TOTAL DOSE RADIATION TEST REPORT

Part Type : ADC14161

Package : 52-Pin TQFP

14-Bit, 2.5 MSPS A/D Converter

National Semiconductor

Report Reference : ESA_QCA991203T_C

Issue : 01

Date : December 27th 1999

ESA Contract No 13602/99/NL/GD dated 18/06/99

ESTEC Technical Officer: R. Harboe Sorensen

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TOTAL DOSE RADIATION TEST REPORT
on
National Semiconductor ADC14161 14-Bit A/D Converter.

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1 Abstract

Under ESA/ESTEC contract n° 13602/99/NL/GD dated 18/06/99 covering "Radiation Pre-screening of High-resolution High-speed ADC's", three different 14-bit Analog to Digital converters were radiation assessed. Results from these assessments, primarily focused on the radiation sensitivity of the ADC's to Total Ionizing Dose (TID) and Single Event Effects (SEE), are reported in individual TID and SEE reports. Below summary table lists manufacturer and evaluated types, and gives references to the various reports issued.

Manufacturer	Type	TID Report	SEE Report
Analog Devices	AD9243	ESA_QCA991201T_C	ESA_QCA991201S_C
Linear Technology	LTC1414	ESA_QCA991202T_C	ESA_QCA991202S_C
National Semiconductor	ADC14161	ESA_QCA991203T_C	ESA_QCA991203S_C

2 Introduction

A total dose radiation evaluation test of the National Semiconductor ADC14161 14-Bit A/D Converter has been performed with an accumulated dose of about 50 Krad(Si) at two different dose rates of 300 rad(Si)/hour and 1000 rad(Si)/hour respectively, in response to European Space Agency contract reference : 13602/99/NL/GD dated 18/06/99.

The purpose of this test was to evaluate total dose withstanding of this component, to investigate its suitability for being used in space applications. This test was conducted on commercial samples procured from National Semiconductor.
Test has been performed in accordance with Hirex proposal HRX/99.4366 issue 01.

A complete set of electrical measurements together with graphical representation of measured parameters with respect to total dose received, are provided for all samples.

SEE results for this device type can be found in SEE radiation test report: ESA_QCA991203S_C.

3 Applicable and Reference Documents

3.1 Applicable Documents

- ESA/SCC Basic specification N° 22900 issue 4.
- National Semiconductor ADC14161 datasheet - december 1998.
- Hirex Engineering proposal: HRX/99.4366 issue 01.

3.2 Reference Documents

- SOW Radiation Pre-screening of High-resolution High-speed ADC's Ref: APP-JP/99-02-057/PS/ps.
- MIL-STD-883: test methods and procedures for microcircuits.

4 Test Samples

6 samples of the ADC14161 device were tested (2 groups of 3 + 1 control sample). Each group was submitted to exposures at two different dose rates (a high dose rate of 1000 rad(Si)/hour and a low dose rate of 300 rad(Si)/hour respectively).

The samples were serialized before the radiation test as indicated in the following table.

Serial Number	Allocation
1	Control
2	High Dose Rate
3	High Dose Rate
4	High Dose Rate
5	Low Dose Rate
6	Low Dose Rate
7	Low Dose Rate

Identification of the ADC14161 is given below:

Part Number:	ADC14161CIVT	**Mask Set:**	NA
Top Marking:	E9752AD ADC14161 CIVT	**Chip Marking:**	NA
Diffusion Lot:	NA	**Wafer #:**	NA
Date Code:	E9752AD	**Project:**	Multi-Project

5 Experimental Conditions

5.1 Radiation Source Dose Rate and Annealing

The dose exposures were performed at CERT-ONERA. In this irradiation facility, a Cobalt 60 source is used with the possibility to vary the dose rate by simply adjusting the distance to the source. The irradiation conditions used for this test are provided in the following tables:

Irradiation Steps	Doserate	Annealing steps	Temperature
krads	krads/h	hours	°C
0			25
7	1,0		25
22	1,0		25
28	1,0		25
43.3	1,0		25
50	1,0	0	25
		24	25
		192	100

Table 1 : Experimental Conditions: High Dose Rate

Irradiation Steps	Doserate	Annealing steps	Temperature
krads	krads/h	hours	°C
0			25
7.2	0,3		25
14.1	0,3		25
21	0,3		25
29.4	0,3		25
50.2	0,3	0	25
		24	25
		192	100

Table 2 : Experimental Conditions: Low Dose Rate

5.2 Bias during Dose Exposures and Measurements conditions

5.2.1 Bias conditions

During exposures a dedicated test board was used mounted on a special board-holder made for irradiation. The test board allowed to bias the devices in accordance with the electrical circuit provided in Figure 1.

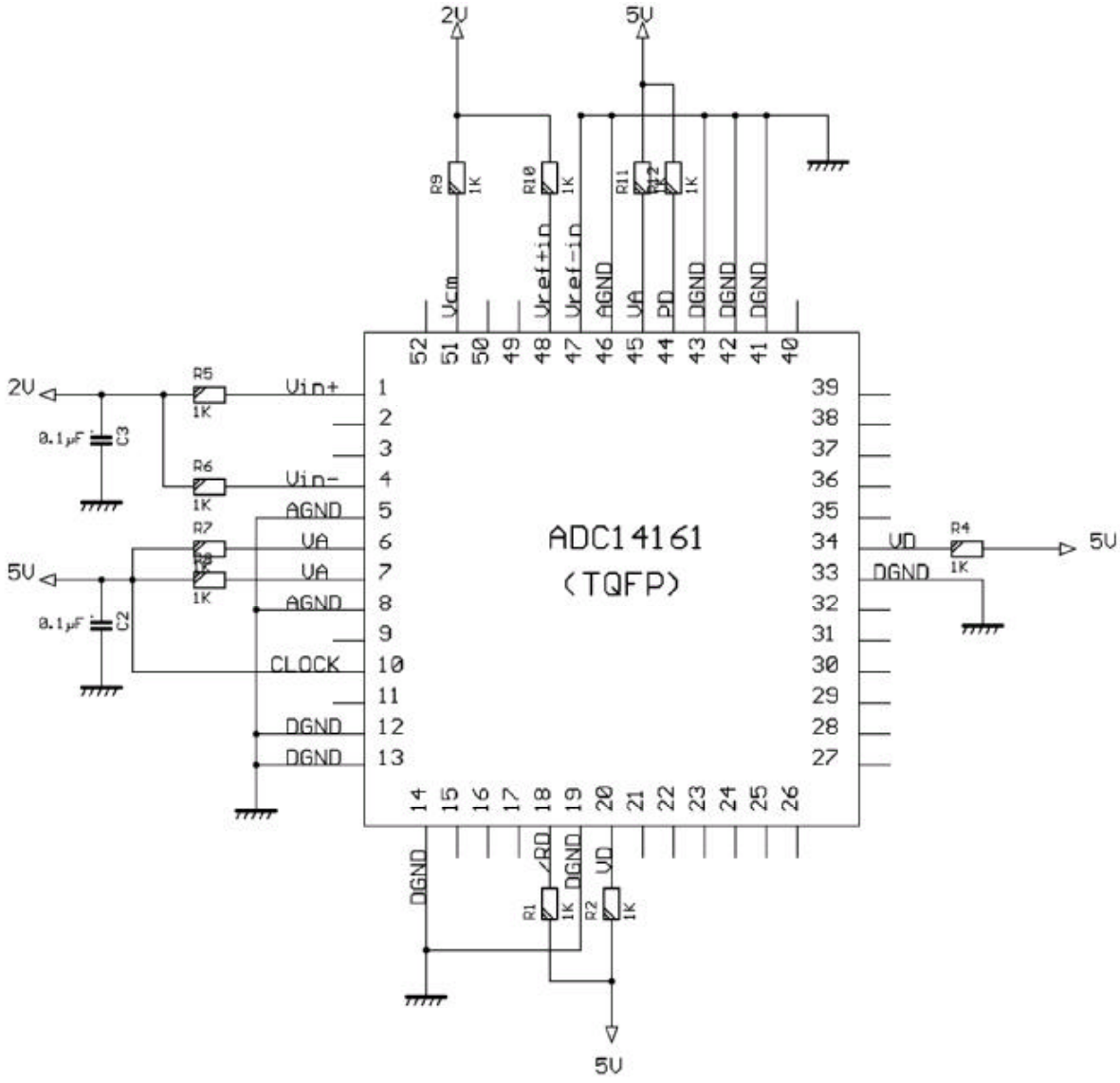


Figure 1 : Bias Conditions during Irradiation Exposures and Annealing

5.2.2 Electrical Measurements

5.2.2.1 Test Setup

Electrical parameters test program principle for ADC14161 is provided in Figure 2.

The test Setup for this ADC includes an IMS ATS Test Station, an arbitrary waveform generator (AWG), and a filter. To ensure coherent clocking to the digital tester, ADC, and AWG, the clock from the ATS is used.
The AWG has 16 bits of resolution, and provides pure enough signal to the test board thanks to internal seventh-order butterworth and third-order Chebyshev filters. Additional filtering was also implemented on the test fixture board to clean the noise and distortion from the input signal.
After input signal is generated, the ATS acquires data output by the ADC. The dedicated Labview program analyses the data and displays the results on a SUN workstation.

The combination of high-speed digital signals and sensitive high-resolution analog signals on the same DUT requires effective techniques for isolating the digital switching transients from the analog signals. With proper grounding and fixture-board layering it is possible to effectively shield signals and maintain signal integrity. In addition minimizing grounding problems is required and was ensured by carefully selecting and connecting the socket and by using the correct decoupling methods.
These constraints have led to the design of a specific multilayer test board (See photo of this board in figure 3).

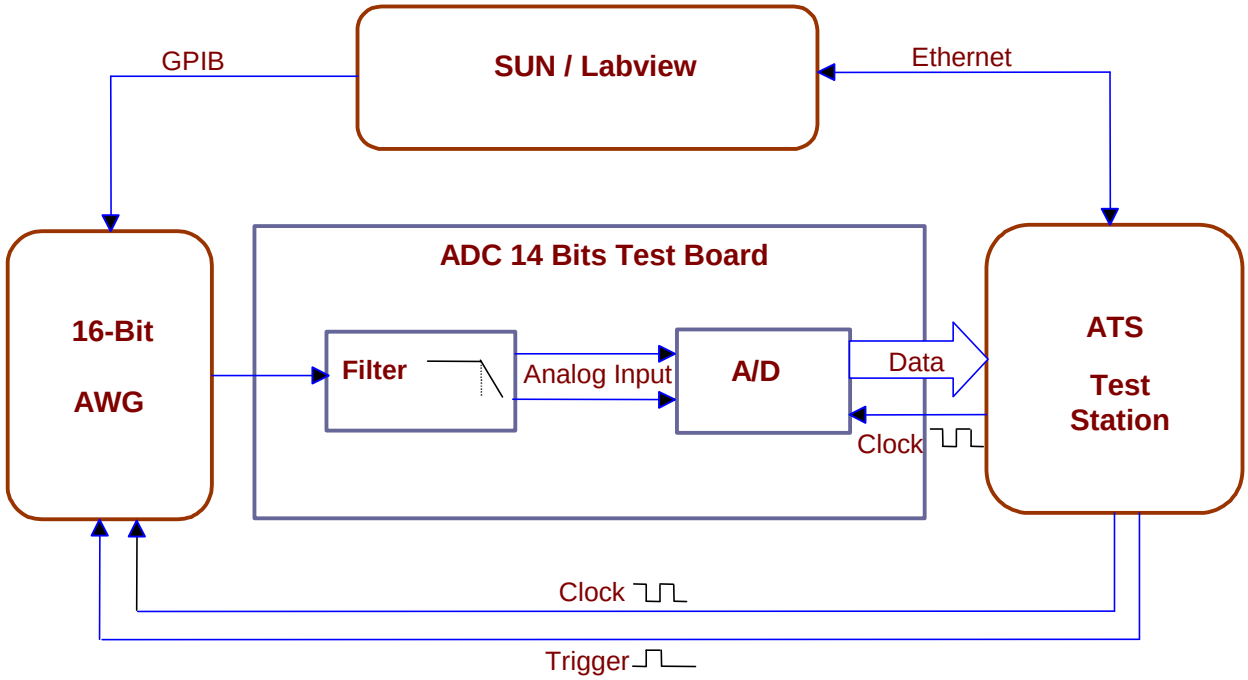


Figure 2 : ADC14161 test program principle

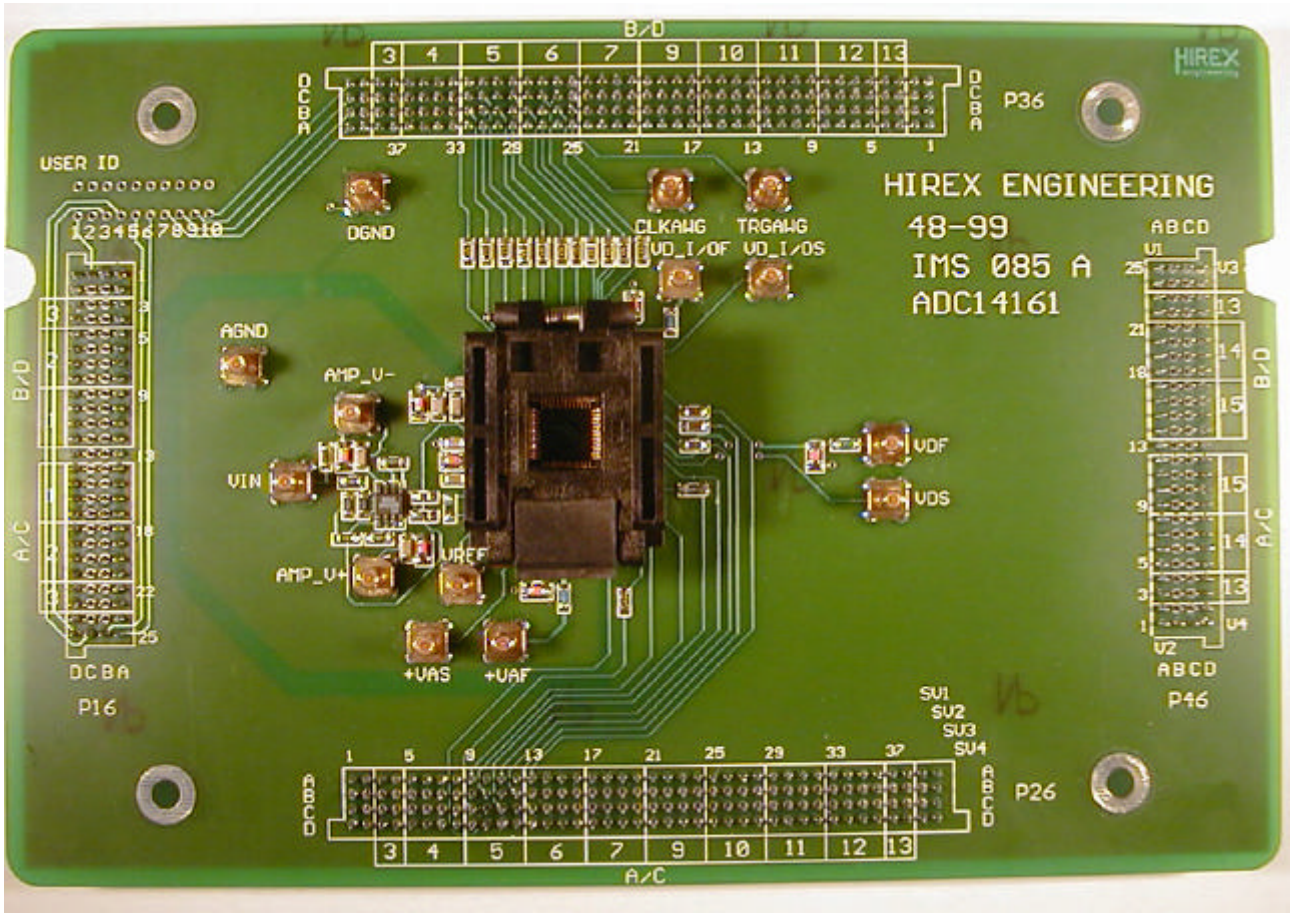


Figure 3 : ADC14161 Test Fixture Board

5.2.2.2 Conversion Characteristics Test Principle

For conversion characteristics including Differential Non Linearity, Integral Non Linearity, Offset Error, Gain Error, a histogram test technique was used.
A full scale pure ramp is input to the ADC. Thousands samples of the input signal are taken and processed by the histogram software. At the end of sampling, the histogram is plotted with possible output codes along the X axis and frequency of occurrence along Y axis. Above each possible output code, a point is plotted whose height is proportional to the total number of times that code occurred.

From histogram test data, dedicated math routines calculate the different parameter values.

An example of histogram obtained and typical waveforms for Integral and Differential Non linearities is shown on Figure 4.

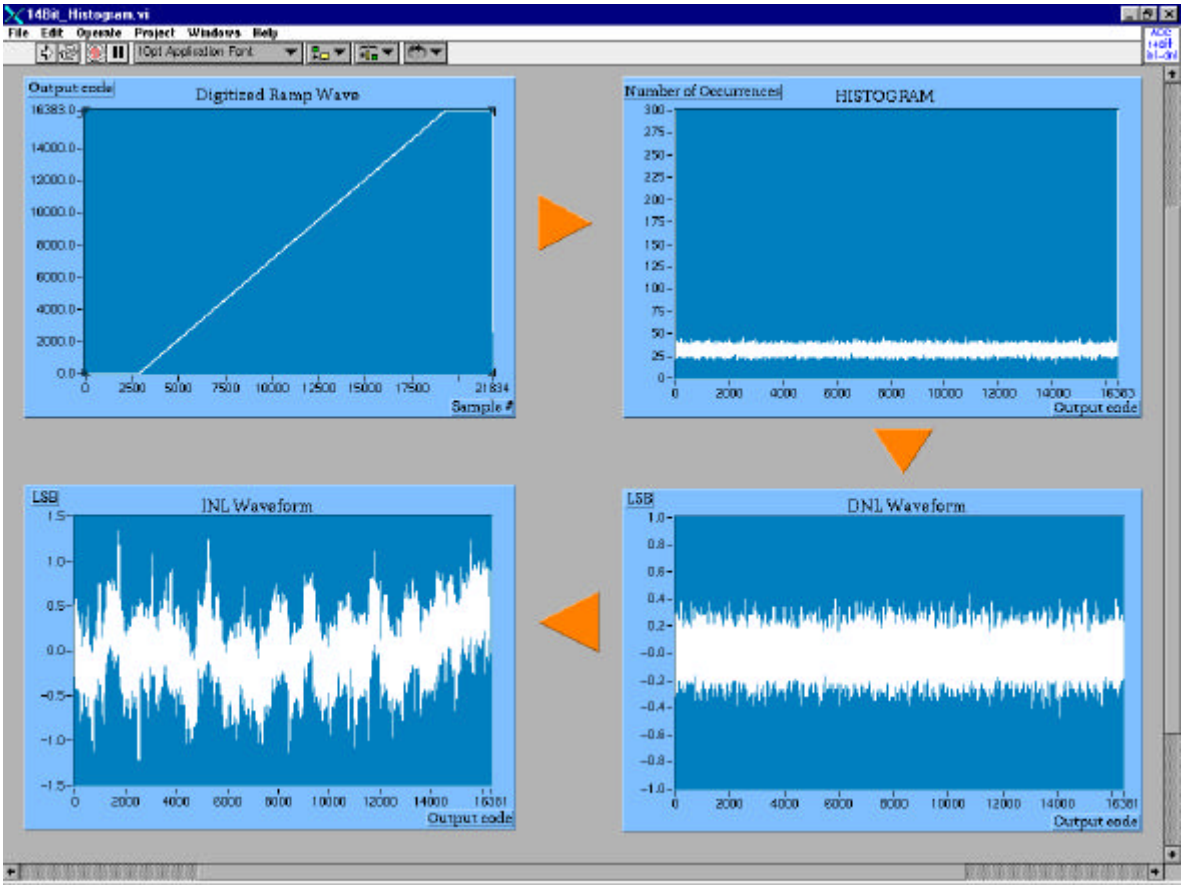


Figure 4 : Conversion Characteristics Example

5.2.2.3 Dynamic Characteristics

For dynamic characteristics including Signal-to-Noise Ratio, Signal-to-Noise Plus Distortion Ratio, Effective Number of Bits, and Total Harmonic Distortion, a Fast Fourier Transform (FFT) algorithm was implemented.
A full scale sinewave of specified frequency is input to the device under test. Harmonics of the input sinewave, caused by the integral nonlinearity of the ADC, are aliased into the baseband spectrum and can be readily identified. The frequency of the input sinewave is not arbitrary and must be selected so that harmonics, aliased into baseband, do not coincide with the fundamental.
From FFT spectra test data, dedicated math routines calculate the different parameter values.

Figure 5 shows an example of results of FFT testing.

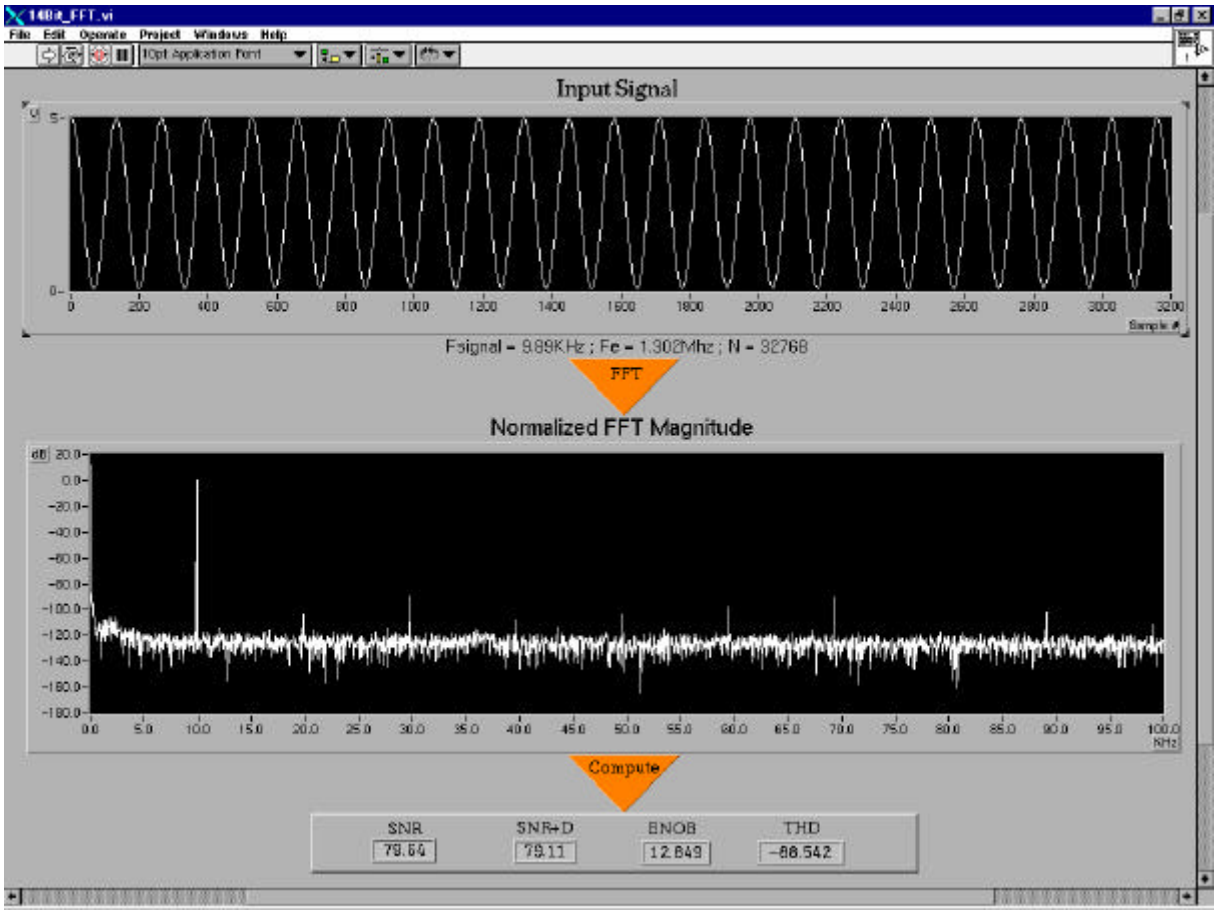


Figure 5 : Dynamic Characteristics Example

5.3 Electrical parameters test conditions and limits

Electrical parameters test conditions and limits used for performing this test are given in the following table.

Symbol	Test Parameter	Test Conditions	Min limit	Max limit	Unit
SNR	Signal-to-Noise Ratio	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz	77		dB
SNR/D	Signal-to-Noise Plus Distortion Ratio	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz	76		dB
ENOB	Effective Number Of Bits	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz	12.3		LSB
THD	Total Harmonic Distortion	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz; Nine Harmonics		-80	dB
INL	Integral Nonlinearity	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V		2.5	LSB
DNL	Differential Nonlinearity	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V		1	LSB
ZOE	Zero Offset Error	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: 0V	-0.6	0.6	% FSR
FSE	Full-Scale Error	VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: 2V	-2.8	2.8	% FSR
IA	Analog Supply Current	VA=+5V; VD=+5V; VDI/O=+5V		0.085	A
ID	Digital Supply Current	VA=+5V; VD=+5V; VDI/O=+5V		0.008	A
IDI/O	Digital Output Bus Supply Current	VA=+5V; VD=+5V; VDI/O=+5V		0.002	A
Vih	High Level Input Voltage	VA=+5V; VD=+5V; VDI/O=+5V		3.5	V
Vil	Low Level Input Voltage	VA=+5V; VD=+5V; VDI/O=+5V	1		V
VOH13	High Level Output Voltage Pin 38	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH12	High Level Output Voltage Pin 37	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V

Table 3 : Measured electrical parameters

Symbol	Test Parameter	Test Conditions	Min limit	Max limit	Unit
VOH11	High Level Output Voltage Pin 36	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH10	High Level Output Voltage Pin 35	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH9	High Level Output Voltage Pin 32	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH8	High Level Output Voltage Pin 31	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH7	High Level Output Voltage Pin 30	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH6	High Level Output Voltage Pin 29	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH5	High Level Output Voltage Pin 28	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH4	High Level Output Voltage Pin 27	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH3	High Level Output Voltage Pin 26	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH2	High Level Output Voltage Pin 25	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH1	High Level Output Voltage Pin 24	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOH0	High Level Output Voltage Pin 23	VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA	2.5		V
VOL13	Low Level Output Voltage Pin 38	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL12	Low Level Output Voltage Pin 37	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL11	Low Level Output Voltage Pin 36	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL10	Low Level Output Voltage Pin 35	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL9	Low Level Output Voltage Pin 32	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V

Table 3 : Measured electrical parameters (continued)

Symbol	Test Parameter	Test Conditions	Min limit	Max limit	Unit
VOL8	Low Level Output Voltage Pin 31	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL7	Low Level Output Voltage Pin 30	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL6	Low Level Output Voltage Pin 29	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL5	Low Level Output Voltage Pin 28	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL4	Low Level Output Voltage Pin 27	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V
VOL3	Low Level Output Voltage Pin 26	VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA		0.4	V

Table 3 : Measured electrical parameters (continued)

6 Conclusion

A Total Ionizing Dose assessment was carried out by Hirex Engineering under ESA contract on the National Semiconductor ADC14161 14-Bit Analog to Digital Converter.
2 groups of 3 samples each plus one control sample were used during testing. The first group was exposed to radiation using a dose rate of 1000 rad(Si)/hour. The second group of 3 samples was exposed to radiation using a lower dose rate of 300 rad(Si)/hour. All devices were irradiated and tested at room temperature.

At high dose rate, the most affected parameters are ID and IDI/O the digital supply current and the digital output bus supply current respectively.
ID went out of specification at 22 Krad(Si), continued to degrade during subsequent exposures but recovered completely during last annealing step. The same phenomenon is observed for IDI/O that is however outside specification limit at a higher dose level of 43 Krad(Si).
SNR, SND+D, ENOB, and DNL exhibited a rebound effect during 24 hours annealing step, but did recover during last annealing step.
All other measured parameters remained within specification limits all along testing.

At low dose rate, a lost of functionality was observed at 50 Krad(Si) on some samples but the affected devices recovered during last annealing step.
This phenomenon can be observed on the drift of SNR, ENOB, THD, INL, ZOE and FSE parameters.
ID and IDI/O have shown the same behaviour that was observed at high dose rate exposures. ID and IDI/O going outside specification limits at 21 Krad(Si) and 50 Krad(Si) respectively.
All other measured parameters remained within specification limits all along testing.

No significant changes were recorded depending on the dose rate conditions, except the lost of functionality during low dose rate experiment with recovery during annealing.
Some Time Dependent Effects (TDE) were recorded during this evaluation, leading most of the time to a recovery of affected parameters.

This device has shown some weaknesses at accumulated dose as low as 21 Krad(Si).

Details on test results can be found in Appendix 1 and Appendix 2 for high dose rate and low dose rate respectively.

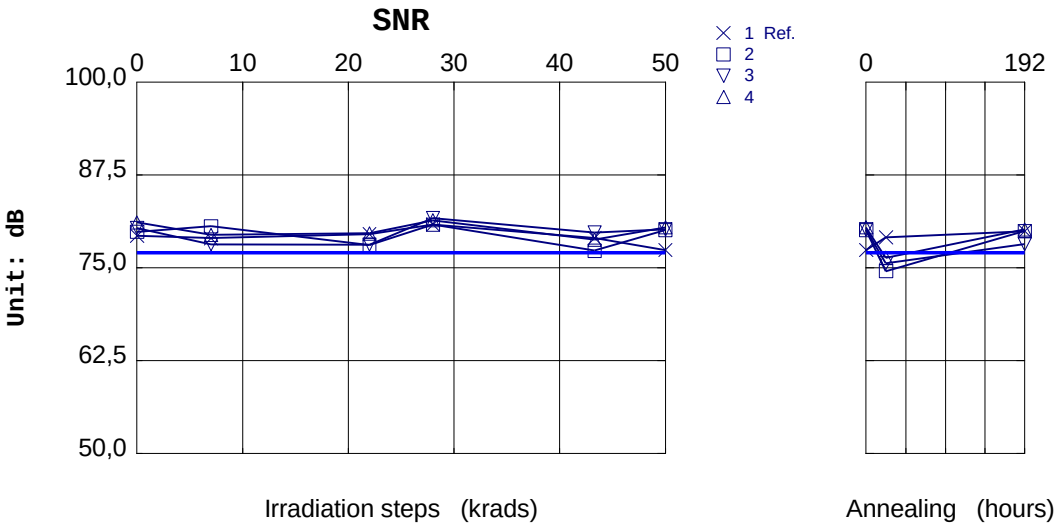
APPENDIX 1 : TEST RESULTS - HIGH DOSE RATE

Test results including tables and graphics are provided in this section for each measured parameter corresponding to a high dose rate exposure.

Parameter: Signal-to-Noise Ratio: SNR
A=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz
Unit= dB
Spec limit min: 77
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	7,929E +01	7,897E +01	7,952E +01	8,080E +01	7,900E +01	7,737E +01	7,909E +01
2	7,983E +01	8,059E +01	7,804E +01	8,079E +01	7,729E +01	8,007E +01	7,453E +01
3	8,034E +01	7,816E +01	7,810E +01	8,168E +01	7,974E +01	8,016E +01	7,560E +01
4	8,109E +01	7,943E +01	7,961E +01	8,140E +01	7,880E +01	8,043E +01	7,632E +01
Statistics							
Min	7,983E +01	7,815E +01	7,804E +01	8,079E +01	7,729E +01	8,007E +01	7,453E +01
Max	8,109E +01	8,059E +01	7,961E +01	8,168E +01	7,974E +01	8,043E +01	7,632E +01
Mean	8,042E +01	7,939E +01	7,858E +01	8,129E +01	7,861E +01	8,022E +01	7,548E +01
Sigma	6,340E -01	1,218E +00	8,899E -01	4,558E -01	1,237E +00	1,876E -01	8,994E -01

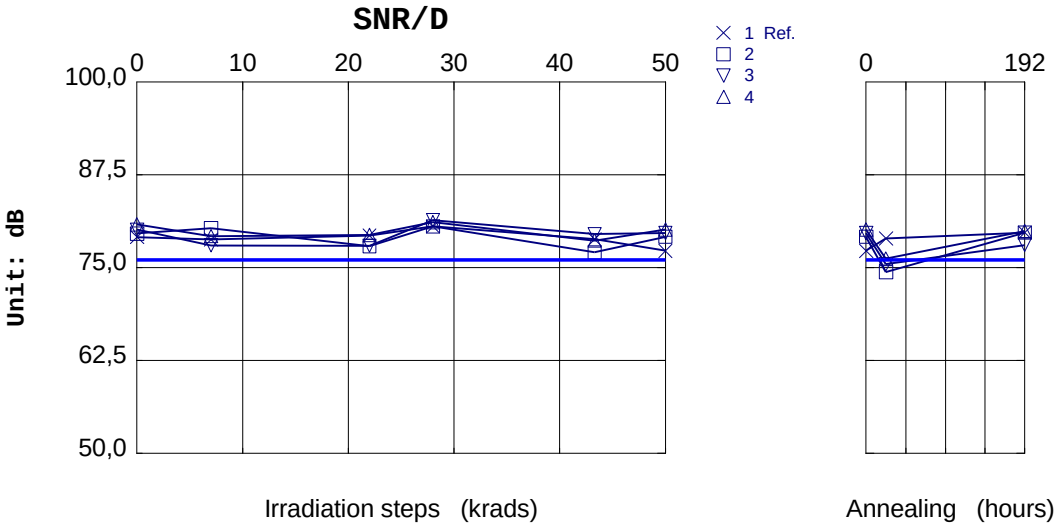
Test Step	192 hours
Serial #	
1 Ref.	7,992E +01
2	7,993E +01
3	7,817E +01
4	8,015E +01
Statistics	
Min	7,817E +01
Max	8,015E +01
Mean	7,942E +01
Sigma	1,086E +00



Parameter: Signal-to-Noise Plus Distortion Ratio: SNR/D
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz
Unit= dB
Spec limit min: 76
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	7,910E +01	7,878E +01	7,929E +01	8,053E +01	7,883E +01	7,725E +01	7,892E +01
2	7,958E +01	8,029E +01	7,788E +01	8,054E +01	7,707E +01	7,914E +01	7,437E +01
3	8,010E +01	7,799E +01	7,795E +01	8,140E +01	7,950E +01	7,964E +01	7,544E +01
4	8,080E +01	7,922E +01	7,940E +01	8,112E +01	7,864E +01	8,013E +01	7,623E +01
Statistics							
Min	7,958E +01	7,799E +01	7,788E +01	8,054E +01	7,707E +01	7,914E +01	7,437E +01
Max	8,080E +01	8,029E +01	7,940E +01	8,140E +01	7,950E +01	8,013E +01	7,623E +01
Mean	8,016E +01	7,917E +01	7,841E +01	8,102E +01	7,840E +01	7,964E +01	7,534E +01
Sigma	6,144E -01	1,151E +00	8,565E -01	4,359E -01	1,234E +00	4,910E -01	9,339E -01

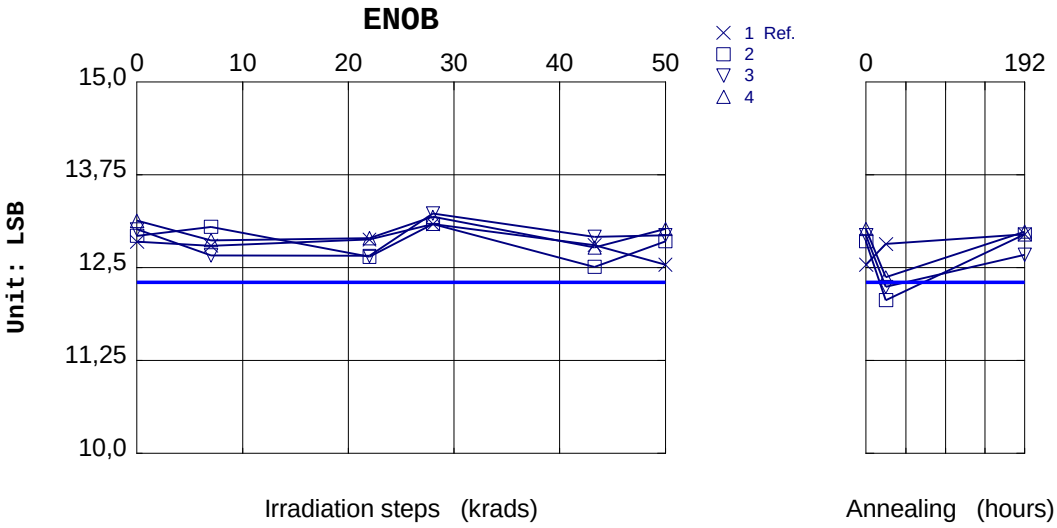
Test Step	192 hours
Serial #	
1 Ref.	7,971E +01
2	7,970E +01
3	7,804E +01
4	7,992E +01
Statistics	
Min	7,804E +01
Max	7,992E +01
Mean	7,922E +01
Sigma	1,027E +00



Parameter: Effective Number Of Bits: ENOB
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz
Unit= LSB
Spec limit min: 12.3
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,285E +01	1,279E +01	1,288E +01	1,309E +01	1,280E +01	1,254E +01	1,282E +01
2	1,293E +01	1,305E +01	1,265E +01	1,309E +01	1,251E +01	1,285E +01	1,206E +01
3	1,301E +01	1,266E +01	1,266E +01	1,323E +01	1,291E +01	1,294E +01	1,224E +01
4	1,313E +01	1,287E +01	1,290E +01	1,318E +01	1,277E +01	1,302E +01	1,237E +01
Statistics							
Min	1,293E +01	1,266E +01	1,265E +01	1,309E +01	1,251E +01	1,285E +01	1,206E +01
Max	1,313E +01	1,305E +01	1,290E +01	1,323E +01	1,291E +01	1,302E +01	1,237E +01
Mean	1,302E +01	1,286E +01	1,273E +01	1,317E +01	1,273E +01	1,294E +01	1,222E +01
Sigma	1,023E -01	1,916E -01	1,418E -01	7,245E -02	2,048E -01	8,200E -02	1,551E -01

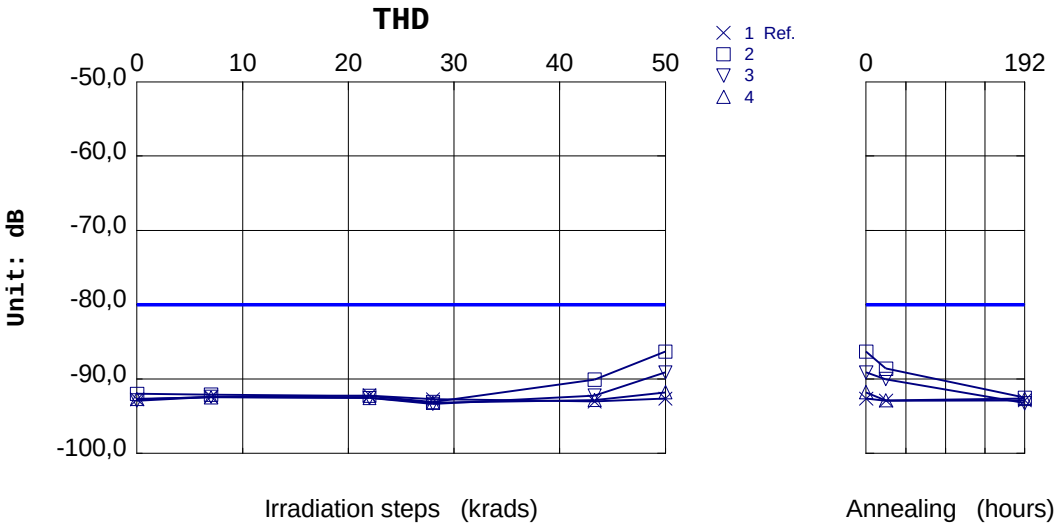
Test Step	192 hours
Serial #	
1 Ref.	1,295E +01
2	1,295E +01
3	1,267E +01
4	1,298E +01
Statistics	
Min	1,267E +01
Max	1,298E +01
Mean	1,287E +01
Sigma	1,704E -01



Parameter: Total Harmonic Distortion: THD
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz; Nine Harmonics
Unit= dB
Spec limit max: -80
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	-9,275E +01	-9,239E +01	-9,221E +01	-9,272E +01	-9,303E +01	-9,263E +01	-9,292E +01
2	-9,199E +01	-9,210E +01	-9,227E +01	-9,310E +01	-9,009E +01	-8,629E +01	-8,859E +01
3	-9,289E +01	-9,239E +01	-9,256E +01	-9,336E +01	-9,223E +01	-8,910E +01	-9,001E +01
4	-9,269E +01	-9,247E +01	-9,256E +01	-9,318E +01	-9,283E +01	-9,177E +01	-9,287E +01
Statistics							
Min	-9,289E +01	-9,247E +01	-9,256E +01	-9,336E +01	-9,283E +01	-9,177E +01	-9,287E +01
Max	-9,199E +01	-9,210E +01	-9,227E +01	-9,310E +01	-9,009E +01	-8,629E +01	-8,859E +01
Mean	-9,252E +01	-9,232E +01	-9,246E +01	-9,321E +01	-9,172E +01	-8,905E +01	-9,049E +01
Sigma	4,742E -01	1,945E -01	1,648E -01	1,333E -01	1,440E +00	2,740E +00	2,182E +00

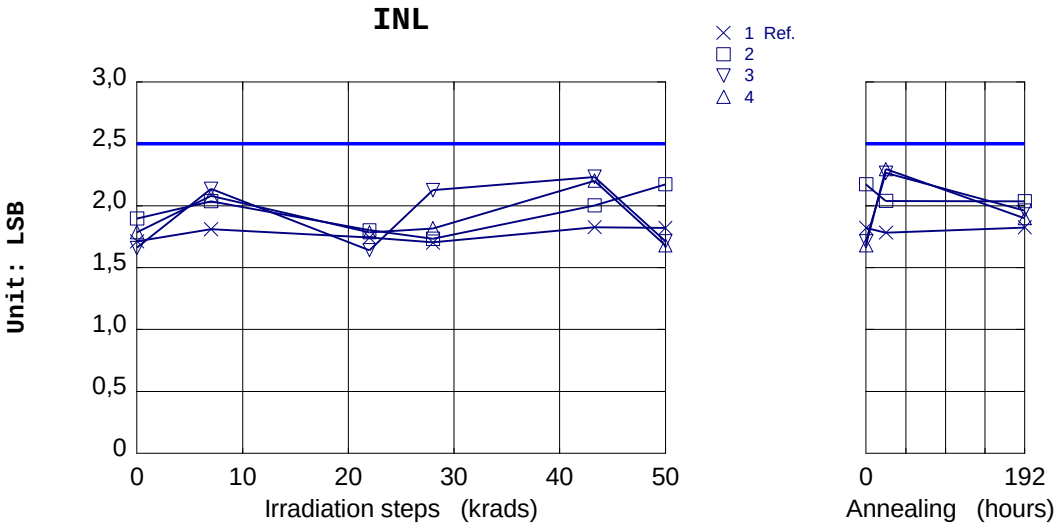
Test Step	192 hours
Serial #	
1 Ref.	-9,288E +01
2	-9,252E +01
3	-9,324E +01
4	-9,264E +01
Statistics	
Min	-9,324E +01
Max	-9,252E +01
Mean	-9,280E +01
Sigma	3,842E -01



Parameter: Integral Nonlinearity: INL
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V
Unit= LSB
Spec limit max: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,712E +00	1,810E +00	1,743E +00	1,702E +00	1,826E +00	1,820E +00	1,782E +00
2	1,895E +00	2,035E +00	1,802E +00	1,733E +00	2,002E +00	2,172E +00	2,038E +00
3	1,659E +00	2,136E +00	1,640E +00	2,125E +00	2,233E +00	1,712E +00	2,265E +00
4	1,786E +00	2,079E +00	1,785E +00	1,817E +00	2,202E +00	1,679E +00	2,295E +00
Statistics							
Min	1,659E +00	2,035E +00	1,640E +00	1,733E +00	2,002E +00	1,679E +00	2,038E +00
Max	1,895E +00	2,136E +00	1,802E +00	2,125E +00	2,233E +00	2,172E +00	2,295E +00
Mean	1,780E +00	2,083E +00	1,742E +00	1,892E +00	2,146E +00	1,854E +00	2,199E +00
Sigma	1,181E -01	5,064E -02	8,903E -02	2,064E -01	1,254E -01	2,756E -01	1,405E -01

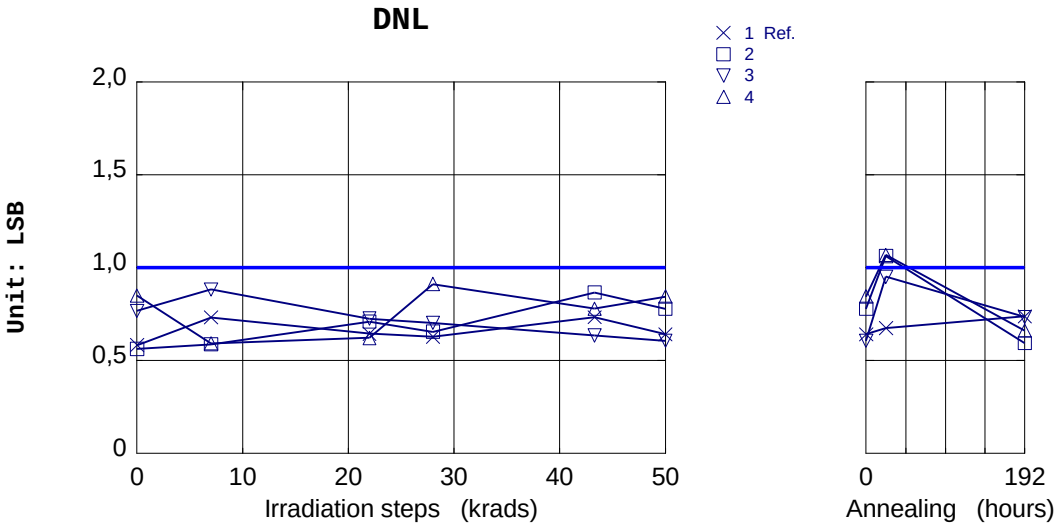
Test Step	192 hours
Serial #	
1 Ref.	1,824E +00
2	2,035E +00
3	1,961E +00
4	1,899E +00
Statistics	
Min	1,899E +00
Max	2,035E +00
Mean	1,965E +00
Sigma	6,809E -02



Parameter: Differential Nonlinearity: DNL
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V
Unit= LSB
Spec limit max: 1
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	5,825E -01	7,309E -01	6,439E -01	6,278E -01	7,329E -01	6,411E -01	6,741E -01
2	5,621E -01	5,866E -01	7,095E -01	6,547E -01	8,662E -01	7,774E -01	1,062E +00
3	7,661E -01	8,823E -01	7,255E -01	7,024E -01	6,344E -01	6,060E -01	9,505E -01
4	8,496E -01	5,923E -01	6,215E -01	9,115E -01	7,788E -01	8,439E -01	1,068E +00
Statistics							
Min	5,621E -01	5,866E -01	6,215E -01	6,547E -01	6,344E -01	6,060E -01	9,505E -01
Max	8,496E -01	8,823E -01	7,255E -01	9,115E -01	8,662E -01	8,439E -01	1,068E +00
Mean	7,259E -01	6,870E -01	6,855E -01	7,562E -01	7,598E -01	7,424E -01	1,027E +00
Sigma	1,479E -01	1,691E -01	5,595E -02	1,366E -01	1,170E -01	1,228E -01	6,618E -02

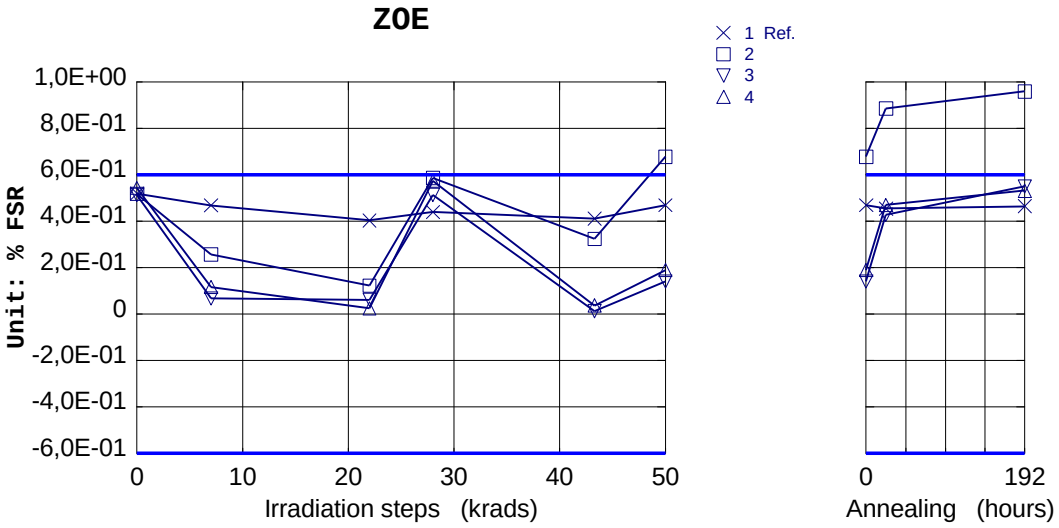
Test Step	192 hours
Serial #	
1 Ref.	7,374E -01
2	5,934E -01
3	7,338E -01
4	6,605E -01
Statistics	
Min	5,934E -01
Max	7,338E -01
Mean	6,626E -01
Sigma	7,020E -02



Parameter: Zero Offset Error: ZOE
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: 0V
Unit= % FSR
Spec limit max: 0.6
Spec limit min: -0.6
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	5,188E -01	4,671E -01	4,028E -01	4,395E -01	4,104E -01	4,686E -01	4,540E -01
2	5,174E -01	2,563E -01	1,221E -01	5,859E -01	3,235E -01	6,775E -01	8,850E -01
3	5,127E -01	6,714E -02	6,104E -02	5,127E -01	1,221E -02	1,404E -01	4,272E -01
4	5,432E -01	1,160E -01	2,441E -02	5,737E -01	3,662E -02	1,892E -01	4,700E -01
Statistics							
Min	5,127E -01	6,714E -02	2,441E -02	5,127E -01	1,221E -02	1,404E -01	4,272E -01
Max	5,432E -01	2,563E -01	1,221E -01	5,859E -01	3,235E -01	6,775E -01	8,850E -01
Mean	5,244E -01	1,465E -01	6,917E -02	5,575E -01	1,241E -01	3,357E -01	5,941E -01
Sigma	1,644E -02	9,823E -02	4,933E -02	3,924E -02	1,731E -01	2,970E -01	2,529E -01

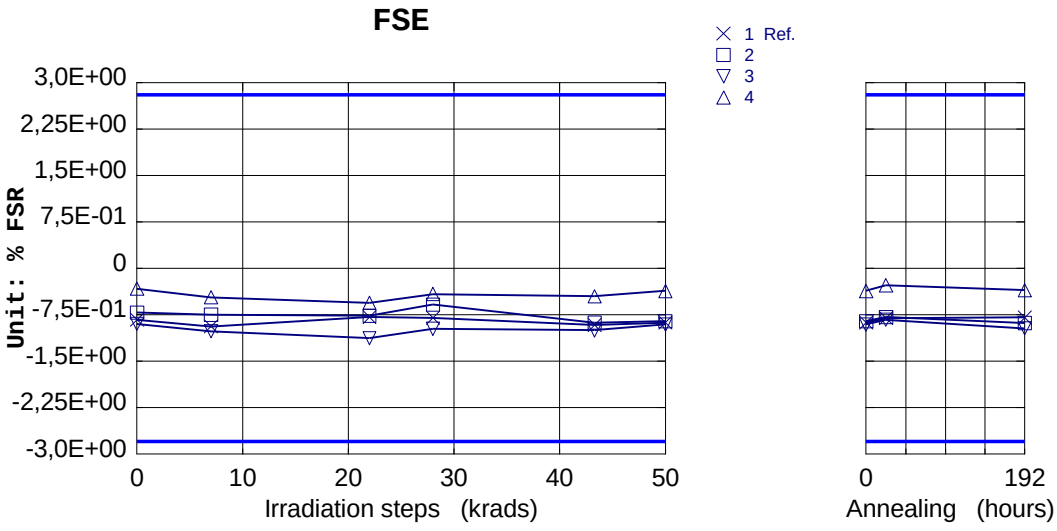
Test Step	192 hours
Serial #	
1 Ref.	4,639E -01
2	9,583E -01
3	5,493E -01
4	5,310E -01
Statistics	
Min	5,310E -01
Max	9,583E -01
Mean	6,795E -01
Sigma	2,416E -01



Parameter: Full-Scale Error: FSE
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: 2V
Unit= % FSR
Spec limit max: 2.8
Spec limit min: -2.8
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	-8,301E -01	-9,399E -01	-7,874E -01	-7,996E -01	-9,155E -01	-8,789E -01	-8,057E -01
2	-7,141E -01	-7,507E -01	-7,690E -01	-5,859E -01	-8,789E -01	-8,545E -01	-7,874E -01
3	-8,972E -01	-1,019E +00	-1,129E +00	-9,766E -01	-1,001E +00	-9,094E -01	-8,301E -01
4	-3,296E -01	-4,700E -01	-5,554E -01	-4,150E -01	-4,517E -01	-3,662E -01	-2,747E -01
Statistics							
Min	-8,972E -01	-1,019E +00	-1,129E +00	-9,766E -01	-1,001E +00	-9,094E -01	-8,301E -01
Max	-3,296E -01	-4,700E -01	-5,554E -01	-4,150E -01	-4,517E -01	-3,662E -01	-2,747E -01
Mean	-6,470E -01	-7,466E -01	-8,178E -01	-6,592E -01	-7,772E -01	-7,100E -01	-6,307E -01
Sigma	2,897E -01	2,745E -01	2,899E -01	2,878E -01	2,885E -01	2,990E -01	3,091E -01

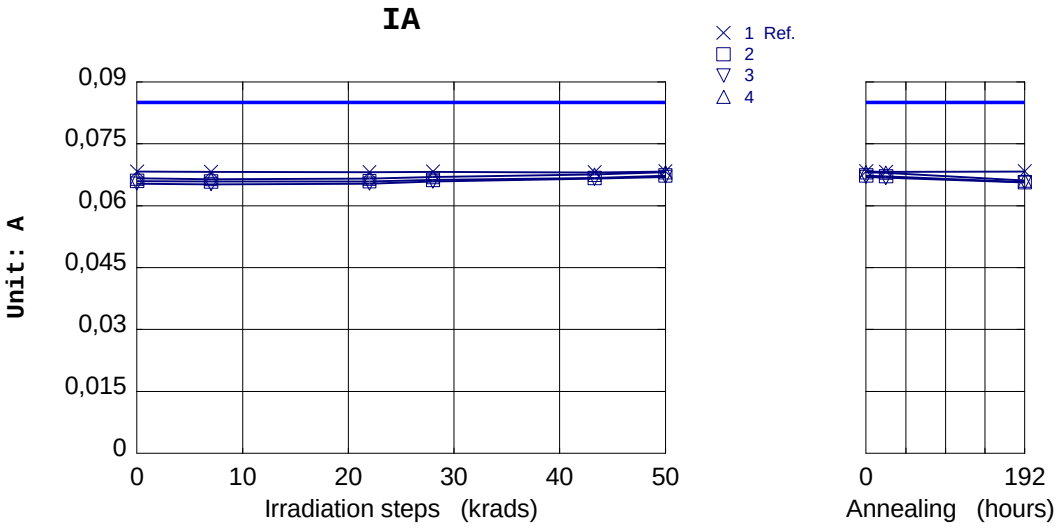
Test Step	192 hours
Serial #	
1 Ref.	-7,935E -01
2	-8,850E -01
3	-9,705E -01
4	-3,540E -01
Statistics	
Min	-9,705E -01
Max	-3,540E -01
Mean	-7,365E -01
Sigma	3,340E -01



Parameter: Analog Supply Current: IA
VA=+5V; VD=+5V; VDI/O=+5V
Unit= A
Spec limit max: 0.085
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	6,826E -02	6,821E -02	6,811E -02	6,823E -02	6,808E -02	6,830E -02	6,819E -02
2	6,598E -02	6,586E -02	6,591E -02	6,623E -02	6,671E -02	6,728E -02	6,712E -02
3	6,534E -02	6,519E -02	6,534E -02	6,585E -02	6,655E -02	6,696E -02	6,673E -02
4	6,659E -02	6,642E -02	6,653E -02	6,691E -02	6,752E -02	6,809E -02	6,797E -02
Statistics							
Min	6,534E -02	6,519E -02	6,534E -02	6,585E -02	6,655E -02	6,696E -02	6,673E -02
Max	6,659E -02	6,642E -02	6,653E -02	6,691E -02	6,752E -02	6,809E -02	6,797E -02
Mean	6,597E -02	6,582E -02	6,593E -02	6,633E -02	6,693E -02	6,744E -02	6,727E -02
Sigma	6,241E -04	6,130E -04	5,971E -04	5,392E -04	5,246E -04	5,830E -04	6,336E -04

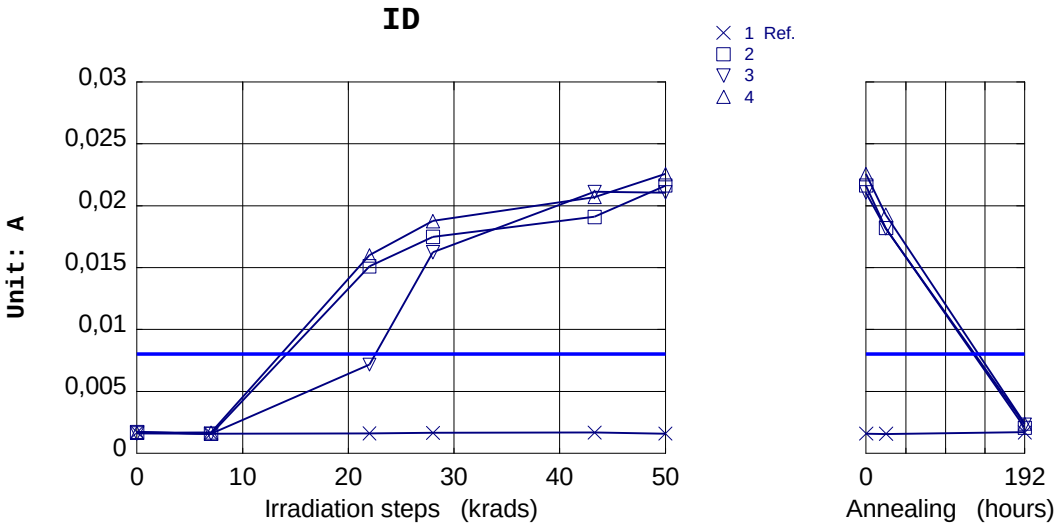
Test Step	192 hours
Serial #	
1 Ref.	6,830E -02
2	6,570E -02
3	6,560E -02
4	6,608E -02
Statistics	
Min	6,560E -02
Max	6,608E -02
Mean	6,579E -02
Sigma	2,544E -04



Parameter: Digital Supply Current: ID
VA=+5V; VD=+5V; VDI/O=+5V
Unit= A
Spec limit max: 0.008
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,702E -03	1,589E -03	1,619E -03	1,651E -03	1,685E -03	1,586E -03	1,570E -03
2	1,728E -03	1,558E -03	1,510E -02	1,748E -02	1,909E -02	2,162E -02	1,819E -02
3	1,619E -03	1,587E -03	7,166E -03	1,625E -02	2,111E -02	2,106E -02	1,817E -02
4	1,661E -03	1,685E -03	1,598E -02	1,876E -02	2,070E -02	2,255E -02	1,926E -02
Statistics							
Min	1,619E -03	1,558E -03	7,166E -03	1,625E -02	1,909E -02	2,106E -02	1,817E -02
Max	1,728E -03	1,685E -03	1,598E -02	1,876E -02	2,111E -02	2,255E -02	1,926E -02
Mean	1,669E -03	1,610E -03	1,275E -02	1,749E -02	2,030E -02	2,174E -02	1,854E -02
Sigma	5,498E -05	6,655E -05	4,855E -03	1,255E -03	1,069E -03	7,557E -04	6,225E -04

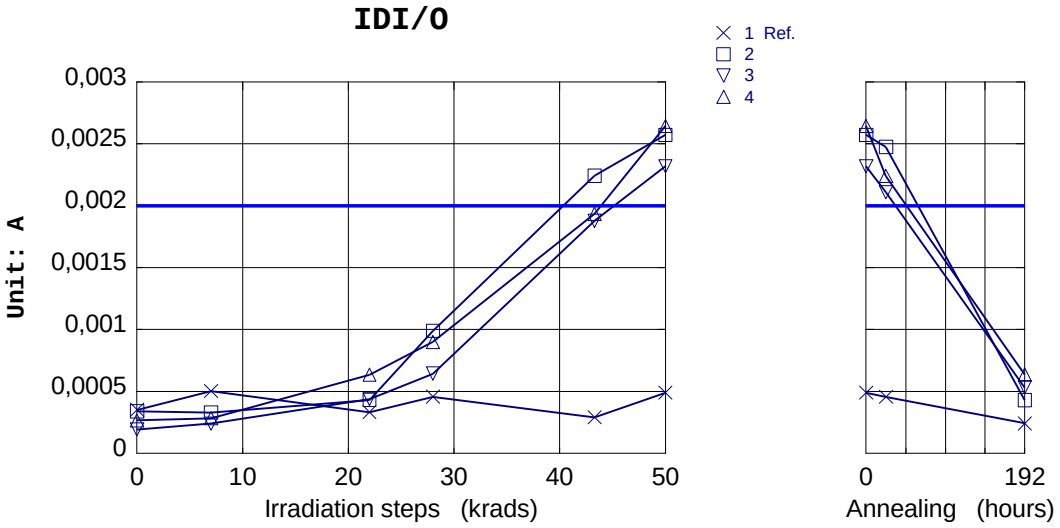
Test Step	192 hours
Serial #	
1 Ref.	1,698E -03
2	2,068E -03
3	2,332E -03
4	2,400E -03
Statistics	
Min	2,068E -03
Max	2,400E -03
Mean	2,267E -03
Sigma	1,754E -04



Parameter: Digital Output Bus Supply Current: IDI/O
VA=+5V; VD=+5V; VDI/O=+5V
Unit= A
Spec limit max: 0.002
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	3,518E -04	5,027E -04	3,327E -04	4,577E -04	2,912E -04	4,898E -04	4,569E -04
2	3,396E -04	3,288E -04	4,314E -04	9,879E -04	2,241E -03	2,572E -03	2,474E -03
3	1,923E -04	2,406E -04	4,372E -04	6,430E -04	1,877E -03	2,318E -03	2,109E -03
4	2,666E -04	2,833E -04	6,350E -04	8,992E -04	1,933E -03	2,644E -03	2,239E -03
Statistics							
Min	1,923E -04	2,406E -04	4,314E -04	6,430E -04	1,877E -03	2,318E -03	2,109E -03
Max	3,396E -04	3,288E -04	6,350E -04	9,879E -04	2,241E -03	2,644E -03	2,474E -03
Mean	2,661E -04	2,842E -04	5,012E -04	8,433E -04	2,017E -03	2,511E -03	2,274E -03
Sigma	7,365E -05	4,415E -05	1,159E -04	1,791E -04	1,960E -04	1,713E -04	1,850E -04

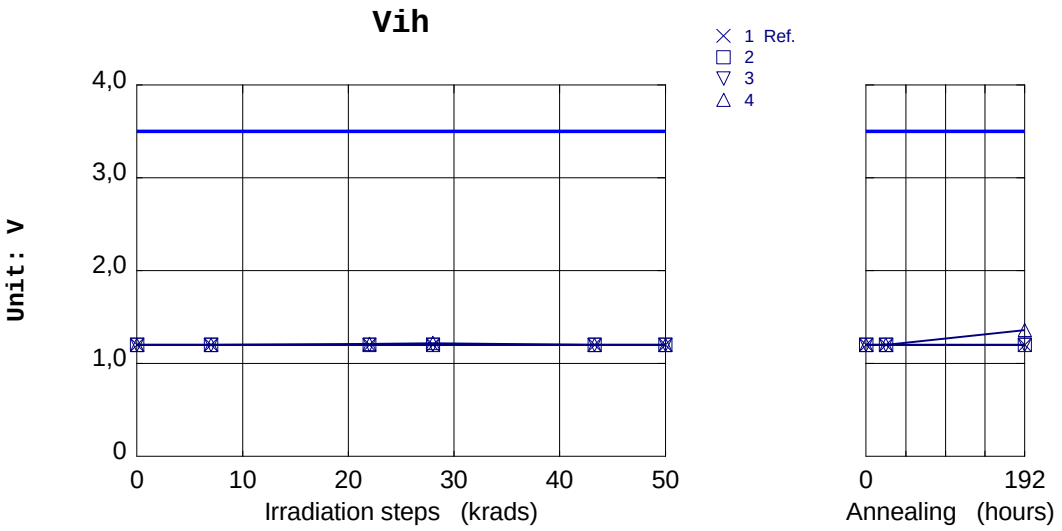
Test Step	192 hours
Serial #	
1 Ref.	2,416E -04
2	4,292E -04
3	5,320E -04
4	6,362E -04
Statistics	
Min	4,292E -04
Max	6,362E -04
Mean	5,325E -04
Sigma	1,035E -04



Parameter: High Level Input Voltage: Vih
VA=+5V; VD=+5V; VDI/O=+5V
Unit= V
Spec limit max: 3.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
2	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
3	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
4	1,200E +00	1,200E +00	1,210E +00	1,220E +00	1,200E +00	1,200E +00	1,200E +00
Statistics							
Min	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
Max	1,200E +00	1,200E +00	1,210E +00	1,220E +00	1,200E +00	1,200E +00	1,200E +00
Mean	1,200E +00	1,200E +00	1,203E +00	1,207E +00	1,200E +00	1,200E +00	1,200E +00
Sigma	0,000E +00	0,000E +00	5,773E -03	1,155E -02	0,000E +00	0,000E +00	0,000E +00

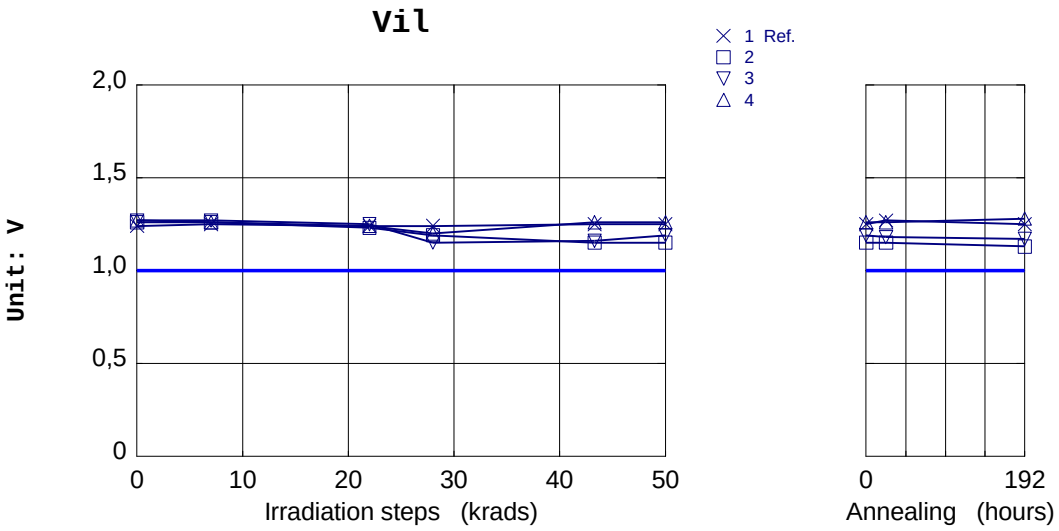
Test Step	192 hours
Serial #	
1 Ref.	1,200E +00
2	1,200E +00
3	1,200E +00
4	1,360E +00
Statistics	
Min	1,200E +00
Max	1,360E +00
Mean	1,253E +00
Sigma	9,238E -02



Parameter: Low Level Input Voltage: Vil
VA=+5V; VD=+5V; VDI/O=+5V
Unit= V
Spec limit min: 1
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,240E +00	1,250E +00	1,240E +00	1,240E +00	1,250E +00	1,250E +00	1,270E +00
2	1,260E +00	1,260E +00	1,230E +00	1,190E +00	1,150E +00	1,150E +00	1,150E +00
3	1,270E +00	1,270E +00	1,250E +00	1,150E +00	1,160E +00	1,190E +00	1,180E +00
4	1,270E +00	1,260E +00	1,240E +00	1,200E +00	1,260E +00	1,260E +00	1,260E +00
Statistics							
Min	1,260E +00	1,260E +00	1,230E +00	1,150E +00	1,150E +00	1,150E +00	1,150E +00
Max	1,270E +00	1,270E +00	1,250E +00	1,200E +00	1,260E +00	1,260E +00	1,260E +00
Mean	1,267E +00	1,263E +00	1,240E +00	1,180E +00	1,190E +00	1,200E +00	1,197E +00
Sigma	5,773E -03	5,773E -03	1,000E -02	2,646E -02	6,083E -02	5,568E -02	5,686E -02

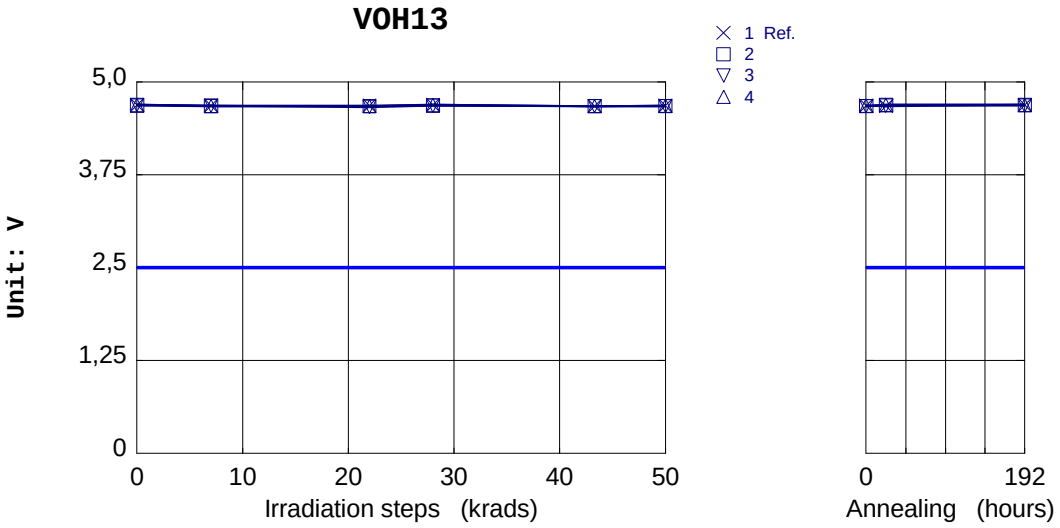
Test Step	192 hours
Serial #	
1 Ref.	1,250E +00
2	1,130E +00
3	1,170E +00
4	1,280E +00
Statistics	
Min	1,130E +00
Max	1,280E +00
Mean	1,193E +00
Sigma	7,767E -02



Parameter: High Level Output Voltage Pin 38: VOH13
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,680E +00	4,680E +00	4,690E +00	4,670E +00	4,680E +00	4,670E +00
2	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,690E +00
3	4,690E +00	4,680E +00	4,660E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
4	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,680E +00	4,690E +00
Statistics							
Min	4,680E +00	4,670E +00	4,660E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
Max	4,690E +00	4,680E +00	4,670E +00	4,690E +00	4,670E +00	4,680E +00	4,690E +00
Mean	4,687E +00	4,673E +00	4,667E +00	4,683E +00	4,670E +00	4,673E +00	4,687E +00
Sigma	5,774E -03	5,773E -03	5,774E -03	5,774E -03	2,634E -09	5,773E -03	5,774E -03

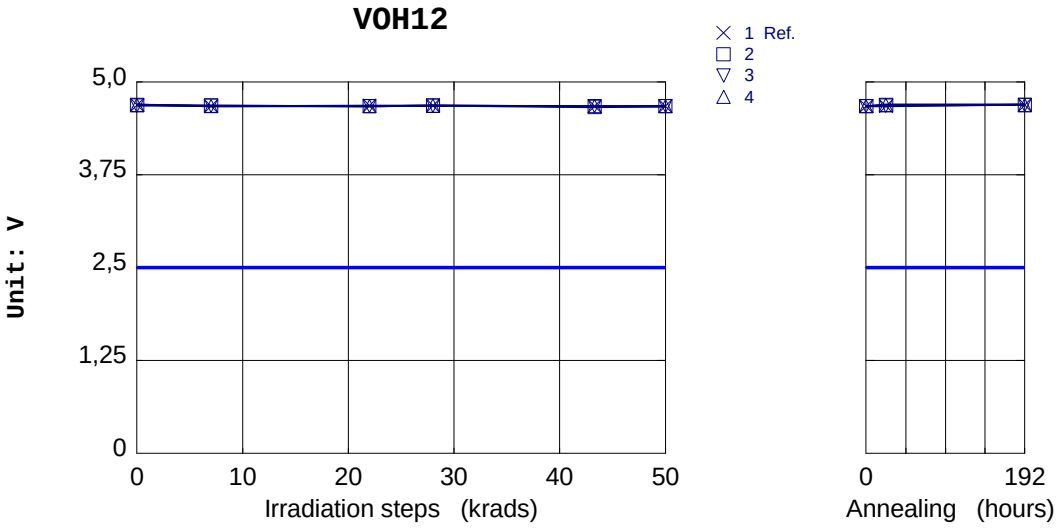
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,680E +00
4	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,687E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 37: VOH12
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00
2	4,690E +00	4,680E +00	4,670E +00	4,680E +00	4,660E +00	4,670E +00	4,690E +00
3	4,680E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
4	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,690E +00
Statistics							
Min	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,670E +00	4,680E +00
Max	4,690E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,690E +00
Mean	4,687E +00	4,677E +00	4,670E +00	4,680E +00	4,667E +00	4,670E +00	4,687E +00
Sigma	5,774E -03	5,773E -03	2,634E -09	0,000E +00	5,774E -03	2,634E -09	5,774E -03

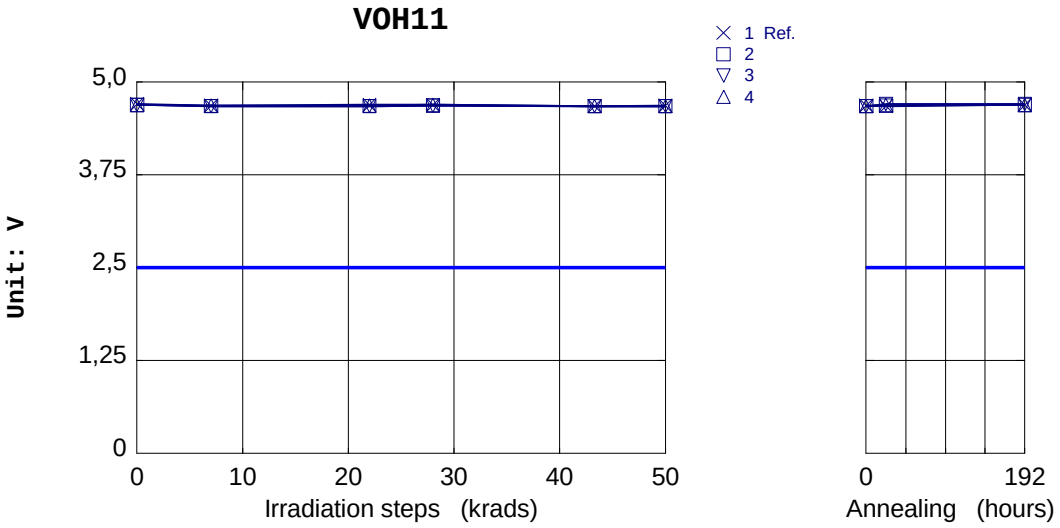
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 36: VOH11
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,700E +00	4,680E +00	4,690E +00	4,690E +00	4,670E +00	4,680E +00	4,670E +00
2	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
3	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,700E +00
4	4,690E +00	4,680E +00	4,680E +00	4,690E +00	4,670E +00	4,670E +00	4,690E +00
Statistics							
Min	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
Max	4,690E +00	4,680E +00	4,680E +00	4,690E +00	4,670E +00	4,670E +00	4,700E +00
Mean	4,690E +00	4,673E +00	4,673E +00	4,683E +00	4,670E +00	4,670E +00	4,690E +00
Sigma	0,000E +00	5,773E -03	5,773E -03	5,774E -03	2,634E -09	2,634E -09	1,000E -02

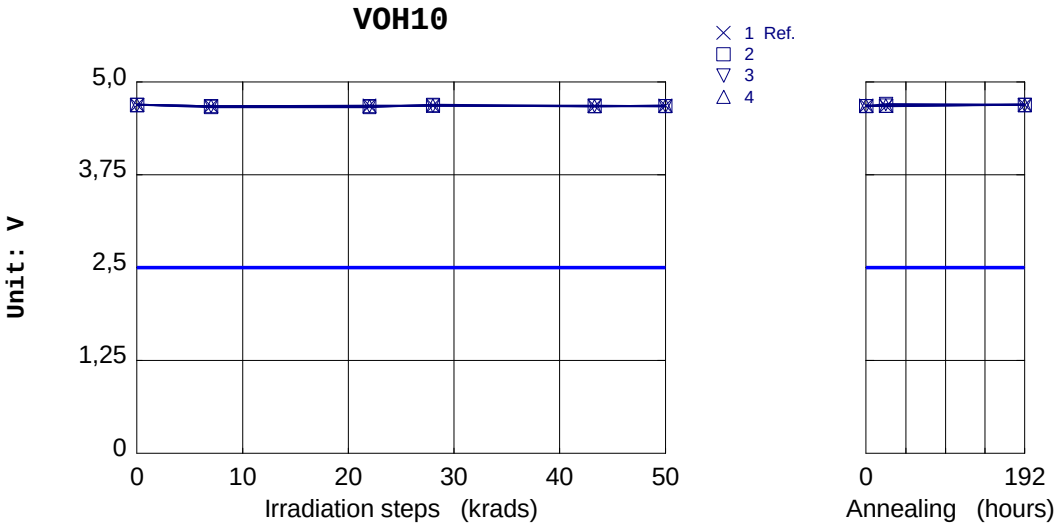
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,700E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,700E +00
Mean	4,693E +00
Sigma	5,773E -03



Parameter: High Level Output Voltage Pin 35: VOH10
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00
2	4,690E +00	4,660E +00	4,660E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
3	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00	4,700E +00
4	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00
Statistics							
Min	4,690E +00	4,660E +00	4,660E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
Max	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,680E +00	4,680E +00	4,700E +00
Mean	4,690E +00	4,667E +00	4,667E +00	4,683E +00	4,673E +00	4,673E +00	4,687E +00
Sigma	0,000E +00	5,774E -03	5,774E -03	5,774E -03	5,773E -03	5,773E -03	1,155E -02

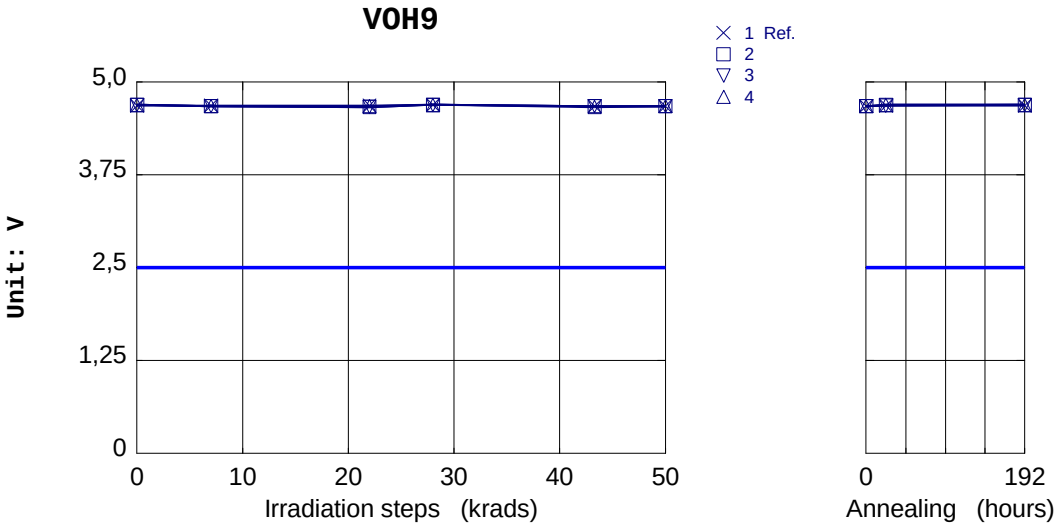
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 32: VOH9
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,680E +00	4,680E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
2	4,690E +00	4,670E +00	4,660E +00	4,690E +00	4,670E +00	4,670E +00	4,690E +00
3	4,690E +00	4,670E +00	4,660E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
4	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,660E +00	4,670E +00	4,690E +00
Statistics							
Min	4,690E +00	4,670E +00	4,660E +00	4,690E +00	4,660E +00	4,670E +00	4,680E +00
Max	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,690E +00
Mean	4,690E +00	4,670E +00	4,663E +00	4,690E +00	4,667E +00	4,670E +00	4,687E +00
Sigma	0,000E +00	2,634E -09	5,774E -03	0,000E +00	5,774E -03	2,634E -09	5,774E -03

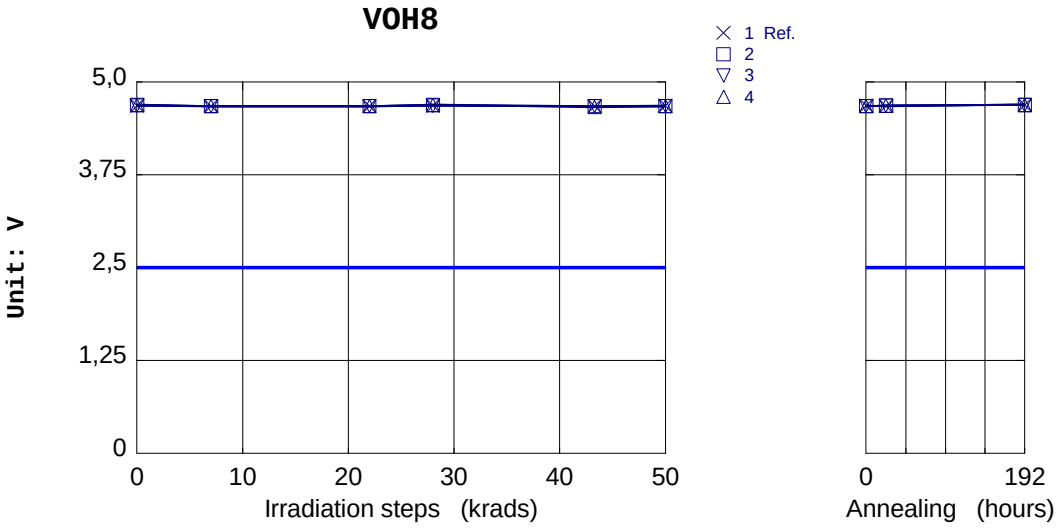
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
2	4,690E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 31: VOH8
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00
2	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
3	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
4	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,660E +00	4,670E +00	4,680E +00
Statistics							
Min	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,670E +00	4,680E +00
Max	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
Mean	4,687E +00	4,670E +00	4,670E +00	4,687E +00	4,667E +00	4,670E +00	4,680E +00
Sigma	5,774E -03	2,634E -09	2,634E -09	5,774E -03	5,774E -03	2,634E -09	0,000E +00

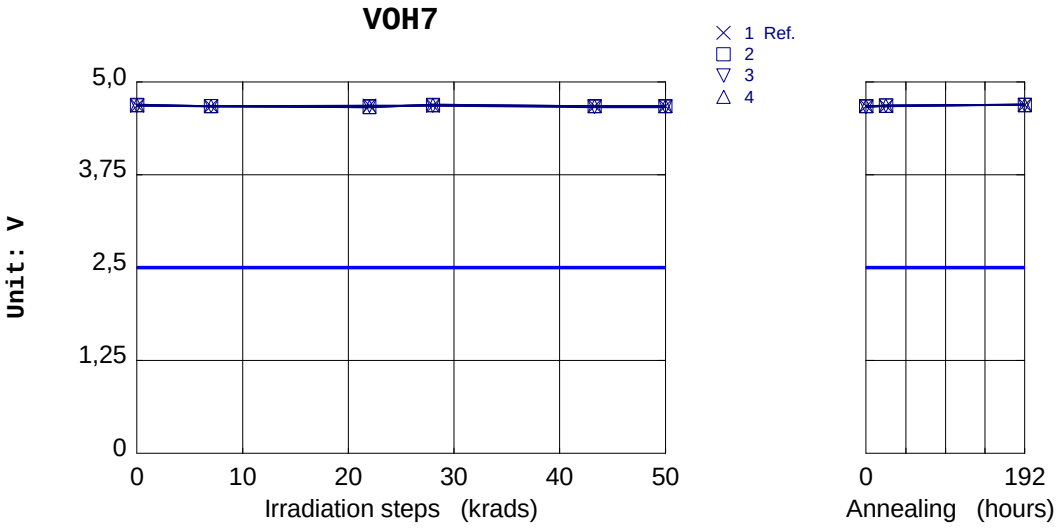
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 30: VOH7
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00
2	4,690E +00	4,670E +00	4,660E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
3	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
4	4,690E +00	4,670E +00	4,660E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
Statistics							
Min	4,680E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
Max	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
Mean	4,687E +00	4,670E +00	4,663E +00	4,687E +00	4,667E +00	4,667E +00	4,680E +00
Sigma	5,774E -03	2,634E -09	5,774E -03	5,774E -03	5,774E -03	5,774E -03	0,000E +00

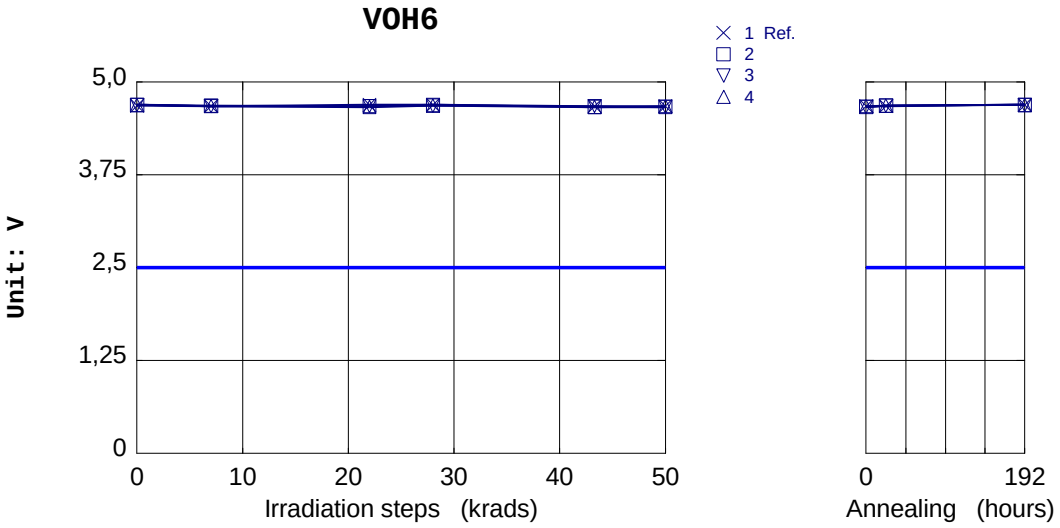
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 29: VOH6
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,690E +00	4,690E +00	4,670E +00	4,670E +00	4,670E +00
2	4,690E +00	4,680E +00	4,670E +00	4,690E +00	4,660E +00	4,660E +00	4,680E +00
3	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,660E +00	4,680E +00
4	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,670E +00	4,680E +00
Statistics							
Min	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
Max	4,690E +00	4,680E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
Mean	4,690E +00	4,673E +00	4,667E +00	4,683E +00	4,663E +00	4,663E +00	4,680E +00
Sigma	0,000E +00	5,773E -03	5,774E -03	5,774E -03	5,774E -03	5,774E -03	0,000E +00

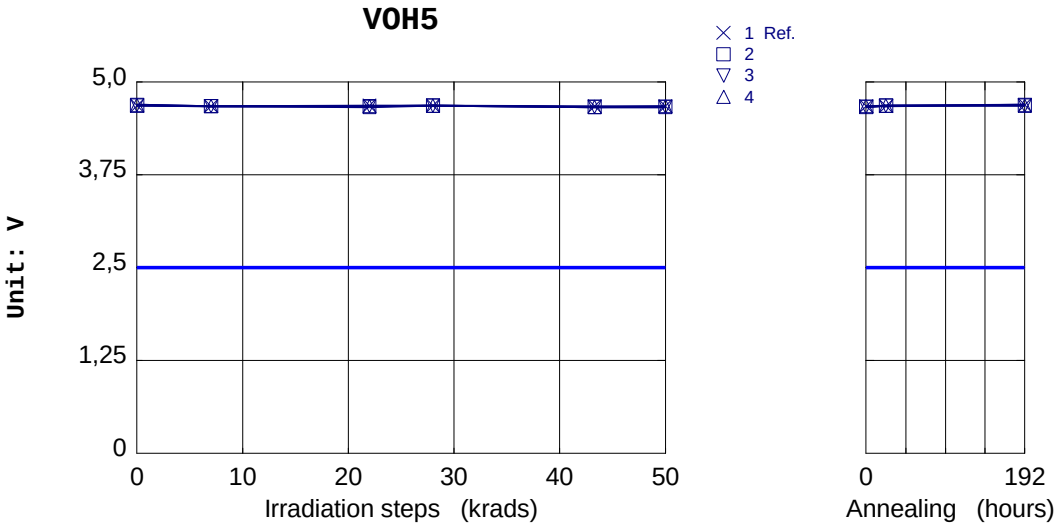
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 28: VOH5
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00
2	4,680E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
3	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
4	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,670E +00	4,680E +00
Statistics							
Min	4,680E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
Max	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,670E +00	4,680E +00
Mean	4,687E +00	4,670E +00	4,667E +00	4,680E +00	4,660E +00	4,663E +00	4,680E +00
Sigma	5,774E -03	2,634E -09	5,774E -03	0,000E +00	2,634E -09	5,774E -03	0,000E +00

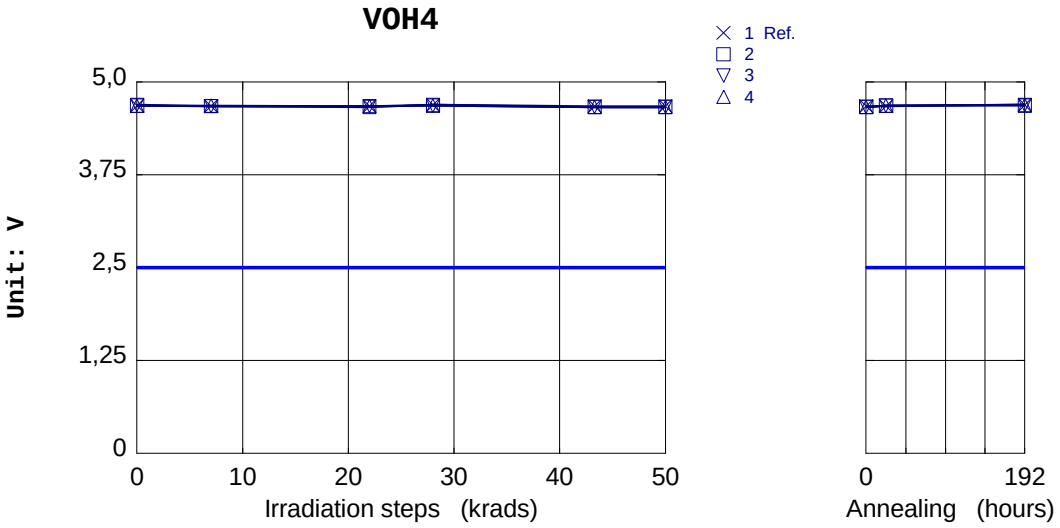
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,680E +00
4	4,680E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,683E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 27: VOH4
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,670E +00
2	4,680E +00	4,670E +00	4,660E +00	4,690E +00	4,660E +00	4,660E +00	4,680E +00
3	4,690E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
4	4,680E +00	4,680E +00	4,670E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
Statistics							
Min	4,680E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
Max	4,690E +00	4,680E +00	4,670E +00	4,690E +00	4,660E +00	4,660E +00	4,680E +00
Mean	4,683E +00	4,673E +00	4,667E +00	4,683E +00	4,660E +00	4,660E +00	4,680E +00
Sigma	5,774E -03	5,773E -03	5,774E -03	5,774E -03	2,634E -09	2,634E -09	0,000E +00

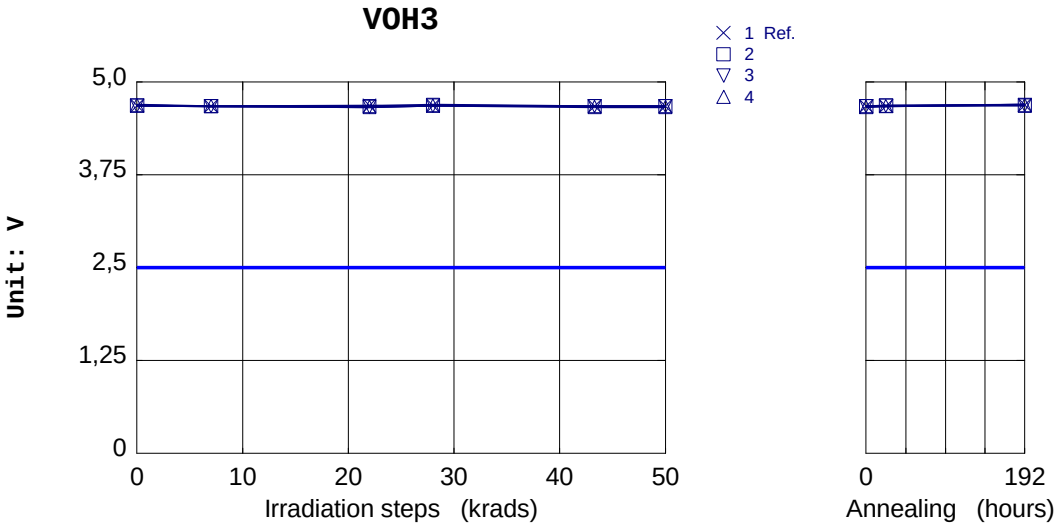
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,680E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,687E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 26: VOH3
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00
2	4,680E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
3	4,680E +00	4,670E +00	4,660E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
4	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,670E +00
Statistics							
Min	4,680E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,670E +00
Max	4,690E +00	4,670E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,680E +00
Mean	4,683E +00	4,670E +00	4,663E +00	4,683E +00	4,667E +00	4,667E +00	4,677E +00
Sigma	5,774E -03	2,634E -09	5,774E -03	5,774E -03	5,774E -03	5,774E -03	5,773E -03

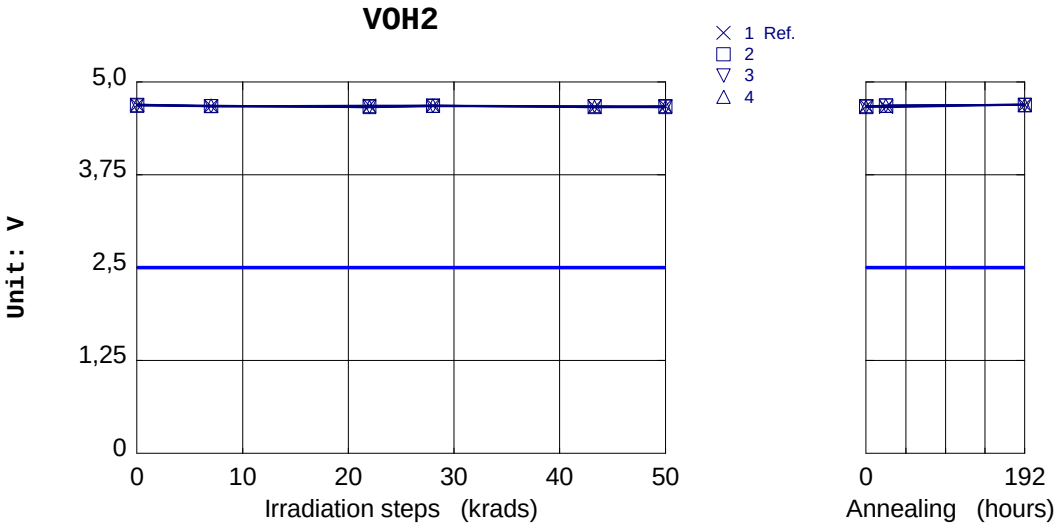
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,680E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,687E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 25: VOH2
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,660E +00	4,670E +00	4,660E +00
2	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
3	4,690E +00	4,670E +00	4,660E +00	4,670E +00	4,670E +00	4,660E +00	4,680E +00
4	4,690E +00	4,680E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
Statistics							
Min	4,680E +00	4,670E +00	4,660E +00	4,670E +00	4,660E +00	4,660E +00	4,680E +00
Max	4,690E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00
Mean	4,687E +00	4,673E +00	4,663E +00	4,677E +00	4,667E +00	4,663E +00	4,680E +00
Sigma	5,774E -03	5,773E -03	5,774E -03	5,773E -03	5,774E -03	5,774E -03	0,000E +00

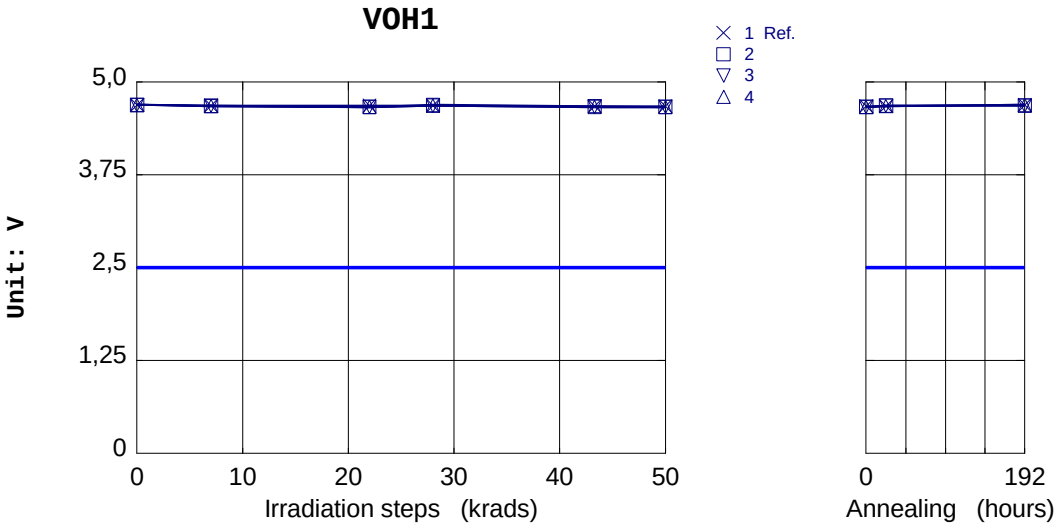
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,690E +00
3	4,690E +00
4	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 24: VOH1
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,680E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00
2	4,690E +00	4,670E +00	4,660E +00	4,690E +00	4,670E +00	4,660E +00	4,680E +00
3	4,690E +00	4,680E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
4	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,670E +00
Statistics							
Min	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,670E +00
Max	4,690E +00	4,680E +00	4,660E +00	4,690E +00	4,670E +00	4,660E +00	4,680E +00
Mean	4,690E +00	4,673E +00	4,660E +00	4,683E +00	4,663E +00	4,660E +00	4,677E +00
Sigma	0,000E +00	5,773E -03	2,634E -09	5,774E -03	5,774E -03	2,634E -09	5,773E -03

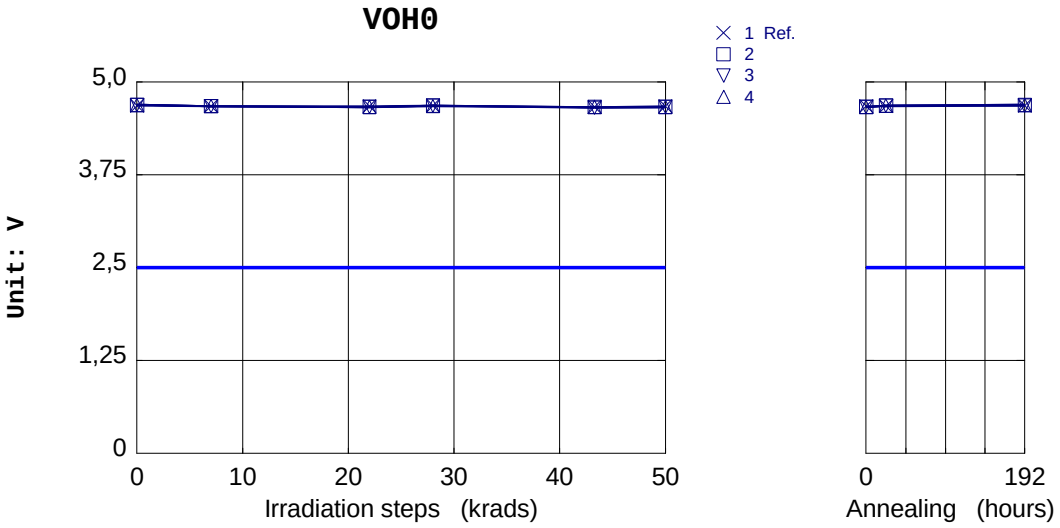
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
2	4,680E +00
3	4,680E +00
4	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,683E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 23: VOH0
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,660E +00	4,670E +00	4,670E +00
2	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
3	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,650E +00	4,660E +00	4,680E +00
4	4,690E +00	4,670E +00	4,660E +00	4,670E +00	4,660E +00	4,660E +00	4,680E +00
Statistics							
Min	4,690E +00	4,670E +00	4,660E +00	4,670E +00	4,650E +00	4,660E +00	4,680E +00
Max	4,690E +00	4,670E +00	4,660E +00	4,680E +00	4,660E +00	4,660E +00	4,680E +00
Mean	4,690E +00	4,670E +00	4,660E +00	4,677E +00	4,657E +00	4,660E +00	4,680E +00
Sigma	0,000E +00	2,634E -09	2,634E -09	5,773E -03	5,773E -03	2,634E -09	0,000E +00

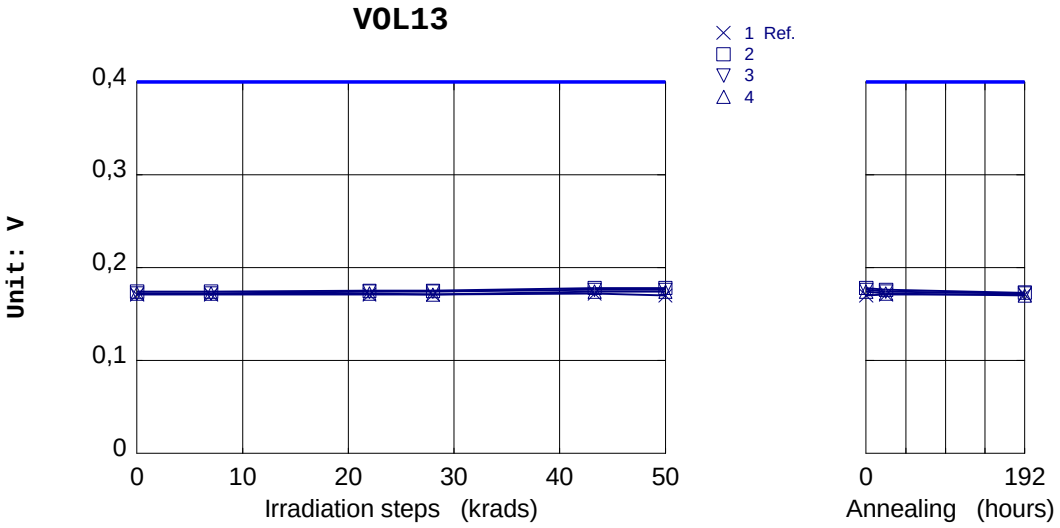
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
2	4,690E +00
3	4,680E +00
4	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,687E +00
Sigma	5,774E -03



Parameter: Low Level Output Voltage Pin 38: VOL13
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,710E -01	1,710E -01	1,710E -01	1,710E -01	1,720E -01	1,700E -01	1,710E -01
2	1,740E -01	1,740E -01	1,750E -01	1,750E -01	1,780E -01	1,780E -01	1,760E -01
3	1,720E -01	1,720E -01	1,740E -01	1,740E -01	1,760E -01	1,760E -01	1,740E -01
4	1,720E -01	1,720E -01	1,720E -01	1,710E -01	1,740E -01	1,740E -01	1,720E -01
Statistics							
Min	1,720E -01	1,720E -01	1,720E -01	1,710E -01	1,740E -01	1,740E -01	1,720E -01
Max	1,740E -01	1,740E -01	1,750E -01	1,750E -01	1,780E -01	1,780E -01	1,760E -01
Mean	1,727E -01	1,727E -01	1,737E -01	1,733E -01	1,760E -01	1,760E -01	1,740E -01
Sigma	1,155E -03	1,155E -03	1,528E -03	2,082E -03	2,000E -03	2,000E -03	2,000E -03

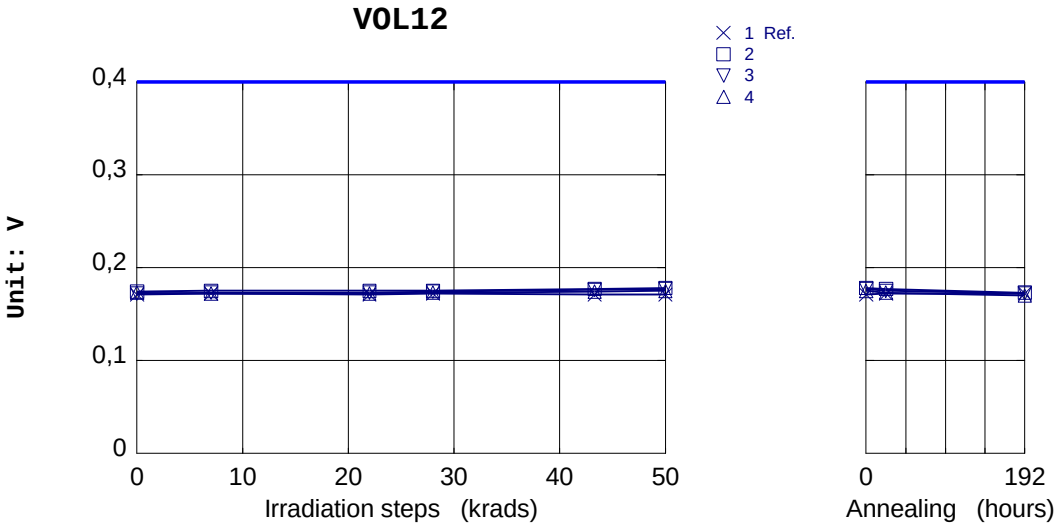
Test Step	192 hours
Serial #	
1 Ref.	1,710E -01
2	1,730E -01
3	1,720E -01
4	1,700E -01
Statistics	
Min	1,700E -01
Max	1,730E -01
Mean	1,717E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 37: VOL12
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,710E -01	1,720E -01	1,710E -01	1,720E -01	1,710E -01	1,710E -01	1,720E -01
2	1,740E -01	1,750E -01	1,750E -01	1,750E -01	1,770E -01	1,780E -01	1,770E -01
3	1,720E -01	1,730E -01	1,730E -01	1,740E -01	1,760E -01	1,770E -01	1,750E -01
4	1,730E -01	1,720E -01	1,720E -01	1,730E -01	1,740E -01	1,750E -01	1,730E -01
Statistics							
Min	1,720E -01	1,720E -01	1,720E -01	1,730E -01	1,740E -01	1,750E -01	1,730E -01
Max	1,740E -01	1,750E -01	1,750E -01	1,750E -01	1,770E -01	1,780E -01	1,770E -01
Mean	1,730E -01	1,733E -01	1,733E -01	1,740E -01	1,757E -01	1,767E -01	1,750E -01
Sigma	1,000E -03	1,528E -03	1,528E -03	1,000E -03	1,528E -03	1,528E -03	2,000E -03

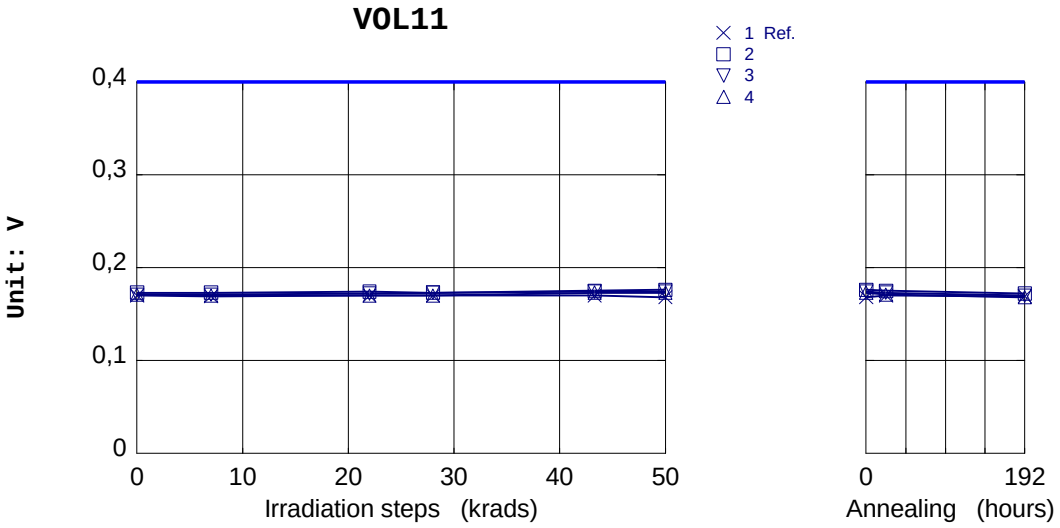
Test Step	192 hours
Serial #	
1 Ref.	1,720E -01
2	1,730E -01
3	1,720E -01
4	1,700E -01
Statistics	
Min	1,700E -01
Max	1,730E -01
Mean	1,717E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 36: VOL11
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,700E -01	1,690E -01	1,700E -01	1,700E -01	1,700E -01	1,680E -01	1,700E -01
2	1,730E -01	1,730E -01	1,740E -01	1,730E -01	1,750E -01	1,760E -01	1,750E -01
3	1,710E -01	1,710E -01	1,720E -01	1,730E -01	1,740E -01	1,740E -01	1,730E -01
4	1,710E -01	1,700E -01	1,700E -01	1,700E -01	1,730E -01	1,730E -01	1,710E -01
Statistics							
Min	1,710E -01	1,700E -01	1,700E -01	1,700E -01	1,730E -01	1,730E -01	1,710E -01
Max	1,730E -01	1,730E -01	1,740E -01	1,730E -01	1,750E -01	1,760E -01	1,750E -01
Mean	1,717E -01	1,713E -01	1,720E -01	1,720E -01	1,740E -01	1,743E -01	1,730E -01
Sigma	1,155E -03	1,528E -03	2,000E -03	1,732E -03	1,000E -03	1,528E -03	2,000E -03

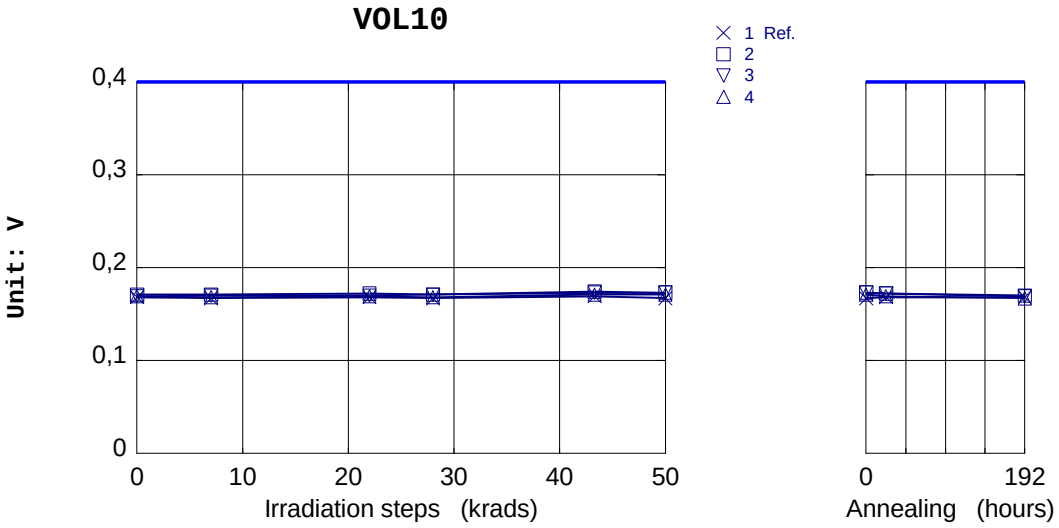
Test Step	192 hours
Serial #	
1 Ref.	1,690E -01
2	1,720E -01
3	1,700E -01
4	1,680E -01
Statistics	
Min	1,680E -01
Max	1,720E -01
Mean	1,700E -01
Sigma	2,000E -03



Parameter: Low Level Output Voltage Pin 35: VOL10
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,680E -01	1,670E -01	1,680E -01	1,670E -01	1,690E -01	1,670E -01	1,680E -01
2	1,710E -01	1,710E -01	1,720E -01	1,710E -01	1,740E -01	1,730E -01	1,720E -01
3	1,690E -01	1,700E -01	1,700E -01	1,710E -01	1,730E -01	1,730E -01	1,720E -01
4	1,690E -01	1,680E -01	1,690E -01	1,680E -01	1,710E -01	1,710E -01	1,690E -01
Statistics							
Min	1,690E -01	1,680E -01	1,690E -01	1,680E -01	1,710E -01	1,710E -01	1,690E -01
Max	1,710E -01	1,710E -01	1,720E -01	1,710E -01	1,740E -01	1,730E -01	1,720E -01
Mean	1,697E -01	1,697E -01	1,703E -01	1,700E -01	1,727E -01	1,723E -01	1,710E -01
Sigma	1,155E -03	1,528E -03	1,528E -03	1,732E -03	1,528E -03	1,155E -03	1,732E -03

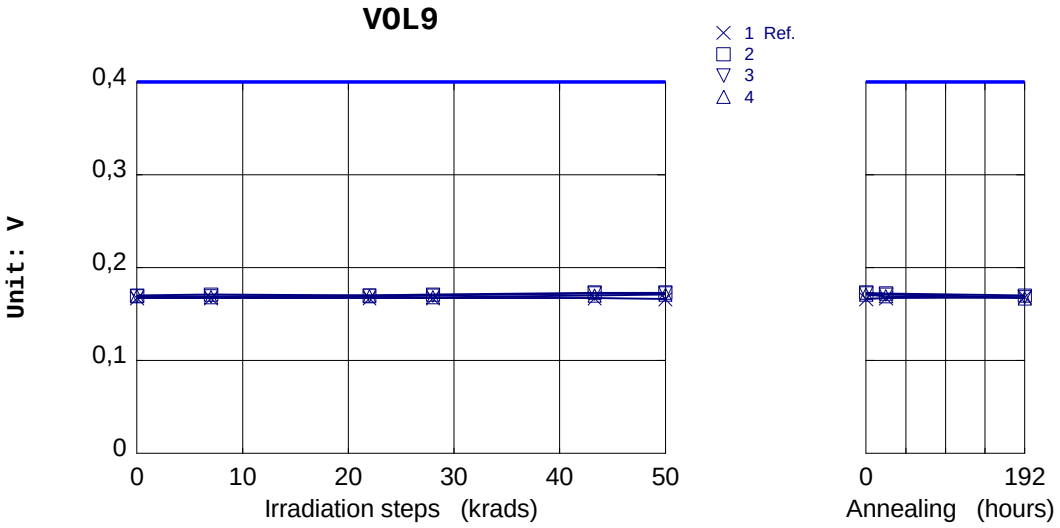
Test Step	192 hours
Serial #	
1 Ref.	1,680E -01
2	1,700E -01
3	1,690E -01
4	1,670E -01
Statistics	
Min	1,670E -01
Max	1,700E -01
Mean	1,687E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 32: VOL9
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,670E -01	1,670E -01	1,670E -01	1,670E -01	1,670E -01	1,660E -01	1,670E -01
2	1,700E -01	1,710E -01	1,700E -01	1,710E -01	1,730E -01	1,730E -01	1,720E -01
3	1,690E -01	1,690E -01	1,700E -01	1,700E -01	1,720E -01	1,720E -01	1,710E -01
4	1,690E -01	1,680E -01	1,690E -01	1,680E -01	1,700E -01	1,710E -01	1,690E -01
Statistics							
Min	1,690E -01	1,680E -01	1,690E -01	1,680E -01	1,700E -01	1,710E -01	1,690E -01
Max	1,700E -01	1,710E -01	1,700E -01	1,710E -01	1,730E -01	1,730E -01	1,720E -01
Mean	1,693E -01	1,693E -01	1,697E -01	1,697E -01	1,717E -01	1,720E -01	1,707E -01
Sigma	5,774E -04	1,528E -03	5,774E -04	1,528E -03	1,528E -03	1,000E -03	1,528E -03

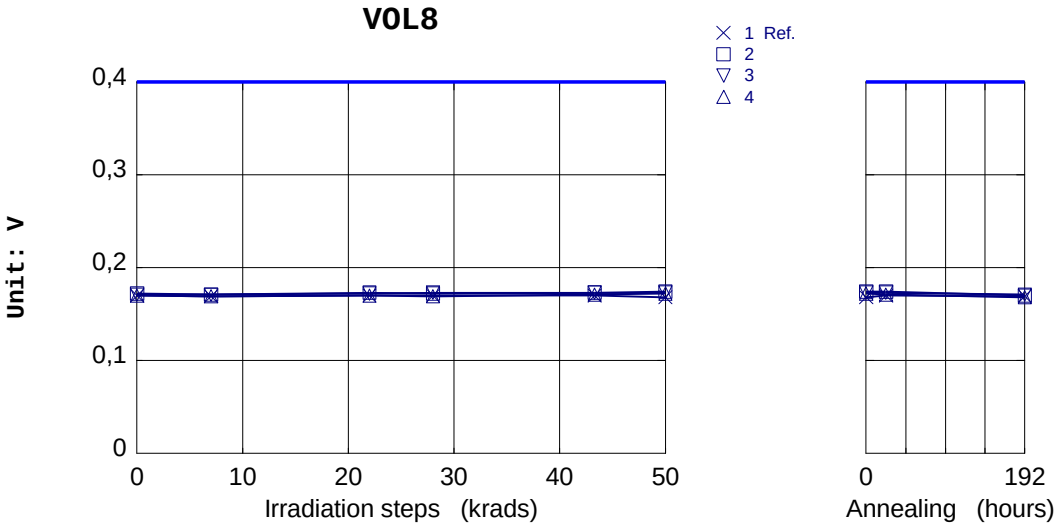
Test Step	192 hours
Serial #	
1 Ref.	1,680E -01
2	1,700E -01
3	1,680E -01
4	1,670E -01
Statistics	
Min	1,670E -01
Max	1,700E -01
Mean	1,683E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 31: VOL8
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,700E -01	1,690E -01	1,700E -01	1,700E -01	1,700E -01	1,680E -01	1,700E -01
2	1,720E -01	1,710E -01	1,730E -01	1,720E -01	1,730E -01	1,740E -01	1,740E -01
3	1,710E -01	1,710E -01	1,720E -01	1,730E -01	1,730E -01	1,730E -01	1,730E -01
4	1,700E -01	1,690E -01	1,700E -01	1,690E -01	1,710E -01	1,720E -01	1,710E -01
Statistics							
Min	1,700E -01	1,690E -01	1,700E -01	1,690E -01	1,710E -01	1,720E -01	1,710E -01
Max	1,720E -01	1,710E -01	1,730E -01	1,730E -01	1,730E -01	1,740E -01	1,740E -01
Mean	1,710E -01	1,703E -01	1,717E -01	1,713E -01	1,723E -01	1,730E -01	1,727E -01
Sigma	1,000E -03	1,155E -03	1,528E -03	2,082E -03	1,155E -03	1,000E -03	1,528E -03

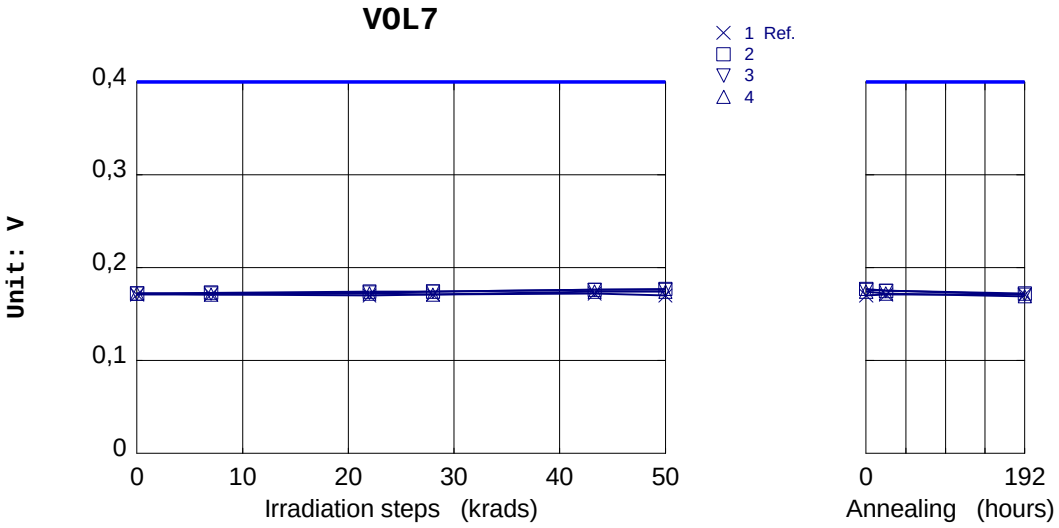
Test Step	192 hours
Serial #	
1 Ref.	1,690E -01
2	1,700E -01
3	1,710E -01
4	1,680E -01
Statistics	
Min	1,680E -01
Max	1,710E -01
Mean	1,697E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 30: VOL7
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,710E -01	1,710E -01	1,700E -01	1,710E -01	1,720E -01	1,700E -01	1,710E -01
2	1,720E -01	1,730E -01	1,740E -01	1,740E -01	1,760E -01	1,770E -01	1,750E -01
3	1,720E -01	1,720E -01	1,730E -01	1,740E -01	1,760E -01	1,760E -01	1,750E -01
4	1,720E -01	1,710E -01	1,720E -01	1,710E -01	1,740E -01	1,740E -01	1,720E -01
Statistics							
Min	1,720E -01	1,710E -01	1,720E -01	1,710E -01	1,740E -01	1,740E -01	1,720E -01
Max	1,720E -01	1,730E -01	1,740E -01	1,740E -01	1,760E -01	1,770E -01	1,750E -01
Mean	1,720E -01	1,720E -01	1,730E -01	1,730E -01	1,753E -01	1,757E -01	1,740E -01
Sigma	5,821E -11	1,000E -03	1,000E -03	1,732E -03	1,155E -03	1,528E -03	1,732E -03

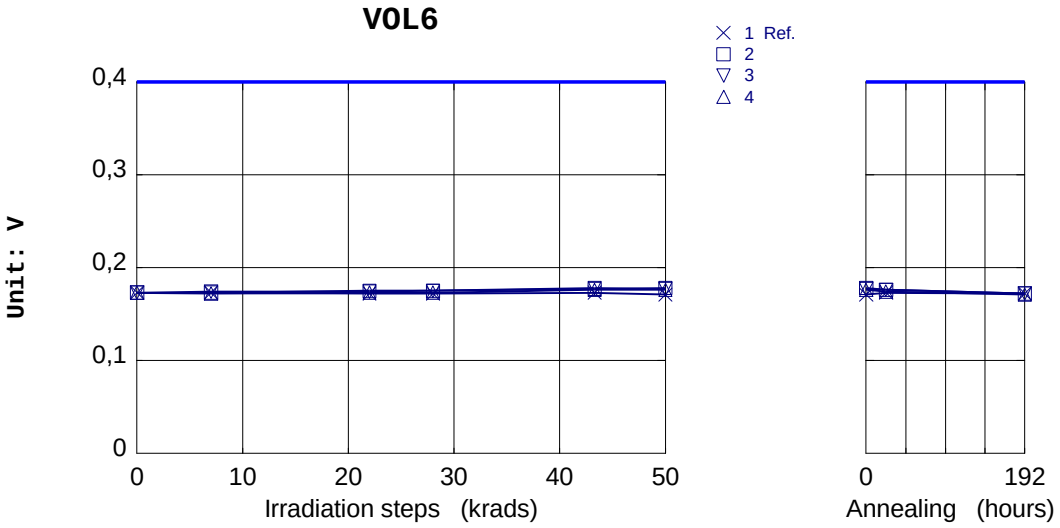
Test Step	192 hours
Serial #	
1 Ref.	1,710E -01
2	1,720E -01
3	1,710E -01
4	1,690E -01
Statistics	
Min	1,690E -01
Max	1,720E -01
Mean	1,707E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 29: VOL6
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,730E -01	1,730E -01	1,720E -01	1,720E -01	1,730E -01	1,710E -01	1,730E -01
2	1,730E -01	1,730E -01	1,750E -01	1,750E -01	1,770E -01	1,780E -01	1,760E -01
3	1,730E -01	1,740E -01	1,740E -01	1,750E -01	1,780E -01	1,770E -01	1,760E -01
4	1,730E -01	1,720E -01	1,730E -01	1,730E -01	1,760E -01	1,760E -01	1,740E -01
Statistics							
Min	1,730E -01	1,720E -01	1,730E -01	1,730E -01	1,760E -01	1,760E -01	1,740E -01
Max	1,730E -01	1,740E -01	1,750E -01	1,750E -01	1,780E -01	1,780E -01	1,760E -01
Mean	1,730E -01	1,730E -01	1,740E -01	1,743E -01	1,770E -01	1,770E -01	1,753E -01
Sigma	5,821E -11	1,000E -03	1,000E -03	1,155E -03	1,000E -03	1,000E -03	1,155E -03

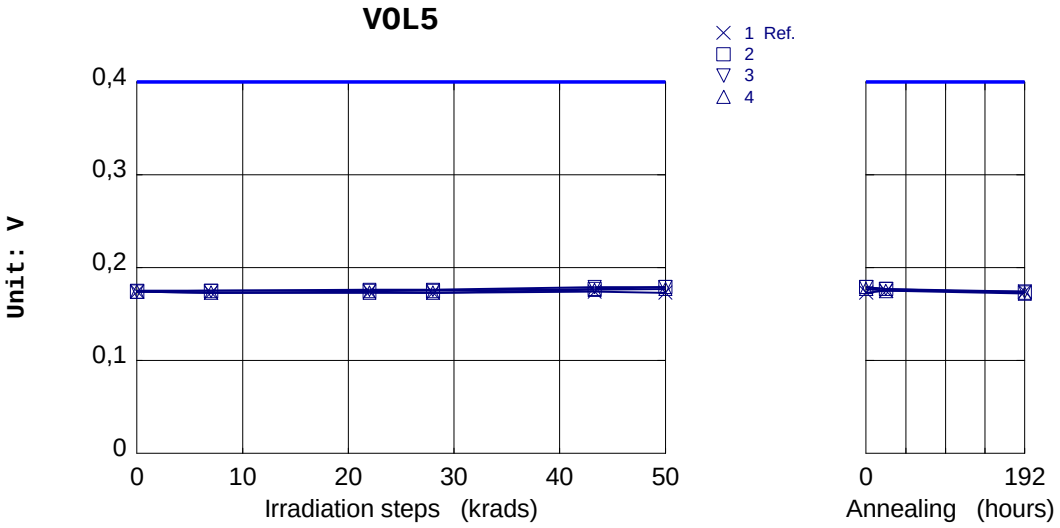
Test Step	192 hours
Serial #	
1 Ref.	1,720E -01
2	1,720E -01
3	1,720E -01
4	1,710E -01
Statistics	
Min	1,710E -01
Max	1,720E -01
Mean	1,717E -01
Sigma	5,774E -04



Parameter: Low Level Output Voltage Pin 28: VOL5
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,740E -01	1,730E -01	1,740E -01	1,730E -01	1,740E -01	1,730E -01	1,750E -01
2	1,740E -01	1,750E -01	1,750E -01	1,750E -01	1,770E -01	1,790E -01	1,770E -01
3	1,750E -01	1,750E -01	1,760E -01	1,760E -01	1,790E -01	1,790E -01	1,770E -01
4	1,740E -01	1,730E -01	1,730E -01	1,730E -01	1,760E -01	1,770E -01	1,750E -01
Statistics							
Min	1,740E -01	1,730E -01	1,730E -01	1,730E -01	1,760E -01	1,770E -01	1,750E -01
Max	1,750E -01	1,750E -01	1,760E -01	1,760E -01	1,790E -01	1,790E -01	1,770E -01
Mean	1,743E -01	1,743E -01	1,747E -01	1,747E -01	1,773E -01	1,783E -01	1,763E -01
Sigma	5,774E -04	1,155E -03	1,528E -03	1,528E -03	1,528E -03	1,155E -03	1,155E -03

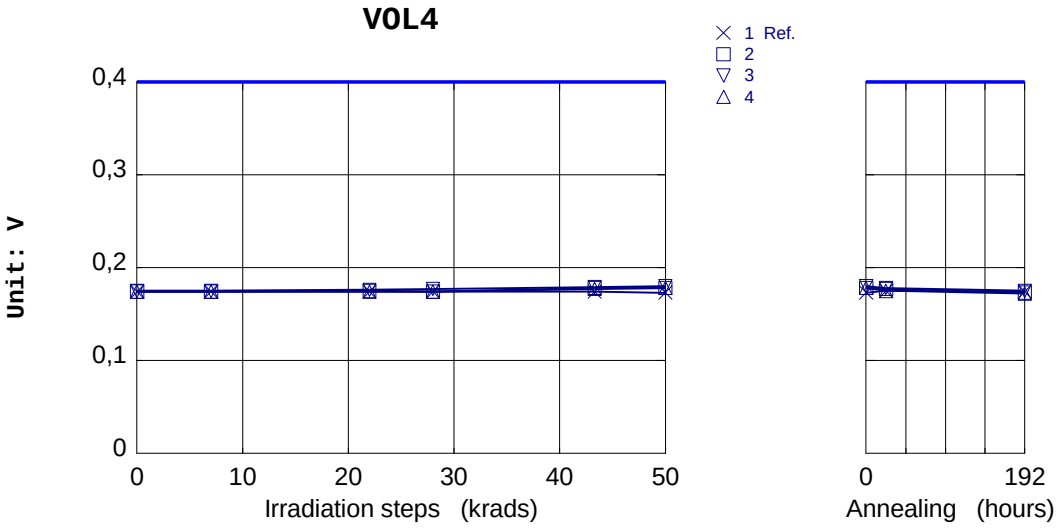
Test Step	192 hours
Serial #	
1 Ref.	1,740E -01
2	1,730E -01
3	1,740E -01
4	1,720E -01
Statistics	
Min	1,720E -01
Max	1,740E -01
Mean	1,730E -01
Sigma	1,000E -03



Parameter: Low Level Output Voltage Pin 27: VOL4
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,740E -01	1,740E -01	1,740E -01	1,740E -01	1,740E -01	1,730E -01	1,750E -01
2	1,740E -01	1,740E -01	1,750E -01	1,740E -01	1,780E -01	1,780E -01	1,770E -01
3	1,750E -01	1,750E -01	1,760E -01	1,770E -01	1,790E -01	1,800E -01	1,780E -01
4	1,740E -01	1,740E -01	1,740E -01	1,740E -01	1,770E -01	1,780E -01	1,750E -01
Statistics							
Min	1,740E -01	1,740E -01	1,740E -01	1,740E -01	1,770E -01	1,780E -01	1,750E -01
Max	1,750E -01	1,750E -01	1,760E -01	1,770E -01	1,790E -01	1,800E -01	1,780E -01
Mean	1,743E -01	1,743E -01	1,750E -01	1,750E -01	1,780E -01	1,787E -01	1,767E -01
Sigma	5,774E -04	5,774E -04	1,000E -03	1,732E -03	1,000E -03	1,155E -03	1,528E -03

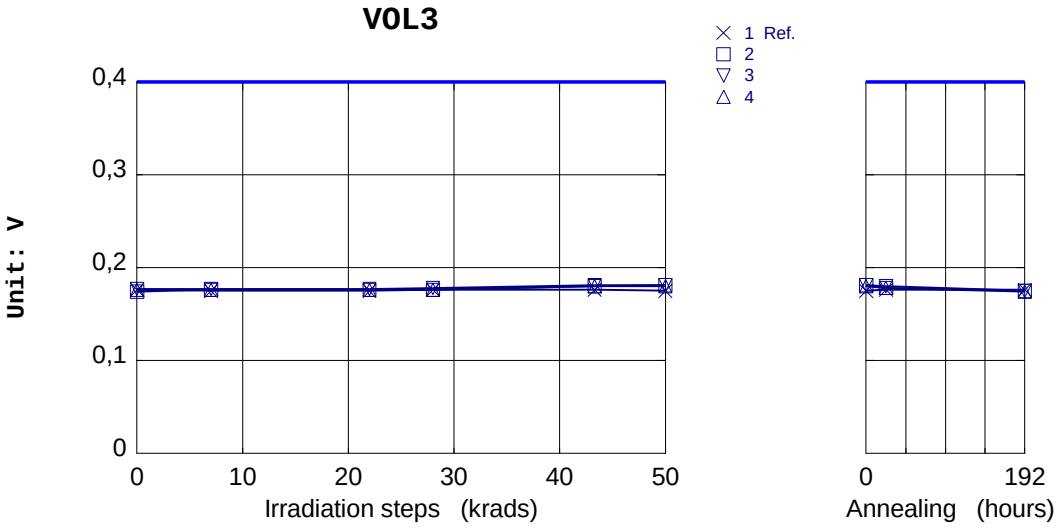
Test Step	192 hours
Serial #	
1 Ref.	1,740E -01
2	1,730E -01
3	1,750E -01
4	1,720E -01
Statistics	
Min	1,720E -01
Max	1,750E -01
Mean	1,733E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 26: VOL3
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7 krads	22 krads	28 krads	43,3 krads	50 krads	24 hours
Serial #							
1 Ref.	1,760E -01	1,750E -01	1,750E -01	1,760E -01	1,760E -01	1,750E -01	1,760E -01
2	1,740E -01	1,760E -01	1,760E -01	1,760E -01	1,800E -01	1,810E -01	1,780E -01
3	1,770E -01	1,770E -01	1,770E -01	1,780E -01	1,810E -01	1,810E -01	1,800E -01
4	1,760E -01	1,760E -01	1,760E -01	1,760E -01	1,800E -01	1,800E -01	1,780E -01
Statistics							
Min	1,740E -01	1,760E -01	1,760E -01	1,760E -01	1,800E -01	1,800E -01	1,780E -01
Max	1,770E -01	1,770E -01	1,770E -01	1,780E -01	1,810E -01	1,810E -01	1,800E -01
Mean	1,757E -01	1,763E -01	1,763E -01	1,767E -01	1,803E -01	1,807E -01	1,787E -01
Sigma	1,528E -03	5,774E -04	5,774E -04	1,155E -03	5,773E -04	5,773E -04	1,155E -03

Test Step	192 hours
Serial #	
1 Ref.	1,760E -01
2	1,750E -01
3	1,750E -01
4	1,740E -01
Statistics	
Min	1,740E -01
Max	1,750E -01
Mean	1,747E -01
Sigma	5,774E -04



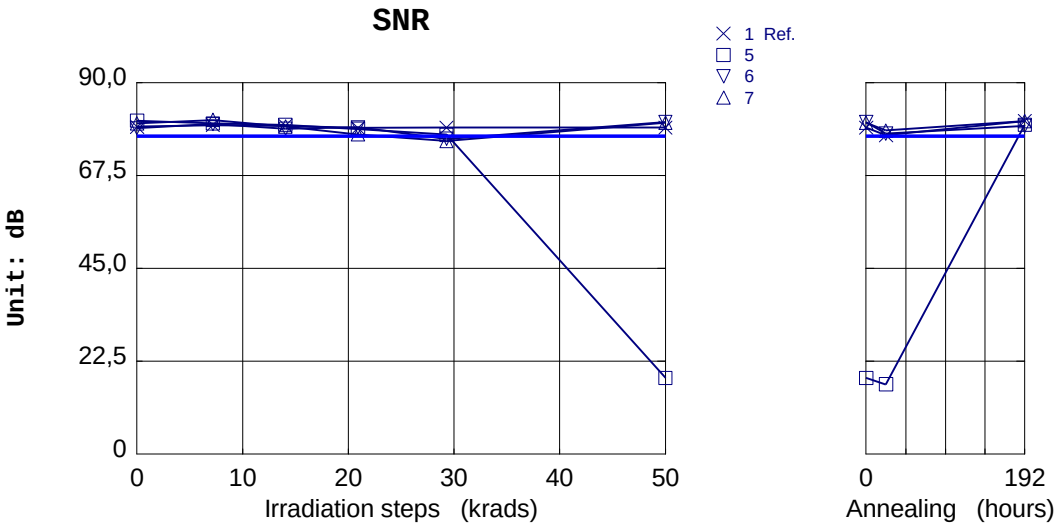
APPENDIX 2 : TEST RESULTS - LOW DOSE RATE

Test results including tables and graphics are provided in this section for each measured parameter corresponding to a low dose rate exposure.

Parameter: Signal-to-Noise Ratio: SNR
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz
Unit= dB
Spec limit min: 77
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	7,929E +01	7,969E +01	7,952E +01	7,900E +01	7,909E +01	7,909E +01	7,721E +01
5	8,076E +01	8,011E +01	7,974E +01	7,876E +01	7,733E +01	1,847E +01	1,691E +01
6	7,896E +01	7,994E +01	7,881E +01	7,918E +01	7,639E +01	8,043E +01	7,763E +01
7	8,014E +01	8,092E +01	7,935E +01	7,742E +01	7,588E +01	8,027E +01	7,836E +01
Statistics							
Min	7,896E +01	7,994E +01	7,881E +01	7,742E +01	7,588E +01	1,847E +01	1,691E +01
Max	8,076E +01	8,092E +01	7,974E +01	7,918E +01	7,733E +01	8,043E +01	7,836E +01
Mean	7,995E +01	8,032E +01	7,930E +01	7,845E +01	7,654E +01	5,972E +01	5,763E +01
Sigma	9,142E -01	5,232E -01	4,683E -01	9,185E -01	7,370E -01	3,573E +01	3,527E +01

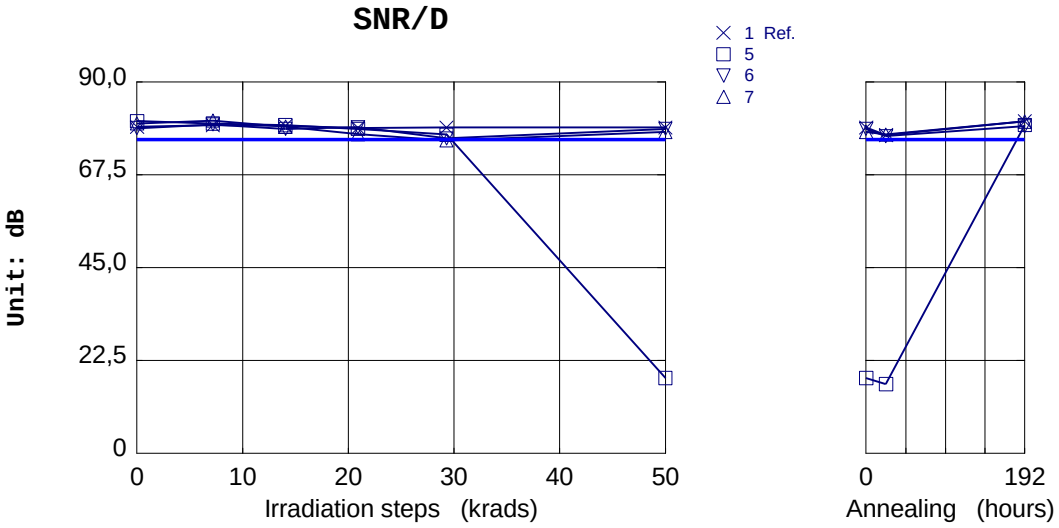
Test Step	192 hours
Serial #	
1 Ref.	8,069E +01
5	7,973E +01
6	7,950E +01
7	8,065E +01
Statistics	
Min	7,950E +01
Max	8,065E +01
Mean	7,996E +01
Sigma	6,085E -01



Parameter: Signal-to-Noise Plus Distortion Ratio: SNR/D
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz
Unit= dB
Spec limit min: 76
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	7,910E +01	7,949E +01	7,929E +01	7,883E +01	7,892E +01	7,892E +01	7,711E +01
5	8,047E +01	7,987E +01	7,951E +01	7,860E +01	7,719E +01	1,822E +01	1,675E +01
6	7,876E +01	7,968E +01	7,859E +01	7,900E +01	7,627E +01	7,859E +01	7,683E +01
7	7,988E +01	8,061E +01	7,913E +01	7,730E +01	7,579E +01	7,784E +01	7,721E +01
Statistics							
Min	7,876E +01	7,968E +01	7,859E +01	7,730E +01	7,579E +01	1,822E +01	1,675E +01
Max	8,046E +01	8,061E +01	7,951E +01	7,900E +01	7,719E +01	7,859E +01	7,721E +01
Mean	7,970E +01	8,005E +01	7,908E +01	7,830E +01	7,642E +01	5,822E +01	5,693E +01
Sigma	8,684E -01	4,942E -01	4,627E -01	8,867E -01	7,085E -01	3,464E +01	3,479E +01

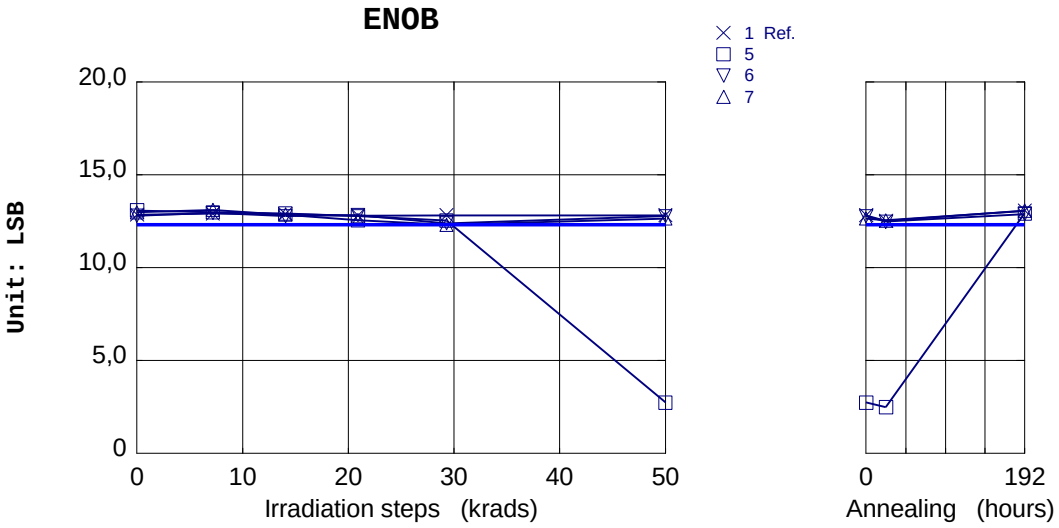
Test Step	192 hours
Serial #	
1 Ref.	8,042E +01
5	7,953E +01
6	7,926E +01
7	8,037E +01
Statistics	
Min	7,926E +01
Max	8,037E +01
Mean	7,972E +01
Sigma	5,802E -01



Parameter: Effective Number Of Bits: ENOB
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz
Unit= LSB
Spec limit min: 12.3
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,285E +01	1,291E +01	1,288E +01	1,280E +01	1,282E +01	1,282E +01	1,252E +01
5	1,307E +01	1,298E +01	1,292E +01	1,276E +01	1,253E +01	2,734E +00	2,491E +00
6	1,279E +01	1,294E +01	1,276E +01	1,283E +01	1,238E +01	1,276E +01	1,247E +01
7	1,298E +01	1,310E +01	1,285E +01	1,255E +01	1,230E +01	1,264E +01	1,253E +01
Statistics							
Min	1,279E +01	1,294E +01	1,276E +01	1,255E +01	1,230E +01	2,734E +00	2,491E +00
Max	1,307E +01	1,310E +01	1,291E +01	1,283E +01	1,253E +01	1,276E +01	1,253E +01
Mean	1,295E +01	1,301E +01	1,284E +01	1,271E +01	1,240E +01	9,378E +00	9,164E +00
Sigma	1,444E -01	8,202E -02	7,690E -02	1,475E -01	1,177E -01	5,754E +00	5,779E +00

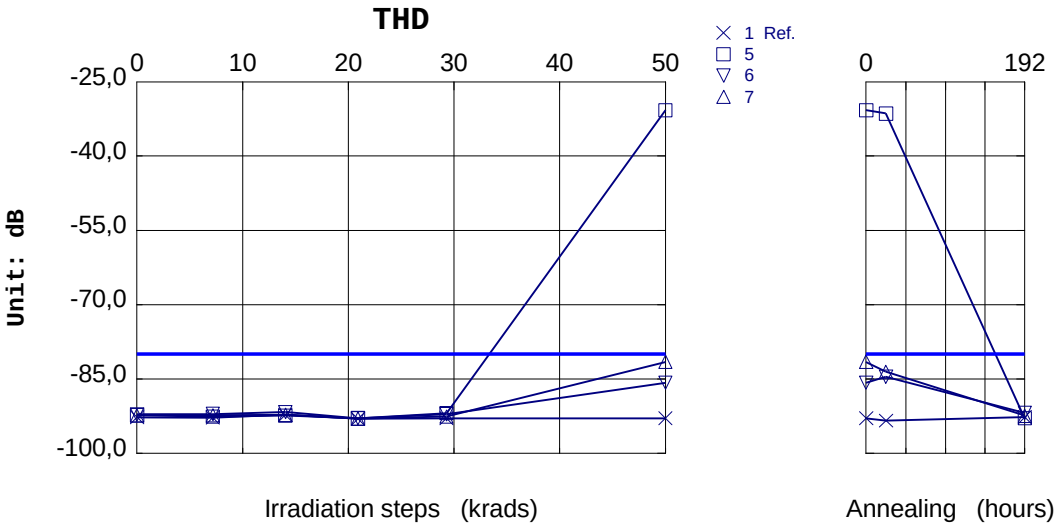
Test Step	192 hours
Serial #	
1 Ref.	1,307E +01
5	1,292E +01
6	1,287E +01
7	1,306E +01
Statistics	
Min	1,287E +01
Max	1,306E +01
Mean	1,295E +01
Sigma	9,648E -02



Parameter: Total Harmonic Distortion: THD
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V, 10KHz; Fsample=1.3MHz; Nine Harmonics
Unit= dB
Spec limit max: -80
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	-9,275E +01	-9,280E +01	-9,221E +01	-9,303E +01	-9,292E +01	-9,292E +01	-9,338E +01
5	-9,229E +01	-9,261E +01	-9,237E +01	-9,294E +01	-9,190E +01	-3,074E +01	-3,140E +01
6	-9,216E +01	-9,205E +01	-9,167E +01	-9,289E +01	-9,209E +01	-8,575E +01	-8,453E +01
7	-9,234E +01	-9,232E +01	-9,223E +01	-9,299E +01	-9,258E +01	-8,152E +01	-8,356E +01
Statistics							
Min	-9,234E +01	-9,261E +01	-9,237E +01	-9,299E +01	-9,258E +01	-8,575E +01	-8,453E +01
Max	-9,216E +01	-9,204E +01	-9,167E +01	-9,289E +01	-9,190E +01	-3,074E +01	-3,140E +01
Mean	-9,226E +01	-9,233E +01	-9,209E +01	-9,294E +01	-9,219E +01	-6,600E +01	-6,650E +01
Sigma	9,295E -02	2,845E -01	3,710E -01	4,901E -02	3,486E -01	3,061E +01	3,039E +01

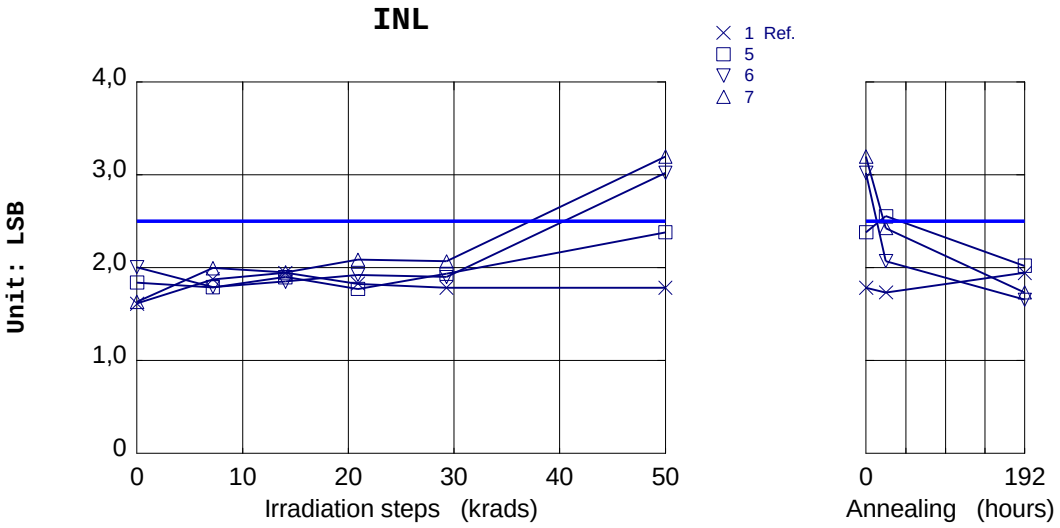
Test Step	192 hours
Serial #	
1 Ref.	-9,270E +01
5	-9,292E +01
6	-9,186E +01
7	-9,240E +01
Statistics	
Min	-9,292E +01
Max	-9,186E +01
Mean	-9,239E +01
Sigma	5,300E -01



Parameter: Integral Nonlinearity: INL
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V
Unit= LSB
Spec limit max: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,612E +00	1,874E +00	1,943E +00	1,826E +00	1,782E +00	1,782E +00	1,731E +00
5	1,839E +00	1,786E +00	1,897E +00	1,770E +00	1,934E +00	2,380E +00	2,552E +00
6	2,005E +00	1,790E +00	1,849E +00	1,921E +00	1,898E +00	3,019E +00	2,070E +00
7	1,631E +00	1,994E +00	1,948E +00	2,085E +00	2,067E +00	3,196E +00	2,425E +00
Statistics							
Min	1,631E +00	1,786E +00	1,849E +00	1,770E +00	1,898E +00	2,380E +00	2,070E +00
Max	2,005E +00	1,994E +00	1,948E +00	2,085E +00	2,067E +00	3,196E +00	2,552E +00
Mean	1,825E +00	1,857E +00	1,898E +00	1,925E +00	1,966E +00	2,865E +00	2,349E +00
Sigma	1,874E -01	1,190E -01	4,951E -02	1,575E -01	8,902E -02	4,292E -01	2,498E -01

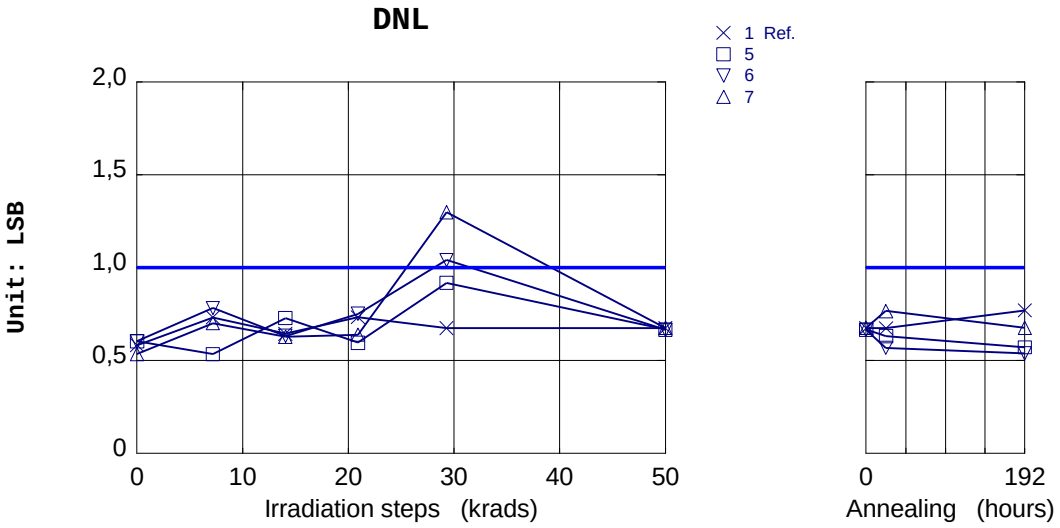
Test Step	192 hours
Serial #	
1 Ref.	1,942E +00
5	2,018E +00
6	1,654E +00
7	1,731E +00
Statistics	
Min	1,654E +00
Max	2,018E +00
Mean	1,801E +00
Sigma	1,918E -01



Parameter: Differential Nonlinearity: DNL
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: ±2V
Unit= LSB
Spec limit max: 1
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	5,825E -01	7,315E -01	6,439E -01	7,329E -01	6,741E -01	6,741E -01	6,733E -01
5	6,033E -01	5,337E -01	7,276E -01	5,957E -01	9,171E -01	6,663E -01	6,312E -01
6	6,022E -01	7,828E -01	6,321E -01	7,510E -01	1,041E +00	6,648E -01	5,673E -01
7	5,341E -01	7,009E -01	6,277E -01	6,386E -01	1,298E +00	6,755E -01	7,660E -01
Statistics							
Min	5,341E -01	5,337E -01	6,277E -01	5,957E -01	9,171E -01	6,648E -01	5,673E -01
Max	6,033E -01	7,828E -01	7,276E -01	7,510E -01	1,298E +00	6,755E -01	7,660E -01
Mean	5,799E -01	6,725E -01	6,625E -01	6,618E -01	1,085E +00	6,688E -01	6,548E -01
Sigma	3,965E -02	1,269E -01	5,648E -02	8,018E -02	1,943E -01	5,782E -03	1,014E -01

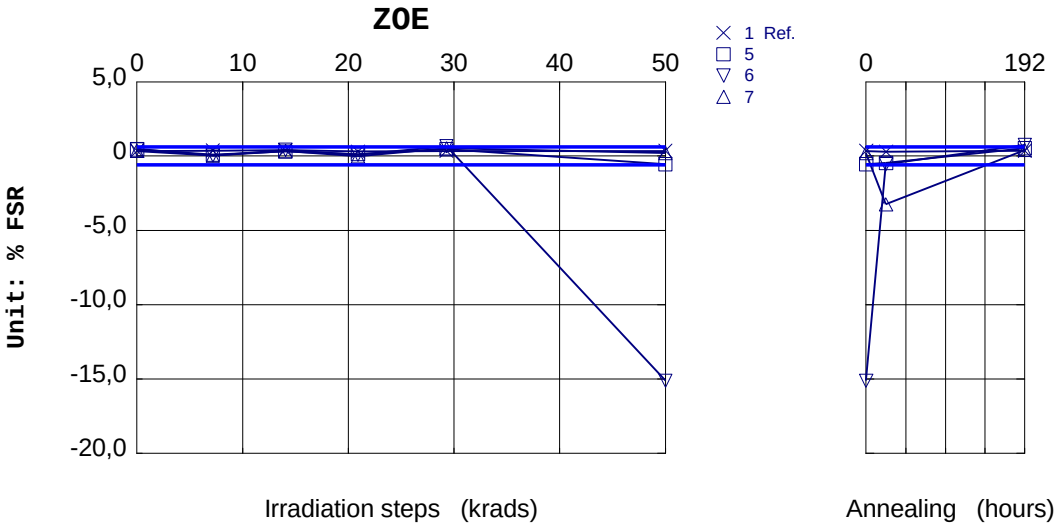
Test Step	192 hours
Serial #	
1 Ref.	7,693E -01
5	5,711E -01
6	5,382E -01
7	6,760E -01
Statistics	
Min	5,382E -01
Max	6,760E -01
Mean	5,951E -01
Sigma	7,197E -02



Parameter: Zero Offset Error: ZOE
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: 0V
Unit= % FSR
Spec limit max: 0.6
Spec limit min: -0.6
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	3,519E -01	3,732E -01	4,030E -01	3,104E -01	3,540E -01	3,540E -01	2,930E -01
5	4,390E -01	9,766E -02	3,113E -01	1,282E -01	4,580E -01	-5,400E -01	-4,600E -01
6	4,880E -01	4,273E -02	4,150E -01	9,766E -02	6,650E -01	-1,511E +01	-5,400E -01
7	3,540E -01	2,441E -02	3,357E -01	-1,221E -02	5,250E -01	2,136E -01	-3,241E +00
Statistics							
Min	3,540E -01	2,441E -02	3,113E -01	-1,221E -02	4,580E -01	-1,511E +01	-3,241E +00
Max	4,880E -01	9,766E -02	4,150E -01	1,282E -01	6,650E -01	2,136E -01	-4,600E -01
Mean	4,270E -01	5,493E -02	3,540E -01	7,121E -02	5,493E -01	-5,146E +00	-1,414E +00
Sigma	6,780E -02	3,812E -02	5,425E -02	7,383E -02	1,056E -01	8,639E +00	1,583E +00

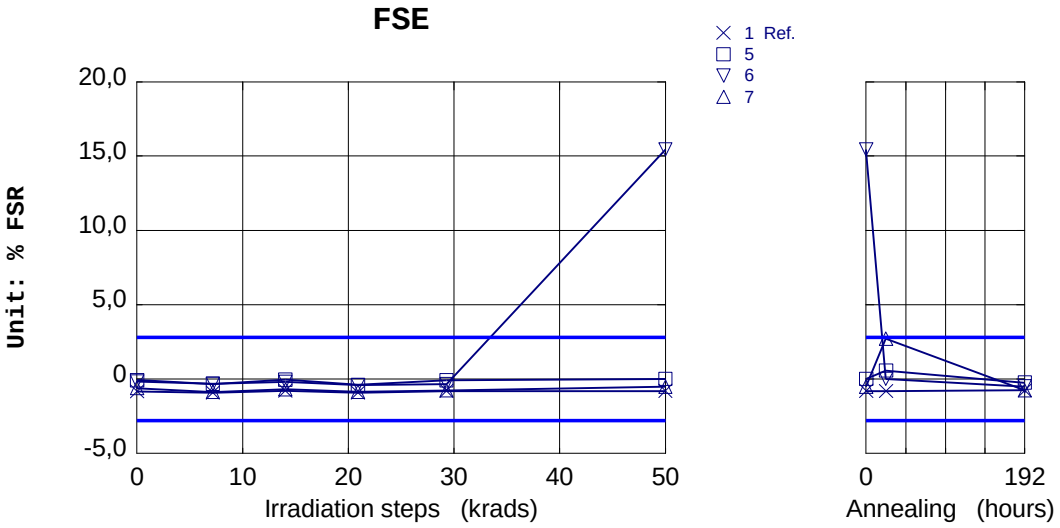
Test Step	192 hours
Serial #	
1 Ref.	3,578E -01
5	5,371E -01
6	7,507E -01
7	4,089E -01
Statistics	
Min	4,089E -01
Max	7,507E -01
Mean	5,656E -01
Sigma	1,727E -01



Parameter: Full-Scale Error: FSE
VA=+5V; VD=+5V; VDI/O=+5V; Vcm=Vref=+2V; Input signal: 2V
Unit= % FSR
Spec limit max: 2.8
Spec limit min: -2.8
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	-8,300E -01	-9,155E -01	-7,870E -01	-9,160E -01	-8,057E -01	-8,057E -01	-8,179E -01
5	-7,930E -02	-3,235E -01	-3,662E -02	-3,906E -01	-8,540E -02	1,000E -02	5,700E -01
6	-1,650E -01	-3,174E -01	-1,831E -01	-4,028E -01	-3,300E -01	1,545E +01	1,000E -02
7	-6,040E -01	-8,667E -01	-6,958E -01	-8,606E -01	-7,750E -01	-5,188E -01	2,722E +00
Statistics							
Min	-6,040E -01	-8,667E -01	-6,958E -01	-8,606E -01	-7,750E -01	-5,188E -01	1,000E -02
Max	-7,930E -02	-3,174E -01	-3,662E -02	-3,906E -01	-8,540E -02	1,545E +01	2,722E +00
Mean	-2,828E -01	-5,025E -01	-3,052E -01	-5,514E -01	-3,968E -01	4,980E +00	1,101E +00
Sigma	2,815E -01	3,154E -01	3,461E -01	2,679E -01	3,496E -01	9,070E +00	1,432E +00

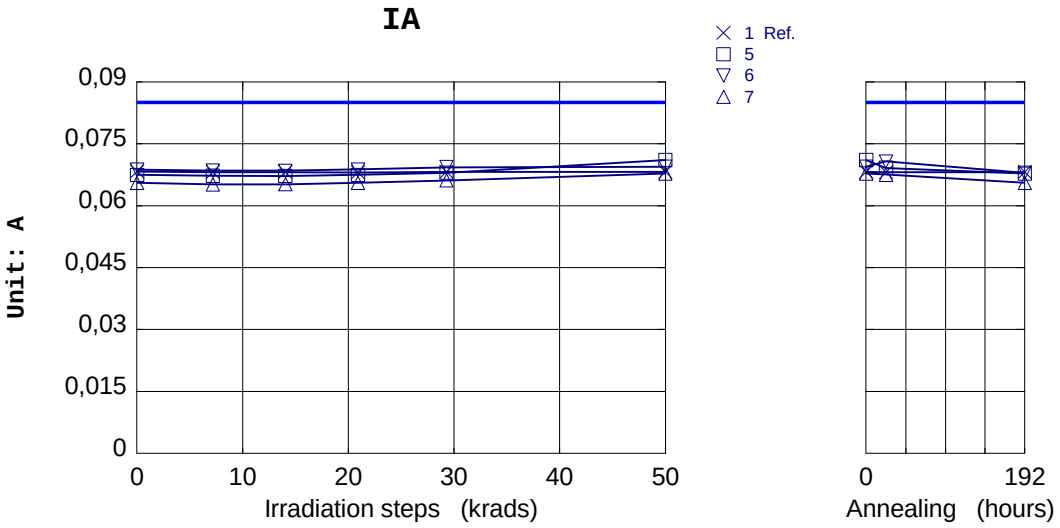
Test Step	192 hours
Serial #	
1 Ref.	-7,507E -01
5	-2,441E -01
6	-5,066E -01
7	-7,568E -01
Statistics	
Min	-7,568E -01
Max	-2,441E -01
Mean	-5,025E -01
Sigma	2,564E -01



Parameter: Analog Supply Current: IA
VA=+5V; VD=+5V; VDI/O=+5V
Unit= A
Spec limit max: 0.085
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	6,826E -02	6,811E -02	6,811E -02	6,808E -02	6,819E -02	6,819E -02	6,810E -02
5	6,747E -02	6,723E -02	6,720E -02	6,746E -02	6,796E -02	7,104E -02	6,916E -02
6	6,873E -02	6,850E -02	6,845E -02	6,879E -02	6,931E -02	6,941E -02	7,074E -02
7	6,553E -02	6,515E -02	6,516E -02	6,553E -02	6,610E -02	6,779E -02	6,751E -02
Statistics							
Min	6,553E -02	6,515E -02	6,516E -02	6,553E -02	6,610E -02	6,779E -02	6,751E -02
Max	6,873E -02	6,850E -02	6,845E -02	6,879E -02	6,931E -02	7,104E -02	7,074E -02
Mean	6,724E -02	6,696E -02	6,694E -02	6,726E -02	6,779E -02	6,941E -02	6,914E -02
Sigma	1,614E -03	1,694E -03	1,663E -03	1,638E -03	1,610E -03	1,624E -03	1,614E -03

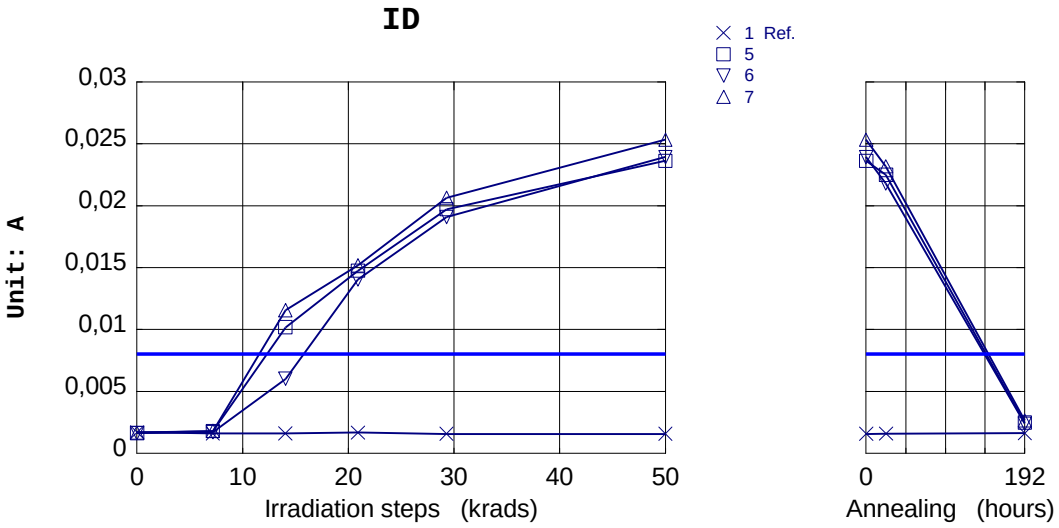
Test Step	192 hours
Serial #	
1 Ref.	6,815E -02
5	6,778E -02
6	6,799E -02
7	6,555E -02
Statistics	
Min	6,555E -02
Max	6,799E -02
Mean	6,711E -02
Sigma	1,352E -03



Parameter: Digital Supply Current: ID
VA=+5V; VD=+5V; VDI/O=+5V
Unit= A
Spec limit max: 0.008
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,702E -03	1,602E -03	1,619E -03	1,685E -03	1,570E -03	1,570E -03	1,585E -03
5	1,649E -03	1,804E -03	1,018E -02	1,475E -02	1,971E -02	2,362E -02	2,250E -02
6	1,640E -03	1,712E -03	6,020E -03	1,404E -02	1,908E -02	2,393E -02	2,180E -02
7	1,681E -03	1,812E -03	1,156E -02	1,519E -02	2,063E -02	2,533E -02	2,317E -02
Statistics							
Min	1,640E -03	1,712E -03	6,020E -03	1,404E -02	1,908E -02	2,362E -02	2,180E -02
Max	1,681E -03	1,812E -03	1,156E -02	1,519E -02	2,063E -02	2,533E -02	2,317E -02
Mean	1,657E -03	1,776E -03	9,254E -03	1,466E -02	1,981E -02	2,429E -02	2,249E -02
Sigma	2,155E -05	5,557E -05	2,884E -03	5,781E -04	7,808E -04	9,096E -04	6,851E -04

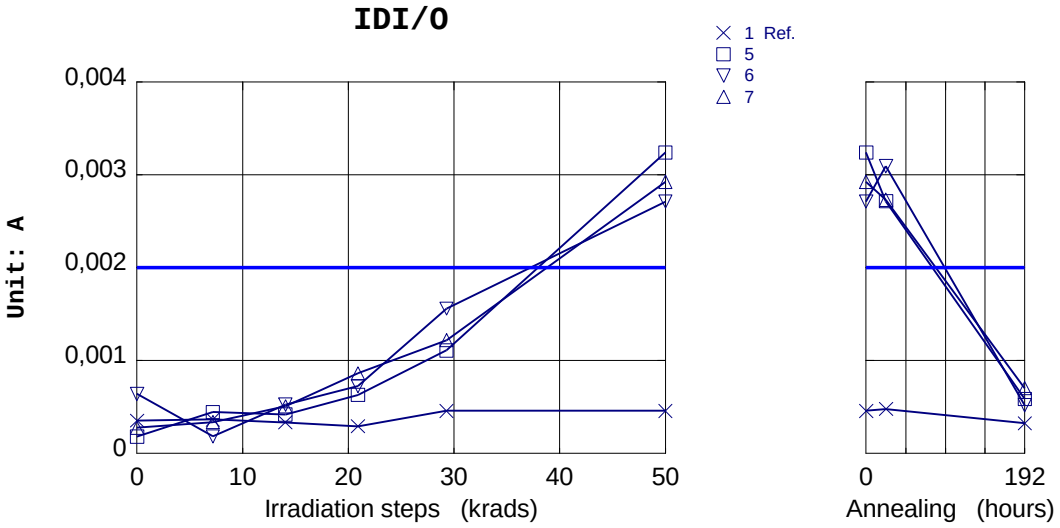
Test Step	192 hours
Serial #	
1 Ref.	1,632E -03
5	2,485E -03
6	2,390E -03
7	2,664E -03
Statistics	
Min	2,390E -03
Max	2,664E -03
Mean	2,513E -03
Sigma	1,391E -04



Parameter: Digital Output Bus Supply Current: IDI/O
VA=+5V; VD=+5V; VDI/O=+5V
Unit= A
Spec limit max: 0.002
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	3,518E -04	3,638E -04	3,327E -04	2,912E -04	4,569E -04	4,569E -04	4,780E -04
5	1,801E -04	4,441E -04	4,175E -04	6,282E -04	1,108E -03	3,240E -03	2,714E -03
6	6,400E -04	1,817E -04	5,240E -04	7,240E -04	1,558E -03	2,710E -03	3,093E -03
7	2,748E -04	3,363E -04	5,056E -04	8,613E -04	1,218E -03	2,923E -03	2,731E -03
Statistics							
Min	1,801E -04	1,817E -04	4,175E -04	6,282E -04	1,108E -03	2,710E -03	2,714E -03
Max	6,400E -04	4,441E -04	5,240E -04	8,613E -04	1,558E -03	3,240E -03	3,093E -03
Mean	3,650E -04	3,207E -04	4,823E -04	7,378E -04	1,295E -03	2,958E -03	2,846E -03
Sigma	2,429E -04	1,319E -04	5,692E -05	1,172E -04	2,346E -04	2,667E -04	2,141E -04

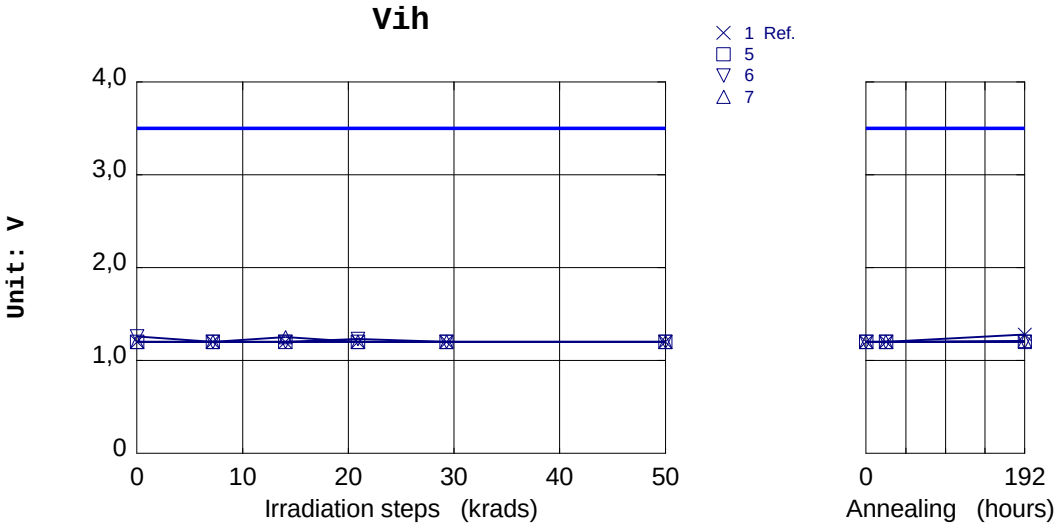
Test Step	192 hours
Serial #	
1 Ref.	3,237E -04
5	5,871E -04
6	5,183E -04
7	7,021E -04
Statistics	
Min	5,183E -04
Max	7,021E -04
Mean	6,025E -04
Sigma	9,283E -05



Parameter: High Level Input Voltage: Vih
VA=+5V; VD=+5V; VDI/O=+5V
Unit= V
Spec limit max: 3.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
5	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
6	1,260E +00	1,200E +00	1,200E +00	1,230E +00	1,200E +00	1,200E +00	1,200E +00
7	1,200E +00	1,200E +00	1,250E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
Statistics							
Min	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00	1,200E +00
Max	1,260E +00	1,200E +00	1,250E +00	1,230E +00	1,200E +00	1,200E +00	1,200E +00
Mean	1,220E +00	1,200E +00	1,217E +00	1,210E +00	1,200E +00	1,200E +00	1,200E +00
Sigma	3,464E -02	0,000E +00	2,887E -02	1,732E -02	0,000E +00	0,000E +00	0,000E +00

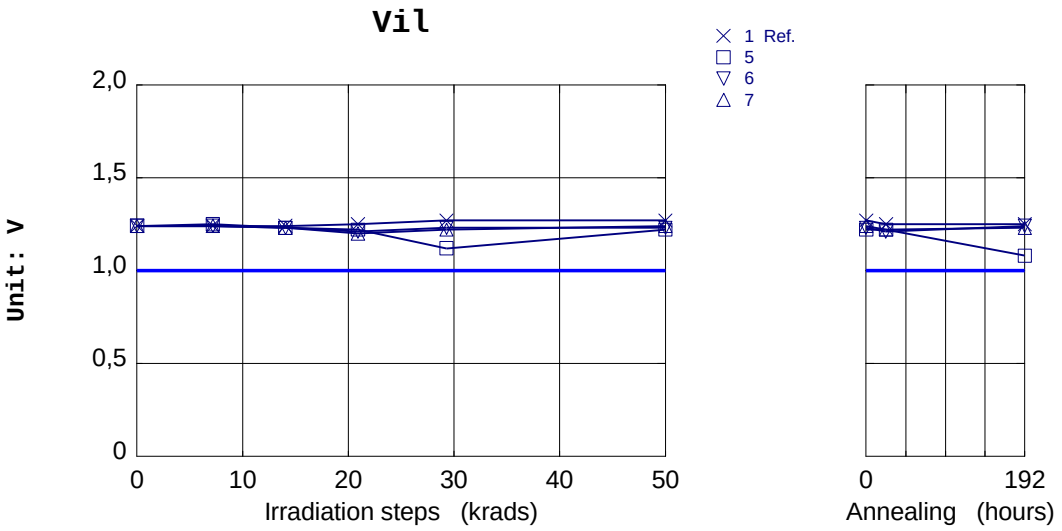
Test Step	192 hours
Serial #	
1 Ref.	1,280E +00
5	1,200E +00
6	1,200E +00
7	1,210E +00
Statistics	
Min	1,200E +00
Max	1,210E +00
Mean	1,203E +00
Sigma	5,773E -03



Parameter: Low Level Input Voltage: Vil
VA=+5V; VD=+5V; VDI/O=+5V
Unit= V
Spec limit min: 1
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,240E +00	1,240E +00	1,240E +00	1,250E +00	1,270E +00	1,270E +00	1,250E +00
5	1,240E +00	1,250E +00	1,230E +00	1,220E +00	1,120E +00	1,220E +00	1,220E +00
6	1,240E +00	1,240E +00	1,230E +00	1,210E +00	1,230E +00	1,230E +00	1,210E +00
7	1,240E +00	1,240E +00	1,230E +00	1,200E +00	1,220E +00	1,240E +00	1,220E +00
Statistics							
Min	1,240E +00	1,240E +00	1,230E +00	1,200E +00	1,120E +00	1,220E +00	1,210E +00
Max	1,240E +00	1,250E +00	1,230E +00	1,220E +00	1,230E +00	1,240E +00	1,220E +00
Mean	1,240E +00	1,243E +00	1,230E +00	1,210E +00	1,190E +00	1,230E +00	1,217E +00
Sigma	0,000E +00	5,773E -03	0,000E +00	1,000E -02	6,083E -02	1,000E -02	5,773E -03

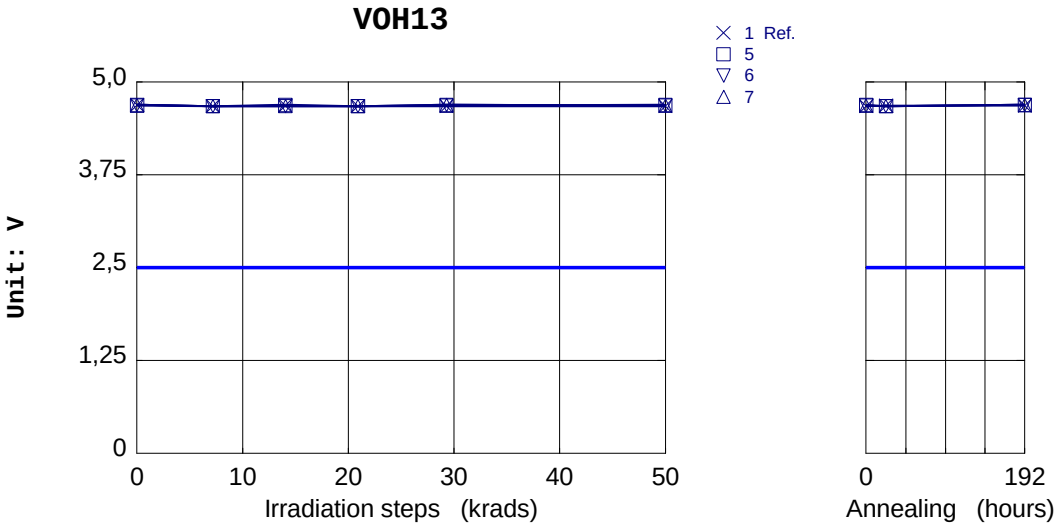
Test Step	192 hours
Serial #	
1 Ref.	1,250E +00
5	1,080E +00
6	1,240E +00
7	1,230E +00
Statistics	
Min	1,080E +00
Max	1,240E +00
Mean	1,183E +00
Sigma	8,963E -02



Parameter: High Level Output Voltage Pin 38: VOH13
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00
5	4,680E +00	4,670E +00	4,690E +00	4,670E +00	4,680E +00	4,690E +00	4,670E +00
6	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,690E +00	4,680E +00	4,670E +00
7	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,690E +00	4,680E +00	4,670E +00
Statistics							
Min	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Max	4,690E +00	4,670E +00	4,690E +00	4,670E +00	4,690E +00	4,690E +00	4,670E +00
Mean	4,687E +00	4,670E +00	4,677E +00	4,670E +00	4,687E +00	4,683E +00	4,670E +00
Sigma	5,774E -03	2,634E -09	1,155E -02	2,634E -09	5,774E -03	5,774E -03	2,634E -09

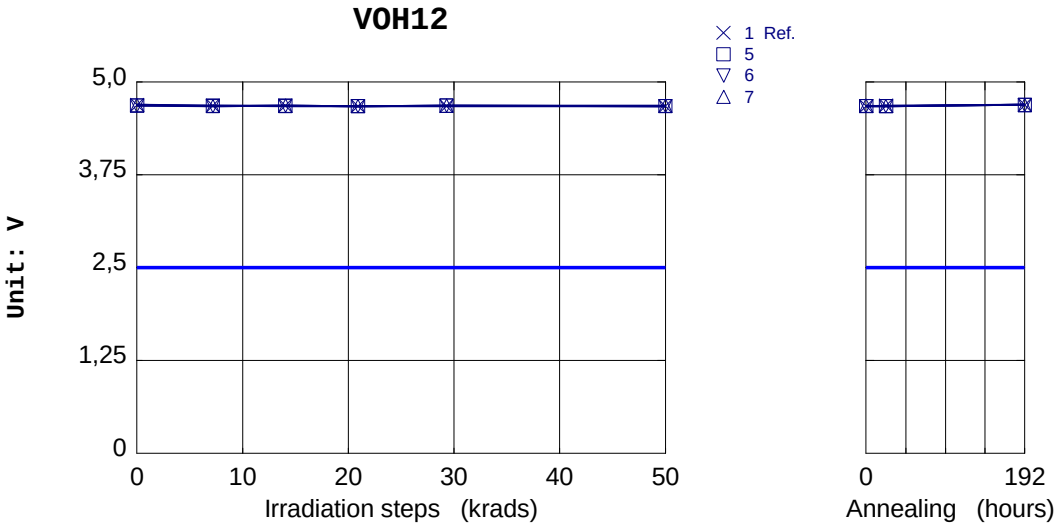
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,690E +00
6	4,690E +00
7	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 37: VOH12
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00
5	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
6	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
7	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Statistics							
Min	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
Max	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Mean	4,683E +00	4,673E +00	4,677E +00	4,670E +00	4,680E +00	4,673E +00	4,670E +00
Sigma	5,774E -03	5,773E -03	5,773E -03	2,634E -09	0,000E +00	5,773E -03	2,634E -09

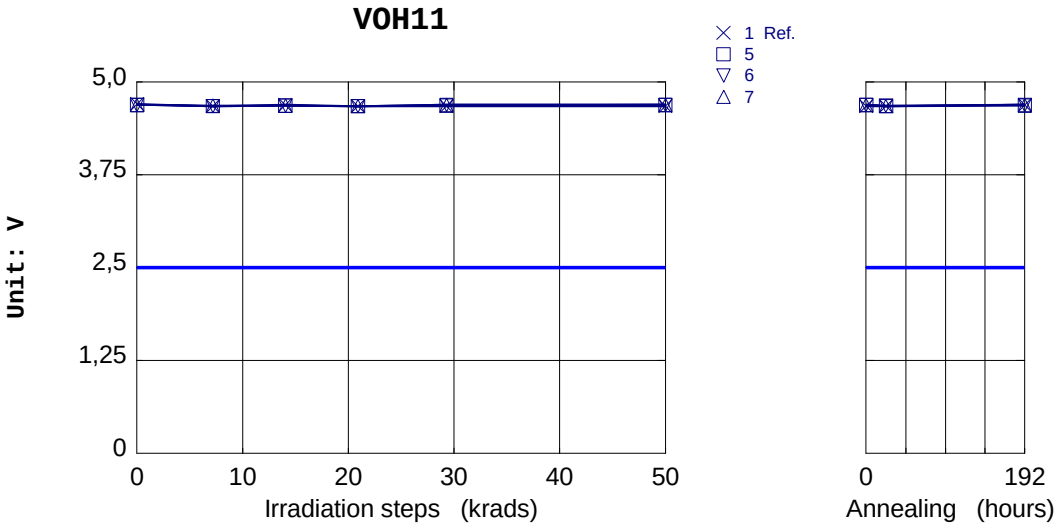
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
5	4,690E +00
6	4,690E +00
7	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 36: VOH11
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,700E +00	4,670E +00	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00
5	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,690E +00	4,670E +00
6	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,690E +00	4,690E +00	4,680E +00
7	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,690E +00	4,690E +00	4,670E +00
Statistics							
Min	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,690E +00	4,670E +00
Max	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,690E +00	4,690E +00	4,680E +00
Mean	4,690E +00	4,673E +00	4,680E +00	4,670E +00	4,687E +00	4,690E +00	4,673E +00
Sigma	0,000E +00	5,773E -03	0,000E +00	2,634E -09	5,774E -03	0,000E +00	5,773E -03

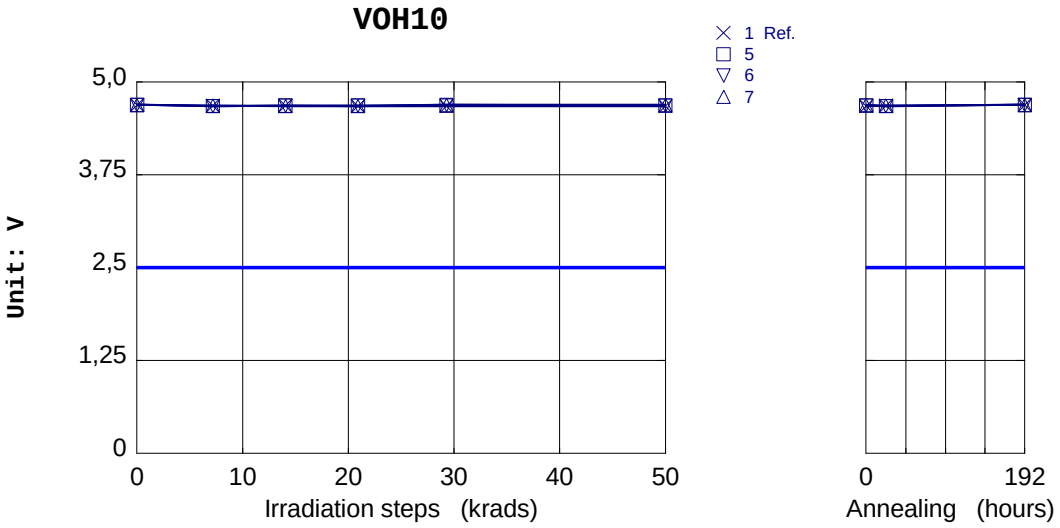
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
5	4,680E +00
6	4,690E +00
7	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,687E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 35: VOH10
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00
5	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,680E +00	4,680E +00	4,670E +00
6	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,690E +00	4,680E +00	4,670E +00
7	4,690E +00	4,680E +00	4,670E +00	4,670E +00	4,690E +00	4,690E +00	4,680E +00
Statistics							
Min	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Max	4,690E +00	4,680E +00	4,680E +00	4,680E +00	4,690E +00	4,690E +00	4,680E +00
Mean	4,690E +00	4,673E +00	4,677E +00	4,677E +00	4,687E +00	4,683E +00	4,673E +00
Sigma	0,000E +00	5,773E -03	5,773E -03	5,773E -03	5,774E -03	5,774E -03	5,773E -03

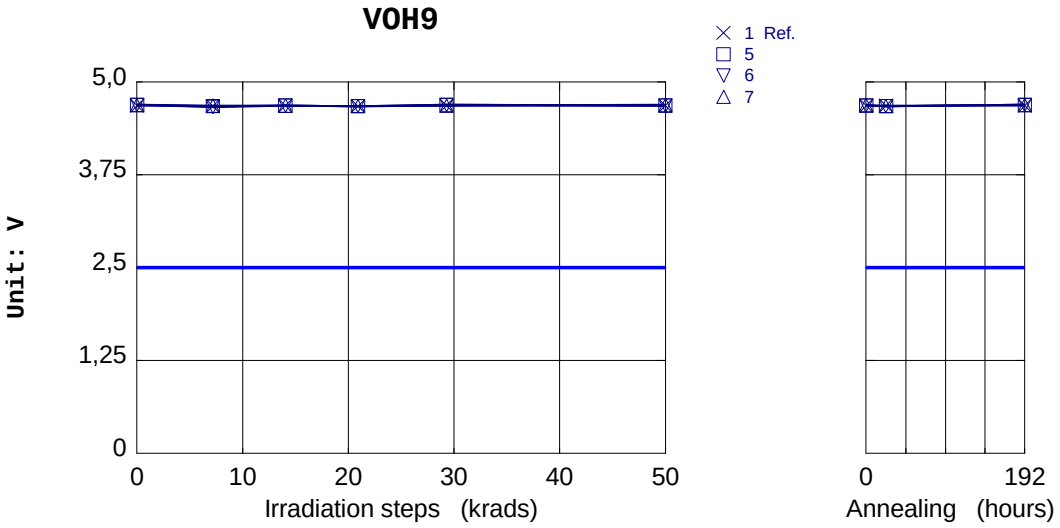
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
5	4,690E +00
6	4,690E +00
7	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 32: VOH9
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,680E +00
5	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,690E +00	4,680E +00	4,670E +00
6	4,690E +00	4,660E +00	4,680E +00	4,670E +00	4,690E +00	4,680E +00	4,670E +00
7	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,680E +00	4,690E +00	4,670E +00
Statistics							
Min	4,690E +00	4,660E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Max	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,690E +00	4,690E +00	4,670E +00
Mean	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,687E +00	4,683E +00	4,670E +00
Sigma	0,000E +00	1,000E -02	0,000E +00	2,634E -09	5,774E -03	5,774E -03	2,634E -09

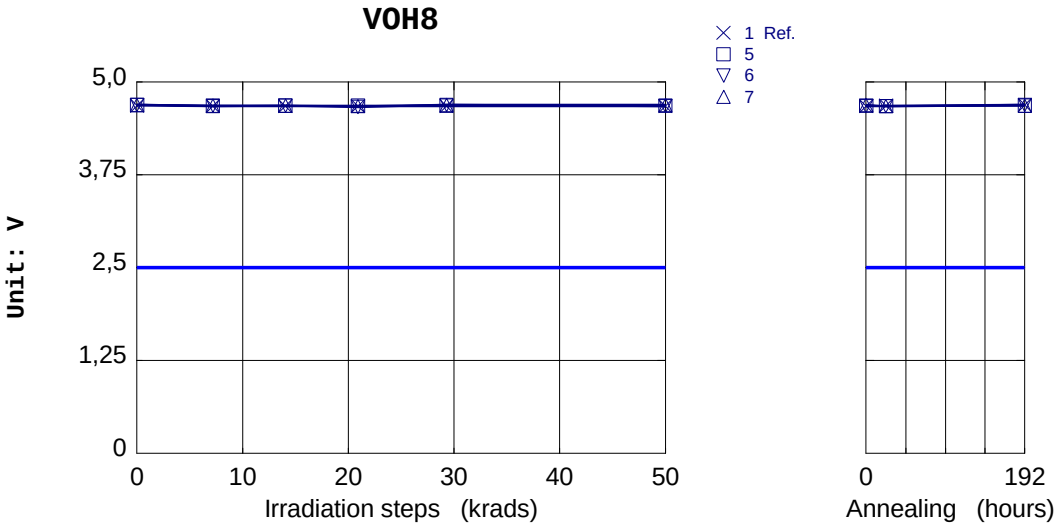
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,690E +00
6	4,690E +00
7	4,690E +00
Statistics	
Min	4,690E +00
Max	4,690E +00
Mean	4,690E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 31: VOH8
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00
5	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,680E +00	4,680E +00	4,670E +00
6	4,690E +00	4,680E +00	4,680E +00	4,660E +00	4,690E +00	4,670E +00	4,670E +00
7	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,690E +00	4,690E +00	4,670E +00
Statistics							
Min	4,690E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,670E +00	4,670E +00
Max	4,690E +00	4,680E +00	4,680E +00	4,680E +00	4,690E +00	4,690E +00	4,670E +00
Mean	4,690E +00	4,677E +00	4,680E +00	4,670E +00	4,687E +00	4,680E +00	4,670E +00
Sigma	0,000E +00	5,773E -03	0,000E +00	1,000E -02	5,774E -03	1,000E -02	2,634E -09

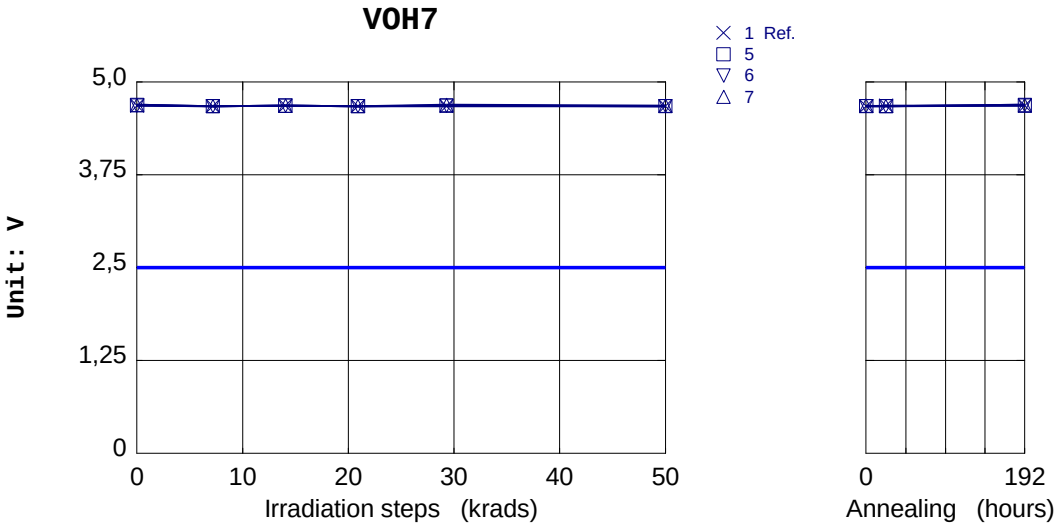
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
5	4,680E +00
6	4,690E +00
7	4,680E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,683E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 30: VOH7
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00
5	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
6	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
7	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,690E +00	4,680E +00	4,670E +00
Statistics							
Min	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
Max	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,690E +00	4,680E +00	4,670E +00
Mean	4,687E +00	4,670E +00	4,680E +00	4,670E +00	4,683E +00	4,673E +00	4,670E +00
Sigma	5,774E -03	2,634E -09	0,000E +00	2,634E -09	5,774E -03	5,773E -03	2,634E -09

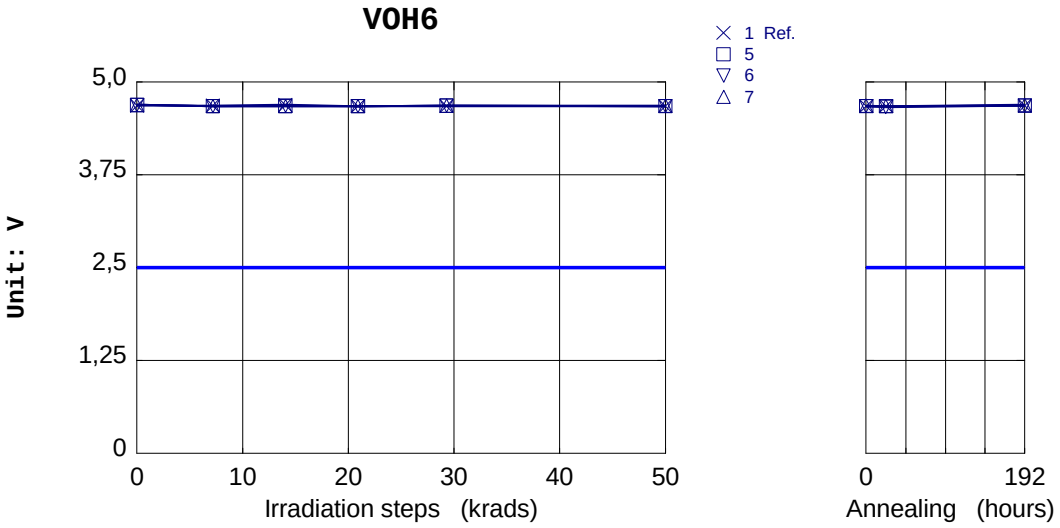
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,680E +00
6	4,690E +00
7	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,687E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 29: VOH6
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,680E +00	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00
5	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
6	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,660E +00
7	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Statistics							
Min	4,690E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,660E +00
Max	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Mean	4,690E +00	4,670E +00	4,673E +00	4,670E +00	4,680E +00	4,673E +00	4,667E +00
Sigma	0,000E +00	2,634E -09	5,773E -03	2,634E -09	0,000E +00	5,773E -03	5,774E -03

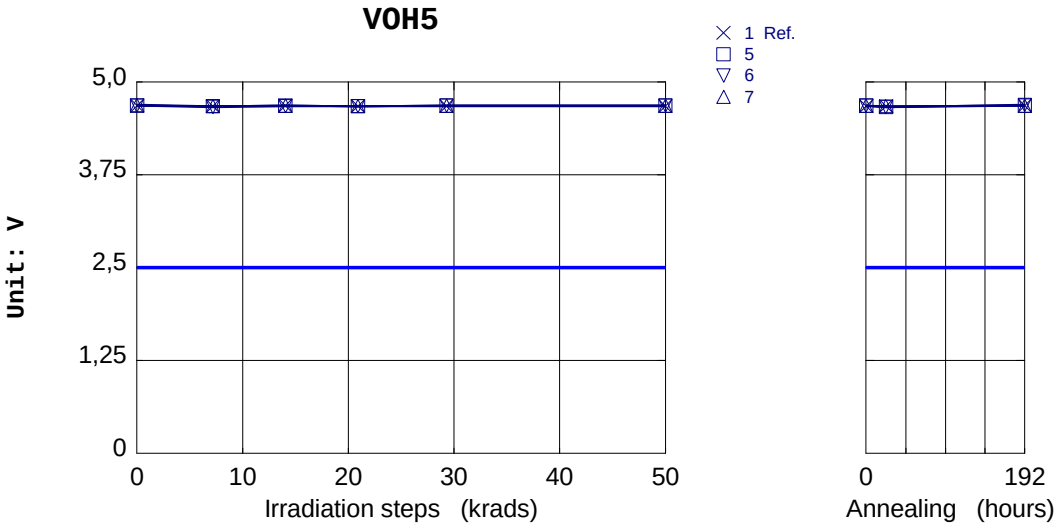
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,680E +00
6	4,680E +00
7	4,690E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,683E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 28: VOH5
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00
5	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,660E +00
6	4,680E +00	4,660E +00	4,670E +00	4,670E +00	4,680E +00	4,680E +00	4,660E +00
7	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Statistics							
Min	4,680E +00	4,660E +00	4,670E +00	4,670E +00	4,680E +00	4,680E +00	4,660E +00
Max	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Mean	4,683E +00	4,667E +00	4,677E +00	4,670E +00	4,680E +00	4,680E +00	4,663E +00
Sigma	5,774E -03	5,774E -03	5,773E -03	2,634E -09	0,000E +00	0,000E +00	5,774E -03

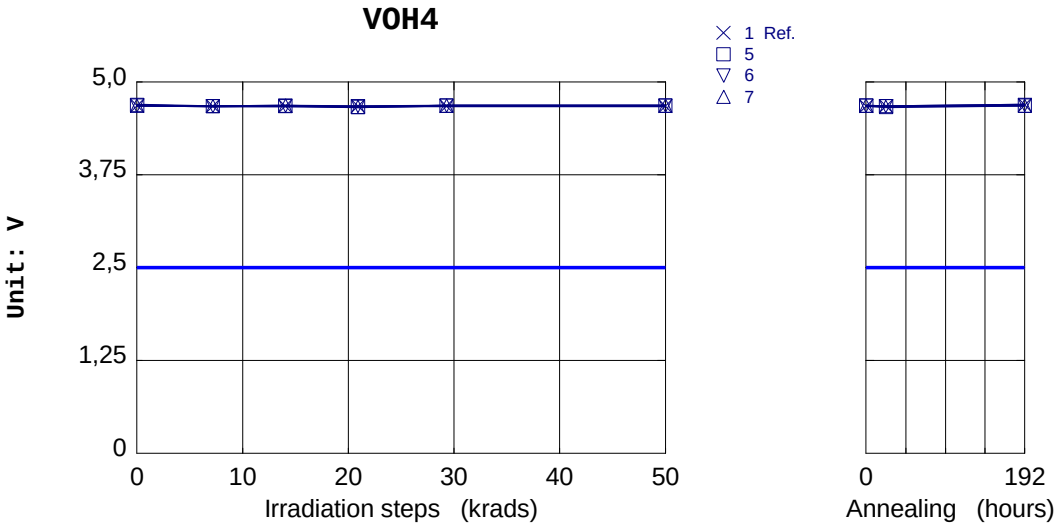
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,680E +00
6	4,690E +00
7	4,680E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,683E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 27: VOH4
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00
5	4,690E +00	4,670E +00	4,670E +00	4,660E +00	4,680E +00	4,680E +00	4,670E +00
6	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
7	4,680E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,680E +00	4,660E +00
Statistics							
Min	4,680E +00	4,670E +00	4,670E +00	4,660E +00	4,680E +00	4,680E +00	4,660E +00
Max	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,680E +00	4,670E +00
Mean	4,683E +00	4,670E +00	4,677E +00	4,663E +00	4,680E +00	4,680E +00	4,667E +00
Sigma	5,774E -03	2,634E -09	5,773E -03	5,774E -03	0,000E +00	0,000E +00	5,774E -03

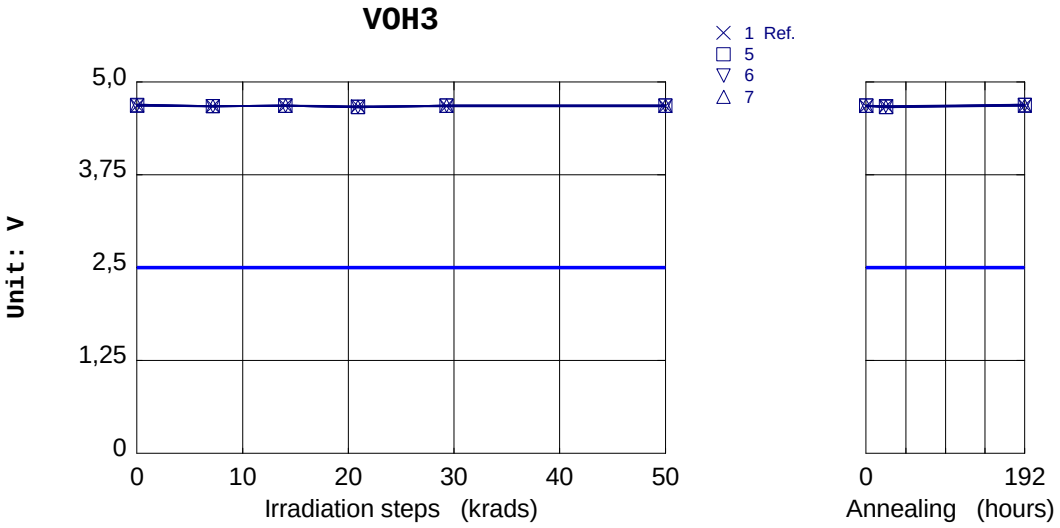
Test Step	192 hours
Serial #	
1 Ref.	4,690E +00
5	4,680E +00
6	4,690E +00
7	4,680E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,683E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 26: VOH3
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00
5	4,680E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,680E +00	4,660E +00
6	4,690E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,680E +00	4,670E +00
7	4,690E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,680E +00	4,660E +00
Statistics							
Min	4,680E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,680E +00	4,660E +00
Max	4,690E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,680E +00	4,670E +00
Mean	4,687E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,680E +00	4,663E +00
Sigma	5,774E -03	2,634E -09	0,000E +00	2,634E -09	0,000E +00	0,000E +00	5,774E -03

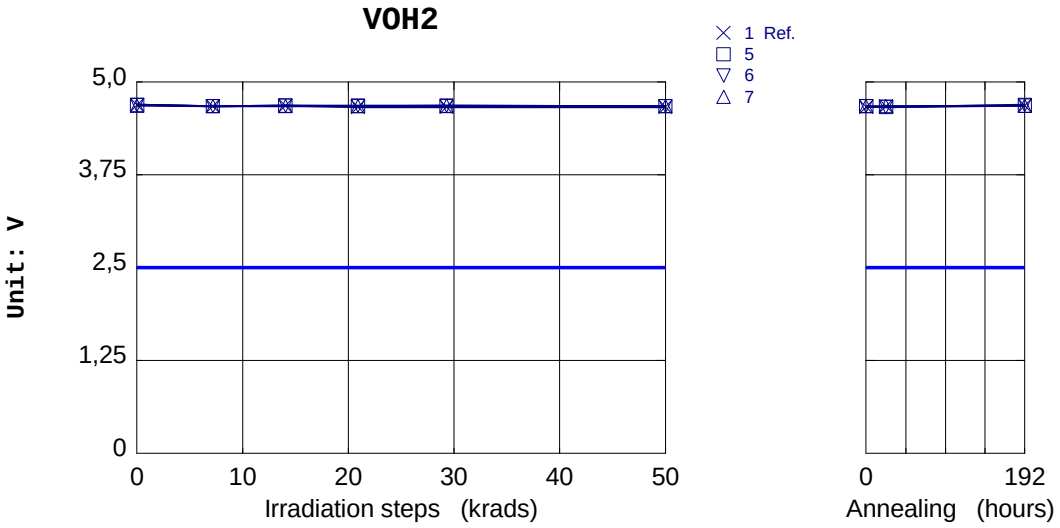
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,690E +00
6	4,690E +00
7	4,680E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,687E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 25: VOH2
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,670E +00	4,680E +00	4,660E +00	4,660E +00	4,660E +00	4,670E +00
5	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,660E +00
6	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,680E +00	4,670E +00	4,660E +00
7	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00
Statistics							
Min	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00	4,660E +00
Max	4,690E +00	4,670E +00	4,680E +00	4,680E +00	4,680E +00	4,670E +00	4,670E +00
Mean	4,687E +00	4,670E +00	4,677E +00	4,673E +00	4,677E +00	4,670E +00	4,663E +00
Sigma	5,774E -03	2,634E -09	5,773E -03	5,773E -03	5,773E -03	2,634E -09	5,774E -03

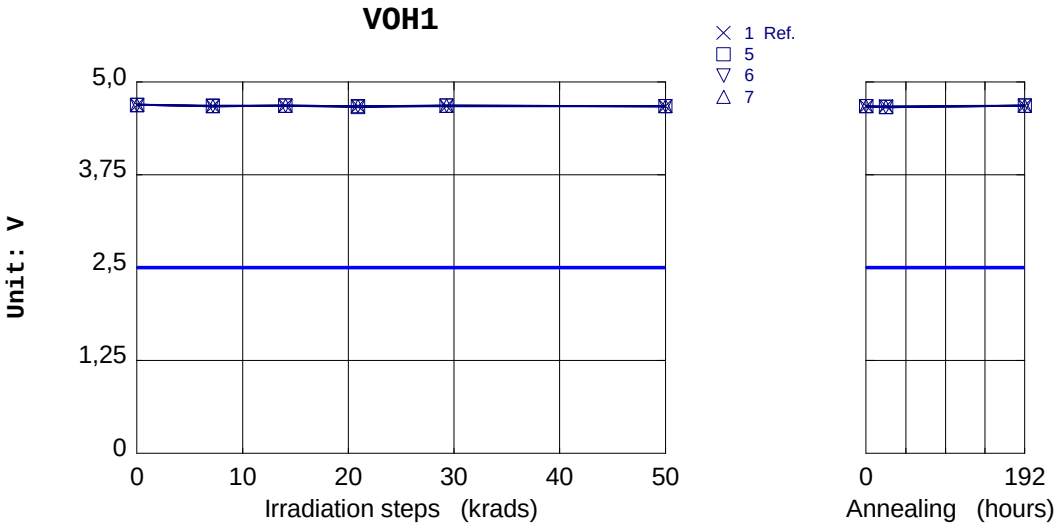
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,680E +00
6	4,690E +00
7	4,680E +00
Statistics	
Min	4,680E +00
Max	4,690E +00
Mean	4,683E +00
Sigma	5,774E -03



Parameter: High Level Output Voltage Pin 24: VOH1
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00
5	4,690E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,670E +00	4,660E +00
6	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,660E +00
7	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,660E +00
Statistics							
Min	4,690E +00	4,670E +00	4,680E +00	4,660E +00	4,680E +00	4,670E +00	4,660E +00
Max	4,690E +00	4,680E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,660E +00
Mean	4,690E +00	4,673E +00	4,680E +00	4,667E +00	4,680E +00	4,670E +00	4,660E +00
Sigma	0,000E +00	5,773E -03	0,000E +00	5,774E -03	0,000E +00	2,634E -09	2,634E -09

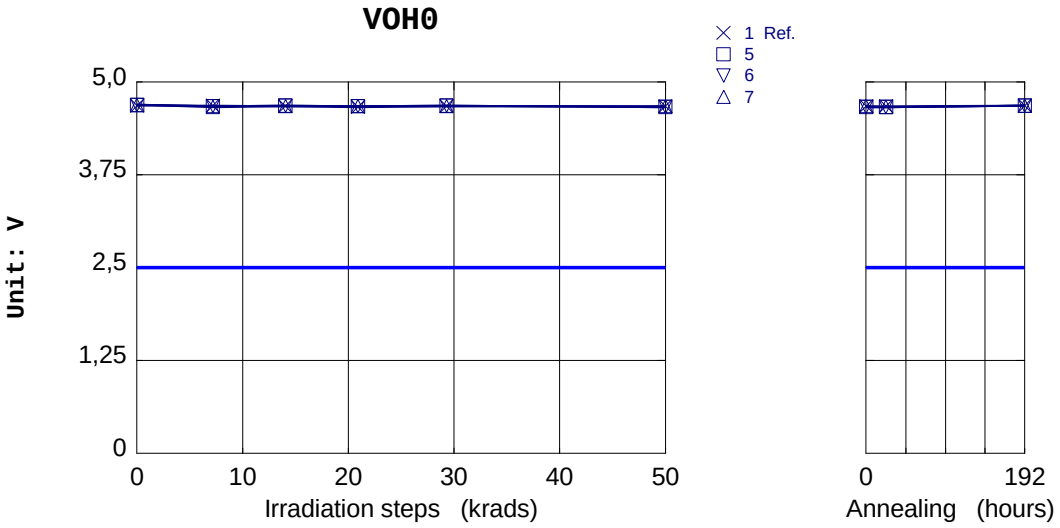
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,680E +00
6	4,680E +00
7	4,680E +00
Statistics	
Min	4,680E +00
Max	4,680E +00
Mean	4,680E +00
Sigma	0,000E +00



Parameter: High Level Output Voltage Pin 23: VOH0
VA=+5V; VD=+5V; VDI/O=+4.75V; IOH=-360uA
Unit= V
Spec limit min: 2.5
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	4,680E +00	4,680E +00	4,670E +00	4,660E +00	4,670E +00	4,670E +00	4,670E +00
5	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,660E +00	4,660E +00
6	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,660E +00	4,660E +00
7	4,690E +00	4,660E +00	4,670E +00	4,670E +00	4,670E +00	4,670E +00	4,660E +00
Statistics							
Min	4,690E +00	4,660E +00	4,670E +00	4,670E +00	4,670E +00	4,660E +00	4,660E +00
Max	4,690E +00	4,670E +00	4,680E +00	4,670E +00	4,680E +00	4,670E +00	4,660E +00
Mean	4,690E +00	4,667E +00	4,677E +00	4,670E +00	4,677E +00	4,663E +00	4,660E +00
Sigma	0,000E +00	5,774E -03	5,773E -03	2,634E -09	5,773E -03	5,774E -03	2,634E -09

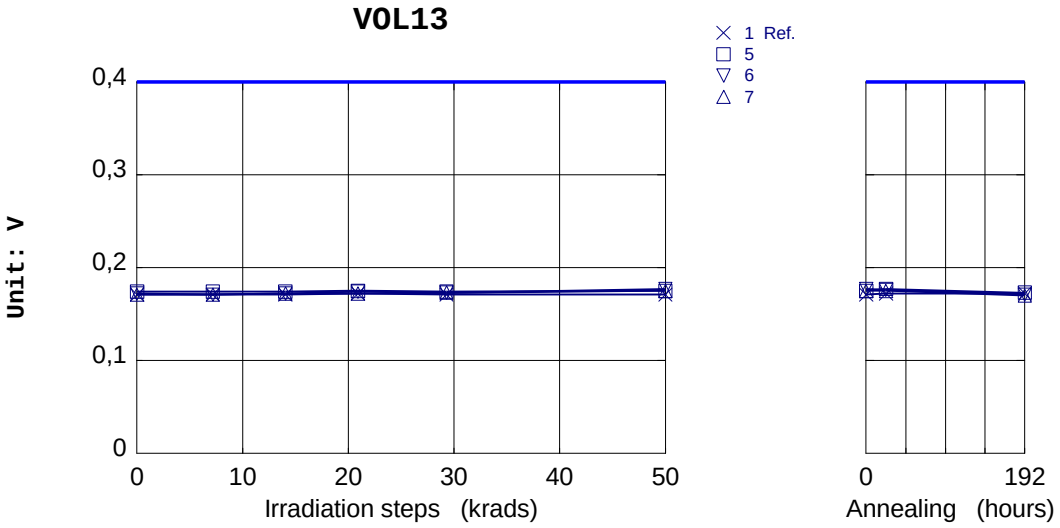
Test Step	192 hours
Serial #	
1 Ref.	4,680E +00
5	4,680E +00
6	4,680E +00
7	4,680E +00
Statistics	
Min	4,680E +00
Max	4,680E +00
Mean	4,680E +00
Sigma	0,000E +00



Parameter: Low Level Output Voltage Pin 38: VOL13
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,710E -01	1,710E -01	1,710E -01	1,720E -01	1,710E -01	1,710E -01	1,720E -01
5	1,740E -01	1,740E -01	1,740E -01	1,750E -01	1,740E -01	1,750E -01	1,770E -01
6	1,720E -01	1,710E -01	1,720E -01	1,740E -01	1,730E -01	1,770E -01	1,760E -01
7	1,710E -01	1,710E -01	1,720E -01	1,720E -01	1,730E -01	1,750E -01	1,750E -01
Statistics							
Min	1,710E -01	1,710E -01	1,720E -01	1,720E -01	1,730E -01	1,750E -01	1,750E -01
Max	1,740E -01	1,740E -01	1,740E -01	1,750E -01	1,740E -01	1,770E -01	1,770E -01
Mean	1,723E -01	1,720E -01	1,727E -01	1,737E -01	1,733E -01	1,757E -01	1,760E -01
Sigma	1,528E -03	1,732E -03	1,155E -03	1,528E -03	5,774E -04	1,155E -03	1,000E -03

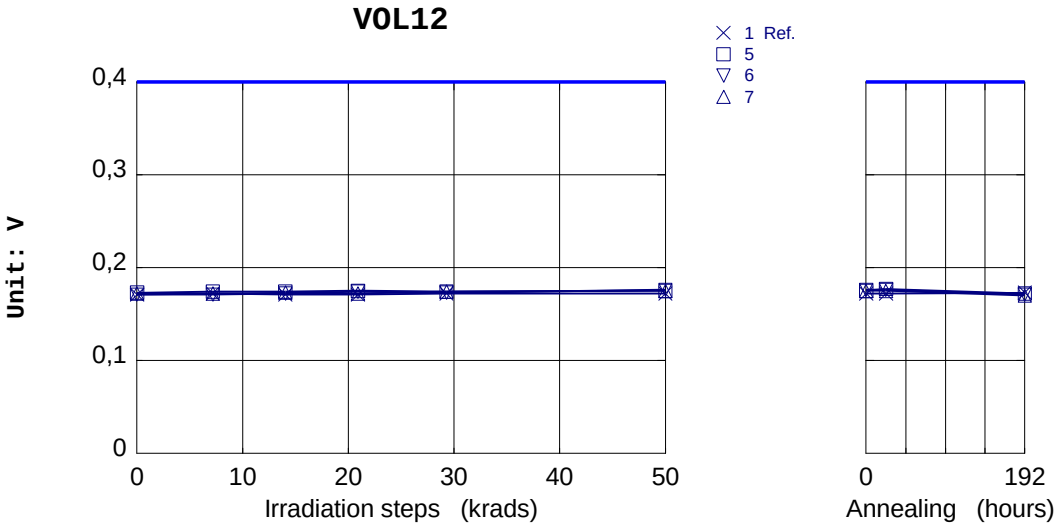
Test Step	192 hours
Serial #	
1 Ref.	1,720E -01
5	1,730E -01
6	1,710E -01
7	1,700E -01
Statistics	
Min	1,700E -01
Max	1,730E -01
Mean	1,713E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 37: VOL12
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,710E -01	1,720E -01	1,710E -01	1,710E -01	1,720E -01	1,720E -01	1,720E -01
5	1,730E -01	1,740E -01	1,740E -01	1,750E -01	1,740E -01	1,750E -01	1,770E -01
6	1,710E -01	1,710E -01	1,720E -01	1,740E -01	1,730E -01	1,760E -01	1,760E -01
7	1,720E -01	1,720E -01	1,730E -01	1,720E -01	1,740E -01	1,750E -01	1,750E -01
Statistics							
Min	1,710E -01	1,710E -01	1,720E -01	1,720E -01	1,730E -01	1,750E -01	1,750E -01
Max	1,730E -01	1,740E -01	1,740E -01	1,750E -01	1,740E -01	1,760E -01	1,770E -01
Mean	1,720E -01	1,723E -01	1,730E -01	1,737E -01	1,737E -01	1,753E -01	1,760E -01
Sigma	1,000E -03	1,528E -03	1,000E -03	1,528E -03	5,774E -04	5,774E -04	1,000E -03

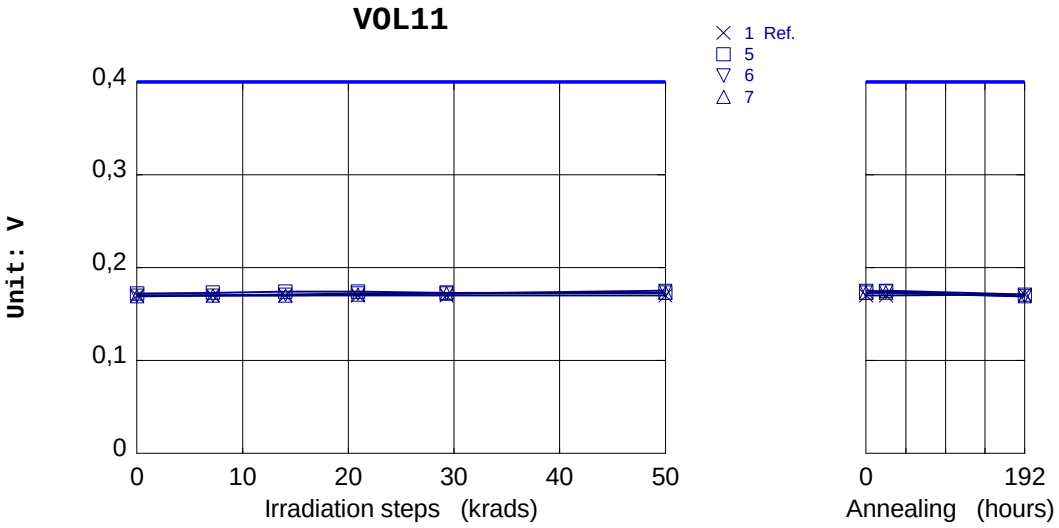
Test Step	192 hours
Serial #	
1 Ref.	1,730E -01
5	1,720E -01
6	1,710E -01
7	1,700E -01
Statistics	
Min	1,700E -01
Max	1,720E -01
Mean	1,710E -01
Sigma	1,000E -03



Parameter: Low Level Output Voltage Pin 36: VOL11
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,700E -01	1,700E -01	1,700E -01	1,700E -01	1,700E -01	1,700E -01	1,700E -01
5	1,720E -01	1,730E -01	1,740E -01	1,740E -01	1,730E -01	1,730E -01	1,750E -01
6	1,700E -01	1,700E -01	1,710E -01	1,720E -01	1,720E -01	1,750E -01	1,740E -01
7	1,690E -01	1,700E -01	1,700E -01	1,710E -01	1,720E -01	1,730E -01	1,730E -01
Statistics							
Min	1,690E -01	1,700E -01	1,700E -01	1,710E -01	1,720E -01	1,730E -01	1,730E -01
Max	1,720E -01	1,730E -01	1,740E -01	1,740E -01	1,730E -01	1,750E -01	1,750E -01
Mean	1,703E -01	1,710E -01	1,717E -01	1,723E -01	1,723E -01	1,737E -01	1,740E -01
Sigma	1,528E -03	1,732E -03	2,082E -03	1,528E -03	5,773E -04	1,155E -03	1,000E -03

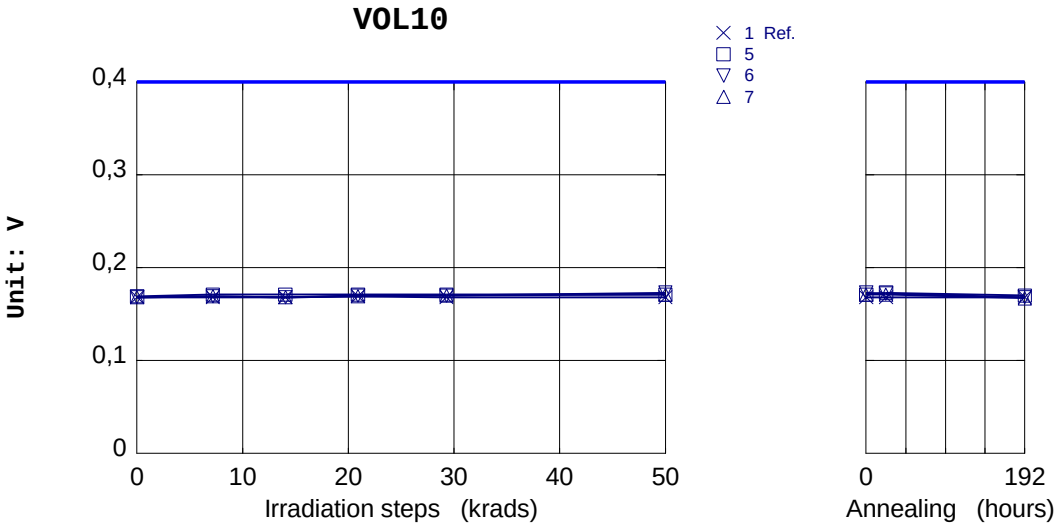
Test Step	192 hours
Serial #	
1 Ref.	1,710E -01
5	1,710E -01
6	1,690E -01
7	1,690E -01
Statistics	
Min	1,690E -01
Max	1,710E -01
Mean	1,697E -01
Sigma	1,155E -03



Parameter: Low Level Output Voltage Pin 35: VOL10
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,680E -01	1,680E -01	1,680E -01	1,690E -01	1,680E -01	1,680E -01	1,680E -01
5	1,690E -01	1,710E -01	1,710E -01	1,710E -01	1,710E -01	1,710E -01	1,730E -01
6	1,680E -01	1,690E -01	1,680E -01	1,700E -01	1,700E -01	1,730E -01	1,720E -01
7	1,680E -01	1,690E -01	1,680E -01	1,690E -01	1,700E -01	1,710E -01	1,710E -01
Statistics							
Min	1,680E -01	1,690E -01	1,680E -01	1,690E -01	1,700E -01	1,710E -01	1,710E -01
Max	1,690E -01	1,710E -01	1,710E -01	1,710E -01	1,710E -01	1,730E -01	1,730E -01
Mean	1,683E -01	1,697E -01	1,690E -01	1,700E -01	1,703E -01	1,717E -01	1,720E -01
Sigma	5,774E -04	1,155E -03	1,732E -03	1,000E -03	5,774E -04	1,155E -03	1,000E -03

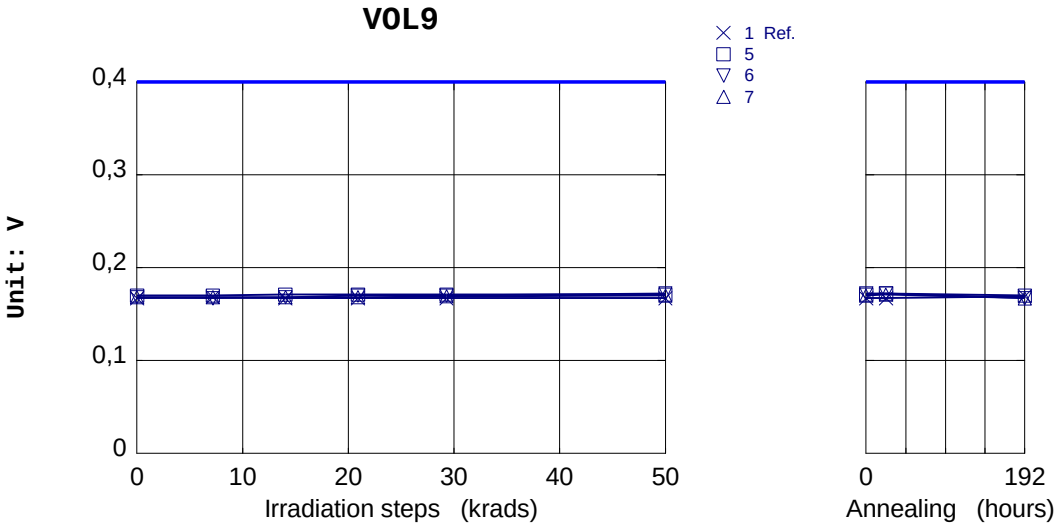
Test Step	192 hours
Serial #	
1 Ref.	1,680E -01
5	1,700E -01
6	1,680E -01
7	1,670E -01
Statistics	
Min	1,670E -01
Max	1,700E -01
Mean	1,683E -01
Sigma	1,528E -03



Parameter: Low Level Output Voltage Pin 32: VOL9
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,670E -01	1,680E -01	1,670E -01	1,670E -01	1,670E -01	1,670E -01	1,670E -01
5	1,700E -01	1,700E -01	1,710E -01	1,710E -01	1,710E -01	1,710E -01	1,720E -01
6	1,680E -01	1,670E -01	1,680E -01	1,700E -01	1,700E -01	1,720E -01	1,720E -01
7	1,680E -01	1,680E -01	1,680E -01	1,680E -01	1,690E -01	1,700E -01	1,710E -01
Statistics							
Min	1,680E -01	1,670E -01	1,680E -01	1,680E -01	1,690E -01	1,700E -01	1,710E -01
Max	1,700E -01	1,700E -01	1,710E -01	1,710E -01	1,710E -01	1,720E -01	1,720E -01
Mean	1,687E -01	1,683E -01	1,690E -01	1,697E -01	1,700E -01	1,710E -01	1,717E -01
Sigma	1,155E -03	1,528E -03	1,732E -03	1,528E -03	1,000E -03	1,000E -03	5,774E -04

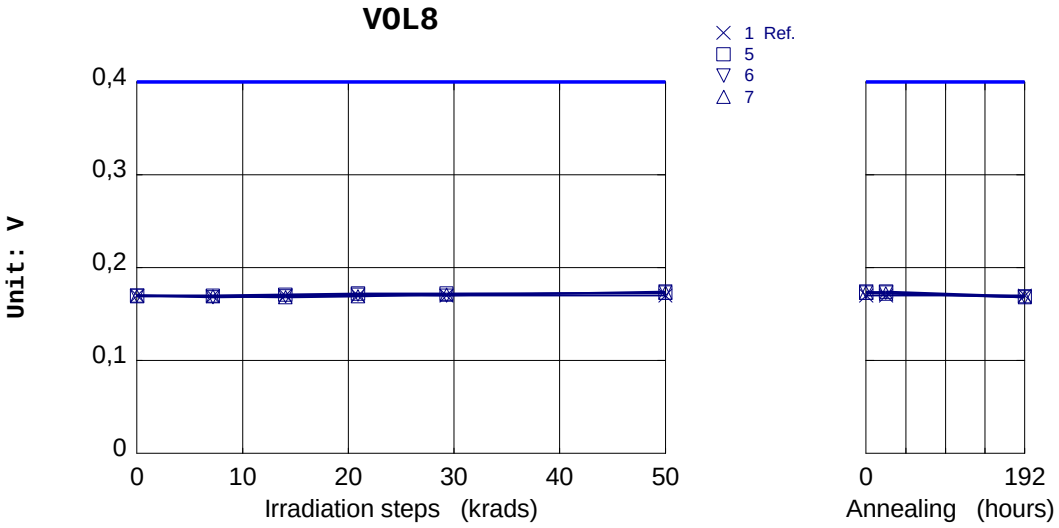
Test Step	192 hours
Serial #	
1 Ref.	1,690E -01
5	1,700E -01
6	1,670E -01
7	1,670E -01
Statistics	
Min	1,670E -01
Max	1,700E -01
Mean	1,680E -01
Sigma	1,732E -03



Parameter: Low Level Output Voltage Pin 31: VOL8
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,700E -01	1,690E -01	1,700E -01	1,700E -01	1,700E -01	1,700E -01	1,700E -01
5	1,700E -01	1,700E -01	1,710E -01	1,720E -01	1,720E -01	1,730E -01	1,740E -01
6	1,700E -01	1,680E -01	1,690E -01	1,710E -01	1,700E -01	1,740E -01	1,730E -01
7	1,690E -01	1,690E -01	1,680E -01	1,690E -01	1,710E -01	1,730E -01	1,720E -01
Statistics							
Min	1,690E -01	1,680E -01	1,680E -01	1,690E -01	1,700E -01	1,730E -01	1,720E -01
Max	1,700E -01	1,700E -01	1,710E -01	1,720E -01	1,720E -01	1,740E -01	1,740E -01
Mean	1,697E -01	1,690E -01	1,693E -01	1,707E -01	1,710E -01	1,733E -01	1,730E -01
Sigma	5,774E -04	1,000E -03	1,528E -03	1,528E -03	1,000E -03	5,774E -04	1,000E -03

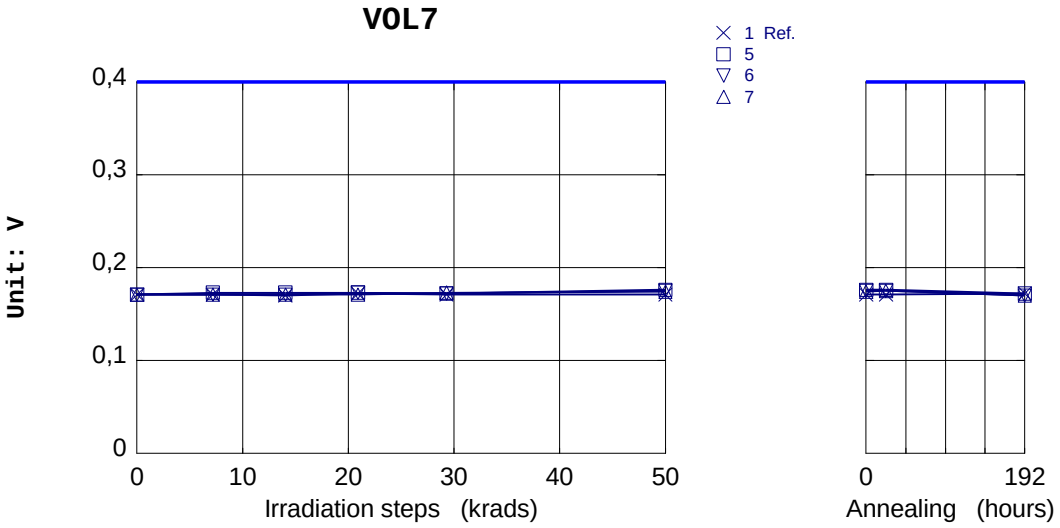
Test Step	192 hours
Serial #	
1 Ref.	1,700E -01
5	1,690E -01
6	1,680E -01
7	1,680E -01
Statistics	
Min	1,680E -01
Max	1,690E -01
Mean	1,683E -01
Sigma	5,774E -04



Parameter: Low Level Output Voltage Pin 30: VOL7
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,710E -01	1,710E -01	1,700E -01	1,720E -01	1,710E -01	1,710E -01	1,710E -01
5	1,710E -01	1,730E -01	1,730E -01	1,730E -01	1,720E -01	1,760E -01	1,760E -01
6	1,710E -01	1,710E -01	1,710E -01	1,730E -01	1,720E -01	1,750E -01	1,750E -01
7	1,710E -01	1,710E -01	1,710E -01	1,710E -01	1,730E -01	1,740E -01	1,750E -01
Statistics							
Min	1,710E -01	1,710E -01	1,710E -01	1,710E -01	1,720E -01	1,740E -01	1,750E -01
Max	1,710E -01	1,730E -01	1,730E -01	1,730E -01	1,730E -01	1,760E -01	1,760E -01
Mean	1,710E -01	1,717E -01	1,717E -01	1,723E -01	1,723E -01	1,750E -01	1,753E -01
Sigma	8,232E -11	1,155E -03	1,155E -03	1,155E -03	5,773E -04	1,000E -03	5,774E -04

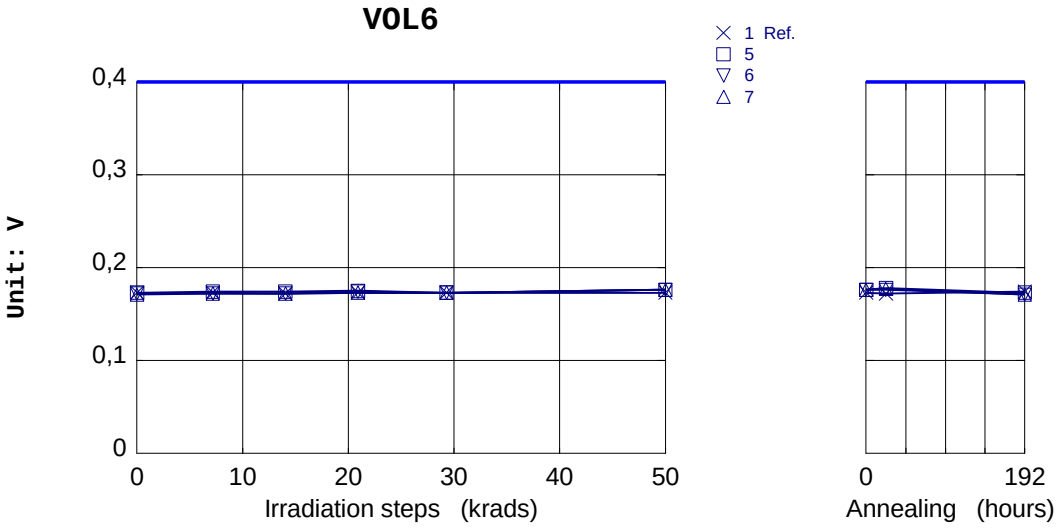
Test Step	192 hours
Serial #	
1 Ref.	1,720E -01
5	1,720E -01
6	1,700E -01
7	1,700E -01
Statistics	
Min	1,700E -01
Max	1,720E -01
Mean	1,707E -01
Sigma	1,155E -03



Parameter: Low Level Output Voltage Pin 29: VOL6
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,730E -01	1,730E -01	1,720E -01	1,730E -01	1,730E -01	1,730E -01	1,720E -01
5	1,730E -01	1,740E -01	1,740E -01	1,750E -01	1,730E -01	1,760E -01	1,780E -01
6	1,720E -01	1,720E -01	1,720E -01	1,740E -01	1,730E -01	1,760E -01	1,760E -01
7	1,710E -01	1,720E -01	1,720E -01	1,730E -01	1,730E -01	1,760E -01	1,770E -01
Statistics							
Min	1,710E -01	1,720E -01	1,720E -01	1,730E -01	1,730E -01	1,760E -01	1,760E -01
Max	1,730E -01	1,740E -01	1,740E -01	1,750E -01	1,730E -01	1,760E -01	1,780E -01
Mean	1,720E -01	1,727E -01	1,727E -01	1,740E -01	1,730E -01	1,760E -01	1,770E -01
Sigma	1,000E -03	1,155E -03	1,155E -03	1,000E -03	5,821E -11	0,000E +00	1,000E -03

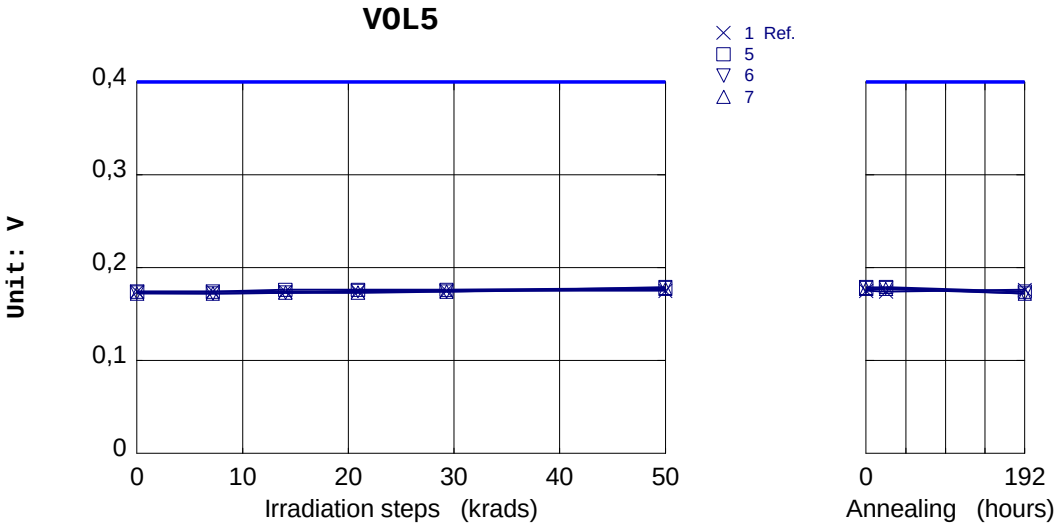
Test Step	192 hours
Serial #	
1 Ref.	1,740E -01
5	1,730E -01
6	1,710E -01
7	1,710E -01
Statistics	
Min	1,710E -01
Max	1,730E -01
Mean	1,717E -01
Sigma	1,155E -03



Parameter: Low Level Output Voltage Pin 28: VOL5
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,740E -01	1,740E -01	1,740E -01	1,740E -01	1,750E -01	1,750E -01	1,740E -01
5	1,740E -01	1,740E -01	1,760E -01	1,760E -01	1,760E -01	1,780E -01	1,790E -01
6	1,730E -01	1,720E -01	1,730E -01	1,750E -01	1,740E -01	1,790E -01	1,780E -01
7	1,720E -01	1,720E -01	1,730E -01	1,730E -01	1,740E -01	1,770E -01	1,770E -01
Statistics							
Min	1,720E -01	1,720E -01	1,730E -01	1,730E -01	1,740E -01	1,770E -01	1,770E -01
Max	1,740E -01	1,740E -01	1,760E -01	1,760E -01	1,760E -01	1,790E -01	1,790E -01
Mean	1,730E -01	1,727E -01	1,740E -01	1,747E -01	1,747E -01	1,780E -01	1,780E -01
Sigma	1,000E -03	1,155E -03	1,732E -03	1,528E -03	1,155E -03	1,000E -03	1,000E -03

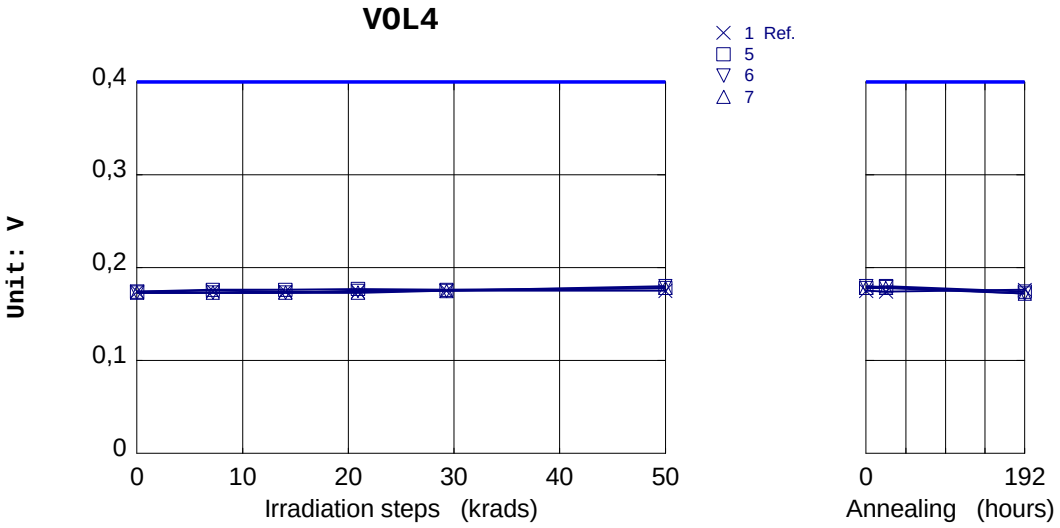
Test Step	192 hours
Serial #	
1 Ref.	1,760E -01
5	1,740E -01
6	1,720E -01
7	1,720E -01
Statistics	
Min	1,720E -01
Max	1,740E -01
Mean	1,727E -01
Sigma	1,155E -03



Parameter: Low Level Output Voltage Pin 27: VOL4
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,740E -01	1,750E -01	1,740E -01	1,740E -01	1,750E -01	1,750E -01	1,740E -01
5	1,740E -01	1,760E -01	1,760E -01	1,770E -01	1,760E -01	1,780E -01	1,800E -01
6	1,730E -01	1,730E -01	1,730E -01	1,750E -01	1,750E -01	1,800E -01	1,790E -01
7	1,730E -01	1,730E -01	1,730E -01	1,730E -01	1,750E -01	1,780E -01	1,780E -01
Statistics							
Min	1,730E -01	1,730E -01	1,730E -01	1,730E -01	1,750E -01	1,780E -01	1,780E -01
Max	1,740E -01	1,760E -01	1,760E -01	1,770E -01	1,760E -01	1,800E -01	1,800E -01
Mean	1,733E -01	1,740E -01	1,740E -01	1,750E -01	1,753E -01	1,787E -01	1,790E -01
Sigma	5,774E -04	1,732E -03	1,732E -03	2,000E -03	5,774E -04	1,155E -03	1,000E -03

Test Step	192 hours
Serial #	
1 Ref.	1,760E -01
5	1,740E -01
6	1,720E -01
7	1,720E -01
Statistics	
Min	1,720E -01
Max	1,740E -01
Mean	1,727E -01
Sigma	1,155E -03



Parameter: Low Level Output Voltage Pin 26: VOL3
VA=+5V; VD=+5V; VDI/O=+5.25V; IOL=1.6mA
Unit= V
Spec limit max: 0.4
Spec limits are represented in bold lines on the graphic.

Test Step	Initial	7,2 krads	14,1 krads	21 krads	29,4 krads	50,2 krads	24 hours
Serial #							
1 Ref.	1,760E -01	1,760E -01	1,750E -01	1,760E -01	1,760E -01	1,760E -01	1,760E -01
5	1,750E -01	1,770E -01	1,770E -01	1,780E -01	1,760E -01	1,810E -01	1,820E -01
6	1,760E -01	1,760E -01	1,760E -01	1,780E -01	1,780E -01	1,810E -01	1,810E -01
7	1,750E -01	1,760E -01	1,750E -01	1,760E -01	1,780E -01	1,810E -01	1,810E -01
Statistics							
Min	1,750E -01	1,760E -01	1,750E -01	1,760E -01	1,760E -01	1,810E -01	1,810E -01
Max	1,760E -01	1,770E -01	1,770E -01	1,780E -01	1,780E -01	1,810E -01	1,820E -01
Mean	1,753E -01	1,763E -01	1,760E -01	1,773E -01	1,773E -01	1,810E -01	1,813E -01
Sigma	5,774E -04	5,774E -04	1,000E -03	1,155E -03	1,155E -03	8,232E -11	5,774E -04

Test Step	192 hours
Serial #	
1 Ref.	1,770E -01
5	1,750E -01
6	1,750E -01
7	1,750E -01
Statistics	
Min	1,750E -01
Max	1,750E -01
Mean	1,750E -01
Sigma	8,232E -11