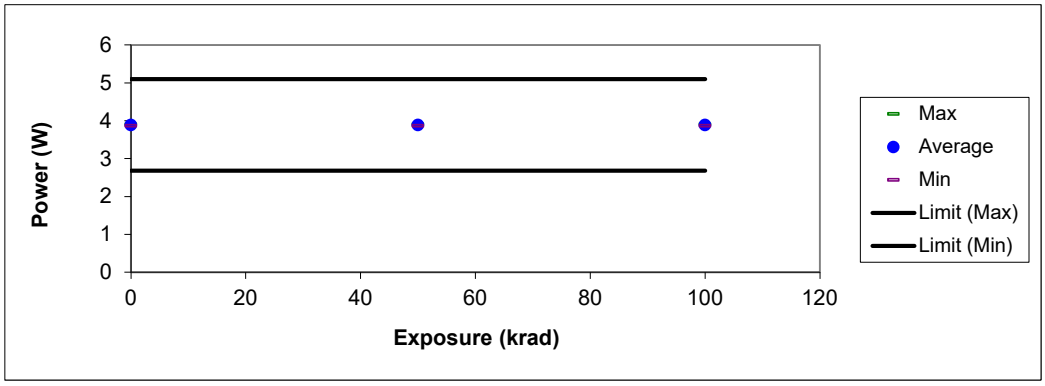

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



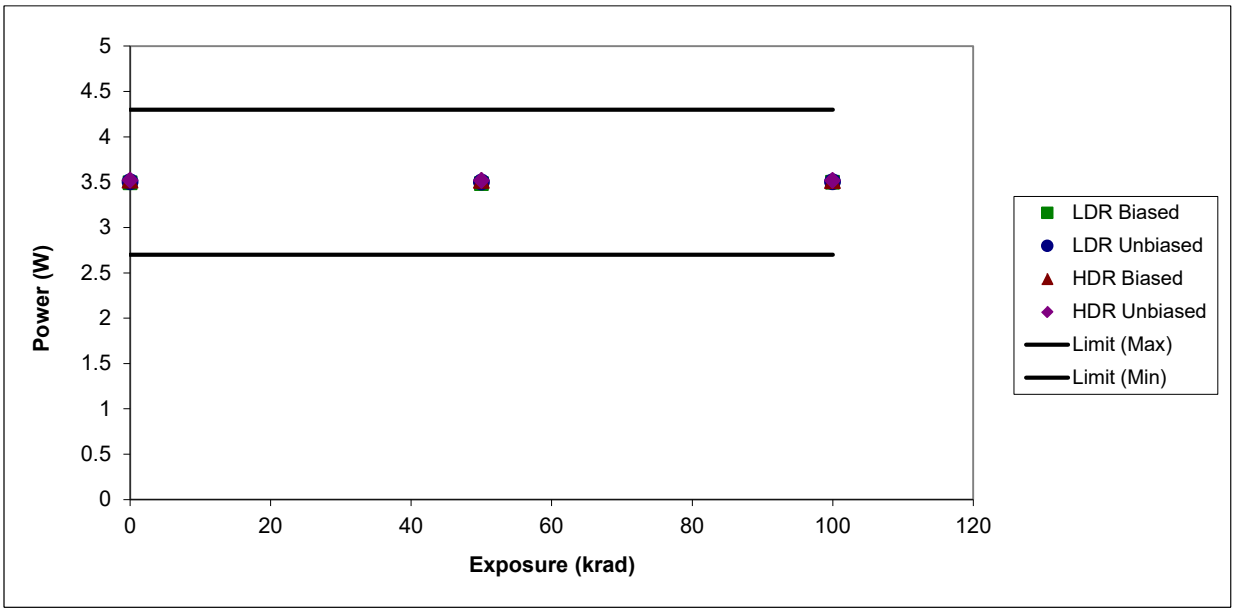
## 10106 POWER/HSDS8M/3.465 W

Power (W)

**LOT: L01200248**

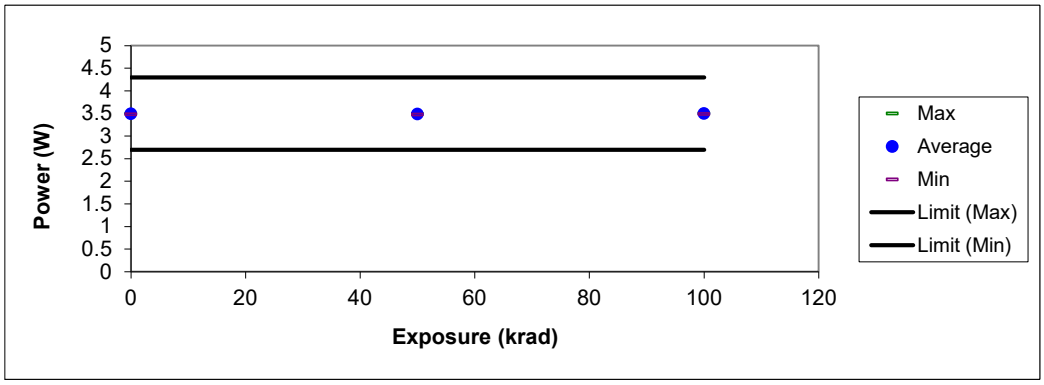
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 3.49126158 | 3.49805832 | 3.47854853 | 0.00793265 | 4.3 | 2.7 | | |
| LDR BIASED | 50 | 5 | 3.48455205 | 3.49113202 | 3.47270608 | 0.00701502 | 4.3 | 2.7 | -0.005842448 | 15.24 |
| LDR BIASED | 100 | 5 | 3.49801593 | 3.50327945 | 3.48729873 | 0.00643026 | 4.3 | 2.7 | 0.007428408 | -2.63 |
| LDR UNBIAS | 0 | 5 | 3.50425224 | 3.5286448 | 3.48365068 | 0.01669871 | 4.3 | 2.7 | | |
| LDR UNBIAS | 50 | 5 | 3.50075741 | 3.52721715 | 3.47755718 | 0.01886471 | 4.3 | 2.7 | -0.003621816 | 2.23 |
| LDR UNBIAS | 100 | 5 | 3.50341158 | 3.53159237 | 3.47975135 | 0.01958307 | 4.3 | 2.7 | -0.00239253 | -12.06 |
| HDR BIASED | 0 | 5 | 3.51985745 | 3.55246377 | 3.50515628 | 0.01880437 | 4.3 | 2.7 | | |
| HDR BIASED | 50 | 5 | 3.51947408 | 3.55371928 | 3.50215578 | 0.01981305 | 4.3 | 2.7 | -0.000383378 | |
| HDR BIASED | 100 | 5 | 3.51671419 | 3.54933095 | 3.50252605 | 0.01875987 | 4.3 | 2.7 | -0.002828598 | |
| HDR UNBIAS | 0 | 5 | 3.51985483 | 3.54574895 | 3.48764253 | 0.02546451 | 4.3 | 2.7 | | |
| HDR UNBIAS | 50 | 5 | 3.51784563 | 3.54412317 | 3.48621488 | 0.02506744 | 4.3 | 2.7 | -0.001625776 | |
| HDR UNBIAS | 100 | 5 | 3.51959844 | 3.54594731 | 3.48794651 | 0.02581174 | 4.3 | 2.7 | 0.000198364 | |

**Plot of the average readings for each radiation/bias condition**

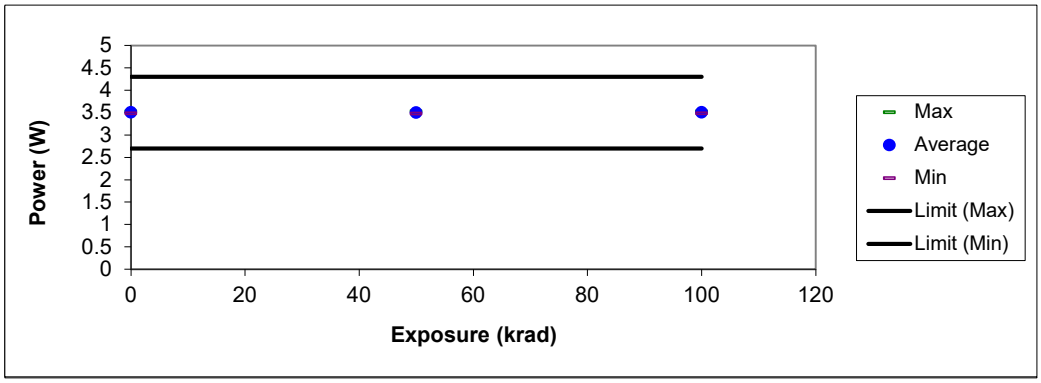


**10106 POWER/HSDS8M/3.465 W**

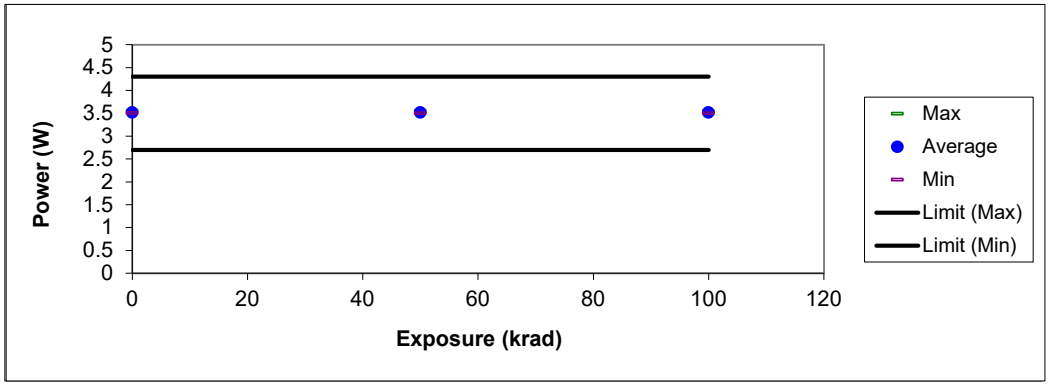
**Low dose rate biased**



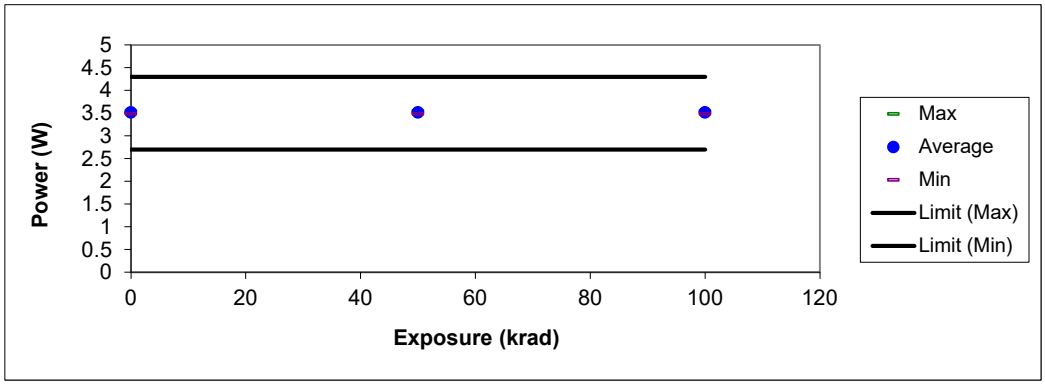

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



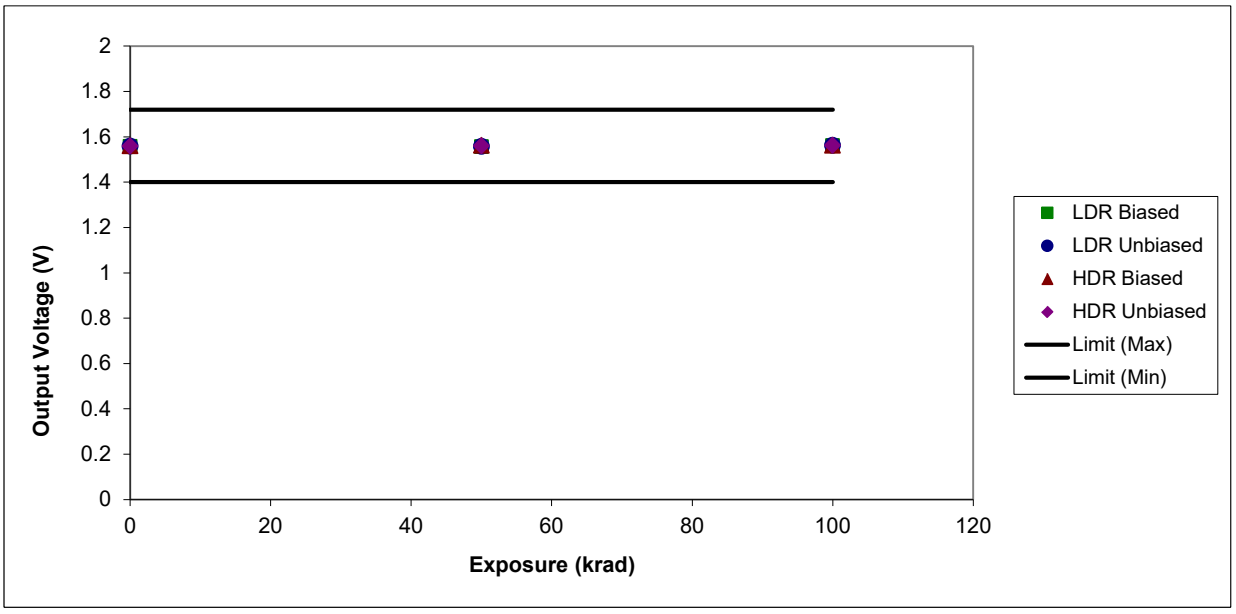
## 10091 VCOVREF/LDO_BYP2/3.465 V

Output Voltage (V)

**LOT: L01200248**

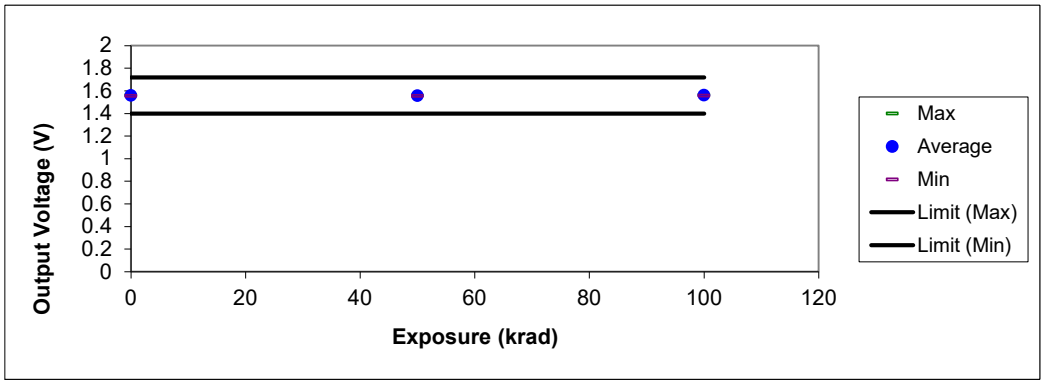
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 1.55822802 | 1.56092882 | 1.55505419 | 0.00230377 | 1.72 | 1.4 | | |
| LDR BIASED | 50 | 5 | 1.55725143 | 1.56024218 | 1.55368078 | 0.0028452 | 1.72 | 1.4 | -0.001296997 | -0.85 |
| LDR BIASED | 100 | 5 | 1.56153917 | 1.56428575 | 1.55787706 | 0.00270386 | 1.72 | 1.4 | 0.003356933 | 1.26 |
| LDR UNBIAS | 0 | 5 | 1.55864 | 1.56146288 | 1.55703783 | 0.00182469 | 1.72 | 1.4 | | |
| LDR UNBIAS | 50 | 5 | 1.5581975 | 1.56176805 | 1.55520678 | 0.00272071 | 1.72 | 1.4 | -0.000915528 | -1.50 |
| LDR UNBIAS | 100 | 5 | 1.56242418 | 1.56436205 | 1.56100512 | 0.00122142 | 1.72 | 1.4 | 0.003967286 | 1.73 |
| HDR BIASED | 0 | 5 | 1.55999804 | 1.56176805 | 1.55787706 | 0.00172414 | 1.72 | 1.4 | | |
| HDR BIASED | 50 | 5 | 1.56198168 | 1.56512499 | 1.55940294 | 0.00274361 | 1.72 | 1.4 | 0.001525879 | |
| HDR BIASED | 100 | 5 | 1.56269884 | 1.56581163 | 1.56054735 | 0.00229225 | 1.72 | 1.4 | 0.002670288 | |
| HDR UNBIAS | 0 | 5 | 1.55944872 | 1.56489611 | 1.5561223 | 0.00348063 | 1.72 | 1.4 | | |
| HDR UNBIAS | 50 | 5 | 1.55990648 | 1.56344652 | 1.55673266 | 0.00303003 | 1.72 | 1.4 | 0.000610352 | |
| HDR UNBIAS | 100 | 5 | 1.56210375 | 1.56581163 | 1.55841112 | 0.00349897 | 1.72 | 1.4 | 0.002288818 | |

**Plot of the average readings for each radiation/bias condition**

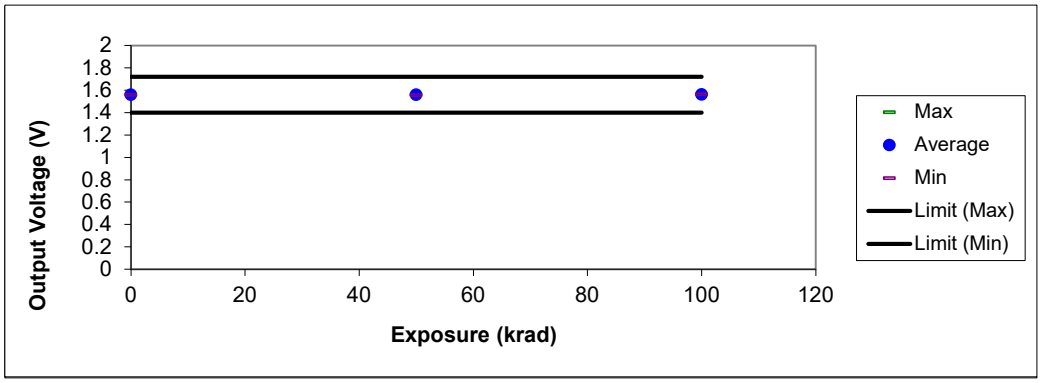


**10091 VCOVREF/LDO_BYP2/3.465 V**

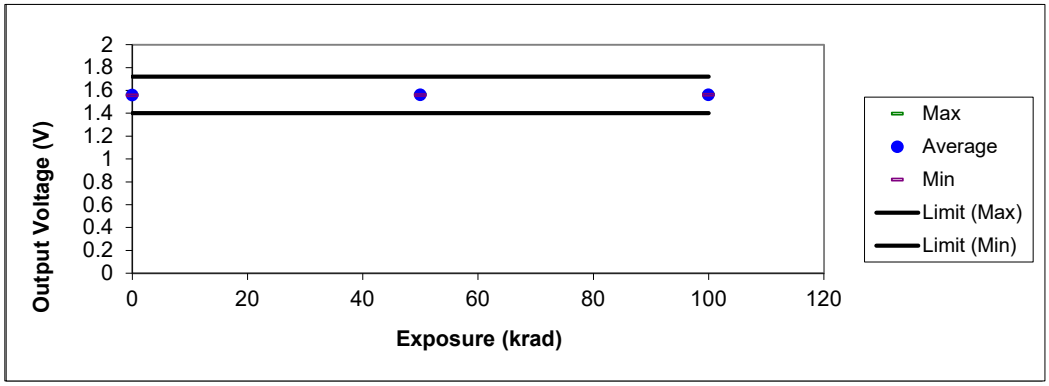
**Low dose rate biased**



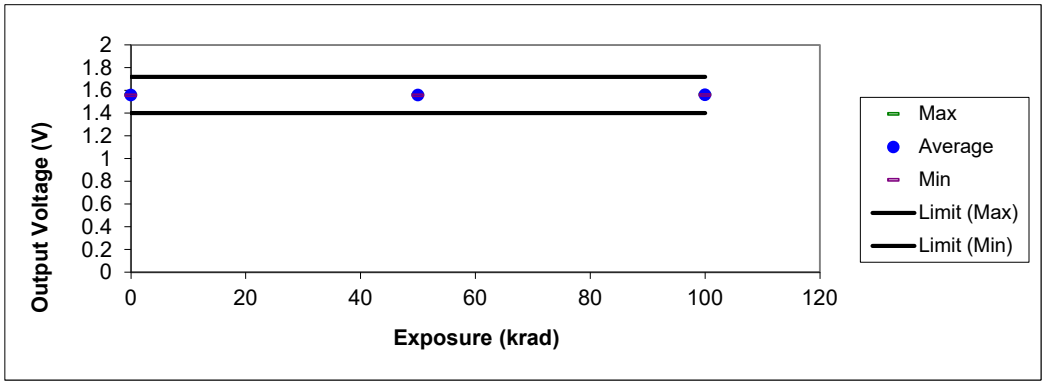

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



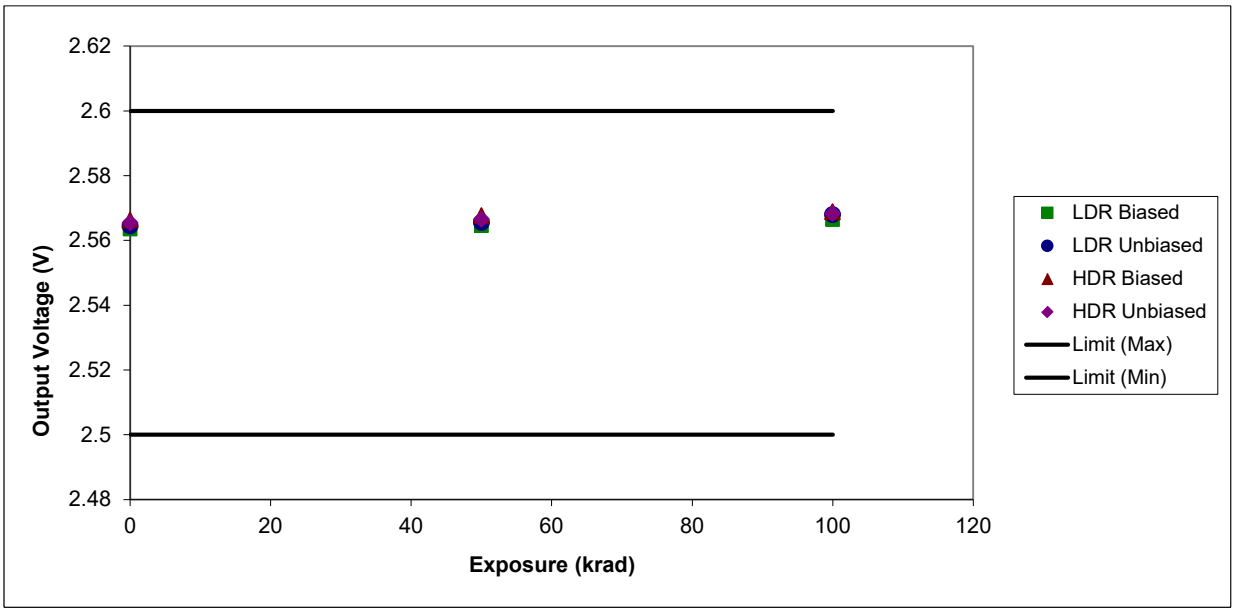
## 10090 VCOVREG/LDO_BYP1/3.465 V

Output Voltage (V)

**LOT: L01200248**

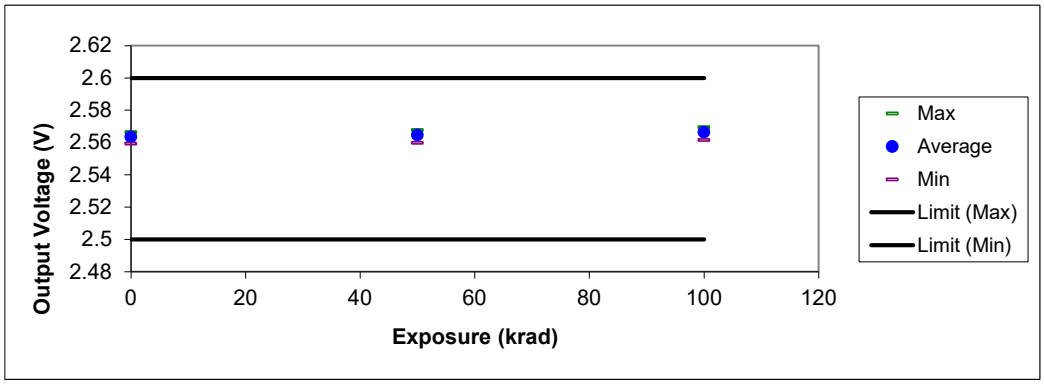
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 2.56349993 | 2.56633806 | 2.55924272 | 0.00284823 | 2.6 | 2.5 | | |
| LDR BIASED | 50 | 5 | 2.56453753 | 2.56763506 | 2.55977678 | 0.00326668 | 2.6 | 2.5 | 0.000839234 | 0.61 |
| LDR BIASED | 100 | 5 | 2.56642962 | 2.56954241 | 2.56145525 | 0.00336533 | 2.6 | 2.5 | 0.003051758 | 1.21 |
| LDR UNBIAS | 0 | 5 | 2.56447649 | 2.5683217 | 2.56282854 | 0.00228156 | 2.6 | 2.5 | | |
| LDR UNBIAS | 50 | 5 | 2.56552935 | 2.56870318 | 2.56351519 | 0.00200161 | 2.6 | 2.5 | 0.001220703 | 1.23 |
| LDR UNBIAS | 100 | 5 | 2.56798601 | 2.57114458 | 2.56656694 | 0.00180834 | 2.6 | 2.5 | 0.003738403 | 1.40 |
| HDR BIASED | 0 | 5 | 2.56624651 | 2.56916094 | 2.56382036 | 0.00239714 | 2.6 | 2.5 | | |
| HDR BIASED | 50 | 5 | 2.56765032 | 2.57114458 | 2.56496477 | 0.00259478 | 2.6 | 2.5 | 0.001373291 | |
| HDR BIASED | 100 | 5 | 2.5688405 | 2.57236528 | 2.56633806 | 0.00247185 | 2.6 | 2.5 | 0.0025177 | |
| HDR UNBIAS | 0 | 5 | 2.56537676 | 2.57038164 | 2.56183672 | 0.00353044 | 2.6 | 2.5 | | |
| HDR UNBIAS | 50 | 5 | 2.56653643 | 2.5709157 | 2.56282854 | 0.00350396 | 2.6 | 2.5 | 0.000991821 | |
| HDR UNBIAS | 100 | 5 | 2.56829119 | 2.57236528 | 2.56450701 | 0.00370501 | 2.6 | 2.5 | 0.002670288 | |

**Plot of the average readings for each radiation/bias condition**

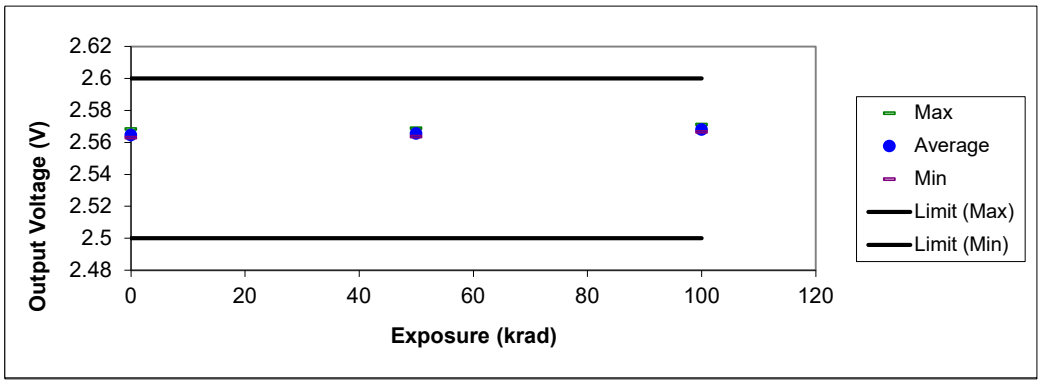


**10090 VCOVREG/LDO_BYP1/3.465 V**

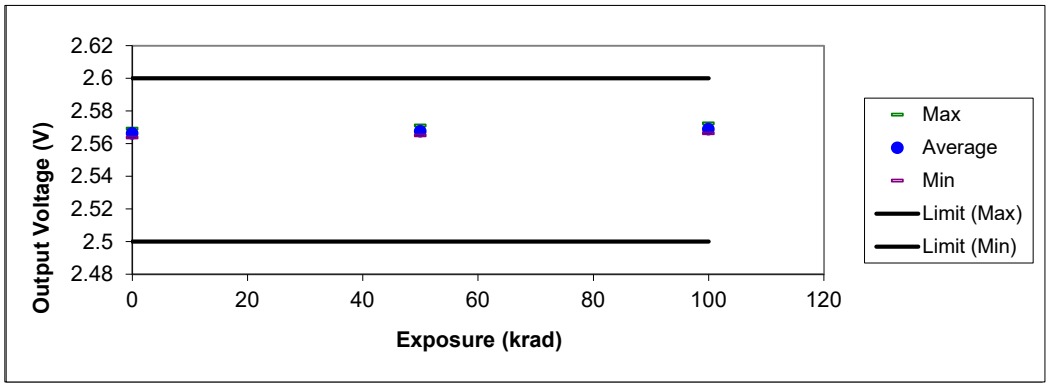
**Low dose rate biased**



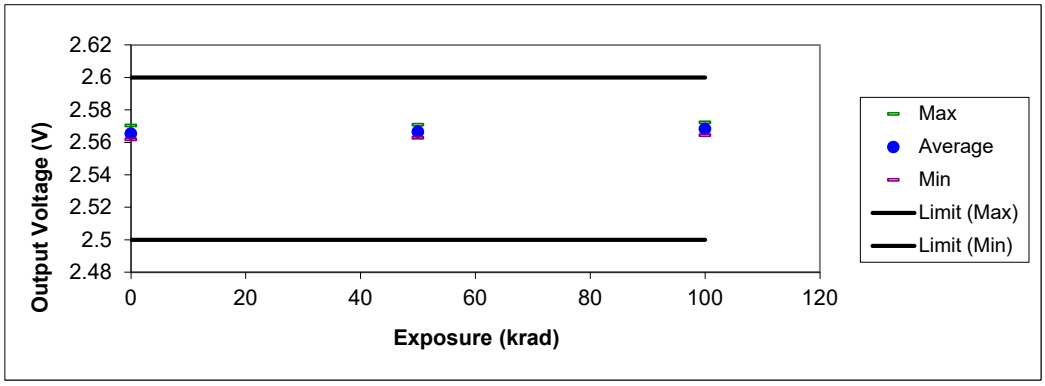

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



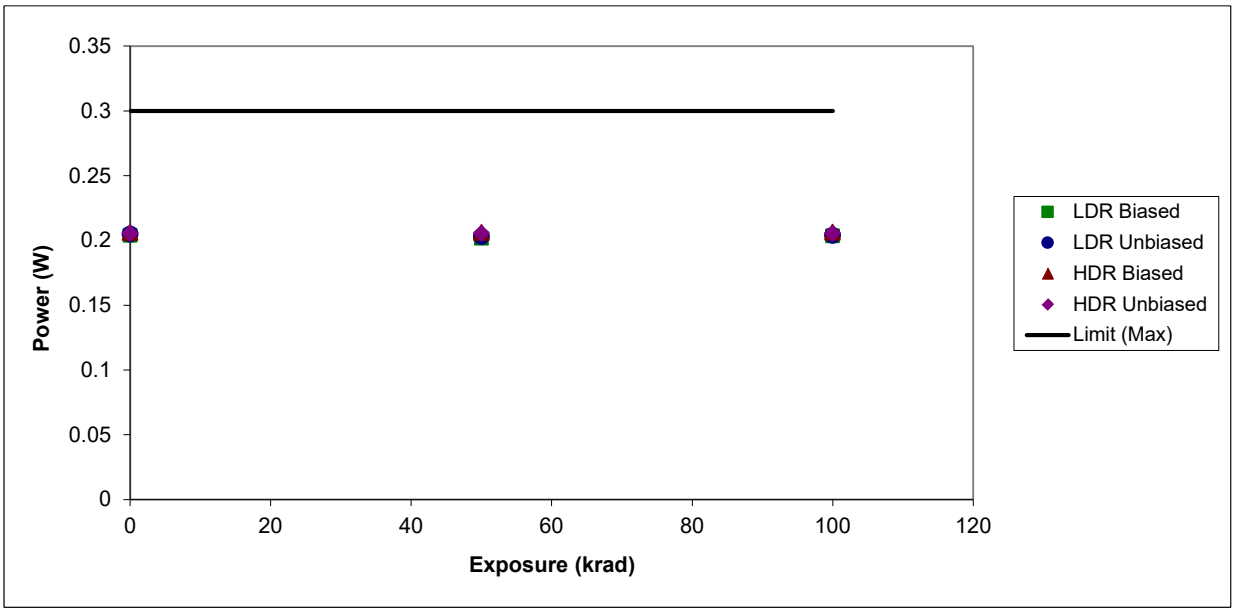
## 10013 POWER/RESET/3.465 W

Power (W)

**LOT: L01200248**

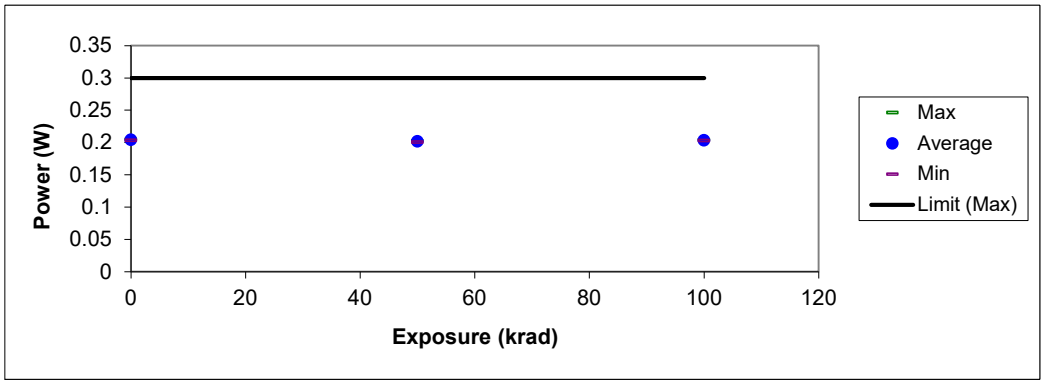
| TEST_BIAS | DOSE(k) | OBS | AVG | MAX | MIN | SIGMA | UTL | LTL | Delta Median (from 0 rad) | Delta Ratio (to HDR) |
|---|---|---|---|---|---|---|---|---|---|---|
| LDR BIASED | 0 | 5 | 0.20403082 | 0.2048662 | 0.203399 | 0.00067272 | 0.3 | | | |
| LDR BIASED | 50 | 5 | 0.20171767 | 0.20257948 | 0.20059678 | 0.00072941 | 0.3 | | -0.002062008 | 14.18 |
| LDR BIASED | 100 | 5 | 0.2035444 | 0.2040599 | 0.20290993 | 0.00057608 | 0.3 | | -0.000581592 | -4.40 |
| LDR UNBIAS | 0 | 5 | 0.20490057 | 0.20814426 | 0.20260592 | 0.00215572 | 0.3 | | | |
| LDR UNBIAS | 50 | 5 | 0.20289143 | 0.20653167 | 0.20057035 | 0.00244884 | 0.3 | | -0.002035573 | -77.00 |
| LDR UNBIAS | 100 | 5 | 0.20402024 | 0.20724544 | 0.20152204 | 0.00220636 | 0.3 | | -0.000898823 | -5.67 |
| HDR BIASED | 0 | 5 | 0.206188 | 0.2101402 | 0.20391449 | 0.00234861 | 0.3 | | | |
| HDR BIASED | 50 | 5 | 0.20612455 | 0.20995514 | 0.2037691 | 0.00229121 | 0.3 | | -0.00014539 | |
| HDR BIASED | 100 | 5 | 0.20638892 | 0.20974365 | 0.20314786 | 0.00234543 | 0.3 | | 0.000132188 | |
| HDR UNBIAS | 0 | 5 | 0.20559583 | 0.20756267 | 0.20287028 | 0.00240087 | 0.3 | | | |
| HDR UNBIAS | 50 | 5 | 0.20549273 | 0.20806496 | 0.20205076 | 0.00249216 | 0.3 | | 0.000026435 | |
| HDR UNBIAS | 100 | 5 | 0.2056302 | 0.20828967 | 0.20276453 | 0.00247498 | 0.3 | | 0.000158623 | |

**Plot of the average readings for each radiation/bias condition**

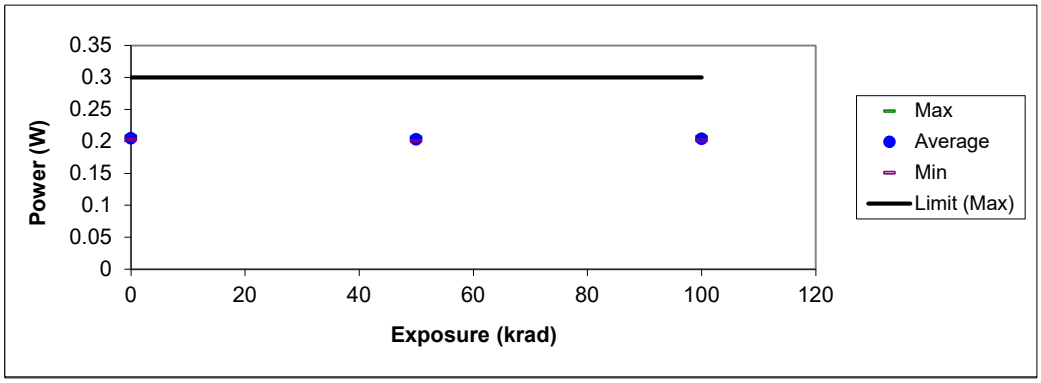


**10013 POWER/RESET/3.465 W**

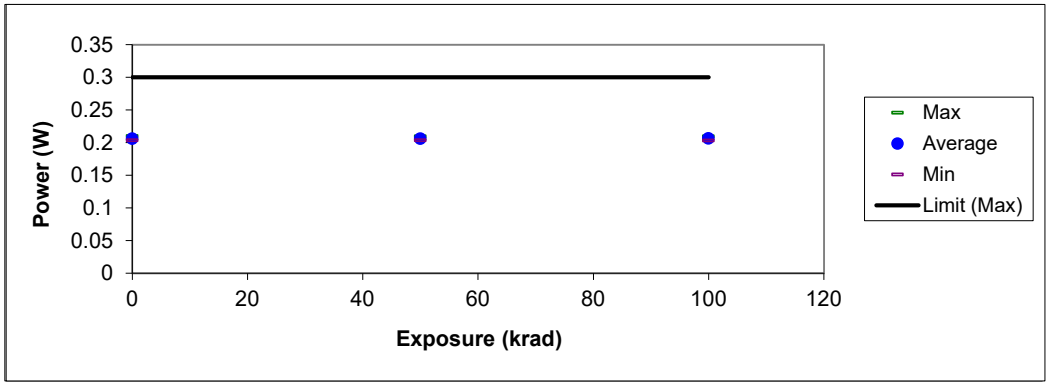
**Low dose rate biased**



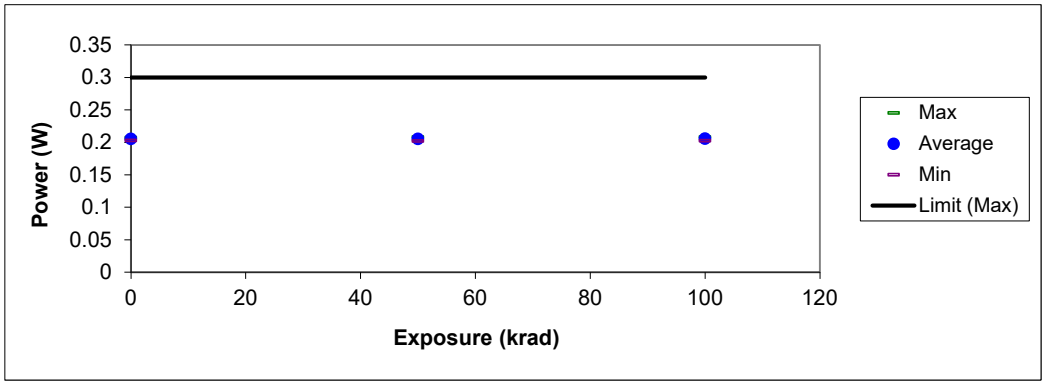

**Low dose rate unbiased**




**High dose rate biased**




**High dose rate unbiased**



# B MAAT Data

| Parameter | Lower Limit | Upper Limit | Unit 5 | Unit 15 |
|---|---|---|---|---|
| BIN BIN VALUE | | | 1 | 1 |
| 10081 VTUNE_ATP/RESET/3.465/ (V) | | 1.71 | 1.65077901 | 1.65535676 |
| 10013 POWER/RESET/3.465 (W) | 0.100 | 0.300 | 0.206492022 | 0.203914493 |
| 11162 POWER/VCO0/3.465 (mW) | 720.000 | 1691.000 | 1180.89856 | 1178.651489 |
| 10090 VCOVREG/LDO_BYP1/3.465 (V) | 2.500 | 2.600 | 2.568245411 | 2.566032887 |
| 10091 VCOVREF/LDO_BYP2/3.465 (V) | 1.400 | 1.720 | 1.561462879 | 1.561844349 |
| 10106 POWER/HSDS8M/3.465 (W) | 2.700 | 4.300 | 3.522736311 | 3.520039797 |
| 10121 POWER/JESD204B_WORST/JESD204B_WORST_CASE_/3.465 (W) | 2.680 | 5.100 | 3.894889832 | 3.892418146 |
| 10122 VOL_SCLK_DIS_MODE1/CLKOUT1 / 3.465 (V) | 1.000 | 1.920 | 1.74901998 | 1.758175254 |
| 10124 VOL_SCLK_DIS_MODE1/CLKOUT5 / 3.465 (V) | 1.000 | 1.920 | 1.751525879 | 1.738861442 |
| 10126 VOL_SCLK_DIS_MODE1/CLKOUT9 / 3.465 (V) | 1.000 | 1.920 | 1.73692143 | 1.730813265 |
| 10128 VOL_SCLK_DIS_MODE1/CLKOUT13 / 3.465 (V) | 1.000 | 1.920 | 1.745030999 | 1.751745582 |
| 10135 VOH_SCLK_DIS_MODE1/CLKOUT13B / 3.465 (V) | 2.200 | 2.470 | 2.407327652 | 2.408090591 |
| 11352 VICM/CMOS/CLKIN0P/3.465 (V) | 1.230 | 1.600 | 1.376755118 | 1.382706046 |
| 11353 VICM/CMOS/CLKIN0B/3.465 (V) | 1.280 | 1.600 | 1.433835506 | 1.439328432 |
| 11354 VICM/CMOS/CLKIN1P/3.465 (V) | 0.800 | 1.600 | 0.926993787 | 0.930045426 |
| 11355 VICM/CMOS/CLKIN1B/3.465 (V) | 0.840 | 1.600 | 0.96403116 | 0.969676733 |
| 11358 OFFSET/CMOS/CLKIN0/3.465 (mV) | 47.280 | 65.450 | 57.08038712 | 56.62238693 |
| 11359 OFFSET/CMOS/CLKIN1/3.465 (mV) | 150.000 | 400.000 | 37.03737259 | 39.6313057 |
| 11361 IIH/CMOS/CLKIN0P/2.4/3.465 (uA) | 35.170 | 70.290 | 52.18873596 | 53.63757706 |
| 11362 IIH/CMOS/CLKIN1P/2.4/3.465 (uA) | 55.670 | 92.220 | 73.29129791 | 74.81533051 |
| 11364 IIL/CMOS/CLKIN0B/0.4/3.465 (uA) | -69.700 | -36.900 | -51.92995453 | -53.98854828 |
| 11365 IIL/CMOS/CLKIN1B/0.4/3.465 (uA) | -62.680 | -31.070 | -45.7165947 | -47.5461731 |
| 11367 IIH/CMOS/CLKIN0B/2.4/3.465 (uA) | 33.490 | 64.990 | 48.48371506 | 50.00859451 |
| 11368 IIH/CMOS/CLKIN1B/2.4/3.465 (uA) | 55.300 | 87.700 | 70.53787994 | 72.06252289 |
| 11370 IIL/CMOS/CLKIN0P/0.4/3.465 (uA) | -66.500 | -35.100 | -49.53507233 | -51.2889328 |
| 11371 IIL/CMOS/CLKIN1P/0.4/3.465 (uA) | -61.000 | -28.500 | -43.45050049 | -45.27935028 |
| 10149 POWER/SCK_DIS_MODE1/JESD204B_STEADY_OUTPUT_LOW_/3.465 (W) | 2.030 | 5.080 | 3.561636925 | 3.556653738 |
| 10177 POWER/SCK_DIS_MODE2/JESD204B_STEADY_OUTPUT_NOMINAL_VCM_/3.465 (W) | 2.280 | 3.670 | 2.981590271 | 2.976408958 |
| 10194 ICCVCO/LVDS/3.465 (mA) | 50.000 | 150.000 | 111.636055 | 112.4905548 |
| 10195 ICCCG0/LVDS/3.465 (mA) | 10.000 | 300.000 | 149.127182 | 148.6961212 |
| 10196 ICCCG1/LVDS/3.465 (mA) | 10.000 | 150.000 | 74.80106354 | 75.00705719 |
| 10197 ICCCG2/LVDS/3.465 (mA) | 10.000 | 300.000 | 149.6917725 | 148.4443512 |
| 10198 ICCCG3/LVDS/3.465 (mA) | 10.000 | 300.000 | 147.2236328 | 146.6094666 |
| 10199 ICC_DIG/LVDS/3.465 (mA) | -1.000 | 5.000 | 0.593189955 | 0.673299193 |
| 10200 ICC_CP2/LVDS/3.465 (mA) | 5.000 | 30.000 | 19.35019875 | 19.87663078 |
| 10201 ICC_CLKIN/LVDS/3.465 (mA) | 5.000 | 50.000 | 28.35295296 | 28.75349999 |
| 10202 ICC_OSCIN/LVDS/3.465 (mA) | 5.000 | 60.000 | 37.12300873 | 37.17259979 |
| 10203 ICC_OSCOUT/LVDS/3.465 (mA) | 5.000 | 60.000 | 34.8341713 | 34.78839493 |
| 10204 ICC_PLL2N/LVDS/3.465 (mA) | 5.000 | 40.000 | 22.72623253 | 22.65375328 |
| 10205 ICC_DIV/LVDS/3.465 (mA) | 5.000 | 60.000 | 13.18178654 | 13.19323063 |
| 10206 ICCTOTAL/LVDS/3.465 (mA) | 430.000 | 1500.000 | 788.6412964 | 788.3590088 |
| 10207 POWER/LVDS/3.465 (W) | 1.270 | 4.150 | 2.732641935 | 2.731663942 |
| 10222 POWER/LVPECL16/3.465 (mW) | 2971.000 | 4229.000 | 3598.95166 | 3595.607178 |
| 11413 VOH/LVDS/CLKOUT6/3.465 (V) | 1.250 | | 1.43214643 | 1.428026676 |
| 11427 VOL/LVDS/CLKOUT5B/3.465 (V) | | 1.350 | 1.083492756 | 1.078000069 |
| 11428 VOL/LVDS/CLKOUT6B/3.465 (V) | | 1.350 | 1.085054994 | 1.078494072 |
| 11442 VOH/LVDS/CLKOUT5B/3.465 (V) | 1.250 | 925.000 | 1.434667587 | 1.431921124 |
| 11443 VOH/LVDS/CLKOUT6B/3.465 (V) | 1.250 | 925.000 | 1.435592651 | 1.431320429 |
| 11457 VOL/LVDS/CLKOUT5/3.465 (V) | 1.350 | 540.000 | 1.09087193 | 1.08568418 |
| 11458 VOL/LVDS/CLKOUT6/3.465 (V) | 1.350 | 540.000 | 1.087250114 | 1.08007884 |
| 11473 VOD/LVDS/CLKOUT6/3.465 (mV) | 310.000 | 490.000 | 347.0914917 | 349.5326538 |
| 11488 VOD/LVDS/CLKOUT6B/3.465 (mV) | 310.000 | 490.000 | 348.3425903 | 351.2416382 |
| 10267 POWER/CML24/3.465 (mW) | 1707.000 | 2842.000 | 2282.60791 | 2281.272949 |
| 10282 POWER/CML32/3.465 (mW) | 1715.000 | 2836.000 | 2284.365967 | 2281.867676 |
| 11502 VOS/LVDS/CLKOUT5/3.465 (V) | 1.100 | 2.000 | 1.254078627 | 1.250035286 |
| 11503 VOS/LVDS/CLKOUT6/3.465 (V) | 1.100 | 2.000 | 1.258600712 | 1.253260374 |
| 11517 VOS/LVDS/CLKOUT5B/3.465 (V) | 1.100 | 2.000 | 1.262769699 | 1.258802652 |
| 11518 VOS/LVDS/CLKOUT6B/3.465 (V) | 1.100 | 2.000 | 1.261421442 | 1.255699635 |
| 11790 VOL/HSDS8M/CLKOUT1B/3.465 (V) | 1.920 | 3.000 | 1.757253647 | 1.765951037 |
| 11818 VOL/HSDS8M/CLKOUT1/3.465 (V) | 1.000 | 1.920 | 1.748080373 | 1.757235527 |
| 11832 VOD/HSDS8M/CLKOUT1/3.465 (mV) | 540.000 | 925.000 | 672.4783936 | 664.5439453 |
| 11990 VOL/PECLV20/CLKOUT12B/3.465 (V) | 1.400 | 1.750 | 1.413220167 | 1.422987342 |
| 12020 VOL/PECLV20/CLKOUT12/3.465 (V) | -198.270 | 1.750 | 1.411049843 | 1.421579242 |
| 12050 VOD/PECLV20/CLKOUT12B/3.465 (mV) | 700.000 | 1070.000 | 868.7322998 | 859.7290039 |
| 12136 VOD/LCPECL/CLKOUT13B/3.465 (mV) | 775.000 | 1100.000 | 864.3649292 | 857.4978027 |
| 12270 VOL/CML16/CLKOUT0B/3.465 (V) | | 2.900 | 2.646432638 | 2.664287329 |
| 12291 VOD/CML16/CLKOUT0/3.465 (V) | 0.650 | 0.950 | 0.814328671 | 0.796016216 |
| 12395 VOL/CMOS/CLKOUT8/3.465 (V) | | 0.100 | 0.024755012 | 0.024907611 |
| 12409 ICP1_SINK_X0/3.465 (uA) | -66.290 | -41.140 | -54.08361435 | -55.43827438 |
| 12410 ICP1_SRC_X0/3.465 (uA) | 35.310 | 73.290 | 54.5250206 | 56.05471802 |
| 12411 ICP1_MISMATCH_X0/3.465 | -5.000 | 5.000 | -0.406419665 | -0.552899837 |
| 12429 ICP2_SINK_X0/3.465 (uA) | | -77.900 | -107.4310226 | -110.9361115 |
| 12430 ICP2_SRC_X0/3.465 (uA) | | 138.600 | 106.074707 | 109.5798035 |
| 12431 ICP2_MISMATCH_X0/3.465 | -5.000 | 5.000 | 0.635257542 | 0.615062773 |
| 12447 VBG/SEL1/3.465 (V) | 0.850 | 1.400 | 1.11705482 | 1.115834117 |
| 12450 PLL1_R_BIAS_VBG/LD2/3.465 (V) | 0.850 | 1.400 | 1.135698318 | 1.130967975 |
| 12451 PLL2_N_BIAS_VBG/LD1/3.465 (V) | 0.850 | 1.400 | 1.122481823 | 1.121718884 |
| 12452 PLL2_R_BIAS_VBG/LD2/3.465 (V) | 0.850 | 1.400 | 1.13203609 | 1.128679037 |

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