

INA1H182-SEP Radiation-Tolerant, Low offset, Low Noise, Precision Instrumentation Amplifier TID Report



ABSTRACT

This report covers the radiation characterization results of the INA1H182-SEP, a high common-mode voltage difference amplifier. The study determines the total ionizing dose (TID) effects under high dose rate (HDR) and low dose rate (LDR) up to the specified 30krad(Si) dose level. Additional devices were submitted to a higher dose of 50krad(Si) for information purposes only.

All of the samples passed within the specified datasheet limits for all measured parameters.

Table of Contents

1 Device Information	2
1.1 Product Description.....	2
1.2 Device Details.....	2
2 Total Dose Test Setup	3
2.1 Test Overview.....	3
2.2 Test Description and Facilities.....	4
2.3 Test Setup Details.....	5
2.4 Test Configuration and Condition.....	6
3 Total Ionizing Dose Characterization Test Results	8
3.1 HDR Characterization Results.....	8
3.2 LDR Characterization Results.....	8
3.3 Summary of Results.....	8
A High Dose Rate Total Ionizing Dose Report	9
B Low Dose Rate Total Ionizing Dose Report	10

List of Figures

Figure 2-1. INA1H182-SEP Bias Diagram.....	5
Figure 2-2. INA1H182-SEP TID Bias Board.....	5

List of Tables

Table 1-1. HDR Device and Exposure Details.....	2
Table 1-2. LDR Device and Exposure Details.....	2
Table 2-1. HDR \leq 50-300rad(Si)/s Biased Device Information (HDR).....	6
Table 2-2. HDR \leq 50-300rad(Si) / s Unbiased Device Information (HDR).....	6
Table 2-3. LDR = 10mrad(Si)/s Biased Device Information.....	6
Table 2-4. LDR = 10mrad(Si)/s Unbiased Device Information.....	6
Table 2-5. INA1H182-SEP Specification Compliance Matrix.....	7

Trademarks

All trademarks are the property of their respective owners.

1 Device Information

1.1 Product Description

The INA1H182-SEP is a radiation-tolerant, high precision instrumentation amplifier that offers low power consumption and operates over a wide single or dual-supply. A single external resistor sets any gain from 1 to 10,000. The device has high precision as a result of super-beta input transistors, which provide low input offset voltage, offset voltage drift, low input bias current, and low noise. The inputs of the INA1H182-SEP device are individually protected for over voltages up to $\pm 40V$.

Radiation lot acceptance testing (RLAT) for the INA1H182-SEP is performed with high dose rate condition A as specified in MIL-STD-883, method 1019. The radiation end point limits for the specified parameters are guaranteed only for the conditions as specified in MIL-STD-883, method 1019, condition A, to a maximum total dose of 30krad(Si).

1.2 Device Details

[Table 1-1](#) lists the device information used in the initial TID characterization and qualification of HDR tests. Devices used for one-time LDR characterization were built on the 8-pin, VSSOP (DGK) package. [Table 1-1](#) lists the device information used in the initial TID characterization and qualification of LDR tests.

Table 1-1. HDR Device and Exposure Details

TID HDR Details: Up to 50krad(Si)	
TI device number	INA1H182DGKTSEP (INA1H182-SEP)
Package	8-pin, VSSOP (DGK)
Technology	BICOM-3XHV
Quantity tested	<ul style="list-style-type: none"> 6 biased and 6 unbiased units at 20krad(Si) levels 6 biased and 6 unbiased units at 30krad(Si) levels 6 biased and 6 unbiased units at 50krad(Si) levels 2 control/correlation units with no exposure
Die lot number	5560235
A/T lot number Date code	5573522 58AL0ZK
Lot accept or reject	Devices passed 20krad(Si), 30krad(Si), 50krad(Si)
HDR radiation facility	HDR: Texas Instruments Inc., CLAB, Dallas, TX
HDR dose level	20krad(Si), 30krad(Si), 50krad(Si)
HDR dose rate	159.2rads(Si)/s ionizing radiation dose rate
HDR radiation source	HDR: Gamma rays provided by Hopewell GR420 Co60 source. Dosimetry performed by Hopewell using GEX Alanine dosimeters
Irradiation temperature	Ambient, room temperature controlled to 25°C ($\pm 6^\circ\text{C}$) per MILSTD-883 and MIL-STD-750.

Table 1-2. LDR Device and Exposure Details

TID LDR Details: Up to 50krad(Si)	
TI device number	INA1H182DGKTSEP (INA1H182-SEP)
Package	8-pin, VSSOP (DGK)
Technology	BICOM-3XHV
Quantity tested	<ul style="list-style-type: none"> 6 biased and 6 unbiased units at 20krad(Si) levels 6 biased and 6 unbiased units at 30krad(Si) levels 6 biased and 6 unbiased units at 50krad(Si) levels 2 control/correlation units with no exposure
Die lot number	5560235
A/T lot number Date code	5573522 58AL0ZK
Lot accept or reject	Devices passed 20krad(Si), 30krad(Si), 50krad(Si)
LDR radiation facility	LDR: VPT Rad, Chelmsford, MA

Table 1-2. LDR Device and Exposure Details (continued)

TID LDR Details: Up to 50krad(Si)	
LDR dose level	20krad(Si), 30krad(Si), 50krad(Si)
LDR dose rate	10mrad(Si)/s ionizing radiation dose rate
LDR radiation source	LDR: Gamma rays provided by JLSA 81-22 or JLSA 81-23 Co60 LDR source. Dosimetry performed by Air Ionization Chamber (AIC) traceable to NIST
Irradiation temperature	Ambient, room temperature controlled to 25°C (±6°C) per MILSTD-883 and MIL-STD-750.

2 Total Dose Test Setup

2.1 Test Overview

The INA1H182-SEP samples were irradiated at a high dose rate of 159.2rads(Si)/s up to the specified maximum dose of 30krad(Si). Additional devices were submitted to a higher dose of 50krad(Si) for information purposes only. All units are put through full electrical parametric testing on the production automated test equipment (ATE).

Since the INA1H182-SEP BICOM-3XHV process technology contains bipolar components, biased and unbiased LDR are also performed, up to 50krad(Si). Parametric values from HDR and LDR results are compared to determine that the INA1H182-SEP is not considered enhanced low dose rate sensitive (ELDRS).

All devices were functional and passed all electrical parametric tests with readings within guard bands of the vendor item drawing (VID) electrical specification limits. INA1H182-SEP is ELDRS free.

2.2 Test Description and Facilities

The INA1H182-SEP HDR exposure was performed on biased devices in a Cobalt-60 gamma cell at TI facility in Dallas, Texas. The unattenuated dose rate of this cell is 300rad(Si)/s. After exposure, the devices were packed in dry ice (per MIL-STD-883, Method 1019.9, Section 3.10) and returned to TI Dallas for a full post-radiation electrical evaluation using Texas Instruments ATE. ATE guard-band test limits are set within datasheet electrical limits to provide a minimum Cpk and test error margin based on initial qualification and characterization data. Post-radiation measurements were taken within 30 minutes of removal of the devices from the dry ice container. The devices were allowed to reach room temperature prior to electrical post-radiation measurements.

The INA1H182-SEP LDR exposure was performed on biased and unbiased devices in a Co-60 gamma cell under a 10mrad(Si)/s exposure rate. The dose rate of the irradiator used in the exposure ranges from < 10mrad(Si)/s to a maximum of approximately 84rad(Si)/s, determined by the distance from the source. For the LDR (10mrad(Si)/s) exposure, the test box was positioned approximately 2m from the source.

The exposure boards are housed in a lead-aluminum box (as specified in MIL-STD-883, Method 1019.9) to harden the gamma spectrum and minimize dose enhancement effects. The irradiator calibration is maintained by Logmire Laboratories using thermoluminescence dosimeters (TLDs) traceable to the National Institute of Standards and Technology (NIST) and the dosimetry was verified using TLDs prior to the radiation exposures. ATE guard-band test limits are set within datasheet electrical limits to provide a minimum Cpk and test error margin based on initial qualification and characterization data.

2.3 Test Setup Details

For unbiased HDR testing, devices conductive foam was used to short all pins and prevent uneven charging. For biased HDR testing, the devices were tested in biased conditions as described below:

2.3.1 Biased Device Configuration

Figure 2-1 shows the bias conditions for each pin during irradiation. A bipolar supply of $\pm 9V$ was used for $V+$ and $V-$, and a 6.7V input common-mode voltage source was connected to both the negative ($-IN$) and positive ($+IN$) inputs of the INA1H182-SEP. The device gain was set to a 100V/V gain using a $R_G = 499\Omega$ gain resistor. A 10k Ω load to GND is connected to the device output. Figure 2-2 shows an example of one of the bias boards used for the testing.

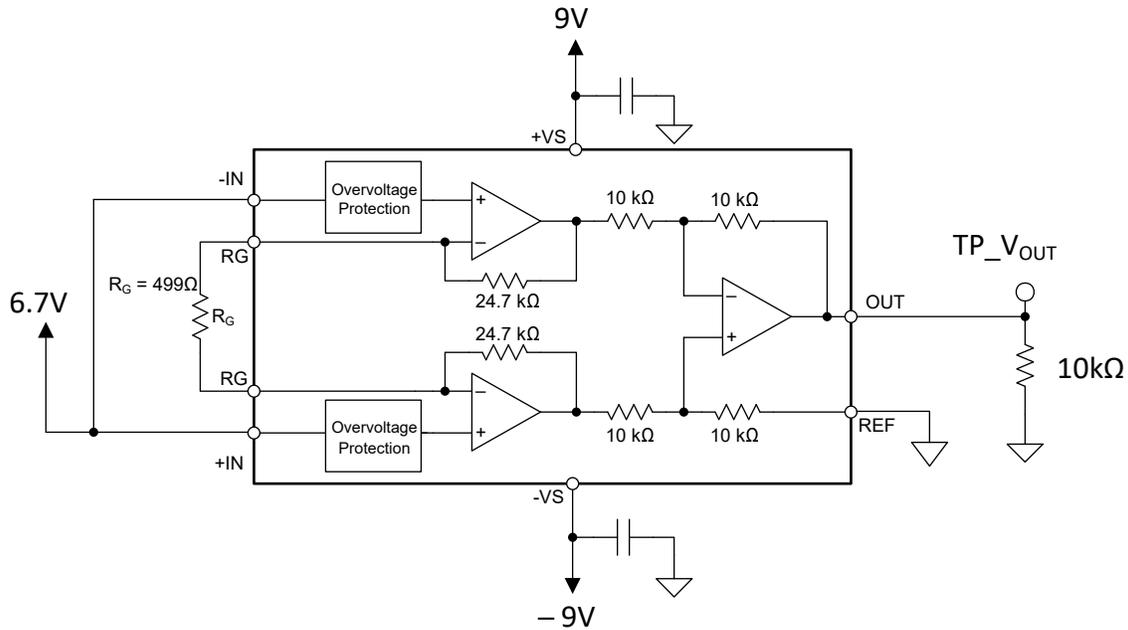


Figure 2-1. INA1H182-SEP Bias Diagram



Figure 2-2. INA1H182-SEP TID Bias Board

2.4 Test Configuration and Condition

Table 2-1 and Table 2-2 list the serialized samples used for HDR characterization and the specification compliance matrix for the device. The INA1H182-SEP input and output voltage linear range is tested during the gain error accuracy test, common-mode rejection test, and by measuring the output voltage swing capability to the rail supplies during various tests in the sequence.

Table 2-1. HDR ≤ 50-300rad(Si)/s Biased Device Information (HDR)

HDR ≤ 50-300rad(Si)/s			
Total Samples: 18 (+ 2 control)			
Exposure Levels			
0krad(Si)	20krad(Si)	30krad(Si)	50krad(Si)
83, 84	53, 54, 55, 56, 57, 58	65, 66, 67, 68, 69, 71	78, 79, 80, 81, 82, 31

Table 2-2. HDR ≤ 50-300rad(Si) / s Unbiased Device Information (HDR)

HDR ≤ 50-300rad(Si)/s			
Total Samples: 18 (+ 2 control)			
Exposure Levels			
0krad (Si)	20krad(Si)	30krad(Si)	50krad(Si)
83, 84	47, 48, 49, 50,51, 52	59, 60, 61, 62, 63, 64	72, 73, 74, 75, 76

Table 2-3. LDR = 10mrad(Si)/s Biased Device Information

LDR ≤ 10mrad(Si)/s			
Total Samples: 15 (+ 2 control)			
Exposure Levels			
0krad (Si)	20krad(Si)	30krad(Si)	50krad(Si)
85, 86	1, 2, 3, 4, 5	11, 12, 13, 14, 15	21, 22, 23, 24, 25

Table 2-4. LDR = 10mrad(Si)/s Unbiased Device Information

LDR ≤ 10mrad(Si)/s			
Total Samples: 15 (+ 2 control)			
Exposure Levels			
0krad (Si)	20krad(Si)	30krad(Si)	50krad(Si)
85, 86	6, 7, 8, 9, 10	16, 17, 18, 19, 20	26, 27, 28, 29, 30

Table 2-5. INA1H182-SEP Specification Compliance Matrix

Parameter	Test Condition	INA1H182-SEP Data Sheet				Test Number
		MIN	TYP	MAX	Unit	
V _{OS1} - Input stage offset voltage	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1		10	55	μV	3.136, 7.136
V _{OS0} - Output stage offset voltage	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1		50	500	μV	3.157, 7.157
PSRR - Power-supply rejection ratio	V _S = ±2.25 to ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1	110 ±3.16	120 1		dB μV/V	3.168, 7.168
	V _S = ±2.25 to ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 10	114 ±2	130 0.32		dB μV/V	3.169, 7.169
CMRR - Common-mode rejection ratio	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1	90 ±31.62	102 7.08		dB μV/V	3.174, 7.174
	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 10	110 ±3.162	120 1.00		dB μV/V	3.181, 7.181
IBN - Input bias current	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1		150	500	pA	8.10
IBP - Input bias current	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1		150	500	pA	8.31
IOS - Input offset current	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1		150	500	pA	8.52
GE - Gain Error G = 1	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1, V _O = ±5V		±0.007	±0.035	%	2.67
GE - Gain Error G = 10	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 10, V _O = ±5V		±0.032	±0.22	%	2.74
Output Voltage Swing	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 10	(-V _S) + 0.15		(+V _S) - 0.15	V	2.82, 2.83
Quiescent current	V _S = ±9V, R _L = 10kΩ, V _{REF} = 0V, G = 1, V _{IN} = 0		600	650	μA	3.10, 7.10

3 Total Ionizing Dose Characterization Test Results

3.1 HDR Characterization Results

The parametric data for the INA1H182-SEP show the device passes up to the maximum specified 30krad(Si) dose level, and up to 50krad(Si) for information purposes only. No functional failures were observed on any samples, and all tested parameters were found to remain within the limits of the production ATE test program (and thus within the datasheet limits).

3.2 LDR Characterization Results

The parametric data for the one-time LDR characterization of the INA1H182-SEP show the device passes up to the device passes up to the maximum specified 30krad(Si) dose level, and up to 50krad(Si) for information purposes. When comparing the results of those samples exposed under biased and unbiased conditions, no significant differences or trends for parametric shifts were observed.

3.3 Summary of Results

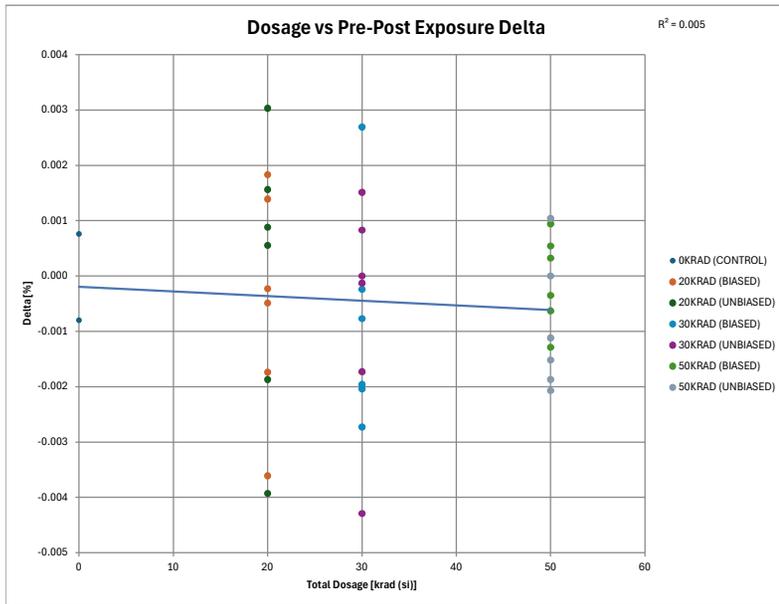
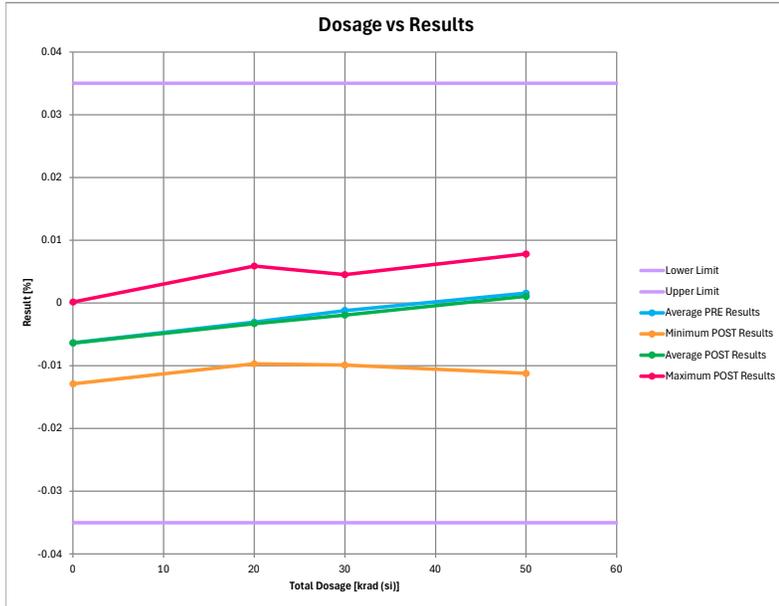
The parametric data for the INA1H182-SEP show the device passes up to the specified level of 30krad(Si) under both HDR and LDR. Additional devices were submitted to a higher dose of 50krad(Si) for information purposes only. No functional failures were observed on any samples, and all tested parameters were found to remain within the limits of the production ATE test program (and thus within the datasheet limits) at 20krad(Si), 30krad(Si), and 50krad(Si).

The INA1H182-SEP is considered non-ELDRS to 30 krad(Si) when the device passes up to 30 krad(Si) under both HDR and LDR conditions and the measured post-LDR values of all parameters are below the pre-irradiation electrical specification limits at the specification dose.

A High Dose Rate Total Ionizing Dose Report

This appendix provides the INA1H182-SEP HDR TID report. The report shows the variation for each parameter up to the maximum specified dose of 30krad(Si). Additional devices were submitted to a higher dose of 50krad(Si) for information purposes only.

DEVICE TEST: 2.67 GE_G1_18P000_POP000 [%]



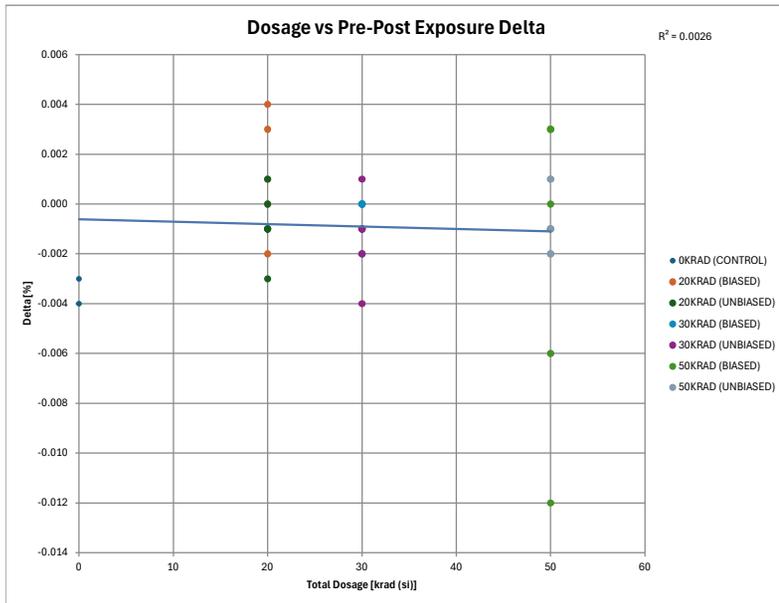
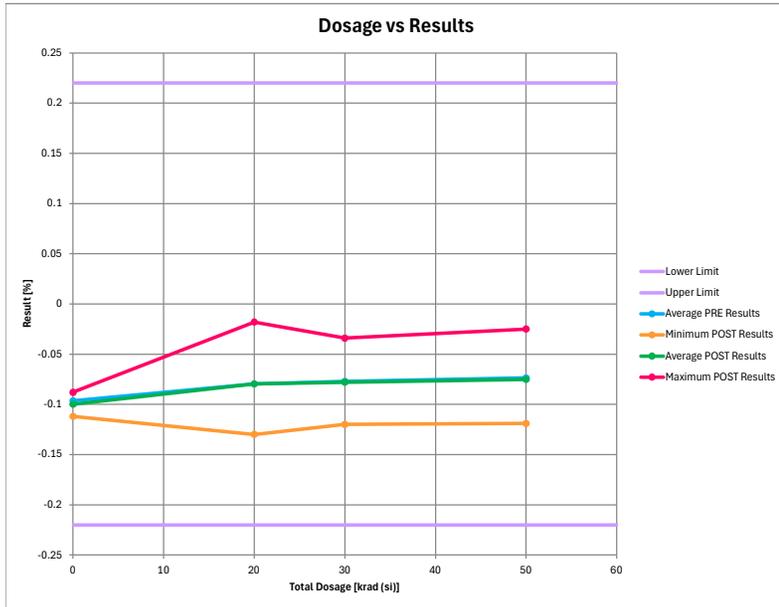
TEST RESULT (LOWER LIMIT = -0.035 | UPPER LIMIT = 0.035) [%]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 83	0	CONTROL	-0.012	-0.013	-0.001
unit 84	0	CONTROL	-0.001	0.000	0.001
unit 47	20	UNBIASED	-0.004	-0.001	0.003
unit 48	20	UNBIASED	-0.002	-0.006	-0.004
unit 49	20	UNBIASED	-0.006	-0.008	-0.002
unit 50	20	UNBIASED	-0.007	-0.006	0.001
unit 51	20	UNBIASED	0.002	0.003	0.001
unit 52	20	UNBIASED	-0.011	-0.010	0.002
unit 53	20	BIASED	-0.005	-0.007	-0.002
unit 54	20	BIASED	0.010	0.006	-0.004
unit 55	20	BIASED	-0.002	-0.002	0.000
unit 56	20	BIASED	-0.003	-0.003	0.000
unit 57	20	BIASED	-0.002	0.000	0.002
unit 58	20	BIASED	-0.008	-0.007	0.001
unit 59	30	UNBIASED	-0.008	-0.008	0.000
unit 60	30	UNBIASED	0.006	0.004	-0.002
unit 61	30	UNBIASED	-0.011	-0.010	0.001
unit 62	30	UNBIASED	-0.003	-0.003	0.000
unit 63	30	UNBIASED	0.009	0.004	-0.004
unit 64	30	UNBIASED	0.001	0.002	0.002
unit 65	30	BIASED	0.004	0.001	-0.003
unit 66	30	BIASED	-0.004	-0.005	-0.001
unit 67	30	BIASED	-0.008	-0.008	0.000
unit 68	30	BIASED	0.001	-0.001	-0.002
unit 69	30	BIASED	0.003	0.001	-0.002
unit 71	30	BIASED	-0.004	-0.001	0.003
unit 72	50	UNBIASED	0.005	0.003	-0.002
unit 73	50	UNBIASED	0.004	0.003	-0.001
unit 74	50	UNBIASED	0.008	0.006	-0.002
unit 75	50	UNBIASED	-0.001	-0.001	0.000
unit 76	50	UNBIASED	-0.002	-0.003	-0.002
unit 77	50	UNBIASED	0.000	0.001	0.001
unit 78	50	BIASED	0.003	0.003	0.000
unit 79	50	BIASED	-0.009	-0.008	0.001
unit 80	50	BIASED	0.007	0.008	0.000
unit 81	50	BIASED	-0.010	-0.011	-0.001
unit 82	50	BIASED	0.004	0.004	0.001
unit 31	50	BIASED	0.008	0.008	-0.001

TEST STATISTICS [%]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-0.012	-0.006	-0.001	-	-0.013	-0.006	0.000	-	-0.001	0.000	0.001	-
20	-0.011	-0.003	0.010	0.005	-0.010	-0.003	0.006	0.005	-0.004	0.000	0.003	0.002
30	-0.011	-0.001	0.009	0.006	-0.010	-0.002	0.004	0.005	-0.004	-0.001	0.003	0.002
50	-0.010	0.002	0.008	0.006	-0.011	0.001	0.008	0.006	-0.002	-0.001	0.001	0.001

DEVICE TEST: 2.74 GE_G10_18P000_POP000 [%]



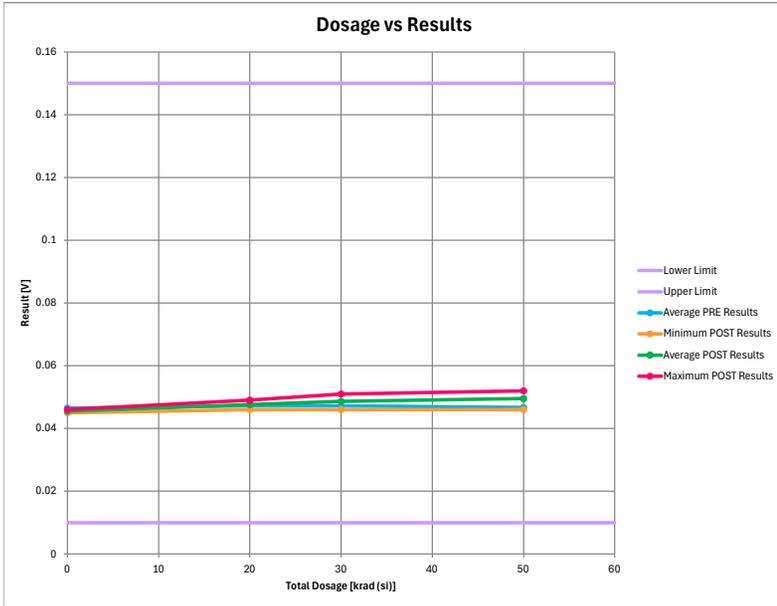
TEST RESULT (LOWER LIMIT = -0.22 | UPPER LIMIT = 0.22) [%]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	-0.085	-0.088	-0.003
unit 84	0	CONTROL	-0.108	-0.112	-0.004
unit 47	20	UNBIASED	-0.066	-0.067	-0.001
unit 48	20	UNBIASED	-0.115	-0.116	-0.001
unit 49	20	UNBIASED	-0.107	-0.107	0.000
unit 50	20	UNBIASED	-0.116	-0.115	0.001
unit 51	20	UNBIASED	-0.015	-0.018	-0.003
unit 52	20	UNBIASED	-0.111	-0.112	-0.001
unit 53	20	BIASED	-0.081	-0.077	0.004
unit 54	20	BIASED	-0.065	-0.064	0.001
unit 55	20	BIASED	-0.048	-0.048	0.000
unit 56	20	BIASED	-0.067	-0.064	0.003
unit 57	20	BIASED	-0.129	-0.130	-0.001
unit 58	20	BIASED	-0.034	-0.036	-0.002
unit 59	30	UNBIASED	-0.079	-0.078	0.001
unit 60	30	UNBIASED	-0.067	-0.069	-0.002
unit 61	30	UNBIASED	-0.065	-0.066	-0.001
unit 62	30	UNBIASED	-0.116	-0.120	-0.004
unit 63	30	UNBIASED	-0.073	-0.074	-0.001
unit 64	30	UNBIASED	-0.111	-0.112	-0.001
unit 65	30	BIASED	-0.048	-0.048	0.000
unit 66	30	BIASED	-0.080	-0.080	0.000
unit 67	30	BIASED	-0.095	-0.095	0.000
unit 68	30	BIASED	-0.032	-0.034	-0.002
unit 69	30	BIASED	-0.069	-0.070	-0.001
unit 71	30	BIASED	-0.089	-0.089	0.000
unit 72	50	UNBIASED	-0.114	-0.116	-0.002
unit 73	50	UNBIASED	-0.081	-0.080	0.001
unit 74	50	UNBIASED	-0.059	-0.061	-0.002
unit 75	50	UNBIASED	-0.074	-0.073	0.001
unit 76	50	UNBIASED	-0.090	-0.091	-0.001
unit 77	50	UNBIASED	-0.057	-0.058	-0.001
unit 78	50	BIASED	-0.119	-0.119	0.000
unit 79	50	BIASED	-0.071	-0.068	0.003
unit 80	50	BIASED	-0.020	-0.032	-0.012
unit 81	50	BIASED	-0.019	-0.025	-0.006
unit 82	50	BIASED	-0.118	-0.119	-0.001
unit 31	50	BIASED	-0.063	-0.060	0.003

TEST STATISTICS [%]

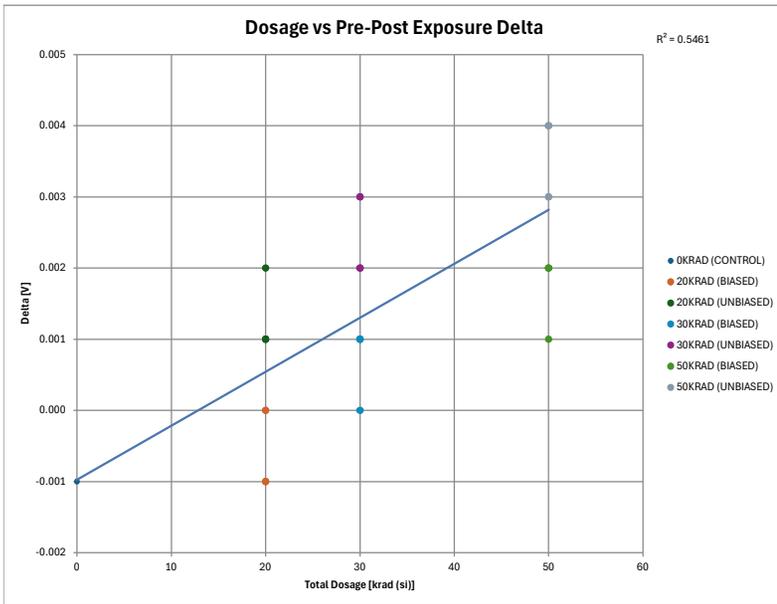
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-0.108	-0.097	-0.085	-	-0.112	-0.100	-0.088	-	-0.004	-0.004	-0.003	-
20	-0.129	-0.090	-0.015	0.036	-0.130	-0.080	-0.018	0.036	-0.003	0.000	0.004	0.002
30	-0.116	-0.077	-0.032	0.034	-0.130	-0.078	-0.034	0.024	-0.004	-0.001	0.001	0.001
50	-0.119	-0.074	-0.019	0.034	-0.119	-0.075	-0.025	0.032	-0.012	-0.001	0.003	0.004

DEVICE TEST: 2.82 SWING_G10_10K_NEG_18 [V]



TEST RESULT (LOWER LIMIT = 0.01 | UPPER LIMIT = 0.15) [V]

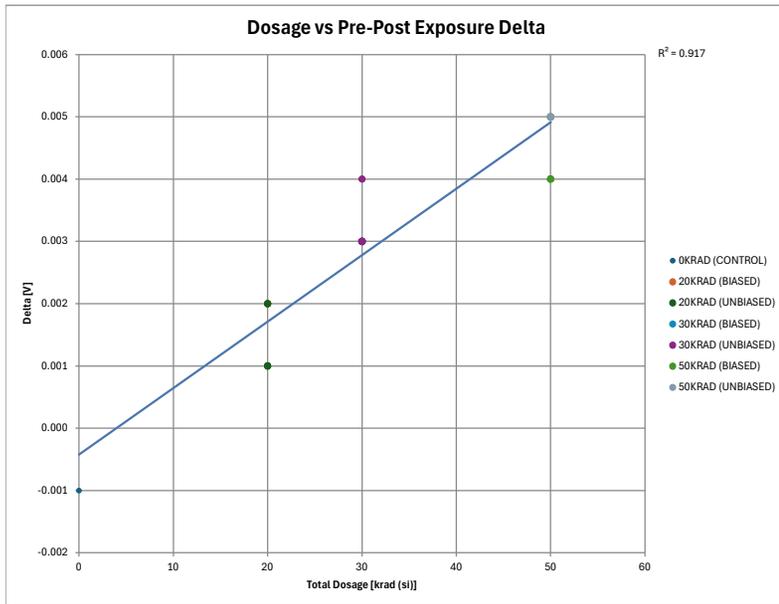
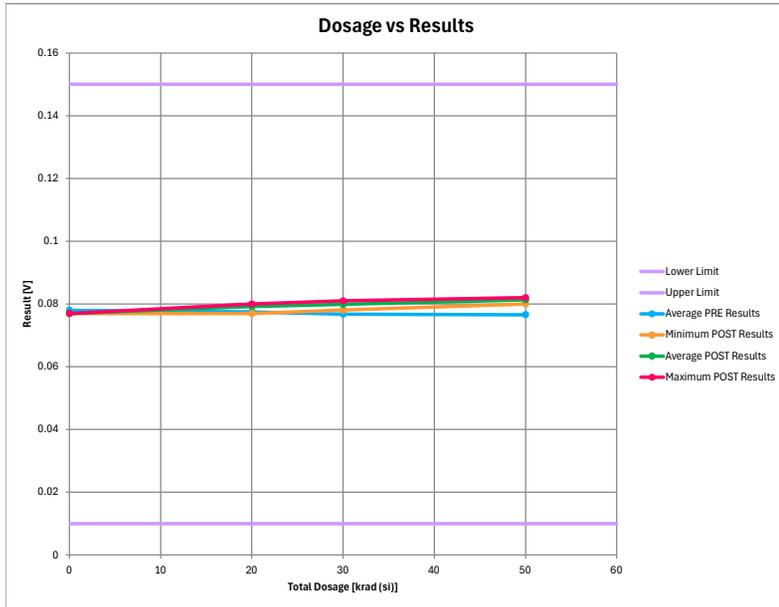
Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.046	0.045	-0.001
unit 64	0	CONTROL	0.047	0.046	-0.001
unit 47	20	UNBIASED	0.046	0.048	0.002
unit 48	20	UNBIASED	0.046	0.047	0.001
unit 49	20	UNBIASED	0.047	0.048	0.001
unit 50	20	UNBIASED	0.047	0.049	0.002
unit 51	20	UNBIASED	0.048	0.049	0.001
unit 52	20	UNBIASED	0.048	0.049	0.001
unit 53	20	BIASED	0.048	0.048	0.000
unit 54	20	BIASED	0.048	0.048	0.000
unit 55	20	BIASED	0.047	0.046	-0.001
unit 56	20	BIASED	0.047	0.046	-0.001
unit 57	20	BIASED	0.047	0.046	-0.001
unit 58	20	BIASED	0.047	0.047	0.000
unit 59	30	UNBIASED	0.048	0.051	0.003
unit 60	30	UNBIASED	0.049	0.051	0.002
unit 61	30	UNBIASED	0.049	0.051	0.002
unit 62	30	UNBIASED	0.049	0.051	0.002
unit 63	30	UNBIASED	0.048	0.050	0.002
unit 64	30	UNBIASED	0.048	0.051	0.003
unit 65	30	BIASED	0.047	0.048	0.001
unit 66	30	BIASED	0.046	0.046	0.000
unit 67	30	BIASED	0.045	0.046	0.001
unit 68	30	BIASED	0.046	0.046	0.000
unit 69	30	BIASED	0.045	0.046	0.001
unit 71	30	BIASED	0.046	0.047	0.001
unit 72	50	UNBIASED	0.048	0.052	0.004
unit 73	50	UNBIASED	0.048	0.051	0.003
unit 74	50	UNBIASED	0.048	0.052	0.004
unit 75	50	UNBIASED	0.048	0.051	0.003
unit 76	50	UNBIASED	0.048	0.052	0.004
unit 77	50	UNBIASED	0.048	0.052	0.004
unit 78	50	BIASED	0.046	0.048	0.002
unit 79	50	BIASED	0.045	0.046	0.001
unit 80	50	BIASED	0.045	0.047	0.002
unit 81	50	BIASED	0.045	0.047	0.002
unit 82	50	BIASED	0.045	0.047	0.002
unit 31	50	BIASED	0.047	0.049	0.002



TEST STATISTICS [V]

Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.046	0.047	0.047	-	0.045	0.046	0.046	-	-0.001	-0.001	-0.001	-
20	0.046	0.047	0.048	0.001	0.046	0.048	0.049	0.001	-0.001	0.000	0.002	0.001
30	0.045	0.047	0.049	0.002	0.046	0.049	0.051	0.002	0.000	0.002	0.003	0.001
50	0.045	0.047	0.048	0.001	0.048	0.050	0.052	0.002	0.001	0.003	0.004	0.001

DEVICE TEST: 2.83 SWING_G10_10K_POS_18 [V]



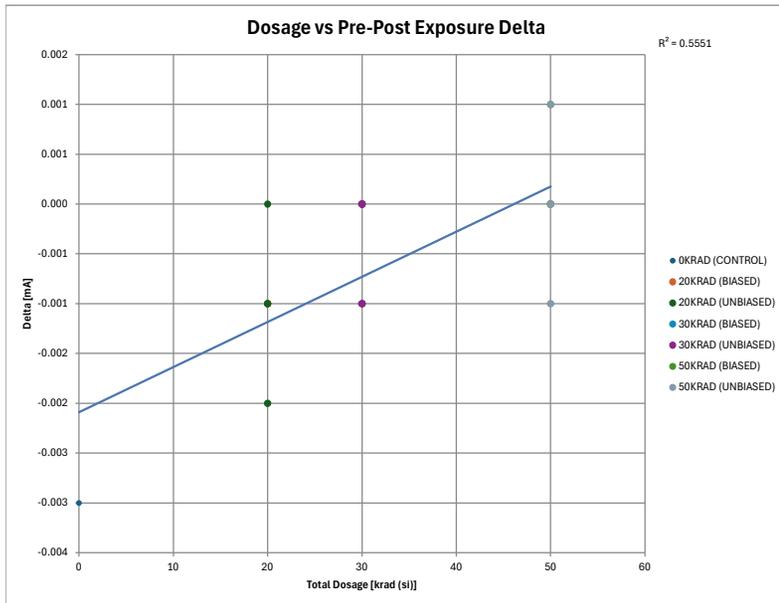
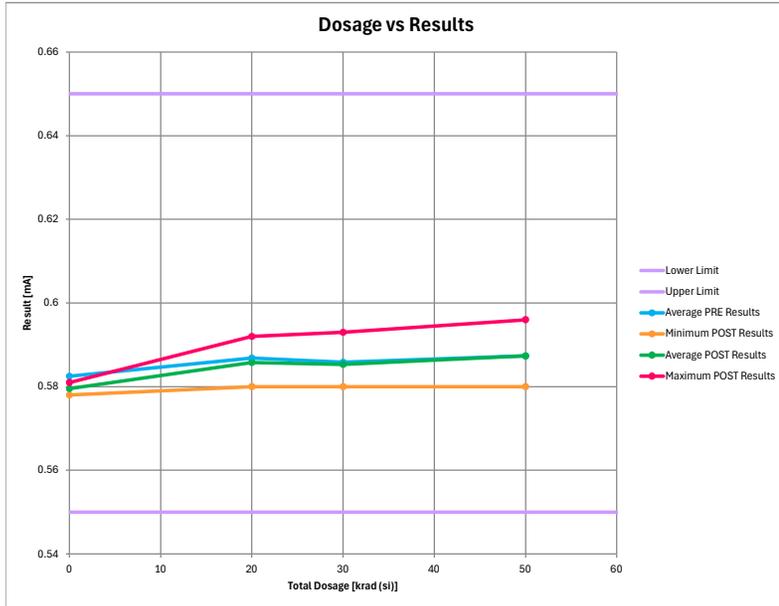
TEST RESULT (LOWER LIMIT = 0.01 | UPPER LIMIT = 0.15) [V]

Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.078	0.077	-0.001
unit 64	0	CONTROL	0.078	0.077	-0.001
unit 47	20	UNBIASED	0.079	0.080	0.001
unit 48	20	UNBIASED	0.079	0.080	0.001
unit 49	20	UNBIASED	0.078	0.080	0.002
unit 50	20	UNBIASED	0.078	0.079	0.001
unit 51	20	UNBIASED	0.078	0.080	0.002
unit 52	20	UNBIASED	0.077	0.079	0.002
unit 53	20	BIASED	0.075	0.077	0.002
unit 54	20	BIASED	0.075	0.077	0.002
unit 55	20	BIASED	0.077	0.079	0.002
unit 56	20	BIASED	0.078	0.079	0.001
unit 57	20	BIASED	0.078	0.080	0.002
unit 58	20	BIASED	0.078	0.080	0.002
unit 59	30	UNBIASED	0.077	0.081	0.004
unit 60	30	UNBIASED	0.077	0.080	0.003
unit 61	30	UNBIASED	0.075	0.078	0.003
unit 62	30	UNBIASED	0.075	0.078	0.003
unit 63	30	UNBIASED	0.076	0.079	0.003
unit 64	30	UNBIASED	0.077	0.080	0.003
unit 65	30	BIASED	0.078	0.081	0.003
unit 66	30	BIASED	0.078	0.081	0.003
unit 67	30	BIASED	0.076	0.079	0.003
unit 68	30	BIASED	0.077	0.080	0.003
unit 69	30	BIASED	0.078	0.081	0.003
unit 71	30	BIASED	0.077	0.080	0.003
unit 72	50	UNBIASED	0.077	0.082	0.005
unit 73	50	UNBIASED	0.076	0.081	0.005
unit 74	50	UNBIASED	0.075	0.080	0.005
unit 75	50	UNBIASED	0.075	0.080	0.005
unit 76	50	UNBIASED	0.076	0.081	0.005
unit 77	50	UNBIASED	0.077	0.082	0.005
unit 78	50	BIASED	0.077	0.082	0.005
unit 79	50	BIASED	0.078	0.082	0.004
unit 80	50	BIASED	0.077	0.081	0.004
unit 81	50	BIASED	0.077	0.081	0.004
unit 82	50	BIASED	0.077	0.082	0.005
unit 31	50	BIASED	0.077	0.082	0.005

TEST STATISTICS [V]

Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.078	0.078	0.078	-	0.077	0.077	0.077	-	-0.001	-0.001	-0.001	-
20	0.075	0.078	0.079	0.001	0.077	0.079	0.080	0.001	0.001	0.002	0.002	0.000
30	0.075	0.077	0.078	0.001	0.078	0.080	0.081	0.001	0.003	0.003	0.004	0.000
50	0.075	0.077	0.078	0.001	0.080	0.081	0.082	0.001	0.004	0.005	0.005	0.000

DEVICE TEST: 3.10 Icc_G1_18P000_P0P000 [mA]



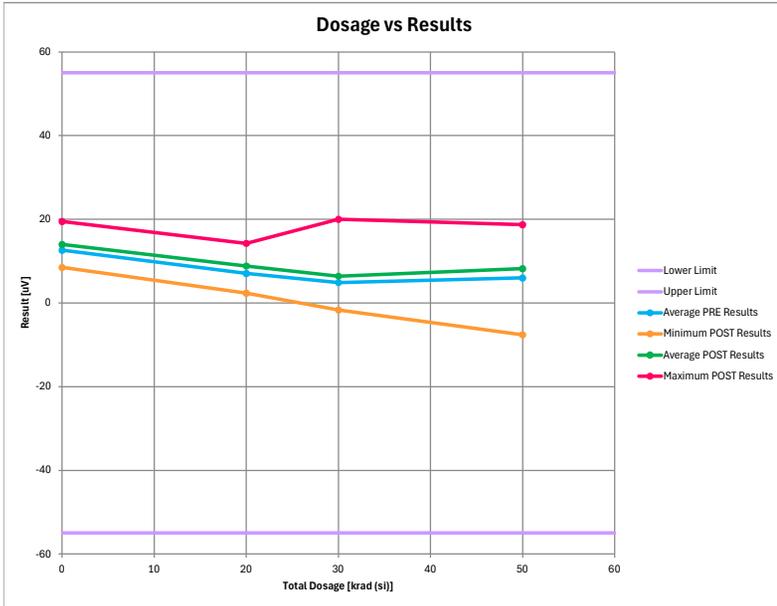
TEST RESULT (LOWER LIMIT = 0.55 | UPPER LIMIT = 0.65) [mA]

Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.581	0.578	-0.003
unit 64	0	CONTROL	0.584	0.581	-0.003
unit 47	20	UNBIASED	0.583	0.582	-0.001
unit 48	20	UNBIASED	0.584	0.583	-0.001
unit 49	20	UNBIASED	0.588	0.586	-0.002
unit 50	20	UNBIASED	0.589	0.588	-0.001
unit 51	20	UNBIASED	0.591	0.591	0.000
unit 52	20	UNBIASED	0.594	0.592	-0.002
unit 53	20	BIASED	0.591	0.590	-0.001
unit 54	20	BIASED	0.585	0.584	-0.001
unit 55	20	BIASED	0.590	0.589	-0.001
unit 56	20	BIASED	0.583	0.582	-0.001
unit 57	20	BIASED	0.583	0.582	-0.001
unit 58	20	BIASED	0.581	0.580	-0.001
unit 59	30	UNBIASED	0.586	0.585	-0.001
unit 60	30	UNBIASED	0.591	0.591	0.000
unit 61	30	UNBIASED	0.594	0.593	-0.001
unit 62	30	UNBIASED	0.583	0.582	-0.001
unit 63	30	UNBIASED	0.593	0.593	0.000
unit 64	30	UNBIASED	0.584	0.584	0.000
unit 65	30	BIASED	0.583	0.582	-0.001
unit 66	30	BIASED	0.581	0.581	0.000
unit 67	30	BIASED	0.584	0.583	-0.001
unit 68	30	BIASED	0.580	0.580	0.000
unit 69	30	BIASED	0.585	0.585	0.000
unit 71	30	BIASED	0.586	0.585	-0.001
unit 72	50	UNBIASED	0.590	0.590	0.000
unit 73	50	UNBIASED	0.588	0.588	0.000
unit 74	50	UNBIASED	0.583	0.582	-0.001
unit 75	50	UNBIASED	0.582	0.582	0.000
unit 76	50	UNBIASED	0.593	0.594	0.001
unit 77	50	UNBIASED	0.597	0.596	-0.001
unit 78	50	BIASED	0.590	0.590	0.000
unit 79	50	BIASED	0.588	0.589	0.001
unit 80	50	BIASED	0.580	0.580	0.000
unit 81	50	BIASED	0.585	0.585	0.000
unit 82	50	BIASED	0.585	0.585	0.000
unit 31	50	BIASED	0.587	0.587	0.000

TEST STATISTICS [mA]

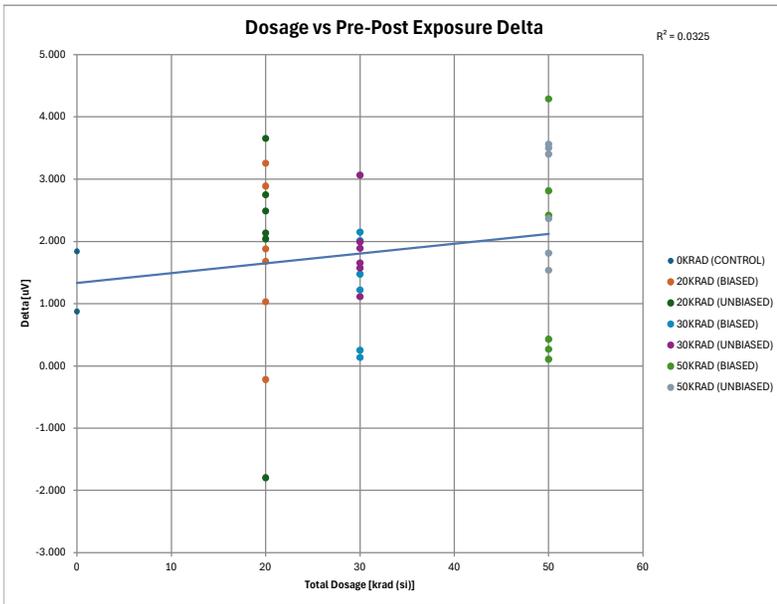
Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.581	0.583	0.584	-	0.578	0.580	0.581	-	-0.003	-0.003	-0.003	-
20	0.581	0.587	0.594	0.004	0.580	0.586	0.592	0.004	-0.002	-0.001	0.000	0.001
30	0.580	0.586	0.594	0.005	0.580	0.585	0.593	0.005	-0.001	-0.001	0.000	0.001
50	0.580	0.587	0.597	0.005	0.580	0.587	0.596	0.005	-0.001	0.000	0.001	0.001

DEVICE TEST: 3.136 vosi_18P000_POP000 [uV]



TEST RESULT (LOWER LIMIT = -55 | UPPER LIMIT = 55) [uV]

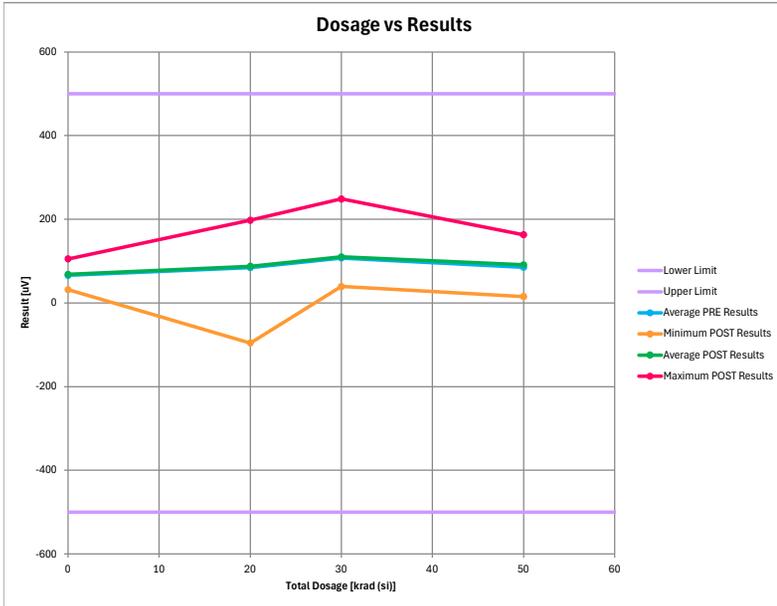
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	18.592	19.467	0.875
unit 84	0	CONTROL	6.653	8.493	1.840
unit 47	20	UNBIASED	10.358	12.845	2.487
unit 48	20	UNBIASED	8.637	10.972	2.335
unit 49	20	UNBIASED	8.230	11.684	3.654
unit 50	20	UNBIASED	11.510	14.258	2.748
unit 51	20	UNBIASED	13.956	12.159	-1.797
unit 52	20	UNBIASED	6.223	8.263	2.040
unit 53	20	BIASED	3.797	5.477	1.680
unit 54	20	BIASED	8.996	8.777	-0.219
unit 55	20	BIASED	2.184	3.214	1.030
unit 56	20	BIASED	-0.937	2.317	3.254
unit 57	20	BIASED	8.431	10.311	1.880
unit 58	20	BIASED	2.927	5.816	2.889
unit 59	30	UNBIASED	4.353	7.417	3.064
unit 60	30	UNBIASED	7.321	9.211	1.890
unit 61	30	UNBIASED	18.022	20.015	1.993
unit 62	30	UNBIASED	0.613	1.725	1.112
unit 63	30	UNBIASED	4.516	6.087	1.571
unit 64	30	UNBIASED	-3.357	-1.702	1.655
unit 65	30	BIASED	8.573	8.924	0.251
unit 66	30	BIASED	-0.276	1.197	1.473
unit 67	30	BIASED	-0.754	1.257	2.011
unit 68	30	BIASED	5.624	5.759	0.135
unit 69	30	BIASED	6.699	7.918	1.219
unit 71	30	BIASED	7.125	9.273	2.148
unit 72	50	UNBIASED	7.561	9.392	1.811
unit 73	50	UNBIASED	12.364	15.863	3.499
unit 74	50	UNBIASED	6.989	10.549	3.560
unit 75	50	UNBIASED	16.346	18.711	2.365
unit 76	50	UNBIASED	14.024	15.560	1.536
unit 77	50	UNBIASED	1.031	4.431	3.400
unit 78	50	BIASED	8.025	8.132	0.107
unit 79	50	BIASED	5.218	5.647	0.429
unit 80	50	BIASED	-10.415	-7.603	2.812
unit 81	50	BIASED	-0.426	1.991	2.417
unit 82	50	BIASED	2.596	6.883	4.287
unit 31	50	BIASED	8.289	8.557	0.268



TEST STATISTICS [uV]

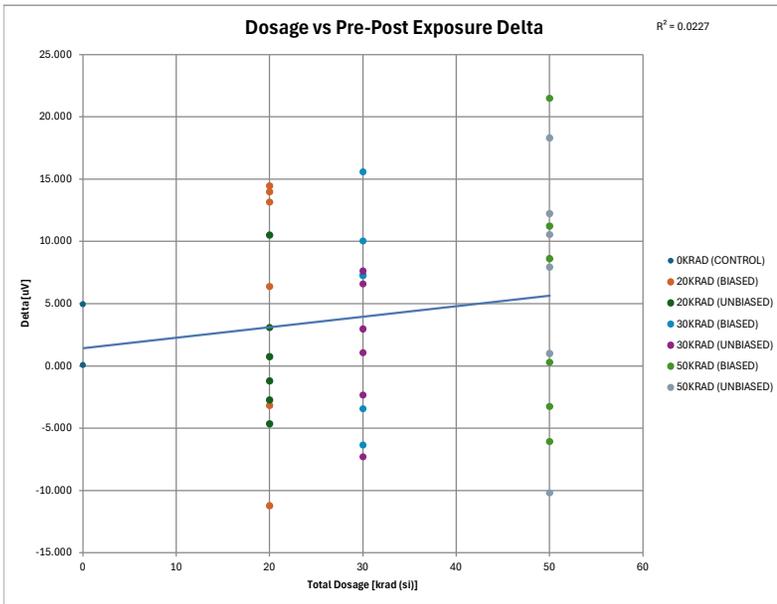
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	6.653	12.623	18.592	-	8.493	13.980	19.467	-	0.875	1.358	1.840	-
20	-0.937	7.043	13.956	4.312	2.317	8.858	14.258	3.901	-1.797	1.815	3.654	1.535
30	-3.357	4.890	18.022	5.615	-1.702	6.423	20.015	5.663	0.135	1.544	3.064	0.808
50	-10.415	5.969	16.346	7.213	-7.603	8.176	18.711	7.014	0.107	2.208	4.287	1.402

DEVICE TEST: 3.157 voso_18P000_POP000 [uV]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [uV]

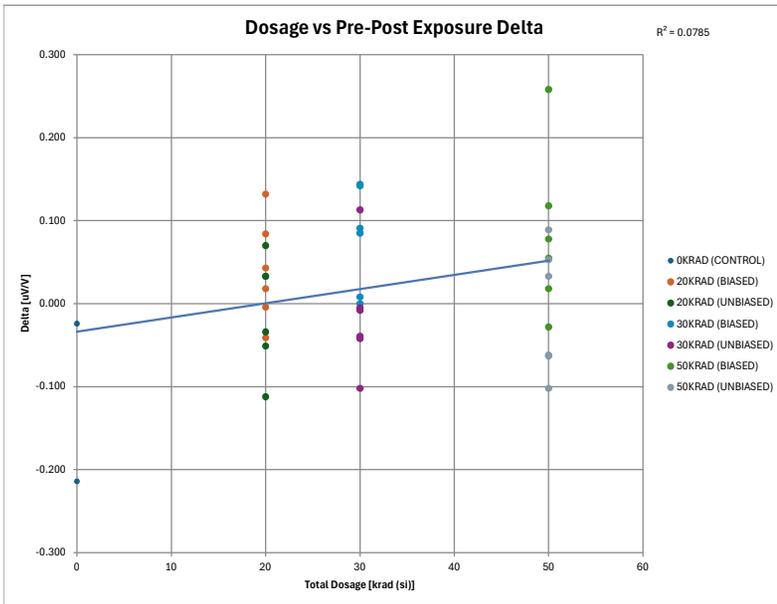
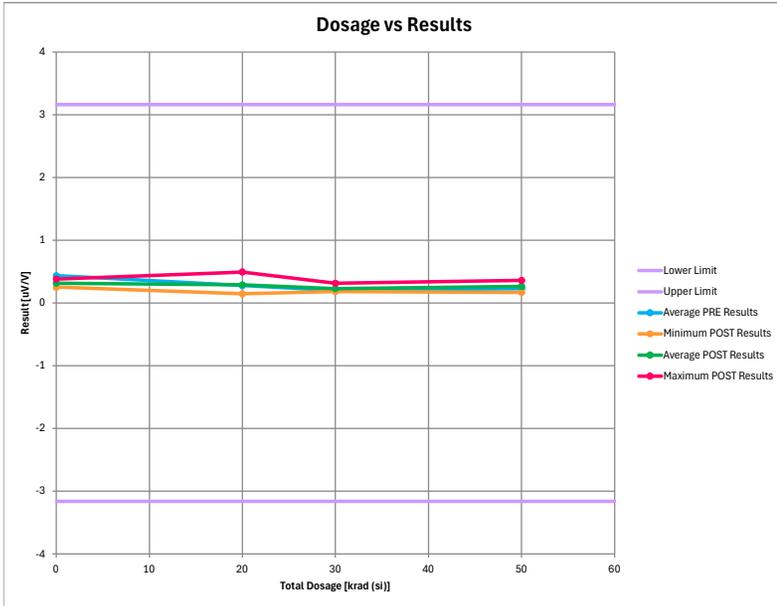
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	26.635	31.597	4.962
unit 84	0	CONTROL	105.250	105.327	0.077
unit 47	20	UNBIASED	109.656	106.916	-2.740
unit 48	20	UNBIASED	36.249	36.990	0.741
unit 49	20	UNBIASED	119.600	122.677	3.077
unit 50	20	UNBIASED	187.062	197.569	10.507
unit 51	20	UNBIASED	48.206	43.560	-4.646
unit 52	20	UNBIASED	99.842	98.841	-1.201
unit 53	20	BIASED	60.252	66.634	6.382
unit 54	20	BIASED	129.090	143.078	13.988
unit 55	20	BIASED	-92.494	-95.674	-3.180
unit 56	20	BIASED	140.236	153.396	13.160
unit 57	20	BIASED	177.011	191.467	14.456
unit 58	20	BIASED	-3.468	-14.699	-11.231
unit 59	30	UNBIASED	62.207	63.296	1.059
unit 60	30	UNBIASED	79.580	72.274	-7.306
unit 61	30	UNBIASED	58.725	56.380	-2.345
unit 62	30	UNBIASED	64.451	67.421	2.970
unit 63	30	UNBIASED	130.638	137.230	6.592
unit 64	30	UNBIASED	240.917	248.539	7.622
unit 65	30	BIASED	164.667	174.704	10.037
unit 66	30	BIASED	32.017	39.256	7.239
unit 67	30	BIASED	135.903	143.189	7.286
unit 68	30	BIASED	77.526	74.082	-3.444
unit 69	30	BIASED	75.061	90.640	15.579
unit 71	30	BIASED	162.164	155.806	-6.358
unit 72	50	UNBIASED	90.473	98.401	7.928
unit 73	50	UNBIASED	41.866	42.864	0.998
unit 74	50	UNBIASED	45.334	63.638	18.304
unit 75	50	UNBIASED	150.588	161.140	10.552
unit 76	50	UNBIASED	130.482	120.296	-10.186
unit 77	50	UNBIASED	101.037	113.360	12.323
unit 78	50	BIASED	21.316	15.254	-6.062
unit 79	50	BIASED	25.919	26.216	0.297
unit 80	50	BIASED	20.117	28.730	8.613
unit 81	50	BIASED	140.656	137.388	-3.268
unit 82	50	BIASED	103.195	124.662	21.467
unit 31	50	BIASED	151.645	162.869	11.224



TEST STATISTICS [uV]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	26.635	65.943	105.250	-	31.597	68.462	105.327	-	0.077	2.520	4.962	-
20	-92.494	84.270	187.062	79.527	-95.674	87.546	197.569	85.816	-11.231	3.276	14.456	8.404
30	32.017	105.988	240.917	60.383	39.256	110.232	248.539	62.001	-7.306	3.244	15.579	7.041
50	20.117	85.219	151.645	51.976	15.254	91.228	162.869	53.646	-10.186	6.009	21.467	9.721

DEVICE TEST: 3.168 PSRR_G1_POP000 [$\mu\text{V}/\text{V}$]



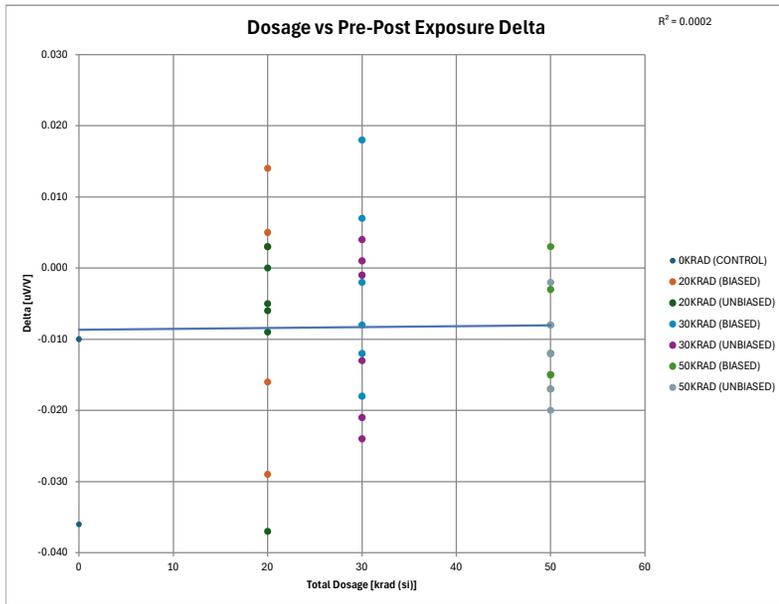
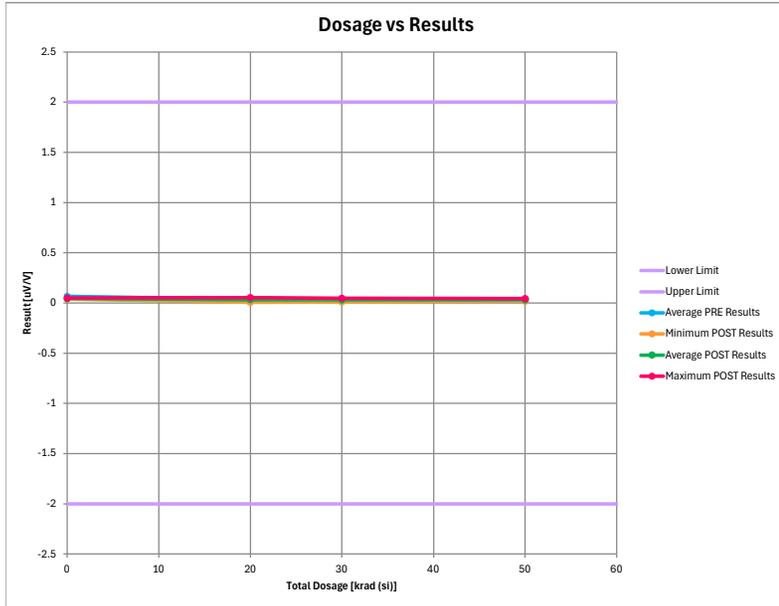
TEST RESULT (LOWER LIMIT = -3.16] UPPER LIMIT = 3.16) [$\mu\text{V}/\text{V}$]

Serial #	Dosage [krad (sI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.465	0.251	-0.214
unit 64	0	CONTROL	0.404	0.380	-0.024
unit 47	20	UNBIASED	0.113	0.146	0.033
unit 48	20	UNBIASED	0.377	0.326	-0.051
unit 49	20	UNBIASED	0.248	0.214	-0.034
unit 50	20	UNBIASED	0.226	0.259	0.033
unit 51	20	UNBIASED	0.362	0.250	-0.112
unit 52	20	UNBIASED	0.423	0.493	0.070
unit 53	20	BIASED	0.228	0.224	-0.004
unit 54	20	BIASED	0.250	0.209	-0.041
unit 55	20	BIASED	0.324	0.367	0.043
unit 56	20	BIASED	0.284	0.368	0.084
unit 57	20	BIASED	0.131	0.263	0.132
unit 58	20	BIASED	0.348	0.366	0.018
unit 59	30	UNBIASED	0.089	0.202	0.113
unit 60	30	UNBIASED	0.257	0.249	-0.008
unit 61	30	UNBIASED	0.356	0.314	-0.042
unit 62	30	UNBIASED	0.287	0.185	-0.102
unit 63	30	UNBIASED	0.187	0.182	-0.005
unit 64	30	UNBIASED	0.280	0.221	-0.039
unit 65	30	BIASED	0.275	0.283	0.008
unit 66	30	BIASED	0.115	0.257	0.142
unit 67	30	BIASED	0.117	0.202	0.085
unit 68	30	BIASED	0.233	0.233	0.000
unit 69	30	BIASED	0.049	0.193	0.144
unit 71	30	BIASED	0.121	0.212	0.091
unit 72	50	UNBIASED	0.286	0.339	0.053
unit 73	50	UNBIASED	0.272	0.209	-0.063
unit 74	50	UNBIASED	0.229	0.167	-0.062
unit 75	50	UNBIASED	0.293	0.326	0.033
unit 76	50	UNBIASED	0.226	0.315	0.089
unit 77	50	UNBIASED	0.380	0.178	-0.102
unit 78	50	BIASED	0.184	0.202	0.018
unit 79	50	BIASED	0.225	0.197	-0.028
unit 80	50	BIASED	0.216	0.334	0.118
unit 81	50	BIASED	0.101	0.359	0.258
unit 82	50	BIASED	0.198	0.276	0.078
unit 31	50	BIASED	0.240	0.295	0.055

TEST STATISTICS [$\mu\text{V}/\text{V}$]

Dosage [krad (sI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.404	0.435	0.465	-	0.251	0.316	0.380	-	-0.214	-0.119	-0.024	-
20	0.113	0.278	0.423	0.096	0.146	0.290	0.493	0.096	-0.112	0.014	0.132	0.067
30	0.049	0.196	0.356	0.096	0.182	0.228	0.314	0.041	-0.102	0.032	0.144	0.080
50	0.101	0.229	0.293	0.053	0.167	0.266	0.359	0.071	-0.102	0.037	0.258	0.097

DEVICE TEST: 3.169 PSRR_G10_P0P000 [uV/V]



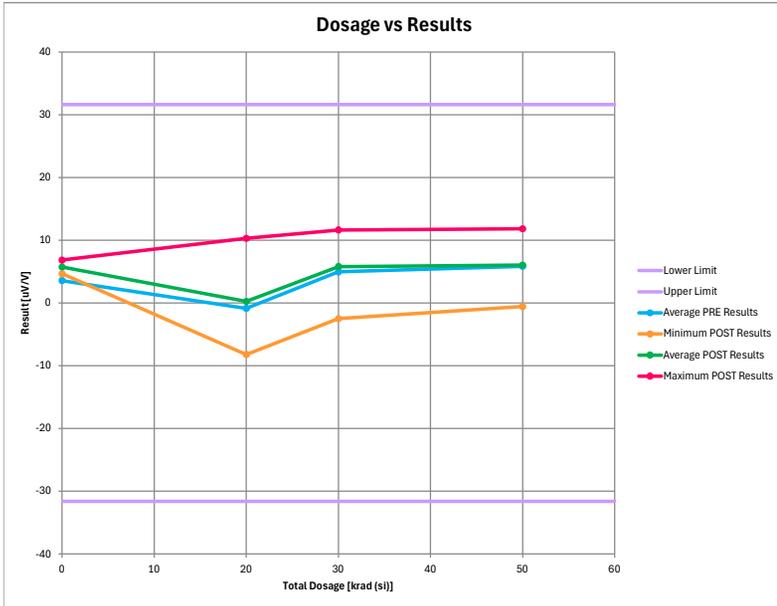
TEST RESULT (LOWER LIMIT = -2 | UPPER LIMIT = 2) [uV/V]

Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.074	0.038	-0.036
unit 84	0	CONTROL	0.060	0.050	-0.010
unit 47	20	UNBIASED	0.011	0.011	0.000
unit 48	20	UNBIASED	0.039	0.034	-0.005
unit 49	20	UNBIASED	0.019	0.010	-0.009
unit 50	20	UNBIASED	0.034	0.037	0.003
unit 51	20	UNBIASED	0.066	0.029	-0.037
unit 52	20	UNBIASED	0.059	0.053	-0.006
unit 53	20	BIASED	0.035	0.006	-0.029
unit 54	20	BIASED	0.046	0.030	-0.016
unit 55	20	BIASED	0.040	0.043	0.003
unit 56	20	BIASED	0.029	0.043	0.014
unit 57	20	BIASED	0.040	0.045	0.005
unit 58	20	BIASED	0.050	0.053	0.003
unit 59	30	UNBIASED	0.010	0.014	0.004
unit 60	30	UNBIASED	0.038	0.025	-0.013
unit 61	30	UNBIASED	0.049	0.048	-0.001
unit 62	30	UNBIASED	0.056	0.035	-0.021
unit 63	30	UNBIASED	0.030	0.031	0.001
unit 64	30	UNBIASED	0.034	0.010	-0.024
unit 65	30	BIASED	0.054	0.036	-0.018
unit 66	30	BIASED	0.030	0.022	-0.008
unit 67	30	BIASED	0.026	0.044	0.018
unit 68	30	BIASED	0.036	0.034	-0.002
unit 69	30	BIASED	0.045	0.033	-0.012
unit 71	30	BIASED	0.030	0.037	0.007
unit 72	50	UNBIASED	0.055	0.043	-0.012
unit 73	50	UNBIASED	0.034	0.026	-0.008
unit 74	50	UNBIASED	0.034	0.032	-0.002
unit 75	50	UNBIASED	0.064	0.044	-0.020
unit 76	50	UNBIASED	0.045	0.028	-0.017
unit 77	50	UNBIASED	0.039	0.031	-0.008
unit 78	50	BIASED	0.056	0.041	-0.015
unit 79	50	BIASED	0.037	0.034	-0.003
unit 80	50	BIASED	0.042	0.025	-0.017
unit 81	50	BIASED	0.025	0.028	0.003
unit 82	50	BIASED	0.030	0.018	-0.012
unit 31	50	BIASED	0.044	0.029	-0.015

TEST STATISTICS [uV/V]

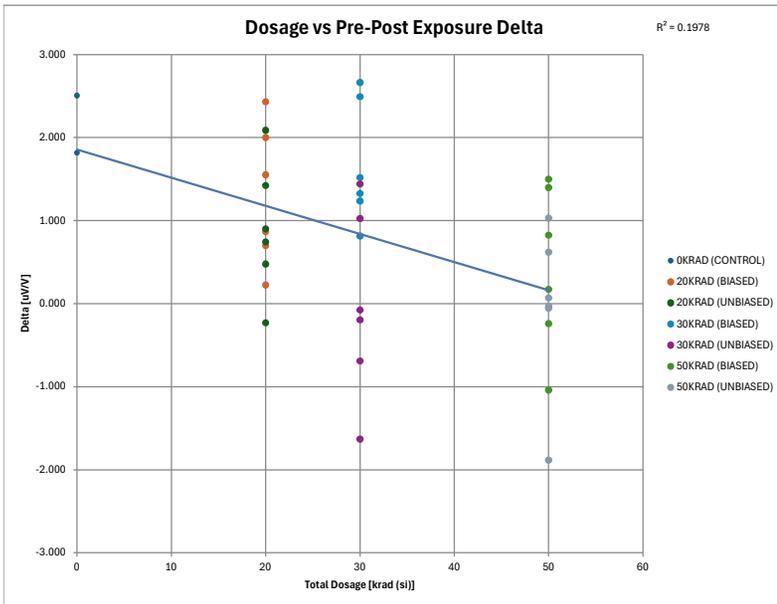
Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.060	0.067	0.074	-	0.038	0.044	0.050	-	-0.036	-0.023	-0.010	-
20	0.011	0.039	0.066	0.015	0.006	0.033	0.053	0.016	-0.037	-0.006	0.014	0.015
30	0.010	0.037	0.056	0.013	0.010	0.031	0.048	0.011	-0.024	-0.006	0.018	0.012
50	0.025	0.042	0.064	0.012	0.018	0.032	0.044	0.008	-0.020	-0.011	0.003	0.007

DEVICE TEST: 3.174 CMRR_G1_18P000_P0P000 [uV/V]



TEST RESULT (LOWER LIMIT = -31.62 | UPPER LIMIT = 31.62) [uV/V]

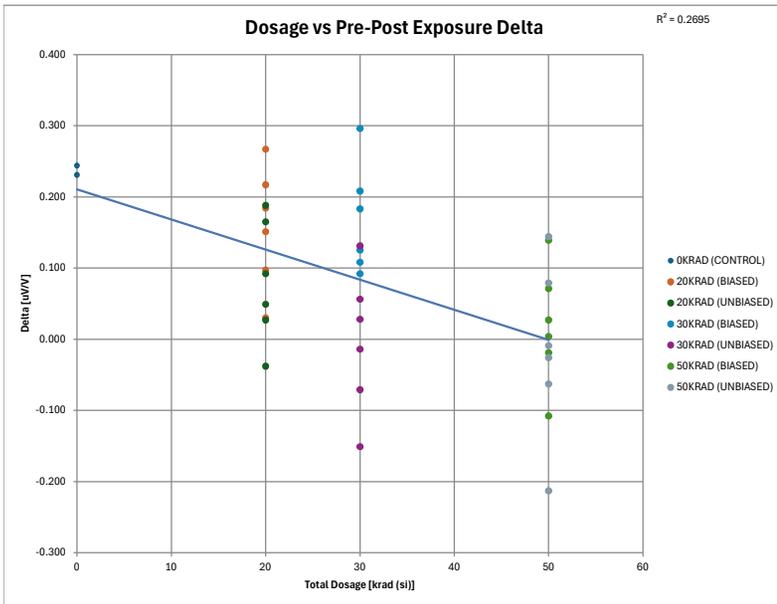
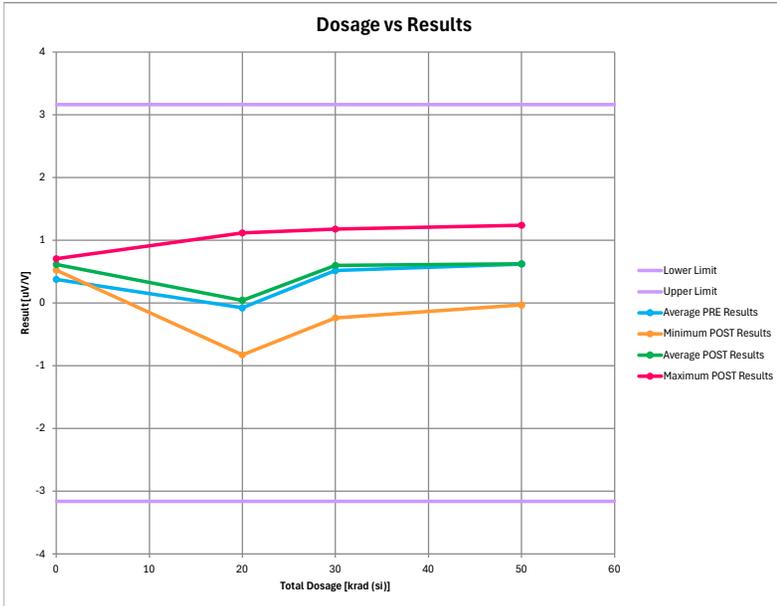
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 83	0	CONTROL	2.824	4.643	1.819
unit 84	0	CONTROL	4.324	6.831	2.507
unit 47	20	UNBIASED	-3.464	-2.562	0.902
unit 48	20	UNBIASED	6.187	6.930	0.743
unit 49	20	UNBIASED	-7.371	-5.847	1.424
unit 50	20	UNBIASED	-7.970	-8.200	-0.230
unit 51	20	UNBIASED	5.218	5.695	0.477
unit 52	20	UNBIASED	-8.580	-6.491	2.089
unit 53	20	BIASED	-2.134	-1.908	0.226
unit 54	20	BIASED	2.736	5.168	2.432
unit 55	20	BIASED	4.671	5.369	0.698
unit 56	20	BIASED	-1.683	-0.332	1.551
unit 57	20	BIASED	9.419	10.286	0.867
unit 58	20	BIASED	-7.062	-5.061	2.001
unit 59	30	UNBIASED	10.982	10.797	-0.195
unit 60	30	UNBIASED	10.596	11.621	1.025
unit 61	30	UNBIASED	-0.844	-2.475	-1.631
unit 62	30	UNBIASED	2.013	1.324	-0.689
unit 63	30	UNBIASED	11.028	10.951	-0.077
unit 64	30	UNBIASED	-1.596	-0.154	1.442
unit 65	30	BIASED	4.454	5.973	1.519
unit 66	30	BIASED	0.391	1.206	0.815
unit 67	30	BIASED	5.070	7.733	2.663
unit 68	30	BIASED	7.668	8.905	1.237
unit 69	30	BIASED	3.340	4.667	1.327
unit 71	30	BIASED	6.447	8.940	2.493
unit 72	50	UNBIASED	5.259	5.329	0.070
unit 73	50	UNBIASED	6.387	6.358	-0.029
unit 74	50	UNBIASED	6.362	6.982	0.620
unit 75	50	UNBIASED	10.800	11.830	1.030
unit 76	50	UNBIASED	0.930	0.875	-0.055
unit 77	50	UNBIASED	13.679	11.795	-1.884
unit 78	50	BIASED	4.069	4.242	0.173
unit 79	50	BIASED	-1.404	-0.580	0.824
unit 80	50	BIASED	10.646	10.405	-0.241
unit 81	50	BIASED	1.970	3.469	1.499
unit 82	50	BIASED	9.188	10.586	1.398
unit 31	50	BIASED	2.063	1.022	-1.041



TEST STATISTICS [uV/V]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	2.824	3.574	4.324	-	4.643	5.737	6.831	-	1.819	2.163	2.507	-
20	-8.580	-0.853	9.419	6.297	-8.200	0.246	10.286	6.192	-0.230	1.098	2.432	0.908
30	-1.596	4.963	11.028	4.509	-2.475	5.791	11.821	4.815	-1.631	0.827	2.863	1.267
50	-1.404	5.829	13.679	4.575	-0.580	6.026	11.830	4.404	-1.884	0.197	1.499	0.981

DEVICE TEST: 3.181 CMRR_G10_18P000_P0P000 [uV/V]



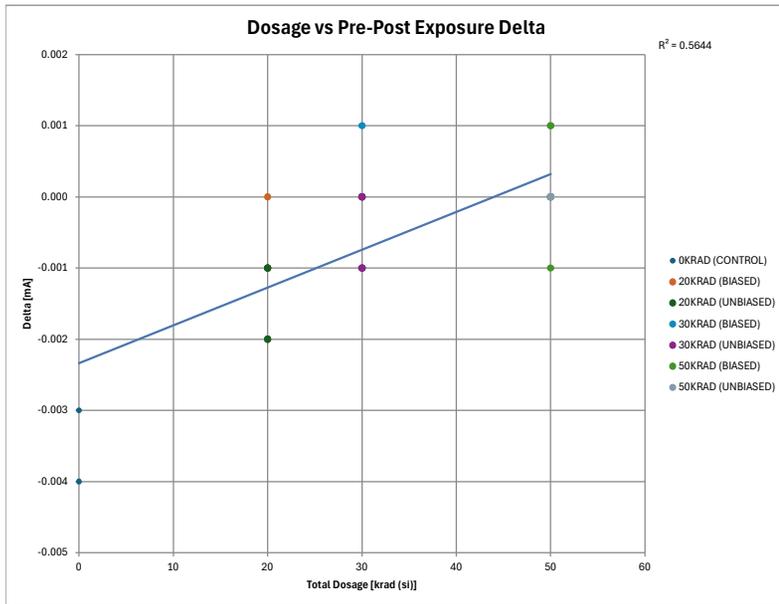
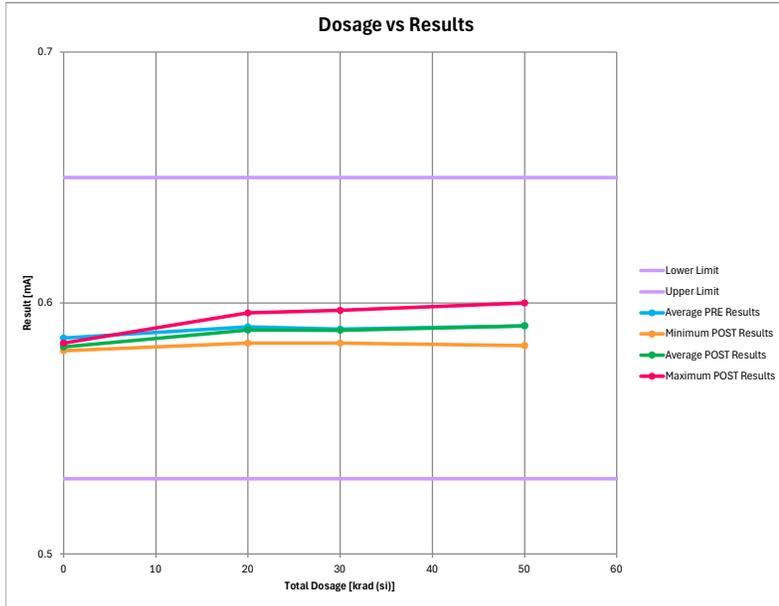
TEST RESULT (LOWER LIMIT = -3.162 | UPPER LIMIT = 3.162) [uV/V]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.291	0.522	0.231
unit 64	0	CONTROL	0.460	0.704	0.244
unit 47	20	UNBIASED	-0.342	-0.250	0.092
unit 48	20	UNBIASED	0.671	0.698	0.027
unit 49	20	UNBIASED	-0.781	-0.616	0.165
unit 50	20	UNBIASED	-0.788	-0.826	-0.038
unit 51	20	UNBIASED	0.567	0.616	0.049
unit 52	20	UNBIASED	-0.865	-0.677	0.188
unit 53	20	BIASED	-0.227	-0.197	0.030
unit 54	20	BIASED	0.304	0.521	0.217
unit 55	20	BIASED	0.481	0.578	0.097
unit 56	20	BIASED	-0.207	-0.023	0.184
unit 57	20	BIASED	0.966	1.117	0.151
unit 58	20	BIASED	-0.703	-0.436	0.267
unit 59	30	UNBIASED	1.129	1.115	-0.014
unit 60	30	UNBIASED	1.121	1.177	0.056
unit 61	30	UNBIASED	-0.088	-0.239	-0.151
unit 62	30	UNBIASED	0.219	0.148	-0.071
unit 63	30	UNBIASED	1.121	1.149	0.028
unit 64	30	UNBIASED	-0.170	-0.039	0.131
unit 65	30	BIASED	0.465	0.648	0.183
unit 66	30	BIASED	0.026	0.134	0.108
unit 67	30	BIASED	0.523	0.819	0.296
unit 68	30	BIASED	0.808	0.900	0.092
unit 69	30	BIASED	0.365	0.490	0.125
unit 71	30	BIASED	0.667	0.875	0.208
unit 72	50	UNBIASED	0.551	0.542	-0.009
unit 73	50	UNBIASED	0.680	0.654	-0.026
unit 74	50	UNBIASED	0.666	0.745	0.079
unit 75	50	UNBIASED	1.093	1.237	0.144
unit 76	50	UNBIASED	0.110	0.047	-0.063
unit 77	50	UNBIASED	1.432	1.219	-0.213
unit 78	50	BIASED	0.436	0.442	0.004
unit 79	50	BIASED	-0.105	-0.034	0.071
unit 80	50	BIASED	1.101	1.082	-0.019
unit 81	50	BIASED	0.217	0.356	0.139
unit 82	50	BIASED	1.035	1.062	0.027
unit 31	50	BIASED	0.224	0.116	-0.108

TEST STATISTICS [uV/V]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.291	0.376	0.460	-	0.522	0.613	0.704	-	0.231	0.238	0.244	-
20	-0.865	-0.077	0.966	0.650	-0.826	0.042	1.117	0.640	-0.038	0.119	0.267	0.091
30	-0.170	0.516	1.129	0.468	-0.239	0.598	1.177	0.492	-0.151	0.083	0.296	0.123
50	-0.105	0.620	1.432	0.471	-0.034	0.822	1.237	0.456	-0.213	0.002	0.144	0.102

DEVICE TEST: 7.10 Icc_G1_last_18P000_POP000 [mA]



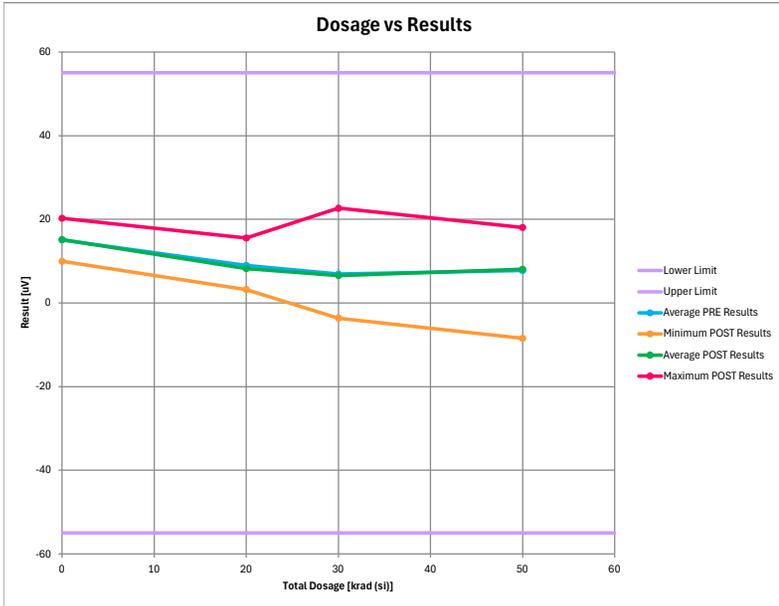
TEST RESULT (LOWER LIMIT = 0.53 | UPPER LIMIT = 0.65) [mA]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 83	0	CONTROL	0.584	0.581	-0.003
unit 84	0	CONTROL	0.588	0.584	-0.004
unit 47	20	UNBIASED	0.587	0.585	-0.002
unit 48	20	UNBIASED	0.588	0.586	-0.002
unit 49	20	UNBIASED	0.591	0.590	-0.001
unit 50	20	UNBIASED	0.593	0.592	-0.001
unit 51	20	UNBIASED	0.595	0.594	-0.001
unit 52	20	UNBIASED	0.597	0.596	-0.001
unit 53	20	BIASED	0.595	0.594	-0.001
unit 54	20	BIASED	0.589	0.588	-0.001
unit 55	20	BIASED	0.584	0.582	-0.002
unit 56	20	BIASED	0.586	0.585	-0.001
unit 57	20	BIASED	0.586	0.585	-0.001
unit 58	20	BIASED	0.584	0.584	0.000
unit 59	30	UNBIASED	0.589	0.589	0.000
unit 60	30	UNBIASED	0.595	0.594	-0.001
unit 61	30	UNBIASED	0.598	0.597	-0.001
unit 62	30	UNBIASED	0.586	0.586	0.000
unit 63	30	UNBIASED	0.597	0.596	-0.001
unit 64	30	UNBIASED	0.588	0.588	0.000
unit 65	30	BIASED	0.587	0.586	-0.001
unit 66	30	BIASED	0.585	0.586	0.001
unit 67	30	BIASED	0.588	0.587	-0.001
unit 68	30	BIASED	0.584	0.584	0.000
unit 69	30	BIASED	0.589	0.588	-0.001
unit 71	30	BIASED	0.589	0.589	0.000
unit 72	50	UNBIASED	0.594	0.594	0.000
unit 73	50	UNBIASED	0.591	0.591	0.000
unit 74	50	UNBIASED	0.586	0.586	0.000
unit 75	50	UNBIASED	0.585	0.585	0.000
unit 76	50	UNBIASED	0.597	0.597	0.000
unit 77	50	UNBIASED	0.600	0.600	0.000
unit 78	50	BIASED	0.593	0.594	0.001
unit 79	50	BIASED	0.592	0.593	0.001
unit 80	50	BIASED	0.584	0.583	-0.001
unit 81	50	BIASED	0.588	0.588	0.000
unit 82	50	BIASED	0.589	0.589	0.000
unit 31	50	BIASED	0.591	0.591	0.000

TEST STATISTICS [mA]

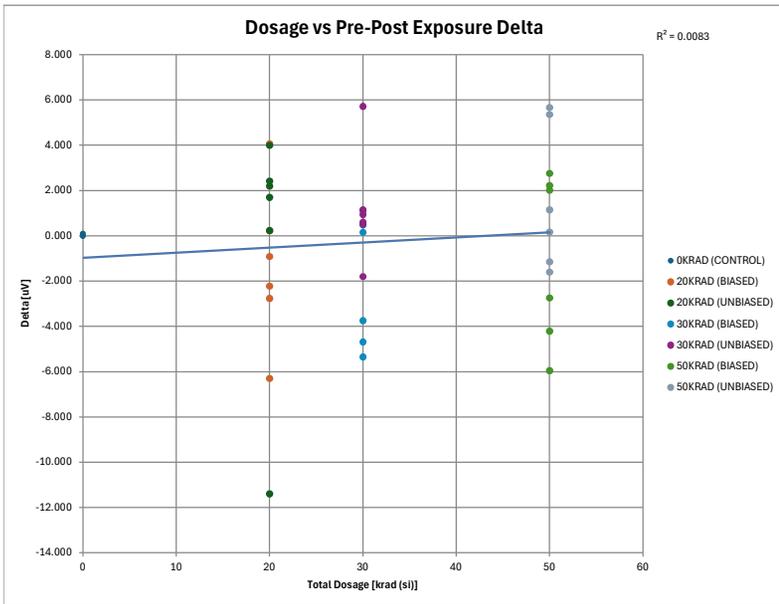
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.584	0.586	0.588	-	0.581	0.583	0.584	-	-0.004	-0.004	-0.003	-
20	0.584	0.590	0.597	0.004	0.584	0.589	0.596	0.004	-0.002	-0.001	0.000	0.001
30	0.584	0.590	0.598	0.005	0.584	0.589	0.597	0.004	-0.001	0.000	0.001	0.001
50	0.584	0.591	0.600	0.005	0.583	0.591	0.600	0.005	-0.001	0.000	0.001	0.001

DEVICE TEST: 7.136 vosi_last_18P000_POP000 [uV]



TEST RESULT (LOWER LIMIT = -55 | UPPER LIMIT = 55) [uV]

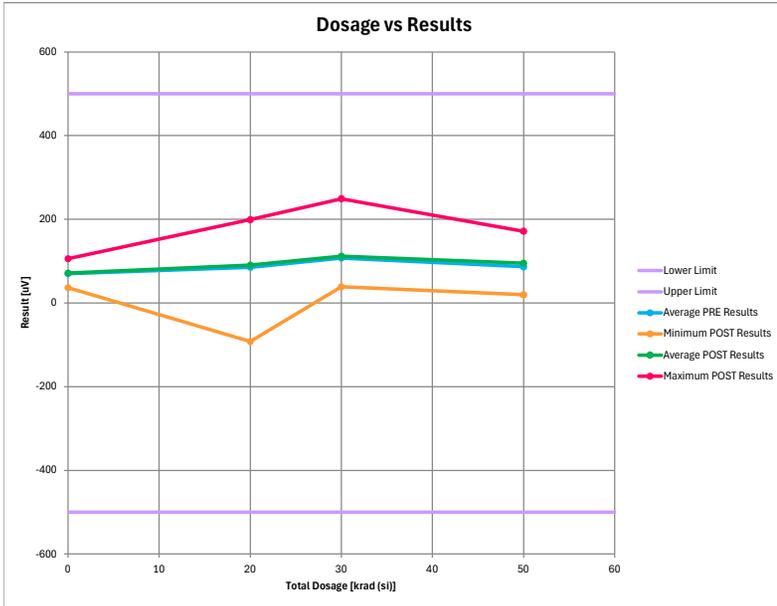
Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	20.271	20.266	-0.005
unit 84	0	CONTROL	9.887	9.986	0.099
unit 47	20	UNBIASED	9.967	12.381	2.414
unit 48	20	UNBIASED	8.515	10.210	1.695
unit 49	20	UNBIASED	5.806	9.797	3.991
unit 50	20	UNBIASED	13.305	15.498	2.193
unit 51	20	UNBIASED	20.131	8.733	-11.398
unit 52	20	UNBIASED	7.236	7.464	0.228
unit 53	20	BIASED	3.816	4.038	0.222
unit 54	20	BIASED	13.255	6.953	-6.302
unit 55	20	BIASED	5.990	3.226	-2.764
unit 56	20	BIASED	-0.319	3.741	4.060
unit 57	20	BIASED	13.242	12.326	-0.916
unit 58	20	BIASED	6.609	4.385	-2.224
unit 59	30	UNBIASED	1.497	7.207	5.710
unit 60	30	UNBIASED	8.451	8.965	0.514
unit 61	30	UNBIASED	21.709	22.645	0.936
unit 62	30	UNBIASED	5.477	3.674	-1.803
unit 63	30	UNBIASED	7.163	8.306	1.143
unit 64	30	UNBIASED	-4.214	-3.612	0.602
unit 65	30	BIASED	13.507	8.816	-4.691
unit 66	30	BIASED	1.468	1.842	0.154
unit 67	30	BIASED	0.035	1.145	1.110
unit 68	30	BIASED	9.293	3.938	-5.355
unit 69	30	BIASED	11.434	7.685	-3.749
unit 71	30	BIASED	7.462	7.940	0.478
unit 72	50	UNBIASED	9.530	7.928	-1.602
unit 73	50	UNBIASED	12.370	18.033	5.663
unit 74	50	UNBIASED	10.130	15.490	5.360
unit 75	50	UNBIASED	17.876	18.037	0.161
unit 76	50	UNBIASED	16.289	15.139	-1.150
unit 77	50	UNBIASED	0.985	2.129	1.144
unit 78	50	BIASED	14.747	8.788	-5.959
unit 79	50	BIASED	7.844	5.103	-2.741
unit 80	50	BIASED	-10.466	-8.457	2.009
unit 81	50	BIASED	-2.309	0.441	2.750
unit 82	50	BIASED	4.788	7.008	2.220
unit 31	50	BIASED	11.347	7.133	-4.214



TEST STATISTICS [uV]

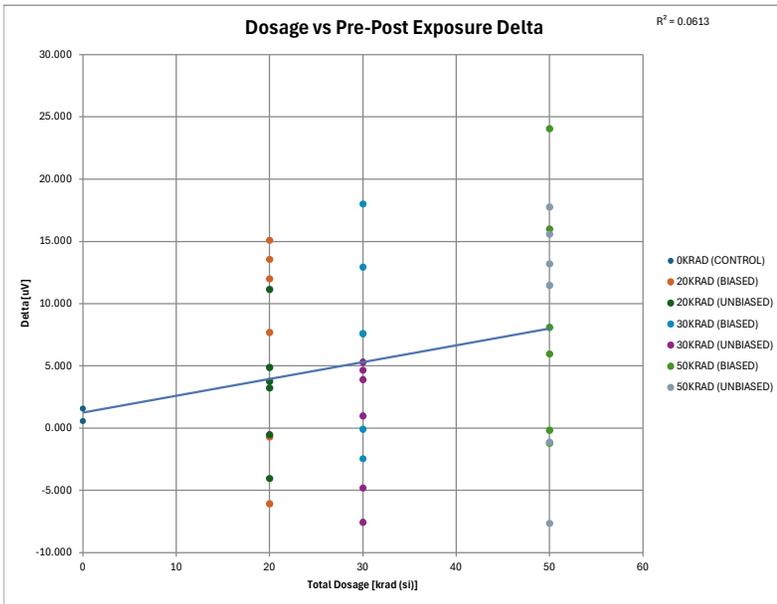
Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	9.887	15.079	20.271	-	9.986	15.126	20.266	-	-0.005	0.047	0.099	-
20	-0.319	8.963	20.131	5.406	3.226	8.229	15.498	3.968	-11.398	-0.733	4.060	4.499
30	-4.214	6.942	21.709	6.896	-3.612	6.529	22.645	6.385	-5.355	-0.413	5.710	3.058
50	-10.466	7.761	17.876	8.285	-8.457	8.064	18.037	7.672	-5.959	0.303	5.663	3.596

DEVICE TEST: 7.157 voso_last_18P000_POP000 [uV]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [uV]

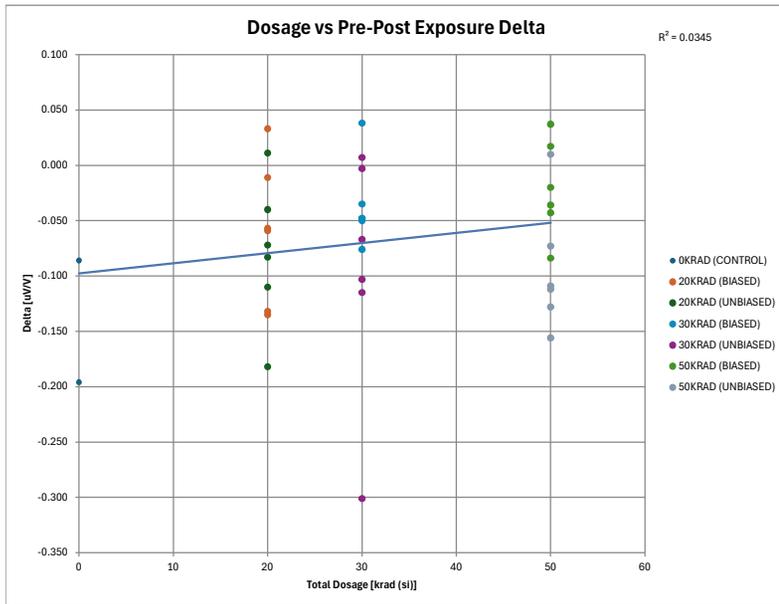
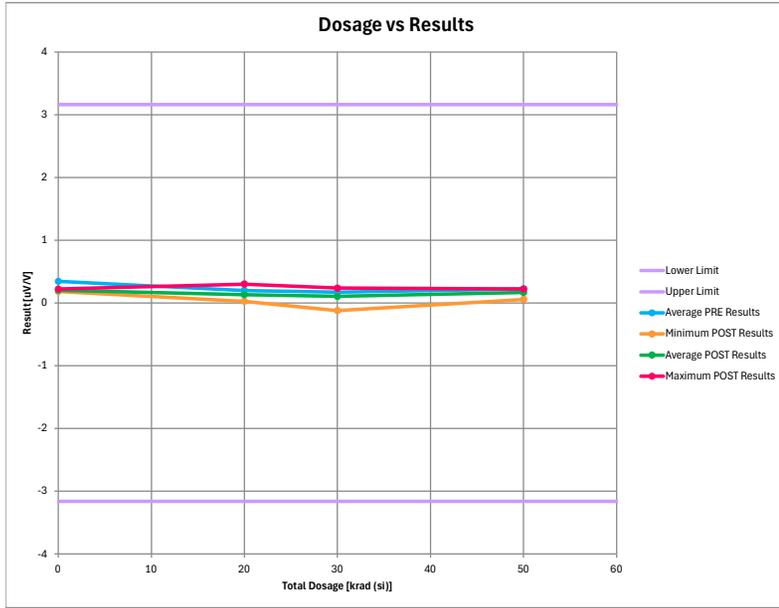
Serial #	Dosage [krad (sI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	34.904	36.477	1.573
unit 64	0	CONTROL	105.521	106.091	0.570
unit 47	20	UNBIASED	112.006	107.964	-4.042
unit 48	20	UNBIASED	38.637	41.865	3.228
unit 49	20	UNBIASED	120.991	124.750	3.759
unit 50	20	UNBIASED	187.964	199.095	11.131
unit 51	20	UNBIASED	47.770	47.244	-0.526
unit 52	20	UNBIASED	101.223	106.093	4.870
unit 53	20	BIASED	61.289	68.974	7.685
unit 54	20	BIASED	131.602	145.146	13.544
unit 55	20	BIASED	-91.338	-92.050	-0.712
unit 56	20	BIASED	143.813	155.804	11.991
unit 57	20	BIASED	176.099	191.187	15.088
unit 58	20	BIASED	-3.632	-9.710	-6.078
unit 59	30	UNBIASED	62.253	63.230	0.977
unit 60	30	UNBIASED	79.518	71.954	-7.564
unit 61	30	UNBIASED	62.057	57.249	-4.808
unit 62	30	UNBIASED	64.196	68.838	4.642
unit 63	30	UNBIASED	132.228	136.117	3.889
unit 64	30	UNBIASED	243.933	249.226	5.293
unit 65	30	BIASED	165.304	178.228	12.924
unit 66	30	BIASED	31.188	38.774	7.586
unit 67	30	BIASED	135.842	143.433	7.591
unit 68	30	BIASED	76.741	76.652	-0.089
unit 69	30	BIASED	73.059	91.062	18.003
unit 71	30	BIASED	165.616	163.159	-2.457
unit 72	50	UNBIASED	93.990	105.055	11.485
unit 73	50	UNBIASED	47.351	46.211	-1.140
unit 74	50	UNBIASED	42.446	58.019	15.573
unit 75	50	UNBIASED	153.261	166.455	13.194
unit 76	50	UNBIASED	128.980	121.326	-7.654
unit 77	50	UNBIASED	103.867	121.616	17.749
unit 78	50	BIASED	19.635	19.668	-0.167
unit 79	50	BIASED	26.093	32.052	5.959
unit 80	50	BIASED	20.042	28.131	8.089
unit 81	50	BIASED	143.065	141.838	-1.227
unit 82	50	BIASED	104.854	128.891	24.037
unit 31	50	BIASED	155.635	171.618	15.983



TEST STATISTICS [uV]

Dosage [krad (sI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	34.904	70.213	105.521	-	36.477	71.284	106.091	-	0.570	1.071	1.573	-
20	-91.338	85.535	187.964	79.695	-92.050	90.530	199.095	84.729	-6.078	4.995	15.088	7.012
30	31.188	107.661	243.933	61.403	38.774	111.494	249.226	62.736	-7.564	3.832	18.003	7.274
50	19.635	86.585	155.635	53.012	19.668	95.073	171.618	55.332	-7.654	6.488	24.037	9.506

DEVICE TEST: 7.168 PSRR_last_G1_P0P000 [uV/V]



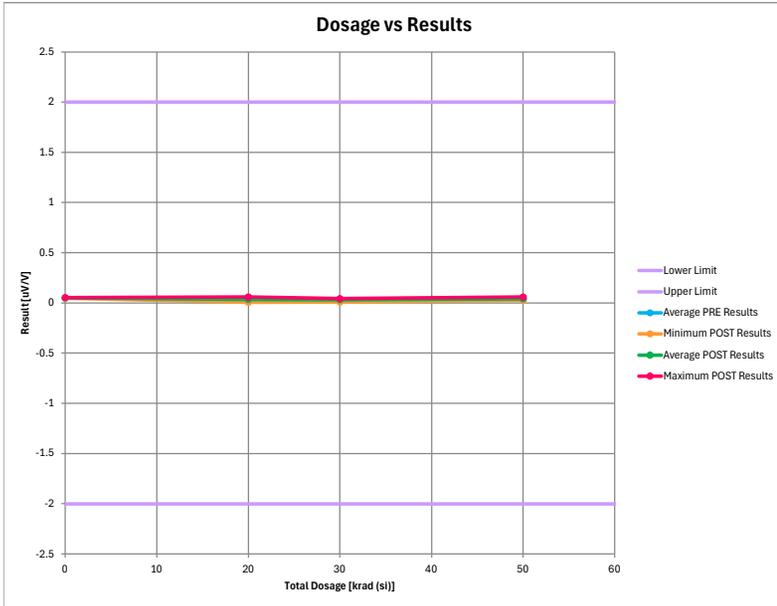
TEST RESULT (LOWER LIMIT = -3.16] UPPER LIMIT = 3.16) [uV/V]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.309	0.223	-0.086
unit 64	0	CONTROL	0.378	0.182	-0.196
unit 47	20	UNBIASED	0.031	0.042	0.011
unit 48	20	UNBIASED	0.300	0.228	-0.072
unit 49	20	UNBIASED	0.110	0.027	-0.083
unit 50	20	UNBIASED	0.150	0.110	-0.040
unit 51	20	UNBIASED	0.286	0.104	-0.182
unit 52	20	UNBIASED	0.375	0.265	-0.110
unit 53	20	BIASED	0.161	0.029	-0.132
unit 54	20	BIASED	0.186	0.051	-0.135
unit 55	20	BIASED	0.209	0.152	-0.057
unit 56	20	BIASED	0.207	0.148	-0.059
unit 57	20	BIASED	0.129	0.118	-0.011
unit 58	20	BIASED	0.267	0.300	0.033
unit 59	30	UNBIASED	0.062	0.059	-0.003
unit 60	30	UNBIASED	0.276	0.211	-0.067
unit 61	30	UNBIASED	0.350	0.235	-0.115
unit 62	30	UNBIASED	0.240	0.137	-0.103
unit 63	30	UNBIASED	0.180	-0.121	-0.301
unit 64	30	UNBIASED	0.127	0.134	0.007
unit 65	30	BIASED	0.146	0.184	0.038
unit 66	30	BIASED	0.075	0.040	-0.035
unit 67	30	BIASED	0.191	0.115	-0.076
unit 68	30	BIASED	0.161	0.113	-0.048
unit 69	30	BIASED	0.097	0.047	-0.050
unit 71	30	BIASED	0.155	0.107	-0.048
unit 72	50	UNBIASED	0.254	0.142	-0.112
unit 73	50	UNBIASED	0.173	0.183	0.010
unit 74	50	UNBIASED	0.185	0.057	-0.128
unit 75	50	UNBIASED	0.289	0.180	-0.109
unit 76	50	UNBIASED	0.321	0.165	-0.156
unit 77	50	UNBIASED	0.289	0.216	-0.073
unit 78	50	BIASED	0.131	0.148	0.017
unit 79	50	BIASED	0.256	0.172	-0.084
unit 80	50	BIASED	0.204	0.161	-0.043
unit 81	50	BIASED	0.231	0.211	-0.020
unit 82	50	BIASED	0.182	0.146	-0.036
unit 31	50	BIASED	0.185	0.222	0.037

TEST STATISTICS [uV/V]

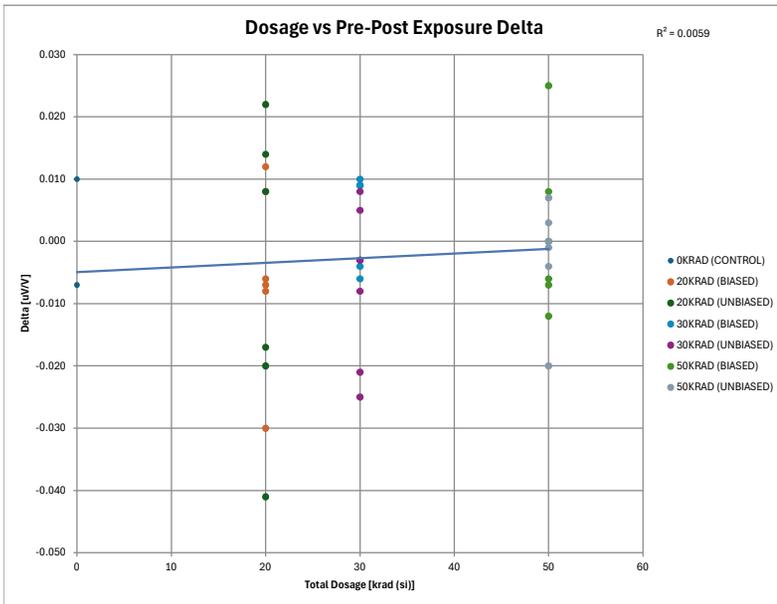
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.309	0.344	0.378	-	0.182	0.203	0.223	-	-0.196	-0.141	-0.086	-
20	0.031	0.201	0.375	0.095	0.027	0.131	0.300	0.092	-0.182	-0.070	0.033	0.063
30	0.062	0.172	0.350	0.084	-0.121	0.105	0.235	0.094	-0.301	-0.067	0.028	0.086
50	0.131	0.225	0.321	0.057	0.057	0.167	0.222	0.044	-0.156	-0.058	0.037	0.062

DEVICE TEST: 7.169 PSRR_Last_G10_POP000 [uV/V]



TEST RESULT (LOWER LIMIT = -2 | UPPER LIMIT = 2) [uV/V]

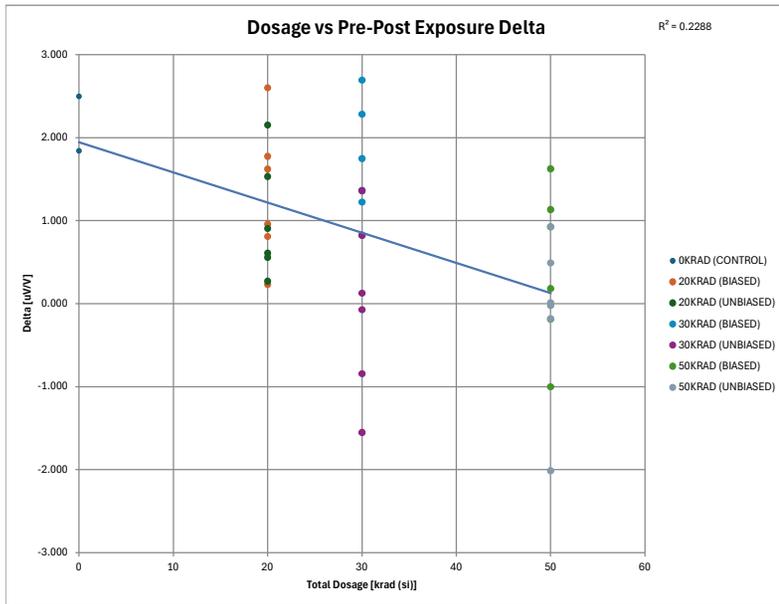
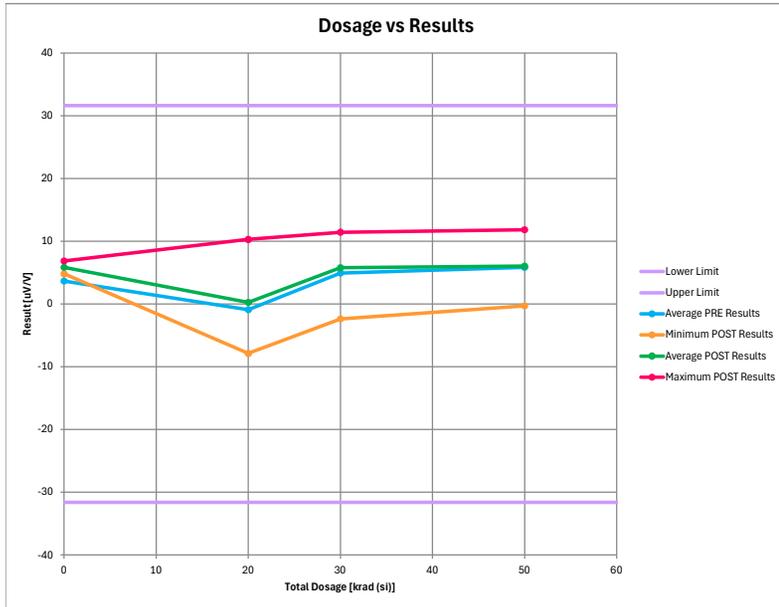
Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.053	0.046	-0.007
unit 84	0	CONTROL	0.045	0.055	0.010
unit 47	20	UNBIASED	0.026	0.006	-0.020
unit 48	20	UNBIASED	0.037	0.051	0.014
unit 49	20	UNBIASED	0.016	0.024	0.008
unit 50	20	UNBIASED	0.035	0.057	0.022
unit 51	20	UNBIASED	0.063	0.022	-0.041
unit 52	20	UNBIASED	0.072	0.055	-0.017
unit 53	20	BIASED	0.018	0.030	0.012
unit 54	20	BIASED	0.042	0.012	-0.030
unit 55	20	BIASED	0.049	0.042	-0.007
unit 56	20	BIASED	0.053	0.047	-0.006
unit 57	20	BIASED	0.040	0.032	-0.008
unit 58	20	BIASED	0.050	0.058	0.008
unit 59	30	UNBIASED	0.020	0.017	-0.003
unit 60	30	UNBIASED	0.032	0.040	0.008
unit 61	30	UNBIASED	0.064	0.043	-0.021
unit 62	30	UNBIASED	0.043	0.035	-0.008
unit 63	30	UNBIASED	0.033	0.008	-0.025
unit 64	30	UNBIASED	0.026	0.031	0.005
unit 65	30	BIASED	0.046	0.040	-0.006
unit 66	30	BIASED	0.030	0.040	0.010
unit 67	30	BIASED	0.026	0.035	0.009
unit 68	30	BIASED	0.036	0.032	-0.004
unit 69	30	BIASED	0.036	0.033	-0.003
unit 71	30	BIASED	0.020	0.029	0.009
unit 72	50	UNBIASED	0.062	0.042	-0.020
unit 73	50	UNBIASED	0.039	0.042	0.003
unit 74	50	UNBIASED	0.040	0.039	-0.001
unit 75	50	UNBIASED	0.043	0.050	0.007
unit 76	50	UNBIASED	0.045	0.041	-0.004
unit 77	50	UNBIASED	0.046	0.046	0.000
unit 78	50	BIASED	0.039	0.027	-0.012
unit 79	50	BIASED	0.048	0.048	0.000
unit 80	50	BIASED	0.035	0.043	0.008
unit 81	50	BIASED	0.033	0.026	-0.007
unit 82	50	BIASED	0.034	0.059	0.025
unit 31	50	BIASED	0.045	0.039	-0.006



TEST STATISTICS [uV/V]

Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.045	0.049	0.053	-	0.046	0.051	0.055	-	-0.007	0.002	0.010	-
20	0.016	0.042	0.072	0.017	0.006	0.036	0.058	0.018	-0.041	-0.005	0.022	0.019
30	0.020	0.034	0.064	0.012	0.008	0.032	0.043	0.010	-0.025	-0.002	0.010	0.012
50	0.033	0.042	0.062	0.008	0.026	0.042	0.059	0.009	-0.020	-0.001	0.025	0.011

DEVICE TEST: 7.174 CMRR_Last_G1_18P000_P0P000 [uV/V]



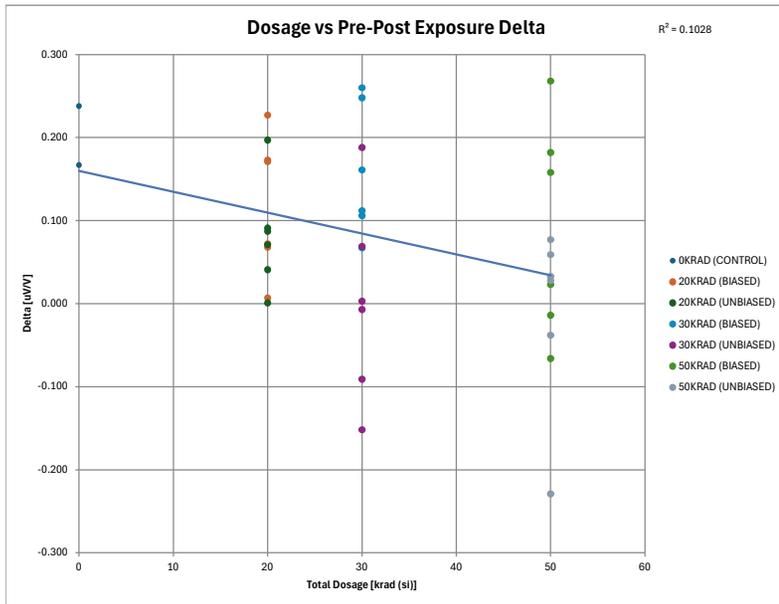
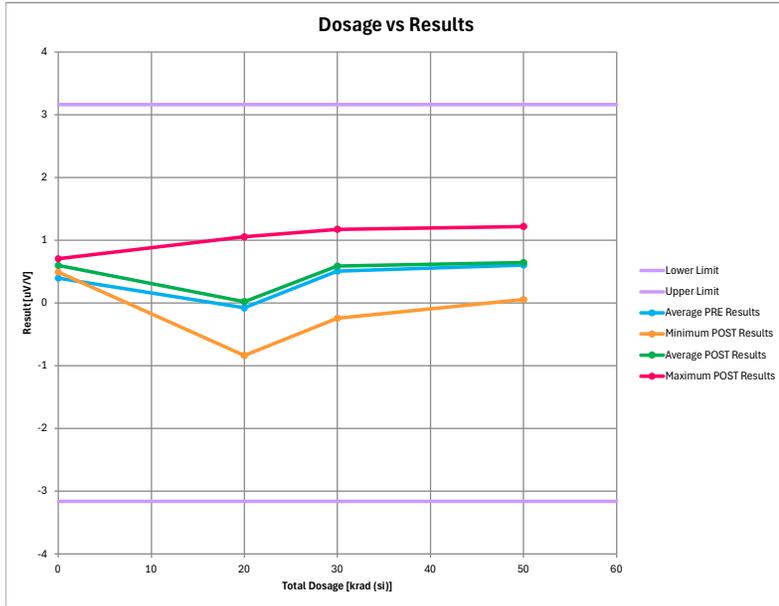
TEST RESULT (LOWER LIMIT = -31.62 | UPPER LIMIT = 31.62) [uV/V]

Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 83	0	CONTROL	2.977	4.817	1.840
unit 84	0	CONTROL	4.361	6.857	2.496
unit 47	20	UNBIASED	-3.513	-2.609	0.904
unit 48	20	UNBIASED	6.304	6.912	0.608
unit 49	20	UNBIASED	-7.400	-5.869	1.531
unit 50	20	UNBIASED	-8.139	-7.868	0.271
unit 51	20	UNBIASED	5.203	5.760	0.557
unit 52	20	UNBIASED	-8.785	-6.635	2.150
unit 53	20	BIASED	-2.164	-1.933	0.231
unit 54	20	BIASED	2.484	5.085	2.601
unit 55	20	BIASED	4.621	5.429	0.808
unit 56	20	BIASED	-1.981	-0.360	1.621
unit 57	20	BIASED	9.328	10.285	0.957
unit 58	20	BIASED	-6.827	-5.054	1.773
unit 59	30	UNBIASED	11.027	10.953	-0.074
unit 60	30	UNBIASED	10.612	11.433	0.821
unit 61	30	UNBIASED	-0.822	-2.374	-1.552
unit 62	30	UNBIASED	2.083	1.238	-0.845
unit 63	30	UNBIASED	10.961	11.087	0.126
unit 64	30	UNBIASED	-1.586	-0.228	1.358
unit 65	30	BIASED	4.340	6.087	1.747
unit 66	30	BIASED	0.298	1.124	0.826
unit 67	30	BIASED	5.090	7.781	2.691
unit 68	30	BIASED	7.608	8.971	1.363
unit 69	30	BIASED	3.238	4.461	1.223
unit 71	30	BIASED	6.490	8.772	2.282
unit 72	50	UNBIASED	5.191	5.170	-0.021
unit 73	50	UNBIASED	6.406	6.416	0.010
unit 74	50	UNBIASED	6.437	6.929	0.492
unit 75	50	UNBIASED	10.893	11.819	0.926
unit 76	50	UNBIASED	1.012	0.830	-0.182
unit 77	50	UNBIASED	13.704	11.691	-2.013
unit 78	50	BIASED	3.963	4.164	0.181
unit 79	50	BIASED	-1.226	-0.303	0.923
unit 80	50	BIASED	10.602	10.413	-0.189
unit 81	50	BIASED	2.265	3.398	1.133
unit 82	50	BIASED	8.955	10.579	1.624
unit 31	50	BIASED	2.038	1.035	-1.003

TEST STATISTICS [uV/V]

Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	2.977	3.669	4.361	-	4.817	5.837	6.857	-	1.840	2.168	2.496	-
20	-8.785	-0.906	9.328	6.305	-7.868	0.262	10.285	6.163	0.231	1.168	2.601	0.799
30	-1.586	4.945	11.027	4.510	-2.374	5.775	11.433	4.831	-1.552	0.831	2.691	1.340
50	-1.226	5.855	13.704	4.520	-0.303	6.012	11.819	4.396	-2.013	0.157	1.624	0.988

DEVICE TEST: 7.181 CMRR_Last_G10_18P000_POP000 [uV/V]



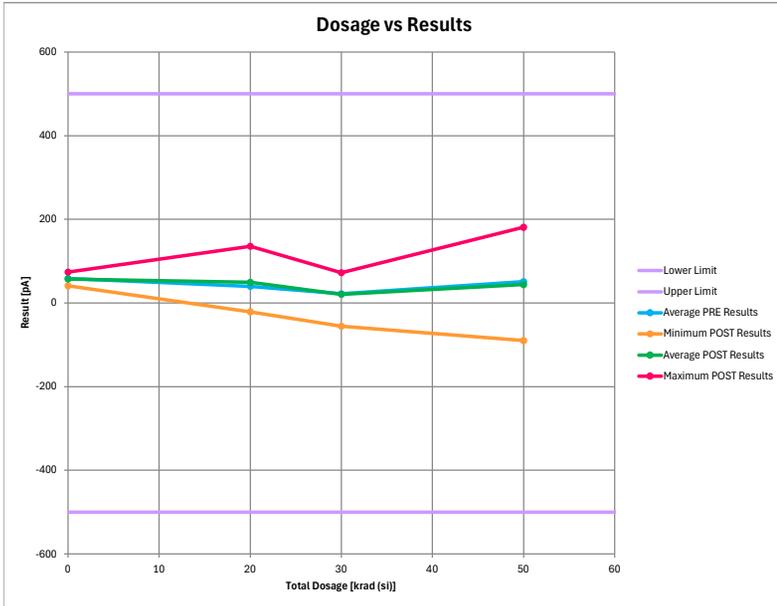
TEST RESULT (LOWER LIMIT = -3.162 | UPPER LIMIT = 3.162) [uV/V]

Serial #	Dosage [krad (sI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	0.323	0.490	0.167
unit 64	0	CONTROL	0.466	0.704	0.238
unit 47	20	UNBIASED	-0.346	-0.275	0.071
unit 48	20	UNBIASED	0.656	0.697	0.041
unit 49	20	UNBIASED	-0.731	-0.640	0.091
unit 50	20	UNBIASED	-0.837	-0.836	0.001
unit 51	20	UNBIASED	0.542	0.629	0.087
unit 52	20	UNBIASED	-0.870	-0.673	0.197
unit 53	20	BIASED	-0.208	-0.201	0.007
unit 54	20	BIASED	0.273	0.500	0.227
unit 55	20	BIASED	0.470	0.538	0.068
unit 56	20	BIASED	-0.185	-0.012	0.173
unit 57	20	BIASED	0.982	1.054	0.072
unit 58	20	BIASED	-0.684	-0.513	0.171
unit 59	30	UNBIASED	1.128	1.121	-0.007
unit 60	30	UNBIASED	1.104	1.173	0.069
unit 61	30	UNBIASED	-0.093	-0.245	-0.152
unit 62	30	UNBIASED	0.233	0.142	-0.091
unit 63	30	UNBIASED	1.120	1.123	0.003
unit 64	30	UNBIASED	-0.199	-0.011	0.188
unit 65	30	BIASED	0.430	0.591	0.161
unit 66	30	BIASED	0.004	0.116	0.112
unit 67	30	BIASED	0.540	0.788	0.248
unit 68	30	BIASED	0.795	0.901	0.106
unit 69	30	BIASED	0.346	0.413	0.067
unit 71	30	BIASED	0.669	0.929	0.260
unit 72	50	UNBIASED	0.511	0.544	0.033
unit 73	50	UNBIASED	0.666	0.628	-0.038
unit 74	50	UNBIASED	0.651	0.710	0.059
unit 75	50	UNBIASED	1.133	1.210	0.077
unit 76	50	UNBIASED	0.083	0.111	0.028
unit 77	50	UNBIASED	1.447	1.218	-0.229
unit 78	50	BIASED	0.435	0.458	0.023
unit 79	50	BIASED	-0.126	0.056	0.182
unit 80	50	BIASED	1.093	1.079	-0.014
unit 81	50	BIASED	0.199	0.357	0.158
unit 82	50	BIASED	0.931	1.199	0.268
unit 31	50	BIASED	0.206	0.140	-0.066

TEST STATISTICS [uV/V]

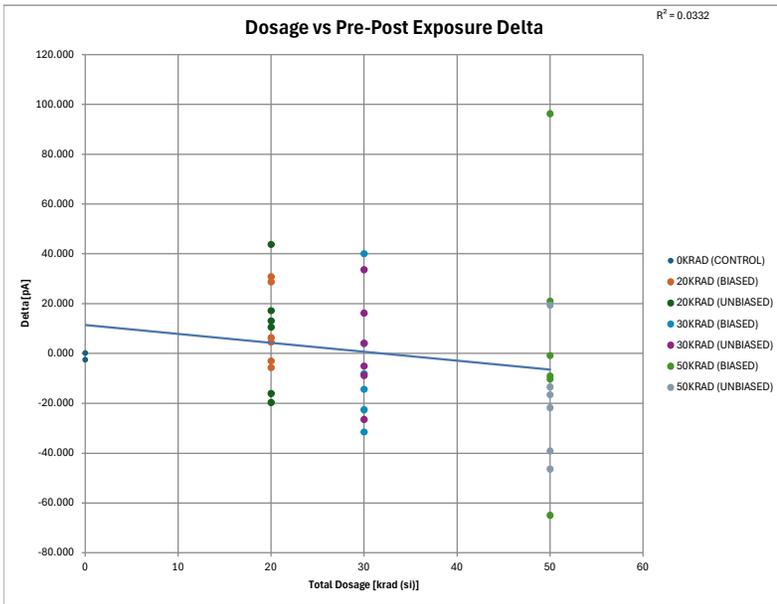
Dosage [krad (sI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.323	0.395	0.466	-	0.490	0.597	0.704	-	0.167	0.203	0.238	-
20	-0.870	-0.078	0.982	0.644	-0.836	0.022	1.054	0.637	0.001	0.101	0.227	0.074
30	-0.199	0.506	1.128	0.472	-0.245	0.587	1.173	0.493	-0.152	0.080	0.260	0.127
50	-0.126	0.602	1.447	0.477	0.056	0.643	1.218	0.443	-0.229	0.040	0.268	0.128

DEVICE TEST: 8.10 IBN_last_18P000_POP000 [pA]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [pA]

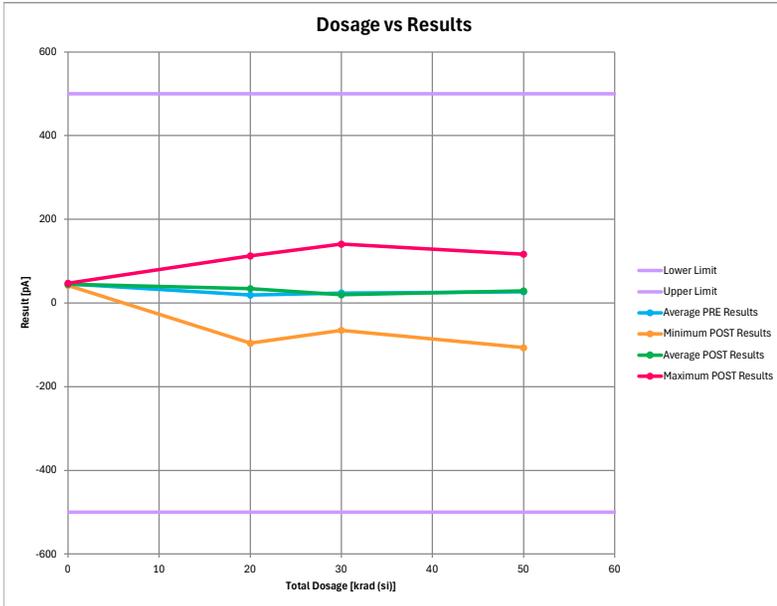
Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	73.647	73.819	0.172
unit 84	0	CONTROL	43.506	41.004	-2.502
unit 47	20	UNBIASED	88.887	101.998	13.111
unit 48	20	UNBIASED	28.163	38.778	10.615
unit 49	20	UNBIASED	28.495	12.417	-16.078
unit 50	20	UNBIASED	74.409	118.209	43.800
unit 51	20	UNBIASED	44.590	61.807	17.217
unit 52	20	UNBIASED	25.919	6.230	-19.689
unit 53	20	BIASED	42.120	46.640	4.520
unit 54	20	BIASED	-15.300	-20.939	-5.639
unit 55	20	BIASED	138.707	135.769	-2.938
unit 56	20	BIASED	45.311	51.700	6.389
unit 57	20	BIASED	20.713	51.614	30.901
unit 58	20	BIASED	-42.050	-13.261	28.789
unit 59	30	UNBIASED	-3.095	-11.882	-8.787
unit 60	30	UNBIASED	51.508	25.059	-26.449
unit 61	30	UNBIASED	33.137	49.331	16.194
unit 62	30	UNBIASED	38.792	72.433	33.641
unit 63	30	UNBIASED	-50.405	-55.431	-5.026
unit 64	30	UNBIASED	42.066	46.218	4.152
unit 65	30	BIASED	-11.399	-19.454	-8.054
unit 66	30	BIASED	55.322	23.836	-31.486
unit 67	30	BIASED	0.728	4.808	4.080
unit 68	30	BIASED	38.852	24.454	-14.398
unit 69	30	BIASED	25.609	65.668	40.059
unit 71	30	BIASED	41.777	19.168	-22.609
unit 72	50	UNBIASED	96.517	83.119	-13.398
unit 73	50	UNBIASED	73.411	56.900	-16.511
unit 74	50	UNBIASED	26.078	45.463	19.385
unit 75	50	UNBIASED	125.392	79.035	-46.357
unit 76	50	UNBIASED	3.567	-18.198	-21.765
unit 77	50	UNBIASED	86.686	47.550	-39.136
unit 78	50	BIASED	54.158	150.425	96.267
unit 79	50	BIASED	159.789	180.837	21.048
unit 80	50	BIASED	90.510	25.557	-64.953
unit 81	50	BIASED	-12.185	-21.145	-8.960
unit 82	50	BIASED	-1.852	-12.104	-10.252
unit 31	50	BIASED	-89.310	-90.150	-0.840



TEST STATISTICS [pA]

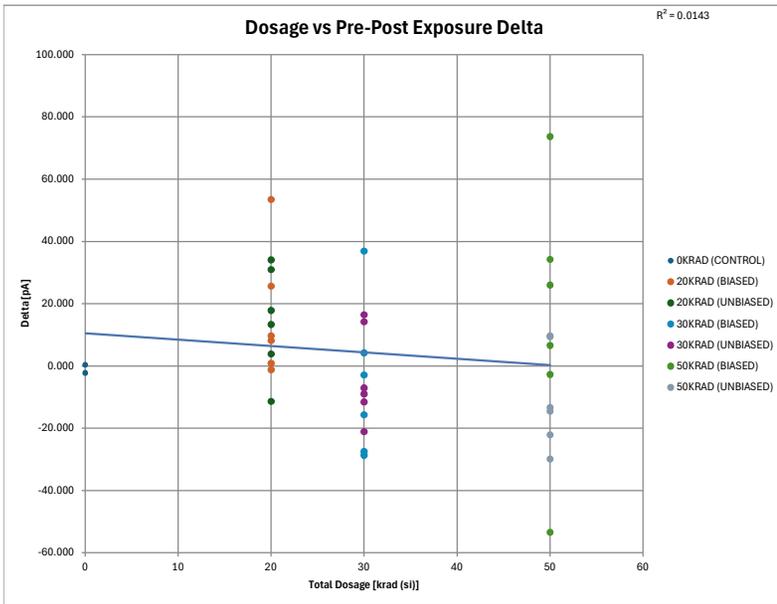
Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	43.506	58.577	73.647	-	41.004	57.412	73.819	-	-2.502	-1.165	0.172	-
20	-42.050	39.997	138.707	46.714	-20.939	49.247	135.769	49.864	-19.689	9.250	43.800	19.079
30	-50.405	21.908	55.322	31.594	-55.431	20.351	72.433	36.848	-31.486	-1.558	40.059	22.523
50	-89.310	51.063	159.789	66.842	-90.150	43.941	180.837	75.430	-64.953	-7.123	96.267	40.988

DEVICE TEST: 8.31 IBP_last_18P000_P0P000 [pA]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [pA]

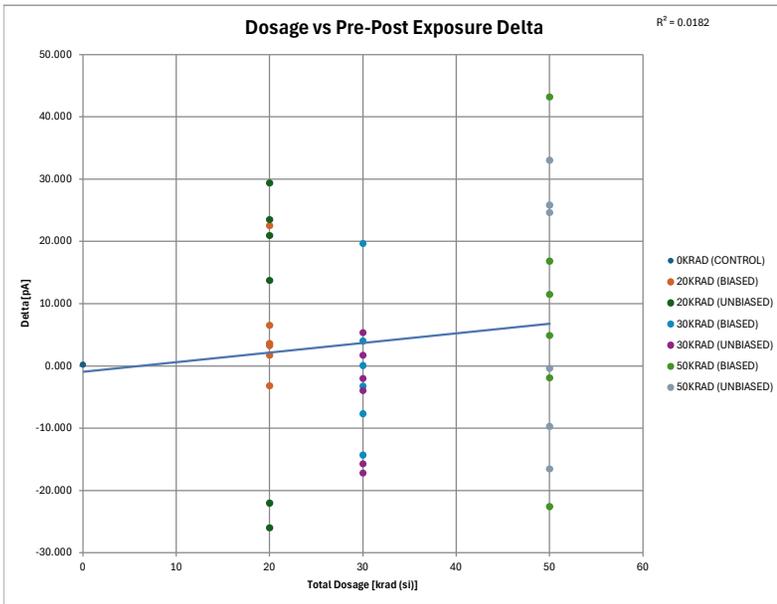
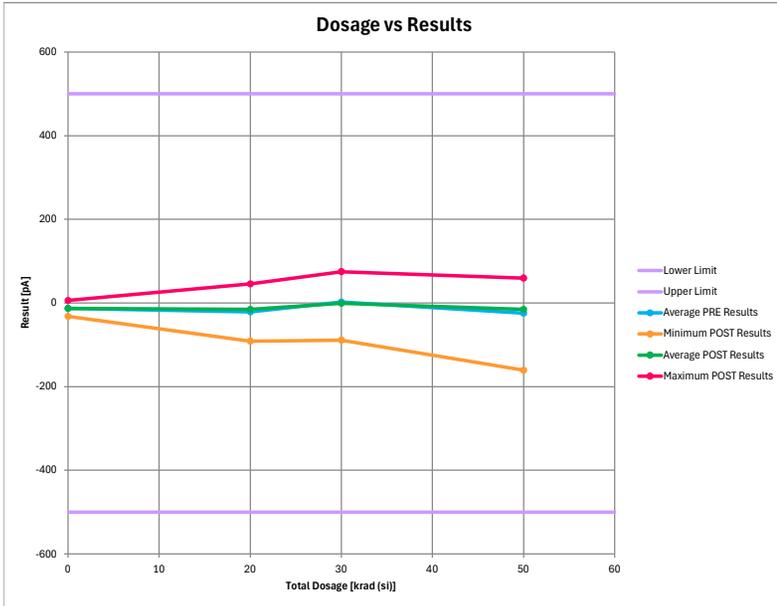
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	41.682	42.022	0.340
unit 84	0	CONTROL	49.292	47.037	-2.255
unit 47	20	UNBIASED	74.371	108.428	34.057
unit 48	20	UNBIASED	-8.648	-20.060	-11.412
unit 49	20	UNBIASED	6.572	19.887	13.315
unit 50	20	UNBIASED	9.167	26.977	17.810
unit 51	20	UNBIASED	30.786	61.736	30.950
unit 52	20	UNBIASED	-13.145	-9.338	3.807
unit 53	20	BIASED	32.170	40.293	8.123
unit 54	20	BIASED	97.201	96.323	0.878
unit 55	20	BIASED	113.459	112.232	-1.227
unit 56	20	BIASED	48.601	58.278	9.677
unit 57	20	BIASED	43.585	97.014	53.429
unit 58	20	BIASED	-14.355	11.241	25.596
unit 59	30	UNBIASED	-15.912	-23.000	-7.088
unit 60	30	UNBIASED	34.591	13.489	-21.102
unit 61	30	UNBIASED	76.792	90.962	14.170
unit 62	30	UNBIASED	-5.189	11.241	16.430
unit 63	30	UNBIASED	11.242	2.248	-8.994
unit 64	30	UNBIASED	-12.107	-23.692	-11.585
unit 65	30	BIASED	23.695	7.955	-15.740
unit 66	30	BIASED	-37.531	-65.022	-27.491
unit 67	30	BIASED	-7.610	-3.459	4.151
unit 68	30	BIASED	47.217	18.504	-28.713
unit 69	30	BIASED	103.773	140.593	36.820
unit 71	30	BIASED	67.107	64.157	-2.950
unit 72	50	UNBIASED	78.868	48.940	-29.928
unit 73	50	UNBIASED	107.233	116.556	9.323
unit 74	50	UNBIASED	91.494	101.165	9.671
unit 75	50	UNBIASED	84.575	71.248	-13.327
unit 76	50	UNBIASED	28.538	6.398	-22.140
unit 77	50	UNBIASED	37.358	22.827	-14.531
unit 78	50	BIASED	-11.415	62.255	73.670
unit 79	50	BIASED	-5.880	20.060	25.940
unit 80	50	BIASED	70.220	16.774	-53.446
unit 81	50	BIASED	-18.160	16.083	34.243
unit 82	50	BIASED	-37.704	-31.128	6.576
unit 31	50	BIASED	-104.119	-106.872	-2.753



TEST STATISTICS [pA]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	41.682	45.487	49.292	-	42.022	44.530	47.037	-	-2.255	-0.958	0.340	-
20	-97.201	18.780	113.459	52.609	-96.323	34.197	112.232	59.985	-11.412	15.417	53.429	18.032
30	-37.531	23.839	103.773	43.019	-65.022	19.498	140.593	55.304	-28.713	-4.341	36.820	19.459
50	-104.119	26.751	107.233	63.642	-106.872	28.692	116.556	59.683	-53.446	1.942	73.670	33.152

DEVICE TEST: 8.52 IOS_last_18P000_P0P000 [pA]



TEST RESULT (LOWER LIMIT = -500] UPPER LIMIT = 500] [pA]

Serial #	Dosage [krad (s)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 63	0	CONTROL	-31.965	-31.796	0.169
unit 64	0	CONTROL	5.786	6.033	0.247
unit 47	20	UNBIASED	-14.519	6.430	20.946
unit 48	20	UNBIASED	-36.811	-58.838	-22.027
unit 49	20	UNBIASED	-21.923	7.470	29.393
unit 50	20	UNBIASED	-65.242	-91.232	-25.990
unit 51	20	UNBIASED	-13.804	-0.071	13.733
unit 52	20	UNBIASED	-39.063	-15.568	23.495
unit 53	20	BIASED	-9.950	-8.347	3.603
unit 54	20	BIASED	-81.901	-75.383	6.518
unit 55	20	BIASED	-25.248	-23.537	1.711
unit 56	20	BIASED	3.289	6.578	3.289
unit 57	20	BIASED	22.872	45.401	22.529
unit 58	20	BIASED	27.695	24.501	-3.194
unit 59	30	UNBIASED	-12.817	-11.118	1.699
unit 60	30	UNBIASED	-16.917	-11.570	5.347
unit 61	30	UNBIASED	43.656	41.631	-2.025
unit 62	30	UNBIASED	-43.980	-61.193	-17.213
unit 63	30	UNBIASED	61.647	57.680	-3.967
unit 64	30	UNBIASED	-54.173	-69.909	-15.736
unit 65	30	BIASED	35.885	27.409	-7.676
unit 66	30	BIASED	-92.853	-86.858	3.995
unit 67	30	BIASED	-8.338	-8.266	0.072
unit 68	30	BIASED	8.365	-5.951	-14.316
unit 69	30	BIASED	78.164	74.925	-3.239
unit 71	30	BIASED	25.329	44.989	19.660
unit 72	50	UNBIASED	-17.649	-34.479	-16.830
unit 73	50	UNBIASED	33.821	59.656	25.835
unit 74	50	UNBIASED	65.415	55.701	-9.714
unit 75	50	UNBIASED	-40.817	-7.788	33.029
unit 76	50	UNBIASED	24.970	24.597	-0.373
unit 77	50	UNBIASED	-9.328	-24.723	-14.695
unit 78	50	BIASED	-65.573	-86.170	-22.597
unit 79	50	BIASED	-165.669	-160.777	4.892
unit 80	50	BIASED	-20.290	-8.783	11.507
unit 81	50	BIASED	-5.976	37.228	43.204
unit 82	50	BIASED	-35.853	-19.023	16.830
unit 31	50	BIASED	-14.810	-16.722	-1.912

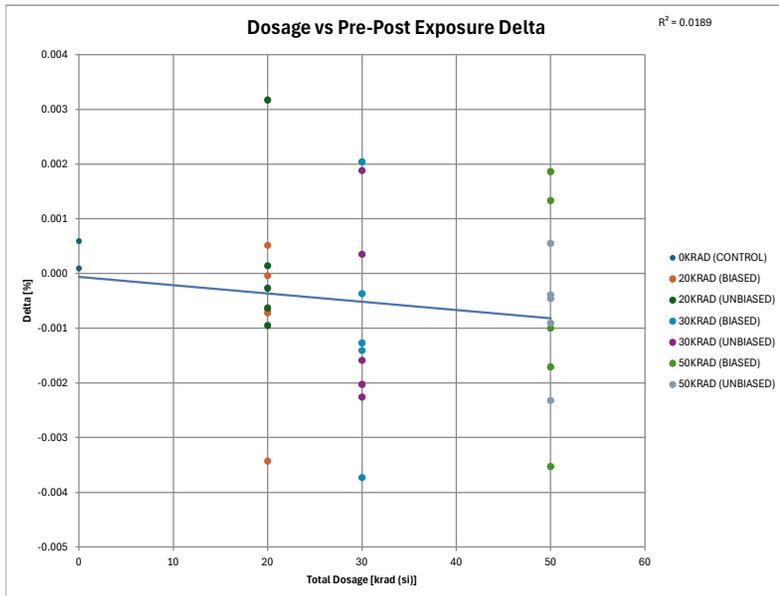
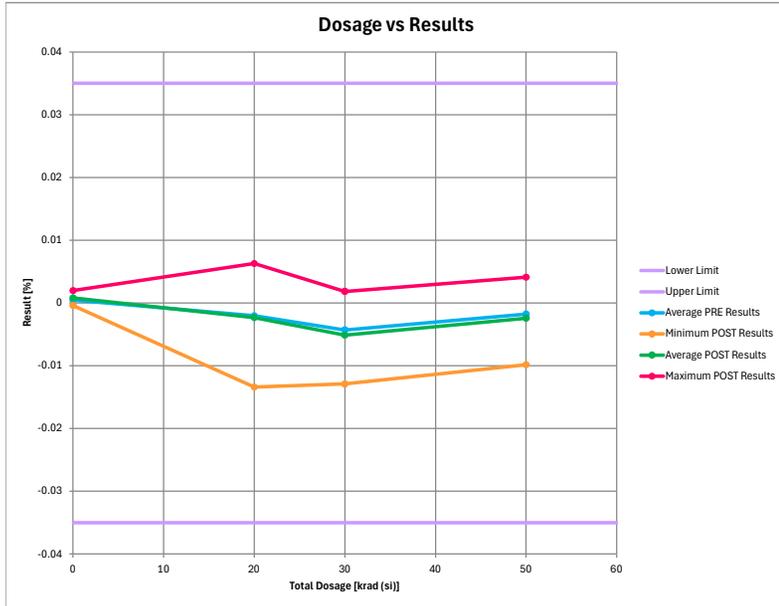
TEST STATISTICS [pA]

Dosage [krad (s)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-31.965	-13.090	5.786	-	-31.796	-12.882	6.033	-	0.169	0.208	0.247	-
20	-81.901	-21.217	27.695	32.140	-91.232	-15.050	45.401	40.886	-25.990	6.167	29.393	17.411
30	-92.853	1.921	78.164	50.203	-86.858	-0.853	74.925	52.509	-17.213	-2.783	19.660	10.353
50	-165.669	-24.313	65.415	58.045	-160.777	-15.249	59.656	61.824	-22.597	9.065	43.204	20.374

B Low Dose Rate Total Ionizing Dose Report

This appendix provides the INA1H182-SEP LDR TID report. The report shows the variation for each parameter up to the maximum specified dose of 30krad(Si). Additional devices were submitted to a higher dose of 50krad(Si) for information purposes only.

DEVICE TEST: 2.67 GE_G1_18P000_POP000 [%]



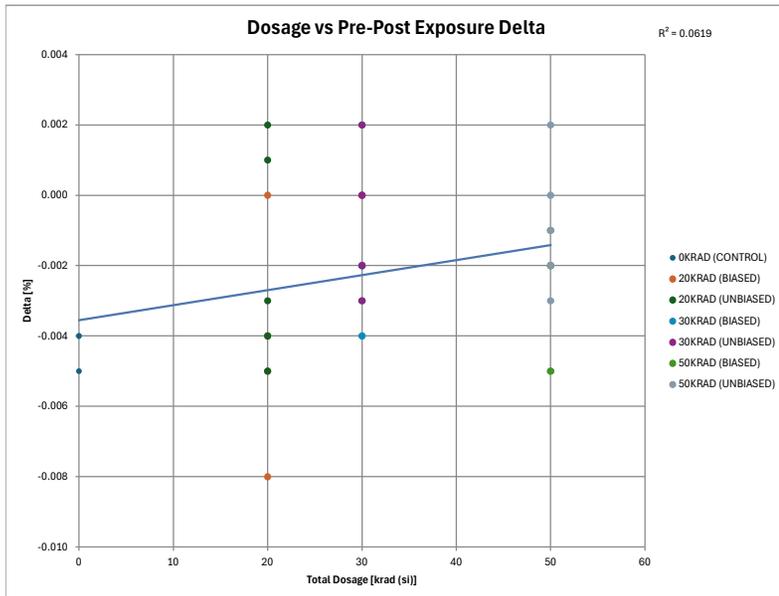
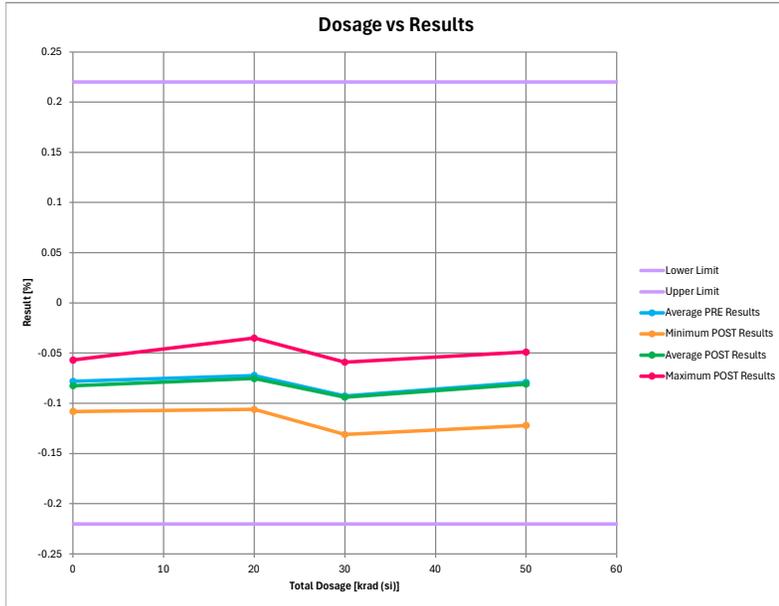
TEST RESULT (LOWER LIMIT = -0.035 | UPPER LIMIT = 0.035) [%]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.002	0.002	0.000
unit 86	0	CONTROL	-0.001	0.000	0.001
unit 1	20	BIASED	-0.013	-0.013	-0.001
unit 2	20	BIASED	-0.005	-0.009	-0.003
unit 3	20	BIASED	-0.003	-0.003	0.001
unit 4	20	BIASED	-0.005	-0.005	-0.001
unit 5	20	BIASED	0.006	0.006	0.000
unit 6	20	UNBIASED	-0.002	0.001	0.003
unit 7	20	UNBIASED	0.003	0.002	0.000
unit 8	20	UNBIASED	0.002	0.001	-0.001
unit 9	20	UNBIASED	0.002	0.001	-0.001
unit 10	20	UNBIASED	-0.005	-0.005	0.000
unit 11	30	BIASED	0.000	0.002	0.002
unit 12	30	BIASED	0.003	0.002	-0.001
unit 13	30	BIASED	-0.007	-0.008	-0.001
unit 14	30	BIASED	-0.002	-0.002	0.000
unit 15	30	BIASED	-0.009	-0.013	-0.004
unit 16	30	UNBIASED	-0.011	-0.010	0.002
unit 17	30	UNBIASED	0.002	0.000	-0.002
unit 18	30	UNBIASED	-0.013	-0.013	0.000
unit 19	30	UNBIASED	0.002	0.000	-0.002
unit 20	30	UNBIASED	-0.008	-0.009	-0.002
unit 21	50	BIASED	-0.006	-0.004	0.001
unit 22	50	BIASED	-0.005	-0.006	-0.001
unit 23	50	BIASED	0.003	-0.001	-0.004
unit 24	50	BIASED	-0.003	-0.005	-0.002
unit 25	50	BIASED	0.001	0.003	0.002
unit 26	50	UNBIASED	0.004	0.004	0.001
unit 27	50	UNBIASED	-0.009	-0.010	0.000
unit 28	50	UNBIASED	0.002	0.002	0.000
unit 29	50	UNBIASED	0.000	0.000	-0.001
unit 30	50	UNBIASED	-0.005	-0.007	-0.002

TEST STATISTICS [%]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-0.001	0.000	0.002	-	0.000	0.001	0.002	-	0.000	0.000	0.001	-
20	-0.013	-0.002	0.006	0.005	-0.013	-0.002	0.006	0.006	-0.003	0.000	0.003	0.002
30	-0.013	-0.004	0.003	0.006	-0.013	-0.005	0.002	0.006	-0.004	-0.001	0.002	0.002
50	-0.009	-0.002	0.004	0.004	-0.010	-0.002	0.004	0.005	-0.004	-0.001	0.002	0.002

DEVICE TEST: 2.74 GE_G10_18P000_POP000 [%]



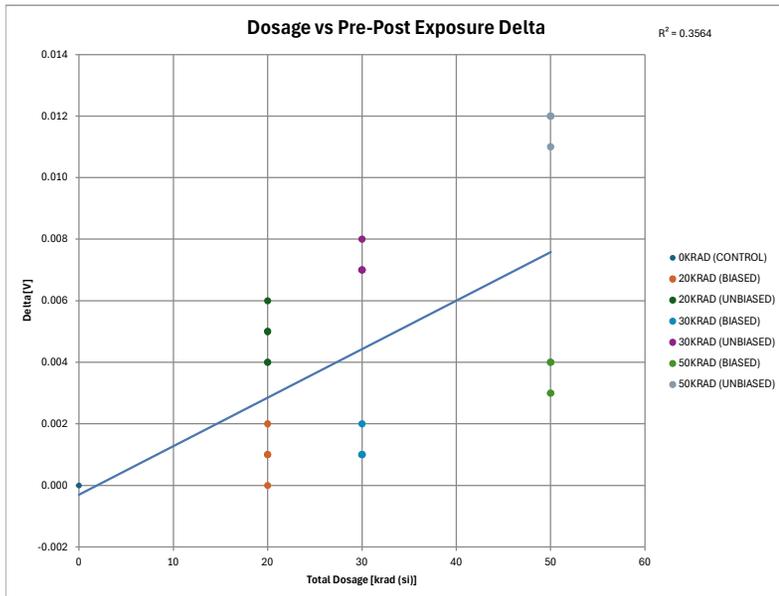
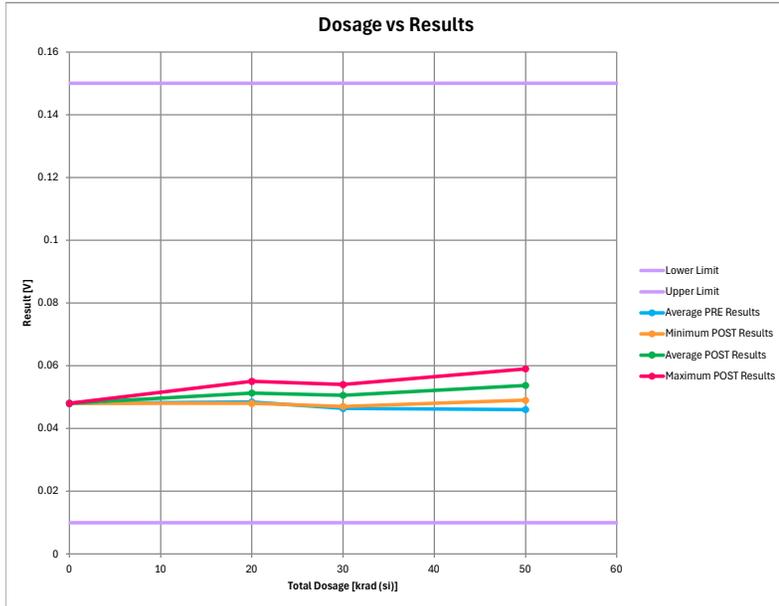
TEST RESULT (LOWER LIMIT = -0.22 | UPPER LIMIT = 0.22) [%]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	-0.052	-0.057	-0.005
unit 86	0	CONTROL	-0.104	-0.108	-0.004
unit 1	20	BIASED	-0.030	-0.035	-0.005
unit 2	20	BIASED	-0.052	-0.060	-0.008
unit 3	20	BIASED	-0.086	-0.086	0.000
unit 4	20	BIASED	-0.101	-0.106	-0.005
unit 5	20	BIASED	-0.054	-0.058	-0.004
unit 6	20	UNBIASED	-0.074	-0.078	-0.004
unit 7	20	UNBIASED	-0.071	-0.076	-0.005
unit 8	20	UNBIASED	-0.071	-0.070	0.001
unit 9	20	UNBIASED	-0.097	-0.095	0.002
unit 10	20	UNBIASED	-0.086	-0.089	-0.003
unit 11	30	BIASED	-0.129	-0.131	-0.002
unit 12	30	BIASED	-0.055	-0.059	-0.004
unit 13	30	BIASED	-0.089	-0.087	0.002
unit 14	30	BIASED	-0.112	-0.114	-0.002
unit 15	30	BIASED	-0.056	-0.059	-0.003
unit 16	30	UNBIASED	-0.112	-0.115	-0.003
unit 17	30	UNBIASED	-0.123	-0.123	0.000
unit 18	30	UNBIASED	-0.085	-0.085	0.000
unit 19	30	UNBIASED	-0.081	-0.083	-0.002
unit 20	30	UNBIASED	-0.085	-0.083	0.002
unit 21	50	BIASED	-0.062	-0.064	-0.002
unit 22	50	BIASED	-0.062	-0.064	-0.002
unit 23	50	BIASED	-0.091	-0.096	-0.005
unit 24	50	BIASED	-0.075	-0.080	-0.005
unit 25	50	BIASED	-0.104	-0.105	-0.001
unit 26	50	UNBIASED	-0.046	-0.049	-0.003
unit 27	50	UNBIASED	-0.084	-0.082	0.002
unit 28	50	UNBIASED	-0.065	-0.065	0.000
unit 29	50	UNBIASED	-0.121	-0.122	-0.001
unit 30	50	UNBIASED	-0.081	-0.083	-0.002

TEST STATISTICS [%]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-0.104	-0.078	-0.052	-	-0.108	-0.083	-0.057	-	-0.005	-0.005	-0.004	-
20	-0.101	-0.072	-0.030	0.022	-0.106	-0.075	-0.035	0.021	-0.008	-0.003	0.002	0.003
30	-0.129	-0.093	-0.055	0.026	-0.131	-0.094	-0.059	0.026	-0.004	-0.001	0.002	0.002
50	-0.121	-0.079	-0.046	0.022	-0.122	-0.081	-0.049	0.022	-0.005	-0.002	0.002	0.002

DEVICE TEST: 2.82 SWING_G10_10K_NEG_18 [V]



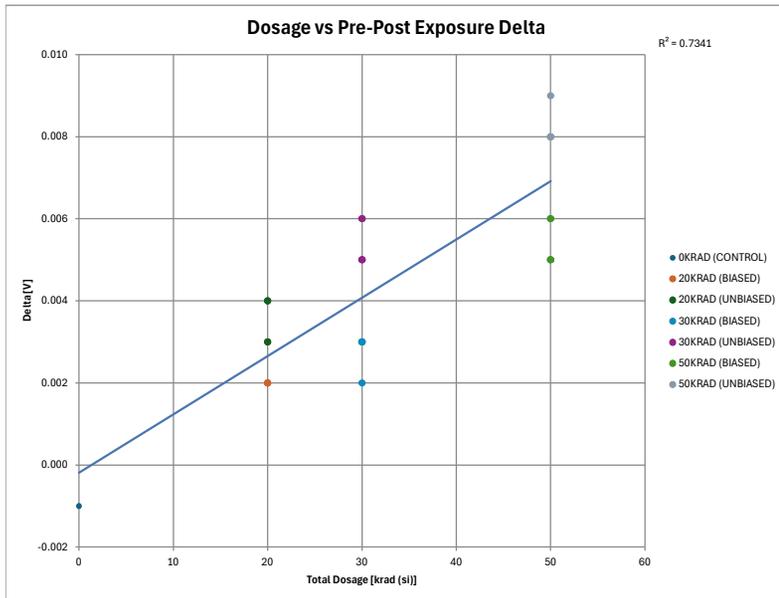
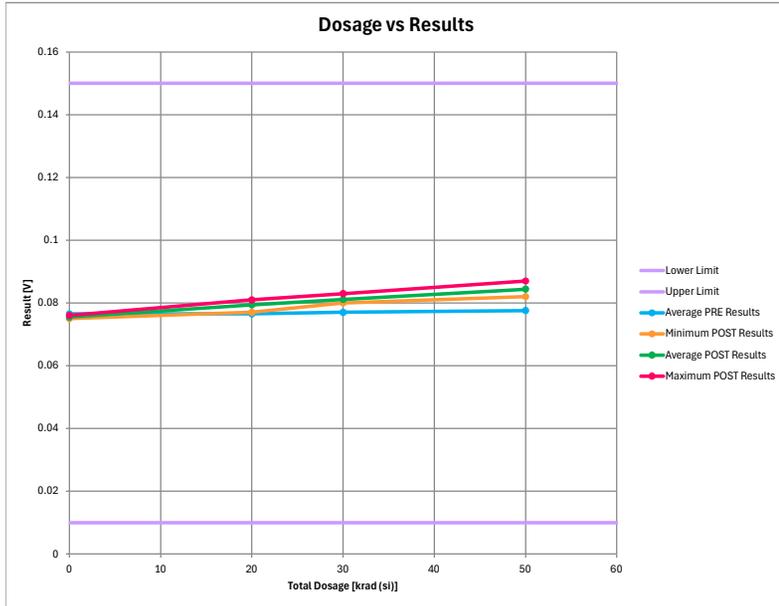
TEST RESULT (LOWER LIMIT = 0.01 | UPPER LIMIT = 0.15) [V]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.048	0.048	0.000
unit 86	0	CONTROL	0.048	0.048	0.000
unit 1	20	BIASED	0.048	0.048	0.000
unit 2	20	BIASED	0.047	0.049	0.002
unit 3	20	BIASED	0.047	0.048	0.001
unit 4	20	BIASED	0.049	0.050	0.001
unit 5	20	BIASED	0.049	0.050	0.001
unit 6	20	UNBIASED	0.049	0.054	0.005
unit 7	20	UNBIASED	0.048	0.052	0.004
unit 8	20	UNBIASED	0.049	0.053	0.004
unit 9	20	UNBIASED	0.049	0.055	0.006
unit 10	20	UNBIASED	0.049	0.054	0.005
unit 11	30	BIASED	0.048	0.049	0.001
unit 12	30	BIASED	0.047	0.048	0.001
unit 13	30	BIASED	0.046	0.047	0.001
unit 14	30	BIASED	0.047	0.049	0.002
unit 15	30	BIASED	0.046	0.047	0.001
unit 16	30	UNBIASED	0.045	0.052	0.007
unit 17	30	UNBIASED	0.046	0.054	0.008
unit 18	30	UNBIASED	0.046	0.053	0.007
unit 19	30	UNBIASED	0.046	0.053	0.007
unit 20	30	UNBIASED	0.047	0.054	0.007
unit 21	50	BIASED	0.045	0.049	0.004
unit 22	50	BIASED	0.045	0.049	0.004
unit 23	50	BIASED	0.047	0.050	0.003
unit 24	50	BIASED	0.046	0.050	0.004
unit 25	50	BIASED	0.046	0.049	0.003
unit 26	50	UNBIASED	0.045	0.057	0.012
unit 27	50	UNBIASED	0.046	0.057	0.011
unit 28	50	UNBIASED	0.046	0.058	0.012
unit 29	50	UNBIASED	0.047	0.059	0.012
unit 30	50	UNBIASED	0.047	0.059	0.012

TEST STATISTICS [V]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.048	0.048	0.048	-	0.048	0.048	0.048	-	0.000	0.000	0.000	-
20	0.047	0.048	0.049	0.001	0.048	0.051	0.055	0.003	0.000	0.003	0.006	0.002
30	0.045	0.046	0.048	0.001	0.047	0.051	0.054	0.003	0.001	0.004	0.008	0.003
50	0.045	0.046	0.047	0.001	0.049	0.054	0.059	0.005	0.003	0.008	0.012	0.004

DEVICE TEST: 2.83 SWING_G10_10K_POS_18 [V]



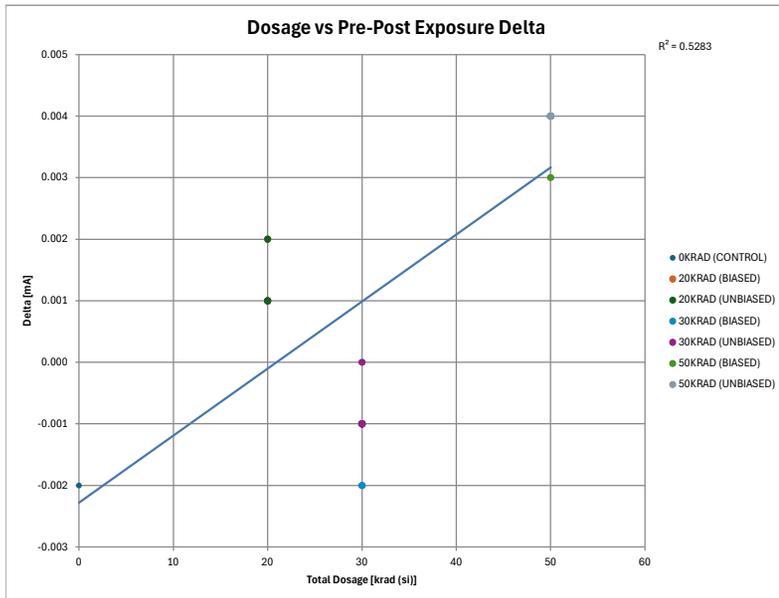
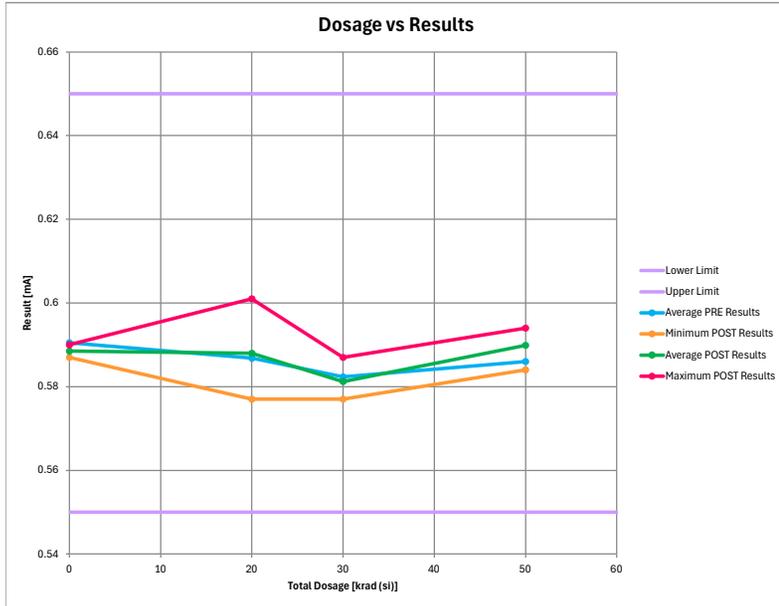
TEST RESULT (LOWER LIMIT = 0.01 | UPPER LIMIT = 0.15) [V]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.077	0.076	-0.001
unit 86	0	CONTROL	0.076	0.075	-0.001
unit 1	20	BIASED	0.077	0.079	0.002
unit 2	20	BIASED	0.077	0.079	0.002
unit 3	20	BIASED	0.078	0.080	0.002
unit 4	20	BIASED	0.077	0.079	0.002
unit 5	20	BIASED	0.076	0.079	0.003
unit 6	20	UNBIASED	0.073	0.077	0.004
unit 7	20	UNBIASED	0.076	0.079	0.003
unit 8	20	UNBIASED	0.077	0.080	0.003
unit 9	20	UNBIASED	0.077	0.081	0.004
unit 10	20	UNBIASED	0.077	0.081	0.004
unit 11	30	BIASED	0.077	0.080	0.003
unit 12	30	BIASED	0.078	0.080	0.002
unit 13	30	BIASED	0.077	0.080	0.003
unit 14	30	BIASED	0.077	0.080	0.003
unit 15	30	BIASED	0.077	0.080	0.003
unit 16	30	UNBIASED	0.077	0.082	0.005
unit 17	30	UNBIASED	0.077	0.083	0.006
unit 18	30	UNBIASED	0.076	0.081	0.005
unit 19	30	UNBIASED	0.077	0.082	0.005
unit 20	30	UNBIASED	0.077	0.083	0.006
unit 21	50	BIASED	0.077	0.082	0.005
unit 22	50	BIASED	0.077	0.083	0.006
unit 23	50	BIASED	0.078	0.083	0.005
unit 24	50	BIASED	0.077	0.083	0.006
unit 25	50	BIASED	0.077	0.082	0.005
unit 26	50	UNBIASED	0.078	0.086	0.008
unit 27	50	UNBIASED	0.078	0.086	0.008
unit 28	50	UNBIASED	0.078	0.086	0.008
unit 29	50	UNBIASED	0.078	0.086	0.008
unit 30	50	UNBIASED	0.078	0.087	0.009

TEST STATISTICS [V]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.076	0.077	0.077	-	0.075	0.076	0.076	-	-0.001	-0.001	-0.001	-
20	0.073	0.077	0.078	0.001	0.077	0.079	0.081	0.001	0.002	0.003	0.004	0.001
30	0.076	0.077	0.078	0.000	0.080	0.081	0.083	0.001	0.002	0.004	0.006	0.001
50	0.077	0.078	0.078	0.001	0.082	0.084	0.087	0.002	0.005	0.007	0.009	0.002

DEVICE TEST: 3.10 Icc_G1_18P000_P0P000 [mA]



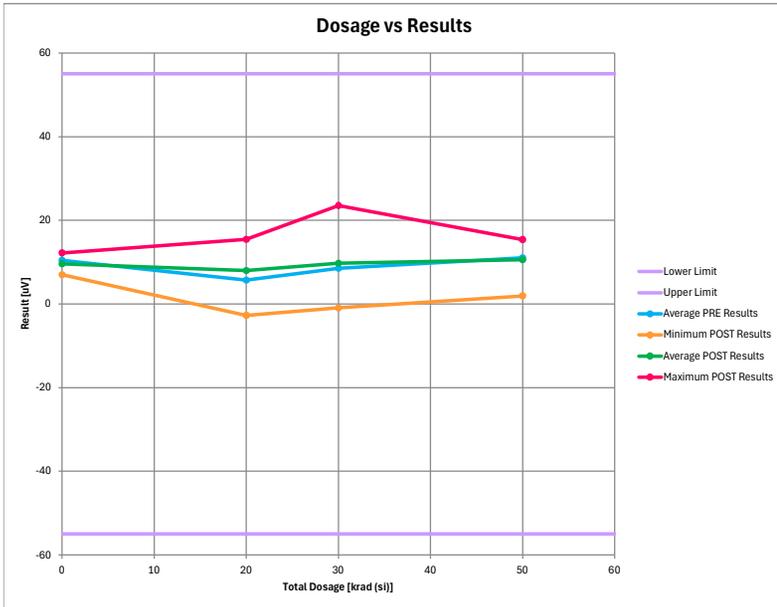
TEST RESULT (LOWER LIMIT = 0.55 | UPPER LIMIT = 0.65) [mA]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.589	0.587	-0.002
unit 86	0	CONTROL	0.592	0.590	-0.002
unit 1	20	BIASED	0.585	0.586	0.001
unit 2	20	BIASED	0.593	0.594	0.001
unit 3	20	BIASED	0.576	0.577	0.001
unit 4	20	BIASED	0.589	0.590	0.001
unit 5	20	BIASED	0.586	0.588	0.002
unit 6	20	UNBIASED	0.599	0.601	0.002
unit 7	20	UNBIASED	0.586	0.587	0.001
unit 8	20	UNBIASED	0.587	0.588	0.001
unit 9	20	UNBIASED	0.582	0.583	0.001
unit 10	20	UNBIASED	0.585	0.586	0.001
unit 11	30	BIASED	0.583	0.581	-0.002
unit 12	30	BIASED	0.582	0.581	-0.001
unit 13	30	BIASED	0.581	0.580	-0.001
unit 14	30	BIASED	0.584	0.582	-0.002
unit 15	30	BIASED	0.578	0.577	-0.001
unit 16	30	UNBIASED	0.578	0.577	-0.001
unit 17	30	UNBIASED	0.582	0.581	-0.001
unit 18	30	UNBIASED	0.582	0.581	-0.001
unit 19	30	UNBIASED	0.587	0.587	0.000
unit 20	30	UNBIASED	0.586	0.585	-0.001
unit 21	50	BIASED	0.591	0.594	0.003
unit 22	50	BIASED	0.586	0.590	0.004
unit 23	50	BIASED	0.589	0.593	0.004
unit 24	50	BIASED	0.590	0.594	0.004
unit 25	50	BIASED	0.587	0.591	0.004
unit 26	50	UNBIASED	0.581	0.585	0.004
unit 27	50	UNBIASED	0.586	0.590	0.004
unit 28	50	UNBIASED	0.580	0.584	0.004
unit 29	50	UNBIASED	0.589	0.593	0.004
unit 30	50	UNBIASED	0.581	0.585	0.004

TEST STATISTICS [mA]

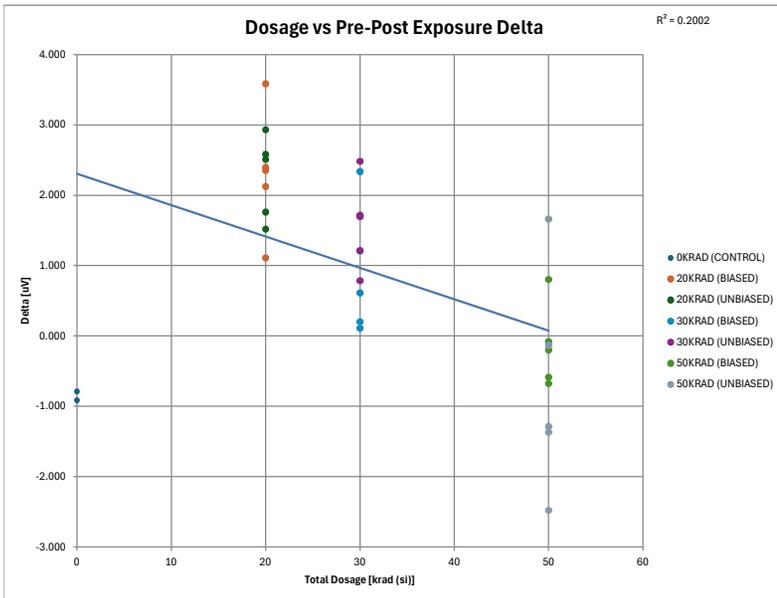
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.589	0.591	0.592	-	0.587	0.589	0.590	-	-0.002	-0.002	-0.002	-
20	0.576	0.587	0.599	0.006	0.577	0.588	0.601	0.006	0.001	0.001	0.002	0.000
30	0.578	0.582	0.587	0.003	0.577	0.581	0.587	0.003	-0.002	-0.001	0.000	0.001
50	0.580	0.586	0.591	0.004	0.584	0.590	0.594	0.004	0.003	0.004	0.004	0.000

DEVICE TEST: 3.136 vosi_18P000_POP000 [uV]



TEST RESULT (LOWER LIMIT = -55 | UPPER LIMIT = 55) [uV]

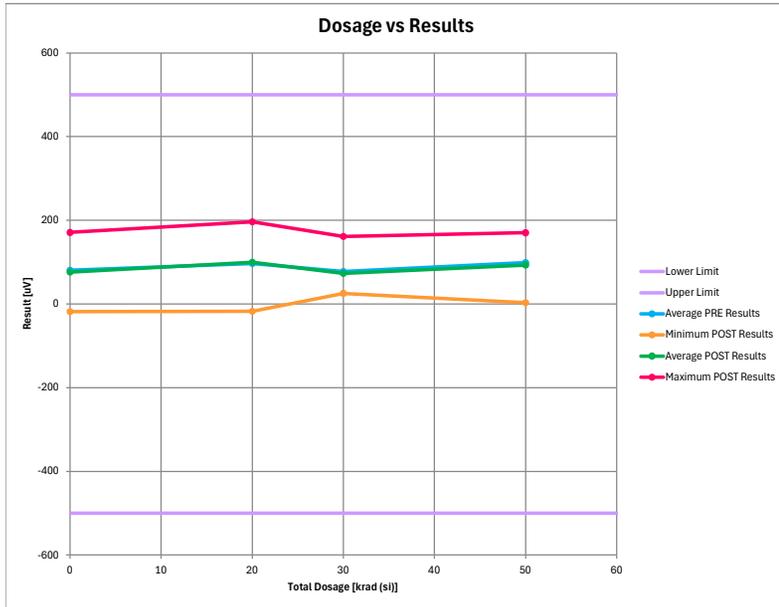
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	12.992	12.204	-0.788
unit 86	0	CONTROL	7.909	6.995	-0.914
unit 1	20	BIASED	5.311	6.421	1.110
unit 2	20	BIASED	7.598	9.993	2.395
unit 3	20	BIASED	-5.074	-2.722	2.352
unit 4	20	BIASED	10.231	12.354	2.123
unit 5	20	BIASED	5.800	9.386	3.586
unit 6	20	UNBIASED	12.494	15.426	2.932
unit 7	20	UNBIASED	1.864	3.625	1.761
unit 8	20	UNBIASED	4.012	6.521	2.509
unit 9	20	UNBIASED	4.085	5.602	1.517
unit 10	20	UNBIASED	10.531	13.114	2.583
unit 11	30	BIASED	5.235	5.347	0.112
unit 12	30	BIASED	17.639	18.846	1.207
unit 13	30	BIASED	-1.134	-0.933	0.201
unit 14	30	BIASED	21.187	23.524	2.337
unit 15	30	BIASED	5.280	5.892	0.612
unit 16	30	UNBIASED	7.244	8.960	1.716
unit 17	30	UNBIASED	3.202	5.683	2.481
unit 18	30	UNBIASED	9.566	10.351	0.785
unit 19	30	UNBIASED	8.737	10.435	1.698
unit 20	30	UNBIASED	7.922	9.148	1.216
unit 21	50	BIASED	2.130	1.932	-0.198
unit 22	50	BIASED	14.421	13.834	-0.587
unit 23	50	BIASED	9.494	10.297	0.803
unit 24	50	BIASED	8.460	8.380	-0.080
unit 25	50	BIASED	11.346	10.670	-0.676
unit 26	50	UNBIASED	17.889	15.409	-2.480
unit 27	50	UNBIASED	11.815	10.446	-1.369
unit 28	50	UNBIASED	12.478	12.346	-0.132
unit 29	50	UNBIASED	15.293	14.007	-1.286
unit 30	50	UNBIASED	6.747	8.408	1.661



TEST STATISTICS [uV]

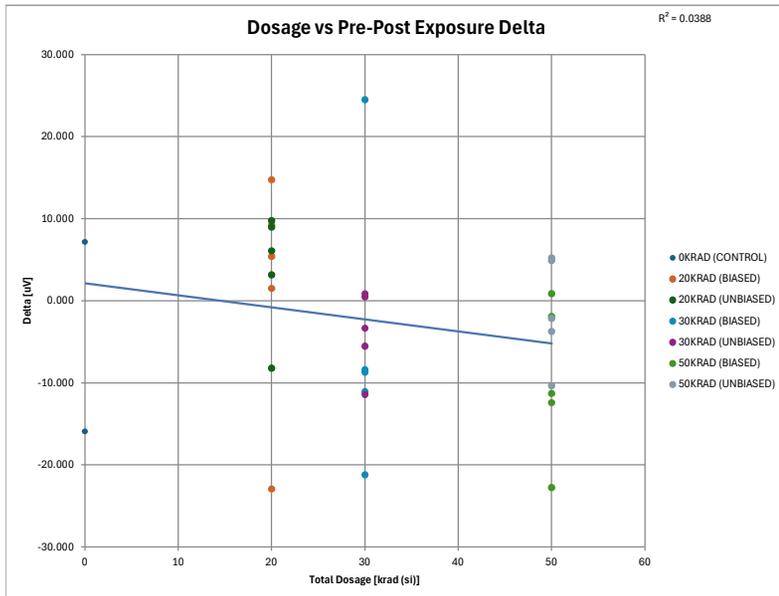
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	7.909	10.451	12.992	-	6.995	9.600	12.204	-	-0.914	-0.851	-0.788	-
20	-5.074	5.685	12.494	5.056	-2.722	7.972	15.426	5.278	1.110	2.287	3.586	0.710
30	-1.134	8.489	21.187	6.578	-0.933	9.725	23.524	6.986	0.112	1.237	2.481	0.826
50	2.130	11.007	17.889	4.547	1.932	10.573	15.409	3.847	-2.480	-0.434	1.661	1.156

DEVICE TEST: 3.157 voso_18P000_POP000 [uV]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [uV]

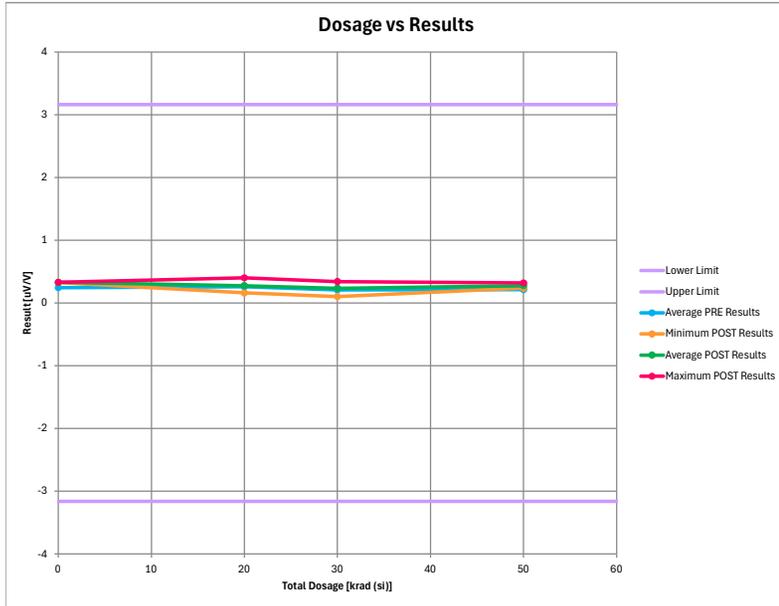
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	-2.459	-18.369	-15.910
unit 86	0	CONTROL	163.680	170.835	7.155
unit 1	20	BIASED	94.305	95.825	1.520
unit 2	20	BIASED	16.235	-6.691	-22.926
unit 3	20	BIASED	173.936	188.676	14.738
unit 4	20	BIASED	90.222	95.633	5.411
unit 5	20	BIASED	103.871	113.098	9.227
unit 6	20	UNBIASED	-20.409	-17.255	3.154
unit 7	20	UNBIASED	79.314	85.409	6.095
unit 8	20	UNBIASED	72.727	64.502	-8.225
unit 9	20	UNBIASED	173.150	182.105	8.955
unit 10	20	UNBIASED	186.543	196.308	9.765
unit 11	30	BIASED	83.922	72.854	-11.068
unit 12	30	BIASED	53.068	77.553	24.485
unit 13	30	BIASED	81.178	72.472	-8.706
unit 14	30	BIASED	73.525	65.114	-8.411
unit 15	30	BIASED	95.685	74.475	-21.210
unit 16	30	UNBIASED	93.582	94.429	0.847
unit 17	30	UNBIASED	24.995	25.461	0.466
unit 18	30	UNBIASED	36.661	33.305	-3.356
unit 19	30	UNBIASED	60.009	54.466	-5.543
unit 20	30	UNBIASED	173.102	161.679	-11.423
unit 21	50	BIASED	136.190	137.058	0.868
unit 22	50	BIASED	38.568	15.810	-22.758
unit 23	50	BIASED	172.656	161.357	-11.299
unit 24	50	BIASED	15.542	3.126	-12.416
unit 25	50	BIASED	109.734	107.831	-1.903
unit 26	50	UNBIASED	60.708	65.923	5.215
unit 27	50	UNBIASED	105.722	103.569	-2.153
unit 28	50	UNBIASED	90.428	86.686	-3.742
unit 29	50	UNBIASED	91.375	81.018	-10.357
unit 30	50	UNBIASED	165.262	170.157	4.895



TEST STATISTICS [uV]

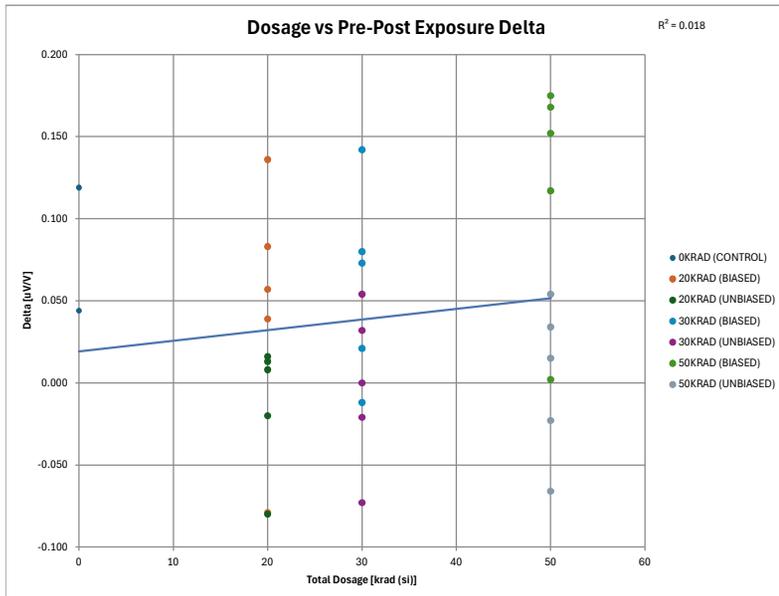
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-2.459	80.611	163.680	-	-18.369	76.233	170.835	-	-15.910	-4.378	7.155	-
20	-20.409	96.990	186.543	67.533	-17.255	99.761	196.308	75.050	-22.926	2.771	14.738	10.919
30	24.995	77.573	173.102	40.997	25.461	73.181	161.679	37.398	-21.210	-4.392	24.485	12.014
50	15.542	98.619	172.656	51.178	3.126	93.254	170.157	55.628	-22.758	-5.365	5.215	8.777

DEVICE TEST: 3.168 PSRR_G1_P0P000 [uV/V]



TEST RESULT (LOWER LIMIT = -3.16 | UPPER LIMIT = 3.16) [uV/V]

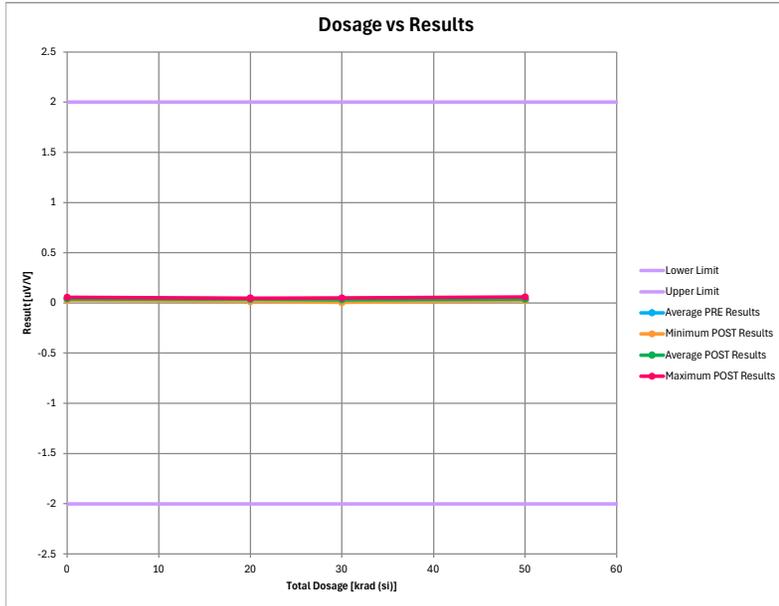
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.285	0.329	0.044
unit 86	0	CONTROL	0.207	0.326	0.119
unit 1	20	BIASED	0.207	0.264	0.057
unit 2	20	BIASED	0.250	0.289	0.039
unit 3	20	BIASED	0.318	0.401	0.083
unit 4	20	BIASED	0.234	0.370	0.136
unit 5	20	BIASED	0.289	0.210	-0.079
unit 6	20	UNBIASED	0.148	0.161	0.013
unit 7	20	UNBIASED	0.196	0.204	0.008
unit 8	20	UNBIASED	0.345	0.361	0.016
unit 9	20	UNBIASED	0.325	0.245	-0.080
unit 10	20	UNBIASED	0.271	0.251	-0.020
unit 11	30	BIASED	0.177	0.165	-0.012
unit 12	30	BIASED	0.263	0.284	0.021
unit 13	30	BIASED	0.209	0.289	0.080
unit 14	30	BIASED	0.190	0.332	0.142
unit 15	30	BIASED	0.267	0.340	0.073
unit 16	30	UNBIASED	0.267	0.246	-0.021
unit 17	30	UNBIASED	0.137	0.169	0.032
unit 18	30	UNBIASED	0.253	0.253	0.000
unit 19	30	UNBIASED	0.322	0.176	-0.146
unit 20	30	UNBIASED	0.176	0.103	-0.073
unit 21	50	BIASED	0.191	0.308	0.117
unit 22	50	BIASED	0.236	0.238	0.002
unit 23	50	BIASED	0.106	0.274	0.168
unit 24	50	BIASED	0.084	0.236	0.152
unit 25	50	BIASED	0.067	0.242	0.175
unit 26	50	UNBIASED	0.218	0.272	0.054
unit 27	50	UNBIASED	0.291	0.268	-0.023
unit 28	50	UNBIASED	0.378	0.312	-0.066
unit 29	50	UNBIASED	0.304	0.319	0.015
unit 30	50	UNBIASED	0.259	0.293	0.034



TEST STATISTICS [uV/V]

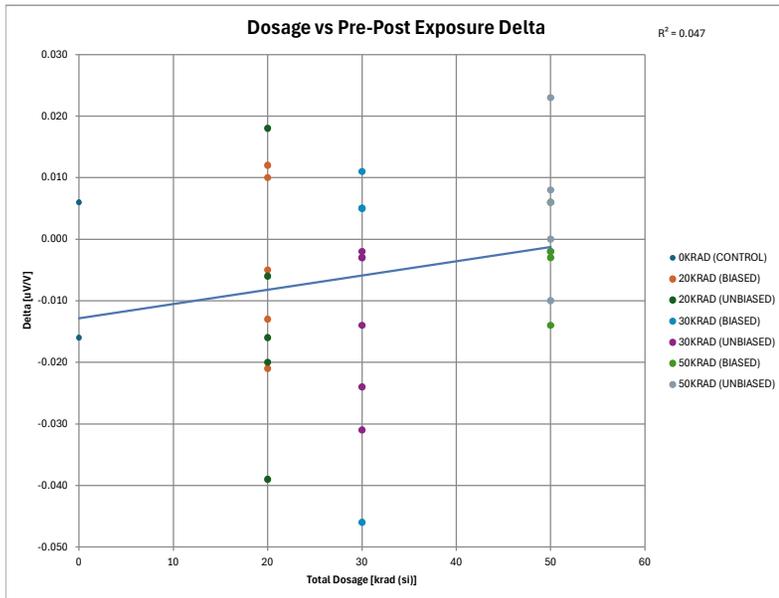
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.207	0.246	0.285	-	0.326	0.328	0.329	-	0.044	0.082	0.119	-
20	0.148	0.258	0.345	0.063	0.161	0.276	0.401	0.079	-0.080	0.017	0.136	0.067
30	0.122	0.206	0.267	0.054	0.103	0.236	0.340	0.079	-0.073	0.030	0.142	0.061
50	0.067	0.213	0.378	0.102	0.236	0.276	0.319	0.031	-0.066	0.063	0.175	0.085

DEVICE TEST: 3.169 PSRR_G10_P0P000 [uV/V]



TEST RESULT (LOWER LIMIT = -2 | UPPER LIMIT = 2) [uV/V]

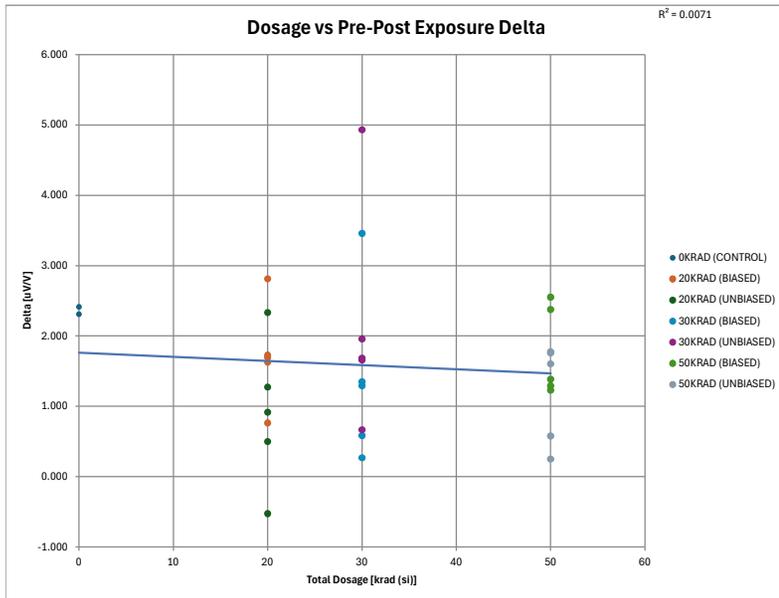
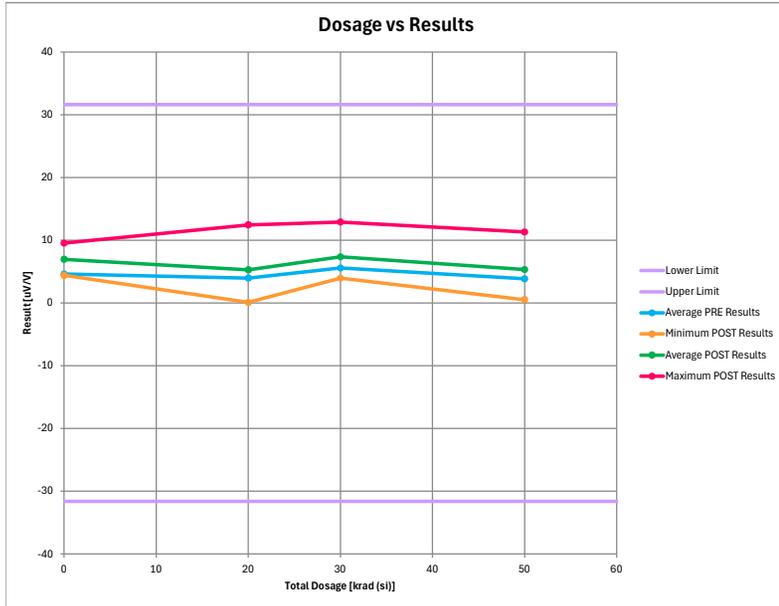
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.051	0.057	0.006
unit 86	0	CONTROL	0.041	0.025	-0.016
unit 1	20	BIASED	0.048	0.027	-0.021
unit 2	20	BIASED	0.034	0.044	0.010
unit 3	20	BIASED	0.051	0.046	-0.005
unit 4	20	BIASED	0.047	0.034	-0.013
unit 5	20	BIASED	0.028	0.040	0.012
unit 6	20	UNBIASED	0.031	0.049	0.018
unit 7	20	UNBIASED	0.053	0.014	-0.039
unit 8	20	UNBIASED	0.052	0.046	-0.006
unit 9	20	UNBIASED	0.053	0.037	-0.016
unit 10	20	UNBIASED	0.050	0.030	-0.020
unit 11	30	BIASED	0.036	0.047	0.011
unit 12	30	BIASED	0.032	0.037	0.005
unit 13	30	BIASED	0.053	0.050	-0.003
unit 14	30	BIASED	0.044	0.049	0.005
unit 15	30	BIASED	0.071	0.025	-0.046
unit 16	30	UNBIASED	0.042	0.011	-0.031
unit 17	30	UNBIASED	0.039	0.025	-0.014
unit 18	30	UNBIASED	0.049	0.046	-0.003
unit 19	30	UNBIASED	0.025	0.023	-0.002
unit 20	30	UNBIASED	0.029	0.005	-0.024
unit 21	50	BIASED	0.034	0.032	-0.002
unit 22	50	BIASED	0.031	0.028	-0.003
unit 23	50	BIASED	0.026	0.032	0.006
unit 24	50	BIASED	0.036	0.022	-0.014
unit 25	50	BIASED	0.040	0.038	-0.002
unit 26	50	UNBIASED	0.036	0.026	-0.010
unit 27	50	UNBIASED	0.036	0.042	0.006
unit 28	50	UNBIASED	0.060	0.060	0.000
unit 29	50	UNBIASED	0.043	0.051	0.008
unit 30	50	UNBIASED	0.024	0.047	0.023



TEST STATISTICS [uV/V]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.041	0.046	0.051	-	0.025	0.041	0.057	-	-0.016	-0.005	0.006	-
20	0.028	0.045	0.053	0.010	0.014	0.037	0.049	0.011	-0.039	-0.008	0.018	0.018
30	0.025	0.042	0.071	0.013	0.005	0.032	0.050	0.016	-0.046	-0.010	0.011	0.018
50	0.024	0.037	0.060	0.010	0.022	0.038	0.060	0.012	-0.014	0.001	0.023	0.010

DEVICE TEST: 3.174 CMRR_G1_18P000_P0P000 [uV/V]



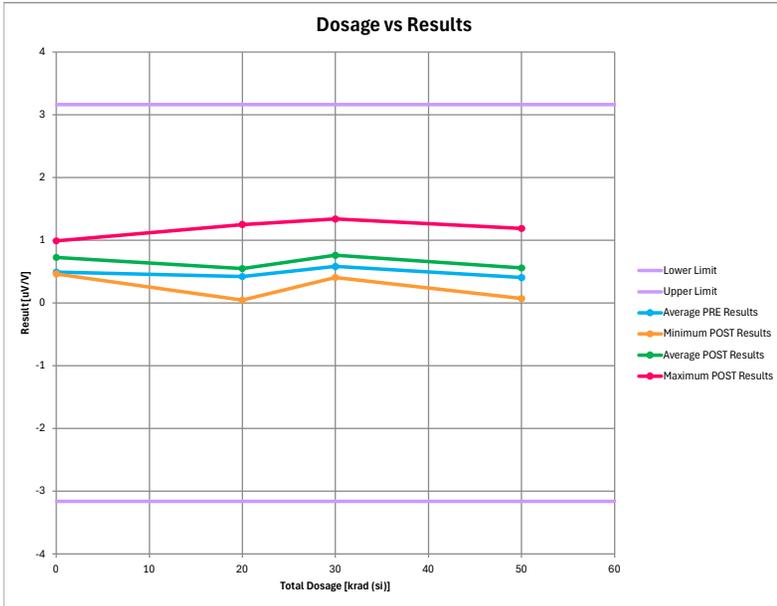
TEST RESULT (LOWER LIMIT = -31.62 | UPPER LIMIT = 31.62) [uV/V]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	1.982	4.397	2.415
unit 86	0	CONTROL	7.226	9.534	2.308
unit 1	20	BIASED	3.837	5.463	1.626
unit 2	20	BIASED	2.483	5.296	2.813
unit 3	20	BIASED	7.183	8.876	1.693
unit 4	20	BIASED	1.141	1.905	0.764
unit 5	20	BIASED	10.730	12.458	1.728
unit 6	20	UNBIASED	-0.407	0.093	0.500
unit 7	20	UNBIASED	8.735	11.067	2.332
unit 8	20	UNBIASED	1.187	2.459	1.272
unit 9	20	UNBIASED	4.084	3.559	-0.525
unit 10	20	UNBIASED	0.803	1.718	0.915
unit 11	30	BIASED	5.046	6.337	1.291
unit 12	30	BIASED	6.412	6.996	0.584
unit 13	30	BIASED	6.230	9.688	3.458
unit 14	30	BIASED	12.632	12.902	0.270
unit 15	30	BIASED	3.036	4.384	1.348
unit 16	30	UNBIASED	5.481	7.440	1.959
unit 17	30	UNBIASED	6.383	7.051	0.668
unit 18	30	UNBIASED	4.498	6.157	1.659
unit 19	30	UNBIASED	2.382	3.948	1.566
unit 20	30	UNBIASED	3.845	8.777	4.932
unit 21	50	BIASED	2.457	3.750	1.293
unit 22	50	BIASED	1.263	2.490	1.227
unit 23	50	BIASED	2.375	3.760	1.385
unit 24	50	BIASED	6.970	9.522	2.552
unit 25	50	BIASED	8.935	11.312	2.377
unit 26	50	UNBIASED	5.449	5.699	0.250
unit 27	50	UNBIASED	-0.057	0.521	0.578
unit 28	50	UNBIASED	3.748	5.523	1.775
unit 29	50	UNBIASED	2.055	3.658	1.603
unit 30	50	UNBIASED	5.282	7.041	1.759

TEST STATISTICS [uV/V]

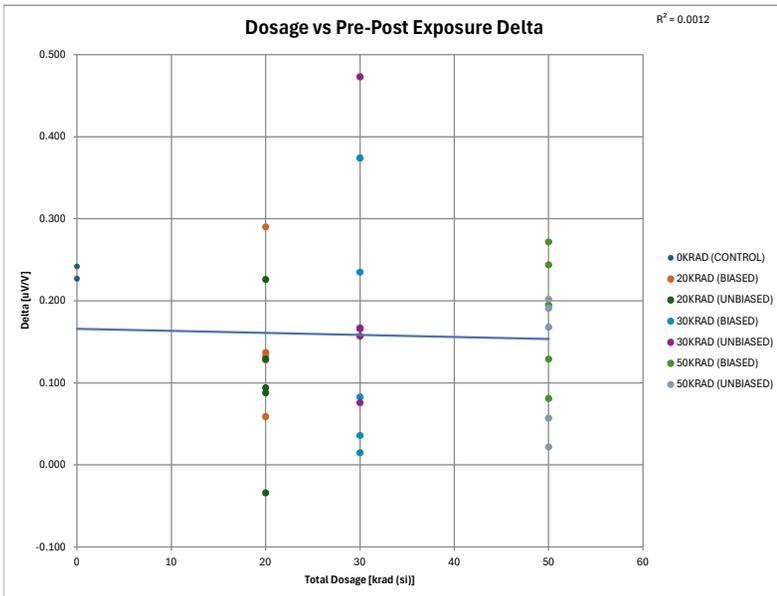
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	1.982	4.604	7.226	-	4.397	6.966	9.534	-	2.308	2.362	2.415	-
20	-0.407	3.978	10.730	3.740	0.093	5.289	12.458	4.215	-0.525	1.312	2.813	0.955
30	2.262	5.583	12.632	2.857	3.948	7.368	12.902	2.611	0.270	1.786	4.932	1.421
50	-0.057	3.848	8.935	2.779	0.521	5.328	11.312	3.256	0.250	1.480	2.552	0.712

DEVICE TEST: 3.181 CMRR_G10_18P000_P0P000 [uV/V]



TEST RESULT (LOWER LIMIT = -3.162 | UPPER LIMIT = 3.162) [uV/V]

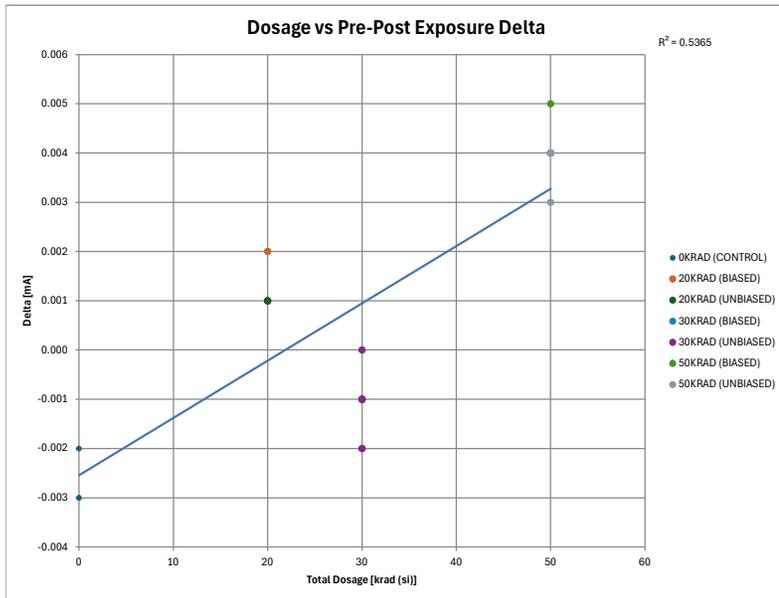
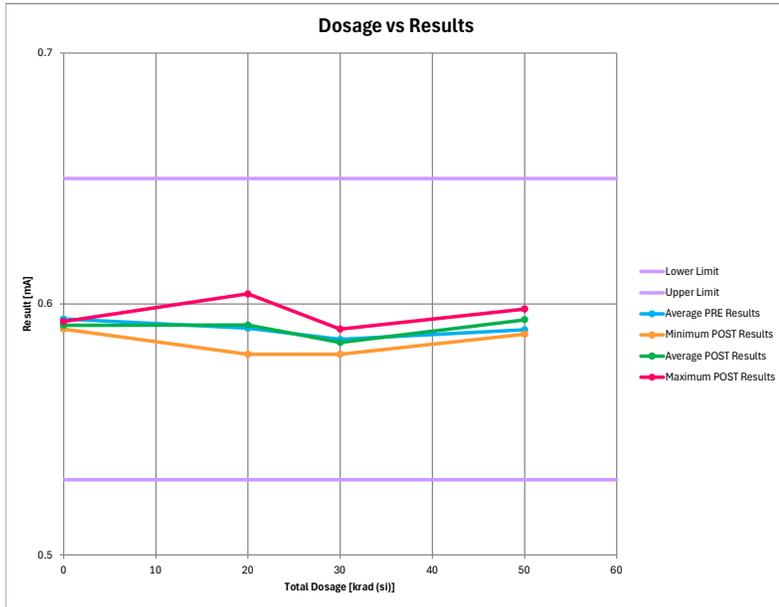
Serial #	Dosage [krad (Sl)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.237	0.464	0.227
unit 86	0	CONTROL	0.748	0.990	0.242
unit 1	20	BIASED	0.431	0.559	0.128
unit 2	20	BIASED	0.261	0.551	0.290
unit 3	20	BIASED	0.767	0.900	0.133
unit 4	20	BIASED	0.133	0.192	0.059
unit 5	20	BIASED	1.113	1.250	0.137
unit 6	20	UNBIASED	-0.043	0.045	0.088
unit 7	20	UNBIASED	0.939	1.165	0.226
unit 8	20	UNBIASED	0.145	0.239	0.094
unit 9	20	UNBIASED	0.422	0.388	-0.034
unit 10	20	UNBIASED	0.054	0.183	0.129
unit 11	30	BIASED	0.550	0.633	0.083
unit 12	30	BIASED	0.655	0.691	0.036
unit 13	30	BIASED	0.612	0.986	0.374
unit 14	30	BIASED	1.323	1.338	0.015
unit 15	30	BIASED	0.299	0.534	0.235
unit 16	30	UNBIASED	0.573	0.739	0.166
unit 17	30	UNBIASED	0.666	0.742	0.076
unit 18	30	UNBIASED	0.459	0.626	0.167
unit 19	30	UNBIASED	0.349	0.486	0.137
unit 20	30	UNBIASED	0.428	0.901	0.473
unit 21	50	BIASED	0.301	0.382	0.081
unit 22	50	BIASED	0.137	0.266	0.129
unit 23	50	BIASED	0.219	0.414	0.195
unit 24	50	BIASED	0.710	0.982	0.272
unit 25	50	BIASED	0.944	1.188	0.244
unit 26	50	UNBIASED	0.580	0.602	0.022
unit 27	50	UNBIASED	0.015	0.072	0.057
unit 28	50	UNBIASED	0.390	0.581	0.191
unit 29	50	UNBIASED	0.216	0.384	0.168
unit 30	50	UNBIASED	0.521	0.723	0.202



TEST STATISTICS [uV/V]

Dosage [krad (Sl)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.237	0.493	0.748	-	0.464	0.727	0.990	-	0.227	0.235	0.242	-
20	-0.043	0.422	1.113	0.395	0.045	0.547	1.250	0.426	-0.034	0.125	0.290	0.088
30	0.249	0.581	1.323	0.297	0.406	0.760	1.338	0.263	0.015	0.178	0.473	0.147
50	0.015	0.403	0.944	0.285	0.072	0.559	1.188	0.335	0.022	0.156	0.272	0.082

DEVICE TEST: 7.10 Icc_G1_last_18P000_POP000 [mA]



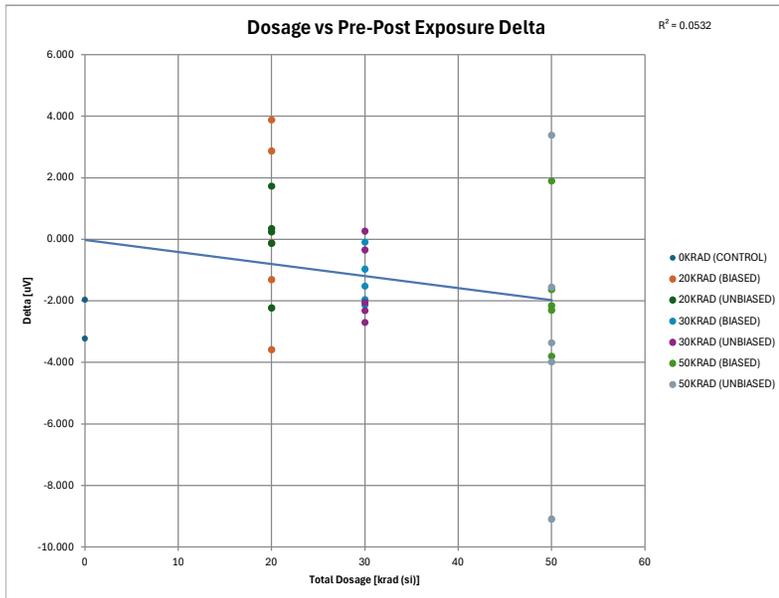
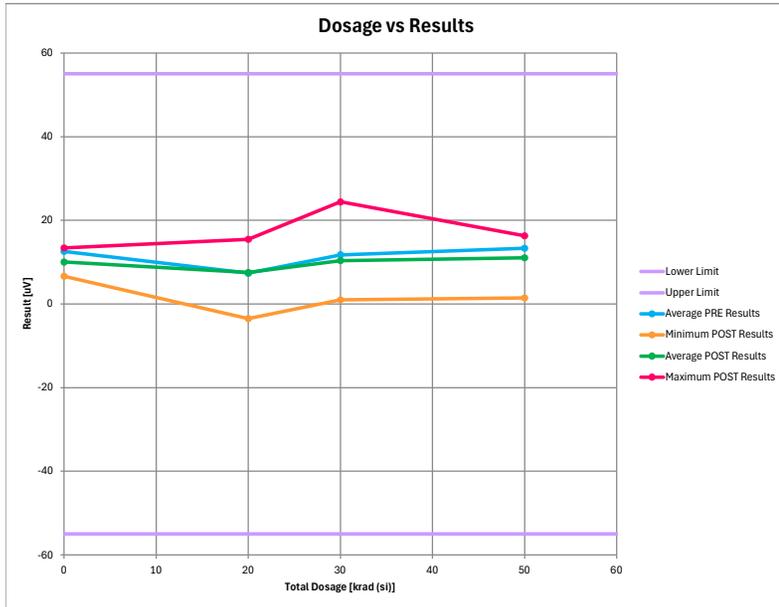
TEST RESULT (LOWER LIMIT = 0.53 | UPPER LIMIT = 0.65) [mA]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.593	0.590	-0.003
unit 86	0	CONTROL	0.595	0.593	-0.002
unit 1	20	BIASED	0.589	0.590	0.001
unit 2	20	BIASED	0.597	0.598	0.001
unit 3	20	BIASED	0.579	0.580	0.001
unit 4	20	BIASED	0.592	0.594	0.002
unit 5	20	BIASED	0.590	0.592	0.002
unit 6	20	UNBIASED	0.603	0.604	0.001
unit 7	20	UNBIASED	0.589	0.590	0.001
unit 8	20	UNBIASED	0.591	0.592	0.001
unit 9	20	UNBIASED	0.585	0.586	0.001
unit 10	20	UNBIASED	0.589	0.590	0.001
unit 11	30	BIASED	0.587	0.585	-0.002
unit 12	30	BIASED	0.586	0.584	-0.002
unit 13	30	BIASED	0.584	0.583	-0.001
unit 14	30	BIASED	0.587	0.586	-0.001
unit 15	30	BIASED	0.582	0.581	-0.001
unit 16	30	UNBIASED	0.581	0.580	-0.001
unit 17	30	UNBIASED	0.585	0.585	0.000
unit 18	30	UNBIASED	0.586	0.584	-0.002
unit 19	30	UNBIASED	0.591	0.590	-0.001
unit 20	30	UNBIASED	0.590	0.589	-0.001
unit 21	50	BIASED	0.594	0.588	0.004
unit 22	50	BIASED	0.589	0.594	0.005
unit 23	50	BIASED	0.593	0.597	0.004
unit 24	50	BIASED	0.593	0.597	0.004
unit 25	50	BIASED	0.591	0.595	0.004
unit 26	50	UNBIASED	0.585	0.589	0.004
unit 27	50	UNBIASED	0.590	0.594	0.004
unit 28	50	UNBIASED	0.584	0.588	0.004
unit 29	50	UNBIASED	0.593	0.597	0.004
unit 30	50	UNBIASED	0.585	0.588	0.003

TEST STATISTICS [mA]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.593	0.594	0.595	-	0.590	0.592	0.593	-	-0.003	-0.003	-0.002	-
20	0.579	0.590	0.603	0.006	0.580	0.592	0.604	0.006	0.001	0.001	0.002	0.000
30	0.581	0.586	0.591	0.003	0.580	0.585	0.590	0.003	-0.002	-0.001	0.000	0.001
50	0.584	0.590	0.594	0.004	0.588	0.594	0.598	0.004	0.003	0.004	0.005	0.000

DEVICE TEST: 7.136 vosi_last_18P000_POP000 [uV]



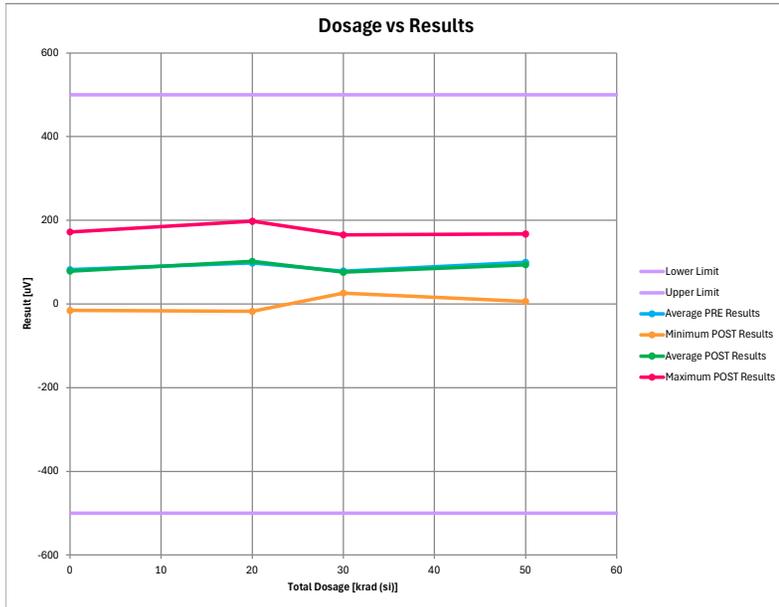
TEST RESULT (LOWER LIMIT = -55 | UPPER LIMIT = 55) [uV]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	16.612	13.390	-3.222
unit 86	0	CONTROL	8.582	6.621	-1.961
unit 1	20	BIASED	8.150	4.563	-3.587
unit 2	20	BIASED	6.035	9.914	3.879
unit 3	20	BIASED	-3.405	-3.519	-0.114
unit 4	20	BIASED	13.172	11.859	-1.313
unit 5	20	BIASED	5.620	8.487	2.867
unit 6	20	UNBIASED	15.195	15.435	0.240
unit 7	20	UNBIASED	2.626	2.495	-0.131
unit 8	20	UNBIASED	6.767	8.493	1.726
unit 9	20	UNBIASED	7.471	5.238	-2.233
unit 10	20	UNBIASED	11.845	12.197	0.352
unit 11	30	BIASED	7.483	5.520	-1.963
unit 12	30	BIASED	18.883	17.360	-1.523
unit 13	30	BIASED	3.132	0.995	-2.137
unit 14	30	BIASED	24.492	24.398	-0.094
unit 15	30	BIASED	10.474	9.504	-0.970
unit 16	30	UNBIASED	10.283	8.229	-2.054
unit 17	30	UNBIASED	7.146	7.408	0.262
unit 18	30	UNBIASED	13.175	10.858	-2.317
unit 19	30	UNBIASED	12.405	12.057	-0.348
unit 20	30	UNBIASED	10.175	7.471	-2.704
unit 21	50	BIASED	3.081	1.447	-1.634
unit 22	50	BIASED	16.456	14.152	-2.304
unit 23	50	BIASED	9.194	11.085	1.891
unit 24	50	BIASED	11.147	7.346	-3.801
unit 25	50	BIASED	14.722	12.570	-2.152
unit 26	50	UNBIASED	25.374	16.284	-9.090
unit 27	50	UNBIASED	13.843	9.861	-3.982
unit 28	50	UNBIASED	15.744	14.189	-1.555
unit 29	50	UNBIASED	17.797	14.433	-3.364
unit 30	50	UNBIASED	5.936	9.318	3.382

TEST STATISTICS [uV]

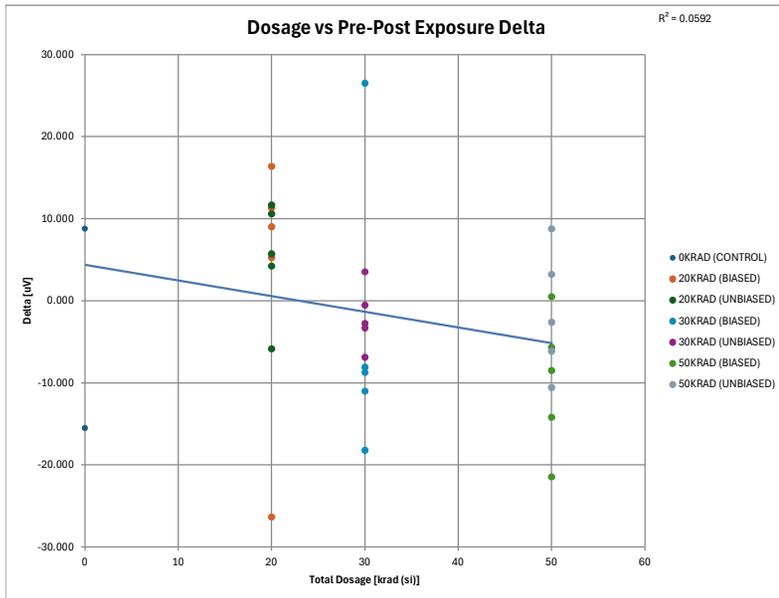
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	8.582	12.597	16.612	-	6.621	10.006	13.390	-	-3.222	-2.592	-1.961	-
20	-3.405	7.348	15.195	5.368	-3.519	7.516	15.435	5.498	-3.587	0.169	3.879	2.255
30	3.132	11.765	24.492	6.107	0.995	10.380	24.398	6.521	-2.704	-1.385	0.262	1.033
50	3.081	13.329	25.374	6.363	1.447	11.069	16.284	4.359	-9.090	-2.261	3.382	3.386

DEVICE TEST: 7.157 voso_last_18P000_POP000 [uV]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [uV]

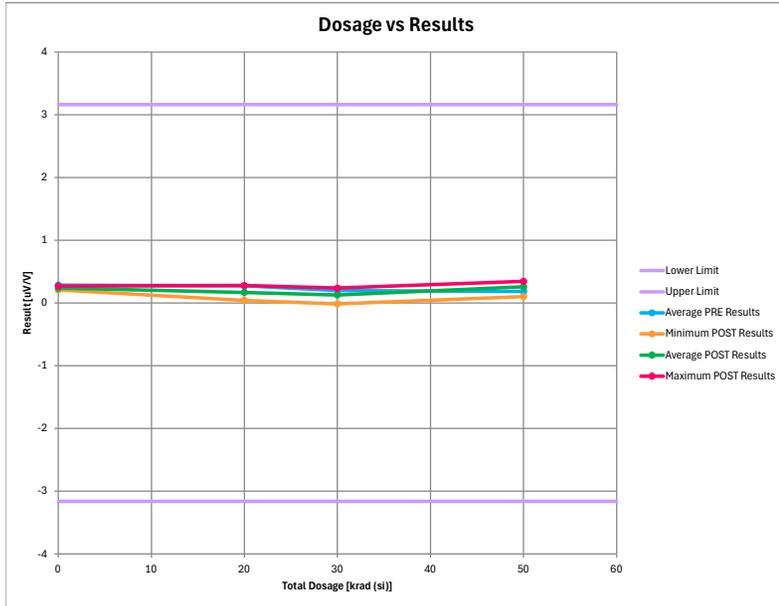
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	-0.092	-15.600	-15.508
unit 86	0	CONTROL	163.681	172.473	8.792
unit 1	20	BIASED	94.978	100.232	5.254
unit 2	20	BIASED	20.447	-5.691	-26.338
unit 3	20	BIASED	175.615	191.960	16.365
unit 4	20	BIASED	92.198	101.200	9.002
unit 5	20	BIASED	103.291	114.564	11.273
unit 6	20	UNBIASED	-21.709	-17.483	4.226
unit 7	20	UNBIASED	79.806	85.517	5.711
unit 8	20	UNBIASED	72.810	66.942	-5.868
unit 9	20	UNBIASED	175.235	186.893	11.658
unit 10	20	UNBIASED	187.207	197.789	10.582
unit 11	30	BIASED	86.580	75.571	-11.009
unit 12	30	BIASED	56.163	82.678	26.515
unit 13	30	BIASED	81.226	73.133	-8.093
unit 14	30	BIASED	76.313	67.590	-8.723
unit 15	30	BIASED	94.850	76.628	-18.222
unit 16	30	UNBIASED	92.976	96.506	3.530
unit 17	30	UNBIASED	26.573	26.036	-0.537
unit 18	30	UNBIASED	41.549	38.799	-2.750
unit 19	30	UNBIASED	58.816	55.598	-3.208
unit 20	30	UNBIASED	172.163	165.279	-6.884
unit 21	50	BIASED	136.229	136.724	0.495
unit 22	50	BIASED	39.050	17.583	-21.467
unit 23	50	BIASED	176.335	162.119	-14.216
unit 24	50	BIASED	14.718	6.214	-8.504
unit 25	50	BIASED	109.569	103.873	-5.696
unit 26	50	UNBIASED	59.926	68.696	8.770
unit 27	50	UNBIASED	109.392	106.784	-2.608
unit 28	50	UNBIASED	82.524	86.379	3.855
unit 29	50	UNBIASED	93.231	82.651	-10.580
unit 30	50	UNBIASED	164.072	167.293	3.221



TEST STATISTICS [uV]

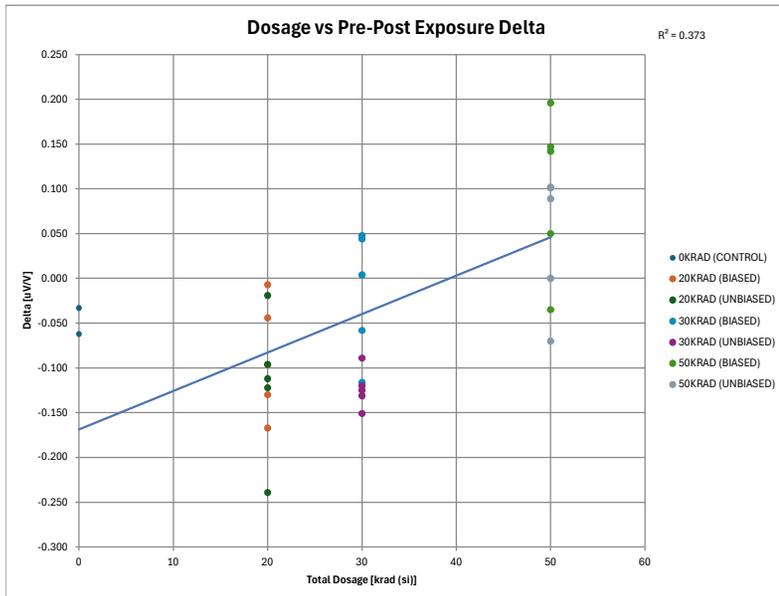
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-0.092	81.795	163.681	-	-15.600	78.437	172.473	-	-15.508	-3.358	8.792	-
20	-21.709	97.988	187.207	67.765	-17.483	102.174	197.789	76.054	-26.338	4.187	16.365	12.269
30	26.573	78.721	172.163	39.826	26.036	75.773	165.279	37.735	-18.222	-2.948	26.515	11.970
50	14.718	99.505	176.335	51.766	6.214	93.832	167.293	54.233	-21.467	-5.673	8.770	8.795

DEVICE TEST: 7.168 PSRR_last_G1_P0P000 [uV/V]



TEST RESULT (LOWER LIMIT = -3.16] UPPER LIMIT = 3.16) [uV/V]

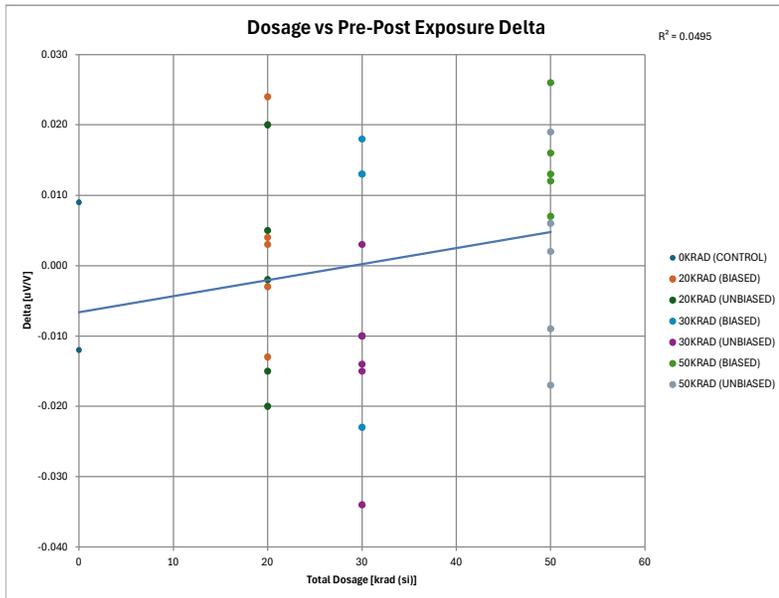
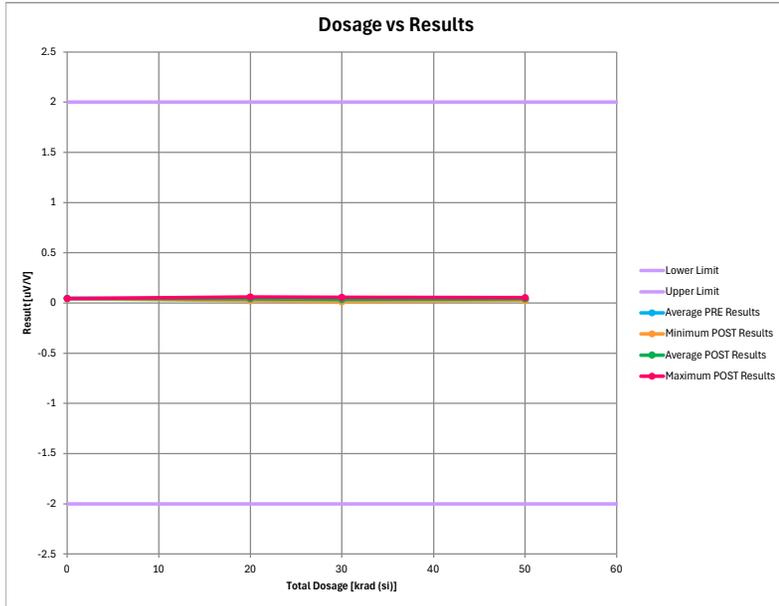
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.329	0.267	-0.062
unit 86	0	CONTROL	0.241	0.208	-0.033
unit 1	20	BIASED	0.210	0.080	-0.130
unit 2	20	BIASED	0.295	0.128	-0.167
unit 3	20	BIASED	0.302	0.258	-0.044
unit 4	20	BIASED	0.299	0.203	-0.096
unit 5	20	BIASED	0.219	0.212	-0.007
unit 6	20	UNBIASED	0.181	0.162	-0.019
unit 7	20	UNBIASED	0.281	0.042	-0.239
unit 8	20	UNBIASED	0.373	0.277	-0.096
unit 9	20	UNBIASED	0.278	0.156	-0.122
unit 10	20	UNBIASED	0.279	0.167	-0.112
unit 11	30	BIASED	0.172	0.114	-0.058
unit 12	30	BIASED	0.172	0.176	0.004
unit 13	30	BIASED	0.149	0.197	0.048
unit 14	30	BIASED	0.193	0.237	0.044
unit 15	30	BIASED	0.296	0.180	-0.116
unit 16	30	UNBIASED	0.286	0.166	-0.120
unit 17	30	UNBIASED	0.137	-0.014	-0.151
unit 18	30	UNBIASED	0.275	0.150	-0.125
unit 19	30	UNBIASED	0.144	0.055	-0.089
unit 20	30	UNBIASED	0.157	0.026	-0.131
unit 21	50	BIASED	0.102	0.298	0.196
unit 22	50	BIASED	0.145	0.287	0.142
unit 23	50	BIASED	0.166	0.216	0.050
unit 24	50	BIASED	0.136	0.101	-0.035
unit 25	50	BIASED	0.158	0.305	0.147
unit 26	50	UNBIASED	0.162	0.162	0.000
unit 27	50	UNBIASED	0.273	0.203	-0.070
unit 28	50	UNBIASED	0.242	0.344	0.102
unit 29	50	UNBIASED	0.237	0.326	0.089
unit 30	50	UNBIASED	0.228	0.329	0.101



TEST STATISTICS [uV/V]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.241	0.285	0.329	-	0.208	0.238	0.267	-	-0.062	-0.048	-0.033	-
20	0.181	0.272	0.373	0.055	0.042	0.169	0.277	0.073	-0.239	-0.103	-0.007	0.070
30	0.137	0.198	0.296	0.063	-0.014	0.129	0.237	0.081	-0.151	-0.069	0.048	0.075
50	0.102	0.185	0.273	0.056	0.101	0.257	0.344	0.082	-0.070	0.072	0.196	0.085

DEVICE TEST: 7.169 PSRR_Last_G10_POP000 [uV/V]



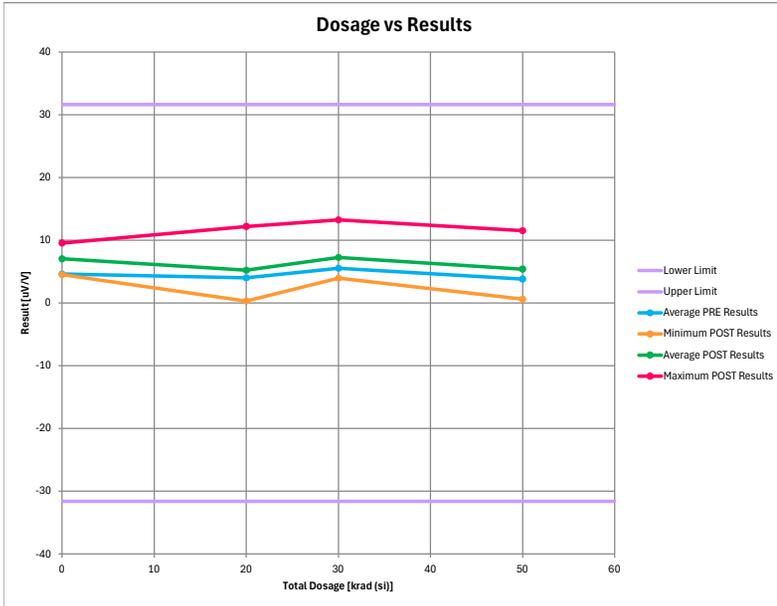
TEST RESULT (LOWER LIMIT = -2 | UPPER LIMIT = 2) [uV/V]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.057	0.045	-0.012
unit 86	0	CONTROL	0.036	0.045	0.009
unit 1	20	BIASED	0.030	0.033	0.003
unit 2	20	BIASED	0.033	0.057	0.024
unit 3	20	BIASED	0.045	0.049	0.004
unit 4	20	BIASED	0.041	0.038	-0.003
unit 5	20	BIASED	0.048	0.035	-0.013
unit 6	20	UNBIASED	0.036	0.021	-0.015
unit 7	20	UNBIASED	0.032	0.030	-0.002
unit 8	20	UNBIASED	0.065	0.045	-0.020
unit 9	20	UNBIASED	0.054	0.059	0.005
unit 10	20	UNBIASED	0.041	0.061	0.020
unit 11	30	BIASED	0.034	0.011	-0.023
unit 12	30	BIASED	0.036	0.026	-0.010
unit 13	30	BIASED	0.044	0.057	0.013
unit 14	30	BIASED	0.033	0.051	0.018
unit 15	30	BIASED	0.040	0.053	0.013
unit 16	30	UNBIASED	0.055	0.021	-0.034
unit 17	30	UNBIASED	0.039	0.025	-0.014
unit 18	30	UNBIASED	0.041	0.044	0.003
unit 19	30	UNBIASED	0.039	0.029	-0.010
unit 20	30	UNBIASED	0.035	0.020	-0.015
unit 21	50	BIASED	0.030	0.046	0.016
unit 22	50	BIASED	0.028	0.054	0.026
unit 23	50	BIASED	0.031	0.044	0.013
unit 24	50	BIASED	0.018	0.030	0.012
unit 25	50	BIASED	0.030	0.037	0.007
unit 26	50	UNBIASED	0.041	0.024	-0.017
unit 27	50	UNBIASED	0.026	0.045	0.019
unit 28	50	UNBIASED	0.061	0.052	-0.009
unit 29	50	UNBIASED	0.043	0.049	0.006
unit 30	50	UNBIASED	0.040	0.042	0.002

TEST STATISTICS [uV/V]

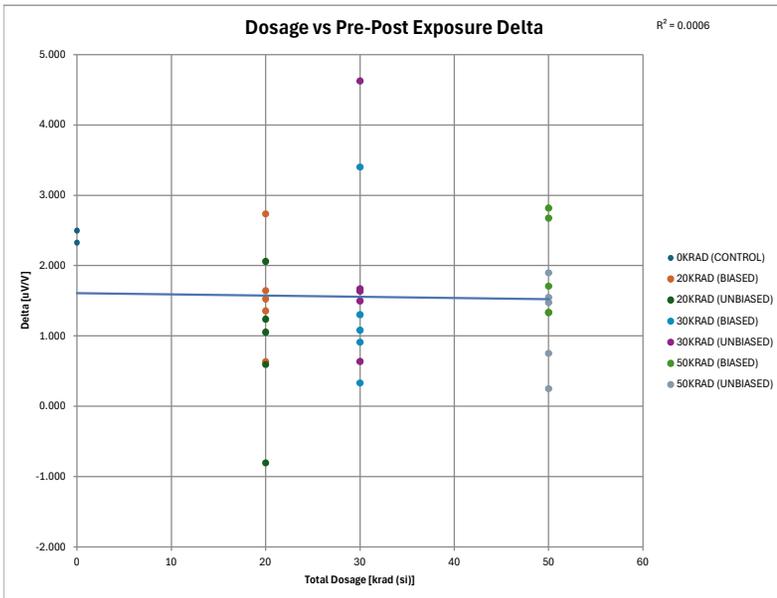
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.036	0.047	0.057	-	0.045	0.045	0.045	-	-0.012	-0.002	0.009	-
20	0.030	0.043	0.065	0.011	0.021	0.043	0.061	0.014	-0.020	0.000	0.024	0.014
30	0.033	0.040	0.055	0.006	0.011	0.034	0.057	0.016	-0.034	-0.006	0.018	0.017
50	0.018	0.035	0.061	0.012	0.024	0.042	0.054	0.010	-0.017	0.008	0.026	0.013

DEVICE TEST: 7.174 CMRR_Last_G1_18P000_P0P000 [uV/V]



TEST RESULT (LOWER LIMIT = -31.62 | UPPER LIMIT = 31.62) [uV/V]

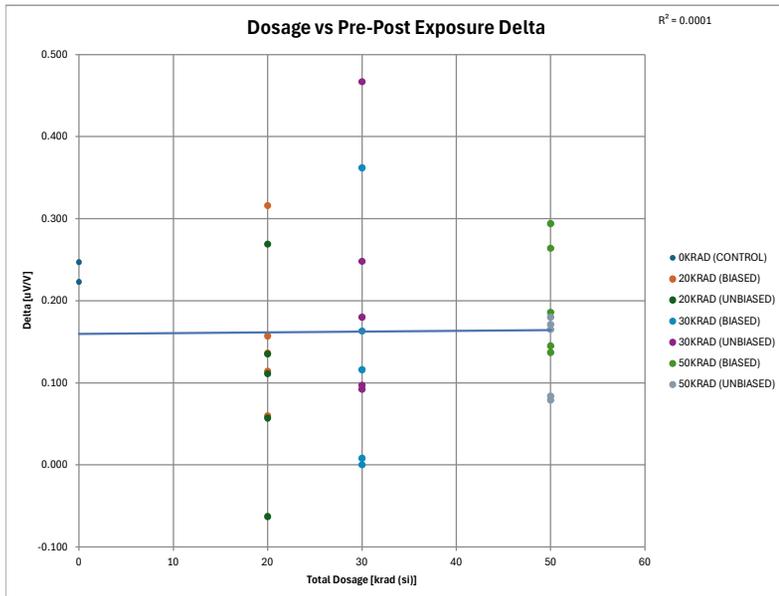
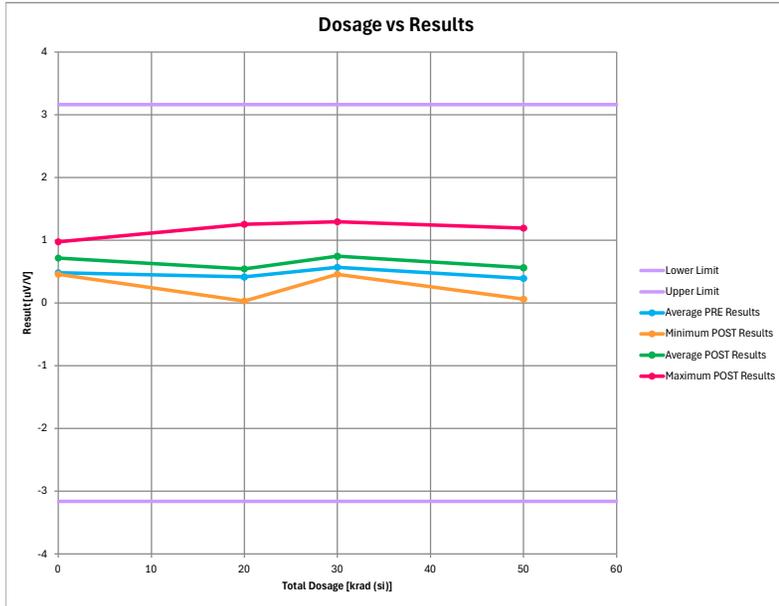
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	2.003	4.502	2.499
unit 86	0	CONTROL	7.232	9.558	2.326
unit 1	20	BIASED	3.898	5.255	1.357
unit 2	20	BIASED	2.316	5.052	2.736
unit 3	20	BIASED	7.245	8.890	1.645
unit 4	20	BIASED	1.155	1.790	0.635
unit 5	20	BIASED	10.664	12.190	1.526
unit 6	20	UNBIASED	-0.313	0.283	0.596
unit 7	20	UNBIASED	8.941	11.000	2.059
unit 8	20	UNBIASED	1.208	2.448	1.240
unit 9	20	UNBIASED	4.298	3.494	-0.804
unit 10	20	UNBIASED	0.741	1.796	1.055
unit 11	30	BIASED	5.167	6.249	1.082
unit 12	30	BIASED	6.329	6.662	0.333
unit 13	30	BIASED	6.119	9.519	3.400
unit 14	30	BIASED	12.321	13.231	0.910
unit 15	30	BIASED	3.068	4.371	1.303
unit 16	30	UNBIASED	5.569	7.241	1.672
unit 17	30	UNBIASED	6.243	6.881	0.638
unit 18	30	UNBIASED	4.462	5.960	1.498
unit 19	30	UNBIASED	2.300	3.938	1.638
unit 20	30	UNBIASED	3.829	8.455	4.626
unit 21	50	BIASED	2.665	4.001	1.336
unit 22	50	BIASED	1.349	2.680	1.331
unit 23	50	BIASED	2.248	3.956	1.708
unit 24	50	BIASED	6.834	9.509	2.675
unit 25	50	BIASED	8.692	11.510	2.818
unit 26	50	UNBIASED	5.506	5.757	0.251
unit 27	50	UNBIASED	-0.144	0.610	0.754
unit 28	50	UNBIASED	3.804	5.280	1.476
unit 29	50	UNBIASED	2.112	3.662	1.550
unit 30	50	UNBIASED	5.151	7.050	1.899



TEST STATISTICS [uV/V]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	2.003	4.618	7.232	-	4.502	7.030	9.558	-	2.326	2.413	2.499	-
20	-0.313	4.015	10.664	3.762	0.283	5.220	12.190	4.137	-0.804	1.205	2.736	0.952
30	2.300	5.541	12.321	2.754	3.938	7.251	13.231	2.683	0.333	1.710	4.626	1.319
50	-0.144	3.822	8.692	2.708	0.610	5.402	11.510	3.240	0.251	1.580	2.818	0.777

DEVICE TEST: 7.181 CMRR_Last_G10_18P000_POPO00 [uV/V]



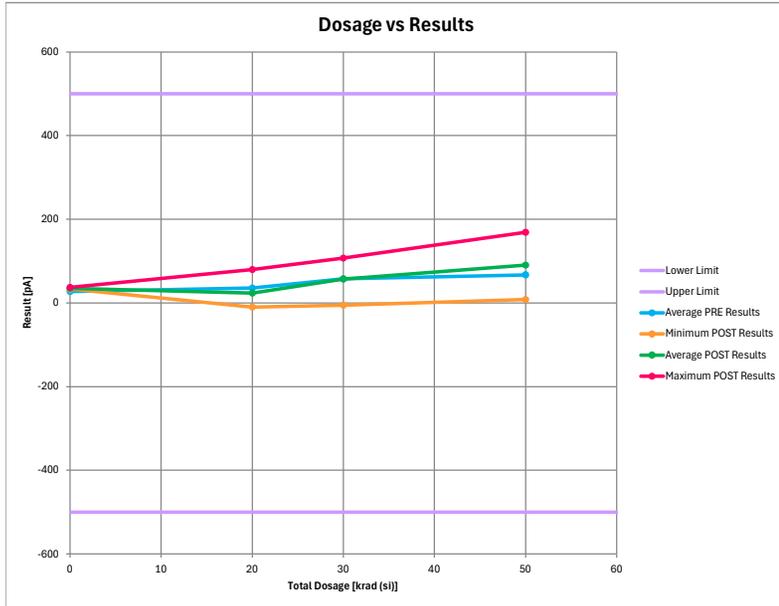
TEST RESULT (LOWER LIMIT = -3.162 | UPPER LIMIT = 3.162) [uV/V]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	0.209	0.456	0.247
unit 86	0	CONTROL	0.752	0.975	0.223
unit 1	20	BIASED	0.426	0.540	0.114
unit 2	20	BIASED	0.254	0.570	0.316
unit 3	20	BIASED	0.720	0.877	0.157
unit 4	20	BIASED	0.110	0.170	0.060
unit 5	20	BIASED	1.117	1.253	0.136
unit 6	20	UNBIASED	-0.028	0.029	0.057
unit 7	20	UNBIASED	0.894	1.163	0.269
unit 8	20	UNBIASED	0.138	0.273	0.135
unit 9	20	UNBIASED	0.423	0.360	-0.063
unit 10	20	UNBIASED	0.086	0.197	0.111
unit 11	30	BIASED	0.538	0.654	0.116
unit 12	30	BIASED	0.664	0.664	0.000
unit 13	30	BIASED	0.629	0.991	0.362
unit 14	30	BIASED	1.285	1.293	0.008
unit 15	30	BIASED	0.306	0.489	0.183
unit 16	30	UNBIASED	0.563	0.660	0.097
unit 17	30	UNBIASED	0.655	0.747	0.092
unit 18	30	UNBIASED	0.450	0.630	0.180
unit 19	30	UNBIASED	0.211	0.459	0.248
unit 20	30	UNBIASED	0.400	0.867	0.467
unit 21	50	BIASED	0.267	0.404	0.137
unit 22	50	BIASED	0.142	0.287	0.145
unit 23	50	BIASED	0.222	0.408	0.186
unit 24	50	BIASED	0.707	0.971	0.264
unit 25	50	BIASED	0.898	1.192	0.294
unit 26	50	UNBIASED	0.548	0.632	0.084
unit 27	50	UNBIASED	-0.017	0.062	0.079
unit 28	50	UNBIASED	0.387	0.552	0.165
unit 29	50	UNBIASED	0.230	0.401	0.171
unit 30	50	UNBIASED	0.521	0.701	0.180

TEST STATISTICS [uV/V]

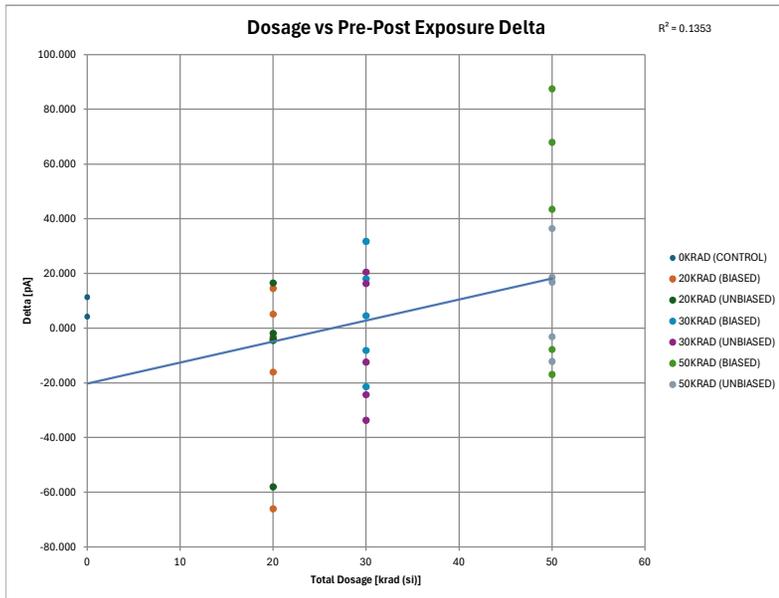
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	0.209	0.481	0.752	-	0.456	0.716	0.975	-	0.223	0.235	0.247	-
20	-0.028	0.414	1.117	0.382	0.029	0.543	1.253	0.426	-0.063	0.129	0.316	0.107
30	0.211	0.570	1.285	0.293	0.459	0.743	1.293	0.251	0.000	0.173	0.467	0.149
50	-0.017	0.391	0.898	0.278	0.062	0.561	1.192	0.331	0.079	0.171	0.294	0.068

DEVICE TEST: 8.10 IBN_last_18P000_P0P000 [pA]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [pA]

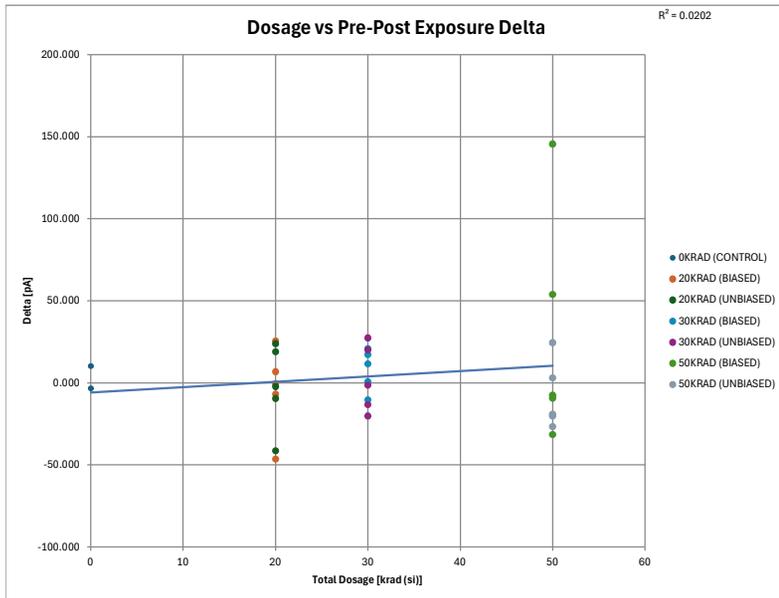
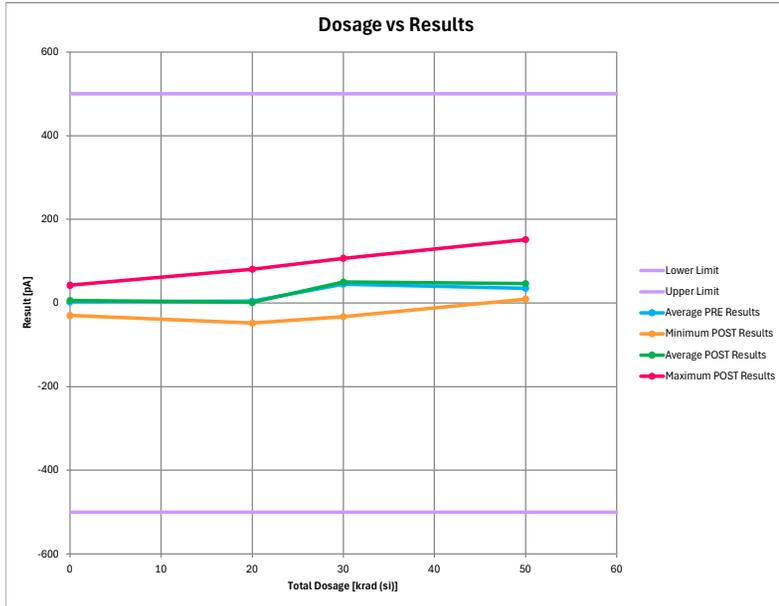
Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	21.840	33.165	11.325
unit 86	0	CONTROL	32.844	37.041	4.197
unit 1	20	BIASED	54.112	38.067	-16.045
unit 2	20	BIASED	-7.377	-2.289	5.088
unit 3	20	BIASED	27.717	42.217	14.500
unit 4	20	BIASED	56.213	-9.832	-66.045
unit 5	20	BIASED	83.209	79.952	-3.257
unit 6	20	UNBIASED	25.709	21.205	-4.504
unit 7	20	UNBIASED	40.201	56.717	16.516
unit 8	20	UNBIASED	52.017	-5.987	-58.004
unit 9	20	UNBIASED	17.245	15.357	-1.888
unit 10	20	UNBIASED	4.259	0.223	-4.036
unit 11	30	BIASED	-9.884	-5.363	4.521
unit 12	30	BIASED	46.794	25.368	-21.426
unit 13	30	BIASED	55.751	47.610	-8.141
unit 14	30	BIASED	71.257	89.319	18.062
unit 15	30	BIASED	71.922	103.619	31.697
unit 16	30	UNBIASED	97.585	63.904	-33.681
unit 17	30	UNBIASED	86.494	107.005	20.511
unit 18	30	UNBIASED	83.049	70.629	-12.420
unit 19	30	UNBIASED	64.368	40.061	-24.307
unit 20	30	UNBIASED	11.892	26.189	16.297
unit 21	50	BIASED	69.714	113.164	43.450
unit 22	50	BIASED	-15.077	52.859	67.936
unit 23	50	BIASED	107.383	90.432	-16.951
unit 24	50	BIASED	59.022	146.522	87.500
unit 25	50	BIASED	80.067	72.247	-7.820
unit 26	50	UNBIASED	20.320	8.145	-12.175
unit 27	50	UNBIASED	136.629	133.463	-3.166
unit 28	50	UNBIASED	49.982	66.772	16.790
unit 29	50	UNBIASED	150.050	168.586	18.536
unit 30	50	UNBIASED	14.389	50.827	36.438



TEST STATISTICS [pA]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	21.840	27.342	32.844	-	33.165	35.103	37.041	-	4.197	7.761	11.325	-
20	-7.377	35.331	83.209	27.183	-9.832	23.563	79.952	30.022	-66.045	-11.788	16.516	28.203
30	-9.884	57.923	97.585	33.799	-5.363	57.034	107.005	36.586	-33.681	-0.889	31.697	22.198
50	-15.077	67.248	150.050	53.324	8.145	90.302	168.586	49.737	-16.951	23.054	87.500	35.441

DEVICE TEST: 8.31 IBP_last_18P000_P0P000 [pA]



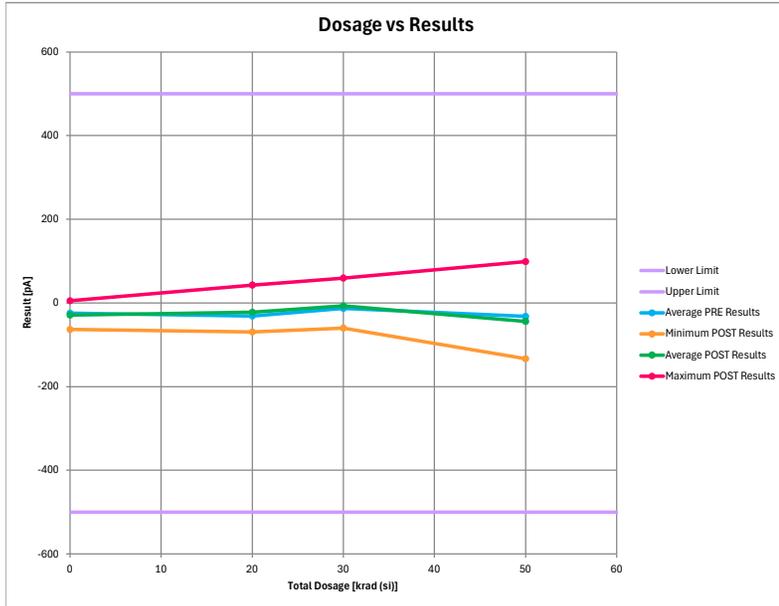
TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [pA]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	-40.299	-30.137	10.162
unit 86	0	CONTROL	45.833	42.434	-3.399
unit 1	20	BIASED	81.289	80.759	-0.530
unit 2	20	BIASED	-37.704	-12.278	25.426
unit 3	20	BIASED	-5.880	-12.797	-6.917
unit 4	20	BIASED	30.786	-15.737	-46.523
unit 5	20	BIASED	39.434	46.173	6.739
unit 6	20	UNBIASED	-38.742	-48.248	-9.506
unit 7	20	UNBIASED	-4.324	14.526	18.850
unit 8	20	UNBIASED	42.201	0.985	-41.336
unit 9	20	UNBIASED	-41.855	-17.985	23.870
unit 10	20	UNBIASED	-20.928	-23.173	-2.245
unit 11	30	BIASED	-22.484	-32.857	-10.373
unit 12	30	BIASED	62.264	79.548	17.284
unit 13	30	BIASED	95.472	107.044	11.572
unit 14	30	BIASED	54.308	54.992	0.684
unit 15	30	BIASED	22.657	43.406	20.749
unit 16	30	UNBIASED	53.789	40.466	-13.323
unit 17	30	UNBIASED	63.475	90.789	27.314
unit 18	30	UNBIASED	89.874	68.481	-1.393
unit 19	30	UNBIASED	7.793	-12.451	-20.234
unit 20	30	UNBIASED	43.066	63.120	20.054
unit 21	50	BIASED	-26.116	27.712	53.828
unit 22	50	BIASED	6.053	151.549	145.496
unit 23	50	BIASED	70.566	61.139	-9.427
unit 24	50	BIASED	-40.818	33.254	-7.564
unit 25	50	BIASED	40.818	9.353	-31.465
unit 26	50	UNBIASED	42.201	45.205	3.004
unit 27	50	UNBIASED	83.192	56.463	-26.729
unit 28	50	UNBIASED	49.811	30.656	-19.155
unit 29	50	UNBIASED	10.723	35.159	24.436
unit 30	50	UNBIASED	32.170	11.951	-20.219

TEST STATISTICS [pA]

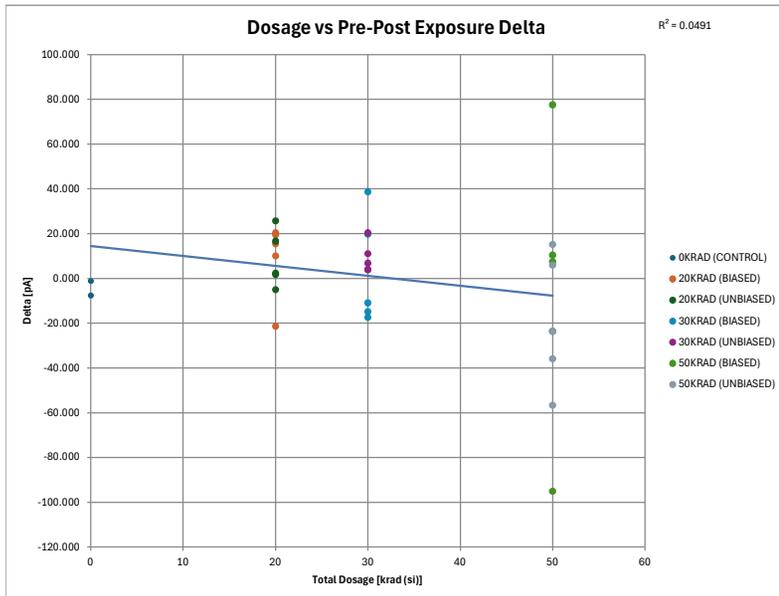
Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-40.299	2.767	45.833	-	-30.137	6.149	42.434	-	-3.399	3.382	10.162	-
20	-41.855	4.428	81.289	41.980	-48.248	1.211	80.759	37.419	-46.523	-3.217	25.426	24.788
30	-22.484	45.020	95.472	34.012	-32.857	50.254	107.044	43.753	-20.234	5.233	27.314	16.447
50	-26.116	35.024	83.192	31.792	9.353	46.244	151.549	40.595	-31.465	11.221	145.496	53.790

DEVICE TEST: 8.52 IOS_last_18P000_P0P000 [pA]



TEST RESULT (LOWER LIMIT = -500 | UPPER LIMIT = 500) [pA]

Serial #	Dosage [krad (SI)]	Exposure Conditions	Pre Result	Post Result	Delta
unit 85	0	CONTROL	-62.138	-63.301	-1.163
unit 86	0	CONTROL	12.989	5.393	-7.596
unit 1	20	BIASED	27.178	42.692	15.514
unit 2	20	BIASED	-30.327	-9.689	20.338
unit 3	20	BIASED	-33.598	-55.014	-21.416
unit 4	20	BIASED	-25.427	-5.905	19.522
unit 5	20	BIASED	-43.775	-33.780	9.995
unit 6	20	UNBIASED	-64.451	-69.453	-5.002
unit 7	20	UNBIASED	-44.625	-42.191	2.334
unit 8	20	UNBIASED	-9.816	6.852	16.668
unit 9	20	UNBIASED	-59.100	-33.342	25.758
unit 10	20	UNBIASED	-25.186	-23.395	1.791
unit 11	30	BIASED	-12.600	-27.494	-14.894
unit 12	30	BIASED	15.470	54.180	38.710
unit 13	30	BIASED	39.721	59.435	19.714
unit 14	30	BIASED	-16.949	-34.327	-17.378
unit 15	30	BIASED	-49.265	-60.214	-10.949
unit 16	30	UNBIASED	-43.795	-23.438	20.357
unit 17	30	UNBIASED	-23.019	-16.216	6.803
unit 18	30	UNBIASED	-13.175	-2.148	11.027
unit 19	30	UNBIASED	-56.585	-52.512	4.073
unit 20	30	UNBIASED	31.174	34.931	3.757
unit 21	50	BIASED	-95.630	-65.452	10.378
unit 22	50	BIASED	21.131	98.690	77.559
unit 23	50	BIASED	-36.817	-29.292	7.525
unit 24	50	BIASED	-18.205	-113.268	-95.063
unit 25	50	BIASED	-39.250	-62.894	-23.644
unit 26	50	UNBIASED	21.881	37.060	15.179
unit 27	50	UNBIASED	-53.437	-77.000	-23.563
unit 28	50	UNBIASED	-0.171	-36.115	-35.944
unit 29	50	UNBIASED	-139.327	-133.426	5.901
unit 30	50	UNBIASED	17.761	-38.877	-56.658



TEST STATISTICS [pA]

Dosage [krad (SI)]	Pre Exposure Min	Pre Exposure Avg	Pre Exposure Max	Pre Exposure Std Dev	Post Exposure Min	Post Exposure Avg	Post Exposure Max	Post Exposure Std Dev	Min Delta	Avg Delta	Max Delta	Std Dev Delta
0	-62.138	-24.575	12.989	-	-63.301	-28.954	5.393	-	-7.596	-4.380	-1.163	-
20	-64.451	-30.903	27.178	26.162	-69.453	-22.353	42.692	32.384	-21.416	8.550	25.758	14.290
30	-56.585	-12.902	39.721	33.033	-60.214	-6.780	59.435	42.639	-17.378	6.122	38.710	17.540
50	-139.327	-32.224	21.881	53.266	-133.426	-44.057	98.690	69.278	-95.063	-11.833	77.559	46.783

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, regulatory or other requirements.

These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you fully indemnify TI and its representatives against any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to [TI's Terms of Sale](#), [TI's General Quality Guidelines](#), or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products. Unless TI explicitly designates a product as custom or customer-specified, TI products are standard, catalog, general purpose devices.

TI objects to and rejects any additional or different terms you may propose.

Copyright © 2026, Texas Instruments Incorporated

Last updated 10/2025