TOTAL IONIZING DOSE TEST REPORT

Part Type: AD7626BCPZ-ND

Package: LFCSP-32

Description: 16-Bit, 10 MSPS, PulSAR Differential ADC

Manufacturer: Analog Devices

Date Code: 1702

Esa Estec Purchase Order N° 22327/09/NL/SFe / Call-off Order 6 dated July 13th, 2017

Hirex reference:	HRX/TID/01558	Issue:01	Date:	January 29th, 2018
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Verified by:	O. PERROTIN	Test Lab Engineering Manager		
Approved by:	F. TILHAC	Test Lab Manager		PO

CHANGE RECORD

ISSUE	DATE	PAGE	DESCRIPTION OF CHANGES
01	January 29th, 2018	All	Original Issue

TOTAL IONIZING DOSE TEST REPORT
on Analog Devices
AD7626BCPZ-ND
16-Bit, 10 MSPS, PulSAR Differential ADC

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1 Introduction

A total ionizing dose verification test of the Analog Devices AD7626BCPZ-ND, 16-Bit, 10 MSPS, PulSAR Differential ADC has been performed with an accumulated dose of about 50 krad(Si) at a dose rate of 210 rad(Si)/hour, in response to Esa Estec purchase order reference 22327/09/NL/SFe / Call-off Order 6.

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 samples provided by Esa Estec. Test has been performed in accordance with Hirex Engineering proposal reference HRX/EMP/07041 dated 20/06/2017.

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

2 Applicable and Reference Documents

2.1 Applicable Documents

- Hirex Engineering proposal: HRX/EMP/07041 dated 20/06/2017
- Hirex engineering Test plan reference: HRX/TDP/00108 issue 02.
- Hirex Engineering Detail Design Document: HRX/DDD/02557 Issue 01
- Hirex Engineering Test Conditions: HRX/TC/01854 Issue 01
- ESCC Basic Specification No. 22900 issue 05.

2.2 Reference Documents

- Analog Devices Datasheet

3 Test Samples

11 samples of the AD7626BCPZ-ND device have been tested (5 ON + 5 OFF + 1 control sample).

Samples were allocated into the bias conditions during exposures and annealing as provided in the following table.

Serial Numbers	Allocation
1	Control
2	Biased ON
3	Biased ON
4	Biased ON
5	Biased ON
6	Biased ON
7	Biased OFF
8	Biased OFF
9	Biased OFF
10	Biased OFF
11	Biased OFF

Identification of the AD7626BCPZ-ND is provided below:

Part Number:	AD7626BCPZ-ND		
Top Marking:	. AD7626 BCPZ #1702 3725512 KOREA		
Bottom Marking:			
Date Code:	1702	**Manuf Lot Number:**	AN97342.12

Identification of the component including external marking and any die identification is provided on the following photos.

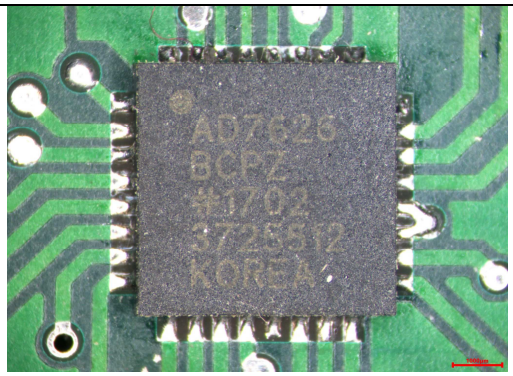


Photo 1 – Device Top Marking

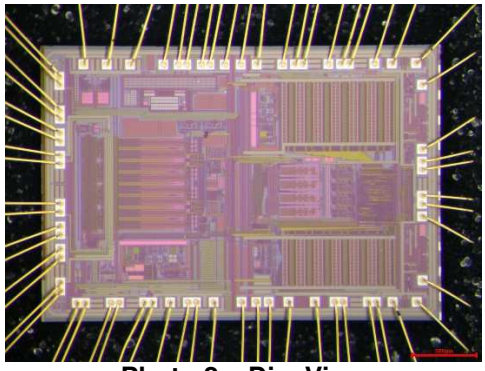


Photo 2 – Die, View

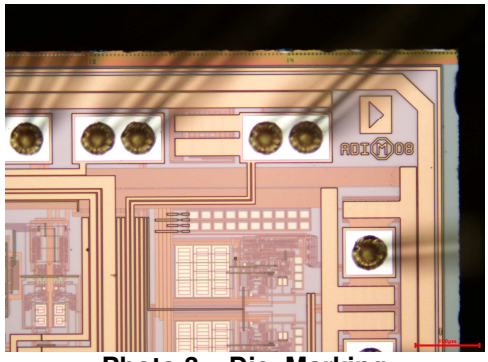


Photo 3 – Die, Marking

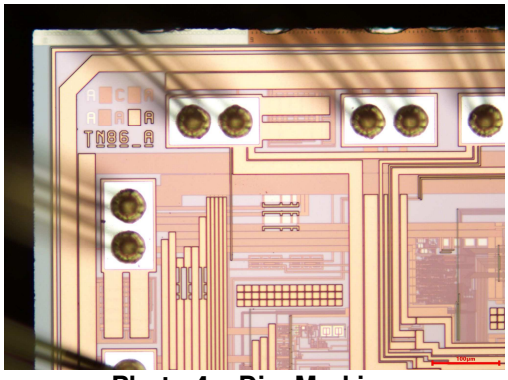


Photo 4 – Die, Marking

4 Experimental Conditions

4.1 Radiation Source Dose Rate and Annealing

The dose exposures were performed at GAMRAY facility in Toulouse (France). 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.

During the dose exposures, devices under test have been irradiated in an ambient temperature of 24°C ±6°C. The radiation environment is specified in Appendix 1 - Irradiation Certificate.

During annealing step at 100°C±5°C, the temperature was controlled and monitored by using an external monitoring system.

Before exposure, dose rate calibration, using an active dosimeter SAPHYMO gamma probe, was performed at each board location.

Resulting test conditions are provided below.
CO^{60} irradiation certificate is provided in appendix 1.

Total Irradiation Dose	Average Pellet Dosimetry data	Dose rate	Annealing steps	Date	Irradiation Time Out	Start Meas Time	End Meas Time	Irradiation Time In	Temp. Meas
kRad (Si)	kRad(Si)	Rad(Si)/h							°C
0	0	-	-	08/01/2018		-	-	10:20	25
5	4.9	210	-	09/01/2018	09:32	9:53	10:12	11:30	25
10	9.6	210		10/01/2018	09:31	9:47	10:09	11:28	25
20	20.13	210	-	12/01/2018	14:03	14:27	14:55	16:00	25
35	34.29	210	-	15/01/2018	09:37	16:16	16:38	11:31	25
50	49.69	210	-	18/01/2018	14:04	15:24	15:44	16:02	26
-	-	-	24 h / Room	19/01/2018	15:45	16:21	16:38	16:45	25
-	-	-	168 h / 100°C	26/01/2018	11:30	14:35	14:53	-	24

4.2 Bias during Dose Exposures and Measurements conditions

4.2.1 Bias conditions

During exposures bias boards provided by HIREX (references: PL321A and CB761A) allowed to bias 5 samples in accordance with the electrical circuit provided in Figure 1.
5 other samples were biased OFF with all pins connected to ground.
During annealing steps the same stress conditions have been applied at room and 100°C temperatures.

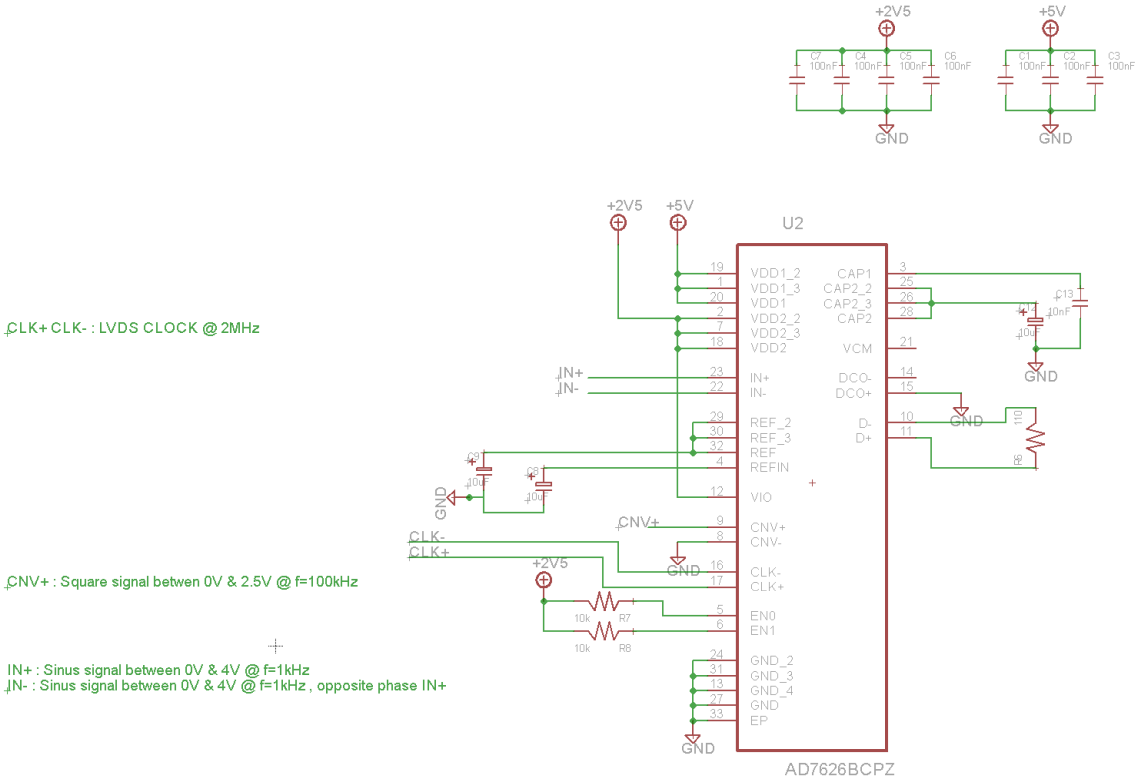


Figure 1 : Bias Conditions during Irradiation Exposures and Annealing

4.2.2 Electrical Measurements

Electrical parameters test setup synoptic for AD7626BCPZ-ND is provided in Figure 2.

One HP4142 DC tester, an IMS tester and a converters tester were used to perform required measurements.

A dedicated test fixture (Hirex reference: CT282A) was designed to ensure proper measurement conditions.

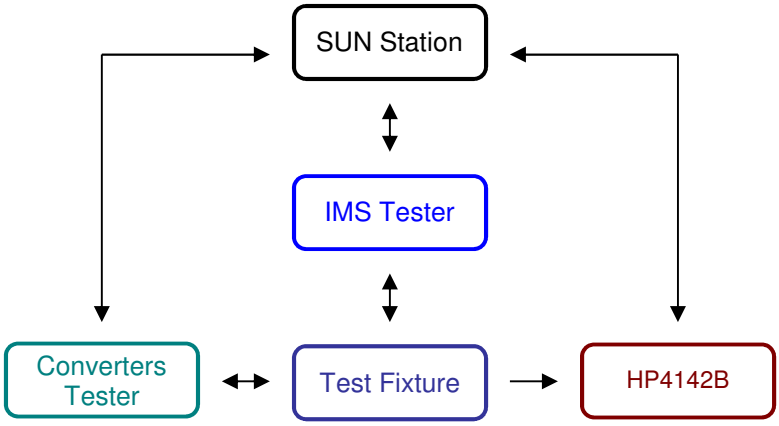


Figure 2: AD7626BCPZ-ND test setup synoptic

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

PARAMETERS	SYMBOLS	TEST CONDITIONS Note 1	MIN	MAX	UNITS
Reference Output Voltage	REFIN	Measure on REFIN Pin	1.14	1.22	V
Reference Output Voltage	REF_OUT	Measure on REF pin	4.076	4.116	V
Common Mode Voltage	VCM_ERROR_OUT		-15	15	mV
Differential Output Voltage	VOD1	RL=100ohm	245	454	mV
Differential Output Voltage	VOD2	RL=100ohm	245	454	mV
Common Mode Output Voltage	VOCM1	RL=100ohm	0.98	1.375	V
Common Mode Output Voltage	VOCM2	RL=100ohm	0.98	1.375	V
Static-Not Converting	IVDD1_STATIC_NOT_CONVERT			4.5	mA
Static-Not Converting	IVDD2_STATIC_NOT_CONVERT			21.2	mA
Static-Not Converting	IVIO_STATIC_NOT_CONVERT			13.5	mA
Supply Current With Internal Reference	IVDD1_INTERNAL_REF	f=10MSPS		11.2	mA
Supply Current With Internal Reference	IVDD2_INTERNAL_REF	f=10MSPS		27.8	mA
Supply Current With Internal Reference	IVIO_INTERNAL_REF	f=10MSPS		17.8	mA
Supply Current With External Reference	IVDD1_EXTERNAL_REF	f=10MSPS		8.8	mA
Supply Current With External Reference	IVDD2_EXTERNAL_REF	f=10MSPS		28	mA
Supply Current With External Reference	IVIO_EXTERNAL_REF	f=10MSPS		18.5	mA
Supply current Power Down Mode	IVDD1_POWER_DOWN	EN0=0; EN1=0		4	µA
Supply current Power Down Mode	IVDD2_POWER_DOWN	EN0=0; EN1=0		10	µA
Supply current Power Down Mode	IVIO_POWER_DOWN	EN0=0; EN1=0		5	µA
Convert Value	Convert_Val_-4V	Convert Voltage around -4V. REF=4.096V Mode External.	742	794	LSB **Note 2**
Convert Value	Convert_Val_-2V	Convert Voltage -2V. REF=4.096V Mode External.	16742	16794	LSB **Note 2**
Convert Value	Convert_Val_0V	Convert Voltage 0V. REF=4.096V Mode External.	32742	32794	LSB **Note 2**
Convert Value	Convert_Val_2V	Convert Voltage 2V. REF=4.096V Mode External.	48742	48794	LSB **Note 2**
Convert Value	Convert_Val_4V	Convert Voltage 4V. REF=4.096V Mode External.	64742	64794	LSB **Note 2**

Note 1: VDD1 = 5 V; VDD2 = 2.5 V; VIO = 2.5 V; REF = 4.096 V unless otherwise specified

Note 2: Limits are chosen at +/-26 LSB from theoretical value (Offset error + Gain Error) to detect a potential conversion problem during measurements.

Table 1 : Measured electrical parameters

5 Conclusion

A Total Ionizing Dose verification test was carried out by Hirex Engineering under Esa Estec contract on the Analog Devices AD7626BCPZ-ND 16-Bit, 10 MSPS, PulSAR Differential ADC in LFCSP-32 package.

10 samples plus one control sample were used during testing. They were exposed to radiation using a dose rate of 210Rad(Si)/hour at room temperature.

A summary of the failed parameters is provided in the following table. The behavior of each parameter is recorded for both biased ON and biased OFF samples.

Parameters not listed remained within specification limits all along testing.
Detail test results are presented in the following section.

Parameters	Failure Level between :		Annealing Recovery [Note 1]					Comments
			NA	No	Partial	Complete	Rebound	
IVDD1_POWER_DOWN	ON samples	34.3 & 49.7 krad(Si)				X		
	OFF samples	No Failure	X					
IVDD2_POWER_DOWN	ON samples	34.3 & 49.7 krad(Si)				X		
	OFF samples	No Failure	X					

[Note 1]: **NA** = Not applicable, **No:** means no sample has recovered, **Partial:** means at least one sample has recovered, **Complete:** means all samples have recovered, **Rebound**: means rebound has been observed on at least one sample.

Table 2 : Summary of parameters failure levels

6 Test Results

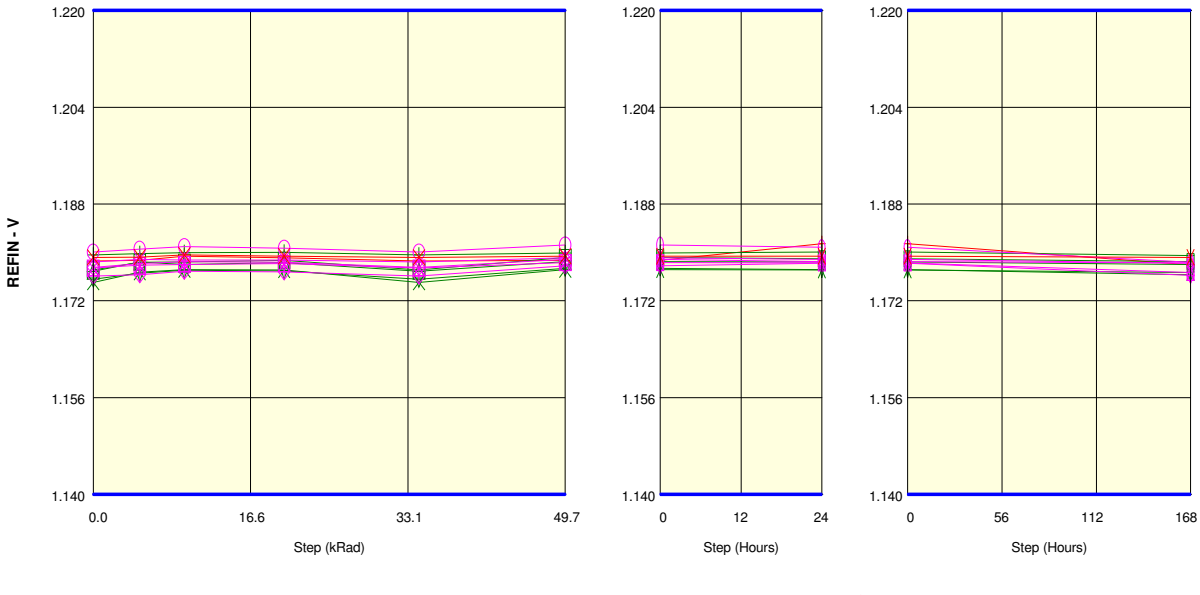
Test results including tables and graphics are provided in this section for each measured parameter.

Statistics are provided separately for biased ON and biased OFF samples.

Control sample have been measured before and after each electrical measurement step. Corresponding control sample data (identified respectively “IN” and “OUT”) are provided here after.

Failed values (if any) with respect to specified limits are highlighted in bold red font in the tables.

Parameter : Reference Output Voltage : REFIN
Test conditions : Measure on REFIN Pin
Unit : V
Spec Limit Min : 1.140
Spec Limit Max : 1.220
Spec limits are represented in bold lines on the graphic.



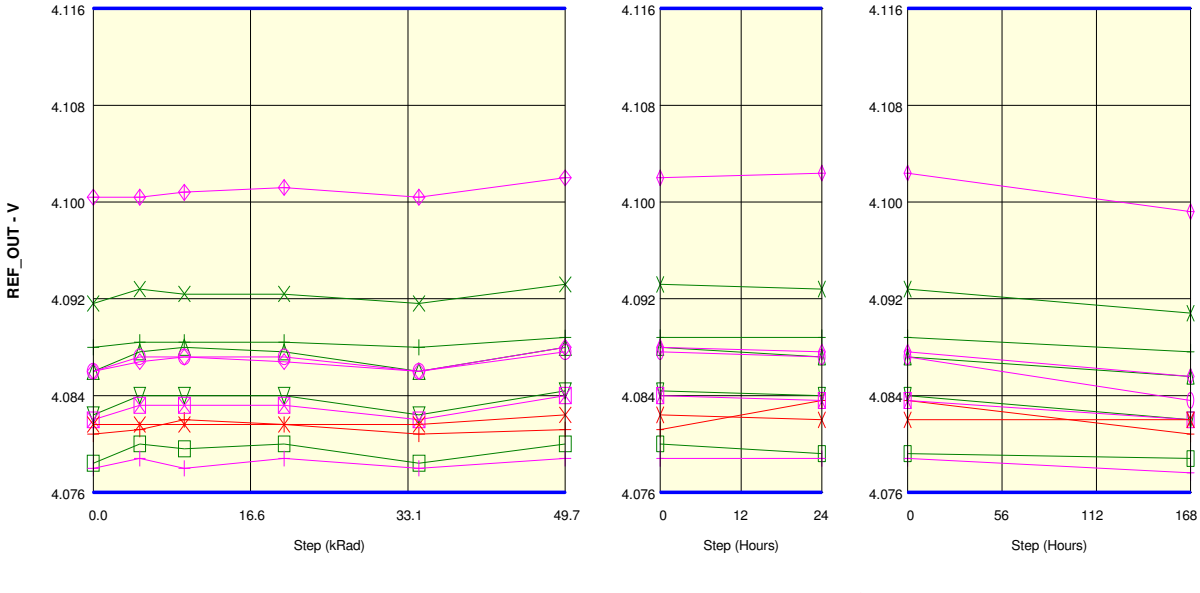
Measurements

REFIN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.179	1.179	1.179	1.179	1.179	1.179	1.181	1.178
1_OUT_REF	1.179	1.179	1.180	1.179	1.179	1.179	1.179	1.179
ON samples								
2	1.180	1.180	1.180	1.180	1.180	1.180	1.180	1.179
3	1.175	1.177	1.177	1.177	1.175	1.177	1.177	1.177
4	1.177	1.178	1.178	1.178	1.177	1.178	1.178	1.178
5	1.176	1.177	1.177	1.177	1.176	1.177	1.177	1.176
6	1.177	1.178	1.178	1.179	1.177	1.179	1.179	1.178
Statistics								
Min	1.175	1.177	1.177	1.177	1.175	1.177	1.177	1.176
Max	1.180	1.180	1.180	1.180	1.180	1.180	1.180	1.179
Average	1.177	1.178	1.178	1.178	1.177	1.178	1.178	1.178
Std Deviation	0.002	0.001	0.001	0.001	0.002	0.001	0.001	0.001

Measurements

REFIN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.179	1.179	1.179	1.179	1.179	1.179	1.181	1.178
1_OUT_REF	1.179	1.179	1.180	1.179	1.179	1.179	1.179	1.179
OFF samples								
7	1.178	1.178	1.178	1.178	1.178	1.179	1.178	1.178
8	1.177	1.178	1.178	1.178	1.177	1.178	1.178	1.177
9	1.176	1.176	1.177	1.177	1.176	1.178	1.178	1.176
10	1.180	1.181	1.181	1.181	1.180	1.181	1.181	1.178
11	1.178	1.179	1.179	1.179	1.178	1.179	1.179	1.178
Statistics								
Min	1.176	1.176	1.177	1.177	1.176	1.178	1.178	1.176
Max	1.180	1.181	1.181	1.181	1.180	1.181	1.181	1.178
Average	1.178	1.178	1.179	1.179	1.178	1.179	1.179	1.178
Std Deviation	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001

Parameter : Reference Output Voltage : REF_OUT
Test conditions : Measure on REF pin
Unit : V
Spec Limit Min : 4.076
Spec Limit Max : 4.116
Spec limits are represented in bold lines on the graphic.



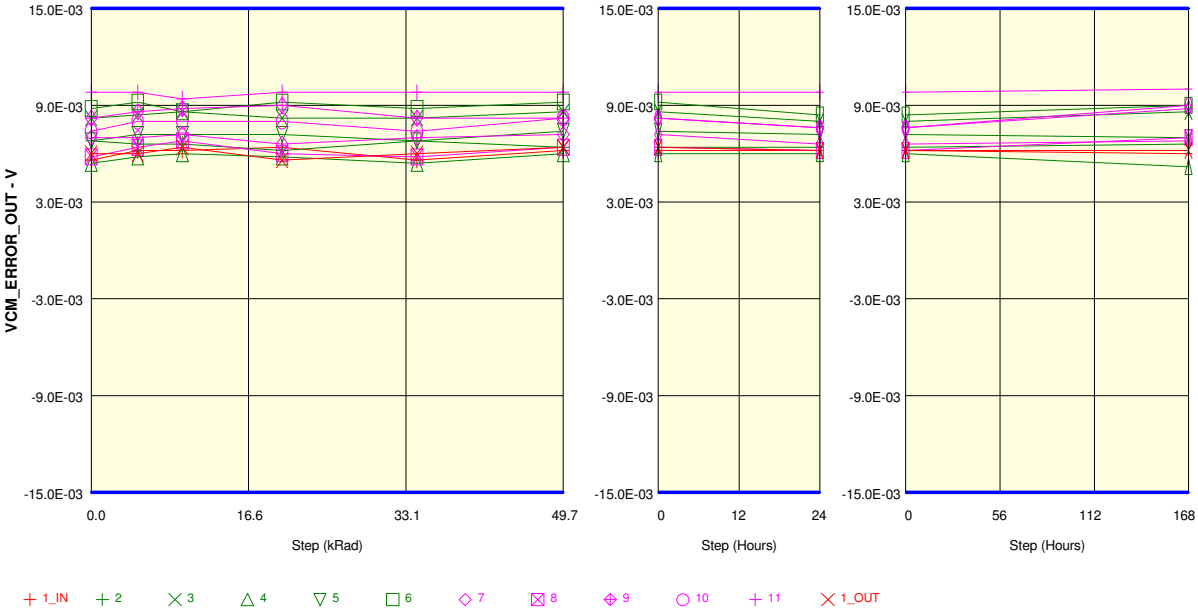
Measurements

REF_OUT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	4.081	4.081	4.082	4.082	4.081	4.081	4.084	4.081
1_OUT_REF	4.082	4.082	4.082	4.082	4.082	4.082	4.082	4.082
ON samples								
2	4.088	4.088	4.088	4.088	4.088	4.089	4.089	4.088
3	4.092	4.093	4.092	4.092	4.092	4.093	4.093	4.091
4	4.086	4.088	4.088	4.088	4.086	4.088	4.087	4.086
5	4.082	4.084	4.084	4.084	4.082	4.084	4.084	4.082
6	4.078	4.080	4.080	4.080	4.078	4.080	4.079	4.079
Statistics								
Min	4.078	4.080	4.080	4.080	4.078	4.080	4.079	4.079
Max	4.092	4.093	4.092	4.092	4.092	4.093	4.093	4.091
Average	4.085	4.087	4.086	4.086	4.085	4.087	4.086	4.085
Std Deviation	0.005	0.004	0.004	0.004	0.005	0.004	0.005	0.004

Measurements

REF_OUT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	4.081	4.081	4.082	4.082	4.081	4.081	4.084	4.081
1_OUT_REF	4.082	4.082	4.082	4.082	4.082	4.082	4.082	4.082
OFF samples								
7	4.086	4.087	4.087	4.087	4.086	4.088	4.088	4.086
8	4.082	4.083	4.083	4.083	4.082	4.084	4.084	4.082
9	4.100	4.100	4.101	4.101	4.100	4.102	4.102	4.099
10	4.086	4.087	4.087	4.087	4.086	4.088	4.087	4.084
11	4.078	4.079	4.078	4.079	4.078	4.079	4.079	4.078
Statistics								
Min	4.078	4.079	4.078	4.079	4.078	4.079	4.079	4.078
Max	4.100	4.100	4.101	4.101	4.100	4.102	4.102	4.099
Average	4.086	4.087	4.087	4.087	4.086	4.088	4.088	4.086
Std Deviation	0.008	0.007	0.008	0.008	0.008	0.008	0.008	0.007

Parameter : Common Mode Voltage : VCM_ERROR_OUT
Test conditions :
Unit : V
Spec Limit Min : -15.0E-03
Spec Limit Max : 15.0E-03
Spec limits are represented in bold lines on the graphic.



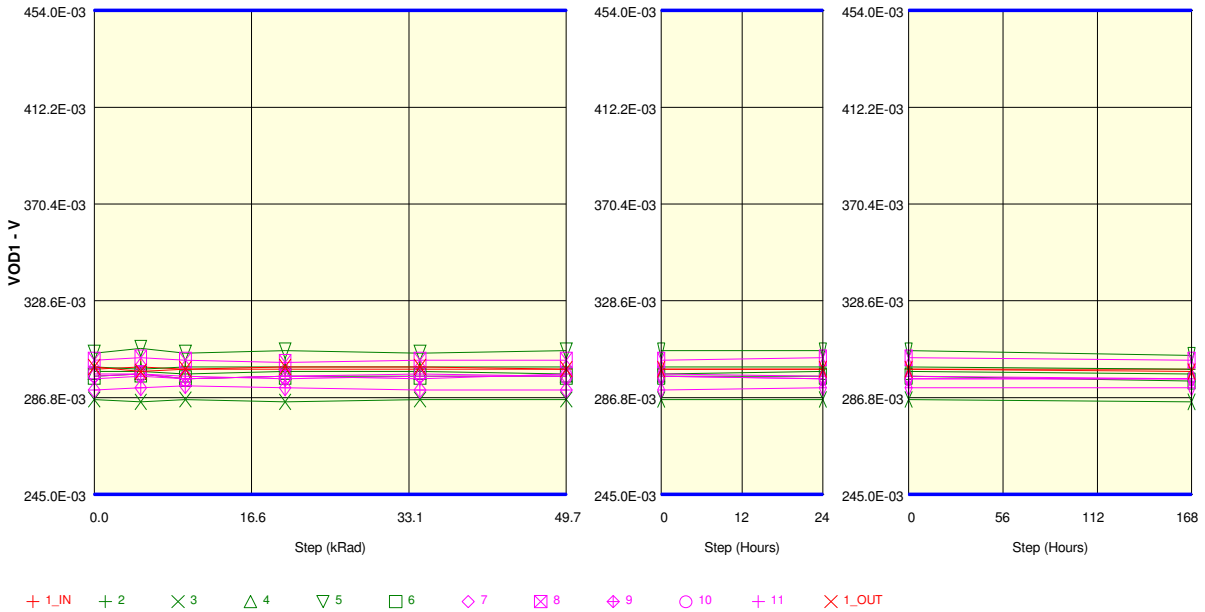
Measurements

VCM_ERROR_OUT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	5.6E-03	6.2E-03	6.2E-03	6.4E-03	5.6E-03	6.2E-03	6.2E-03	6.0E-03
1_OUT_REF	6.0E-03	6.0E-03	6.4E-03	5.6E-03	6.0E-03	6.4E-03	6.2E-03	6.2E-03
ON samples								
2	6.8E-03	6.6E-03	6.6E-03	6.2E-03	6.8E-03	6.4E-03	6.4E-03	6.6E-03
3	8.2E-03	8.4E-03	8.6E-03	8.2E-03	8.2E-03	8.6E-03	8.0E-03	8.6E-03
4	5.4E-03	5.8E-03	6.0E-03	5.8E-03	5.4E-03	6.0E-03	6.0E-03	5.2E-03
5	6.8E-03	7.2E-03	7.2E-03	7.2E-03	6.8E-03	7.4E-03	7.2E-03	7.0E-03
6	8.8E-03	9.2E-03	8.6E-03	9.2E-03	8.8E-03	9.2E-03	8.4E-03	9.0E-03
Statistics								
Min	5.4E-03	5.8E-03	6.0E-03	5.8E-03	5.4E-03	6.0E-03	6.0E-03	5.2E-03
Max	8.8E-03	9.2E-03	8.6E-03	9.2E-03	8.8E-03	9.2E-03	8.4E-03	9.0E-03
Average	7.2E-03	7.4E-03	7.4E-03	7.3E-03	7.2E-03	7.5E-03	7.2E-03	7.3E-03
Std Deviation	1.2E-03	1.2E-03	1.1E-03	1.3E-03	1.2E-03	1.2E-03	912.1E-06	1.4E-03

Measurements

VCM_ERROR_OUT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	5.6E-03	6.2E-03	6.2E-03	6.4E-03	5.6E-03	6.2E-03	6.2E-03	6.0E-03
1_OUT_REF	6.0E-03	6.0E-03	6.4E-03	5.6E-03	6.0E-03	6.4E-03	6.2E-03	6.2E-03
OFF samples								
7	7.0E-03	7.0E-03	7.2E-03	6.6E-03	7.0E-03	7.2E-03	6.6E-03	6.8E-03
8	5.8E-03	6.4E-03	6.8E-03	6.0E-03	5.8E-03	6.4E-03	6.2E-03	7.0E-03
9	8.2E-03	8.6E-03	8.8E-03	9.0E-03	8.2E-03	8.2E-03	7.6E-03	8.8E-03
10	7.4E-03	8.0E-03	8.0E-03	8.0E-03	7.4E-03	8.2E-03	7.6E-03	9.0E-03
11	9.8E-03	9.8E-03	9.4E-03	9.8E-03	9.8E-03	9.8E-03	9.8E-03	10.0E-03
Statistics								
Min	5.8E-03	6.4E-03	6.8E-03	6.0E-03	5.8E-03	6.4E-03	6.2E-03	6.8E-03
Max	9.8E-03	9.8E-03	9.4E-03	9.8E-03	9.8E-03	9.8E-03	9.8E-03	10.0E-03
Average	7.6E-03	8.0E-03	8.0E-03	7.9E-03	7.6E-03	8.0E-03	7.6E-03	8.3E-03
Std Deviation	1.3E-03	1.2E-03	966.6E-06	1.4E-03	1.3E-03	1.1E-03	1.2E-03	1.2E-03

Parameter : Differential Output Voltage : VOD1
Test conditions : RL=100ohm
Unit : V
Spec Limit Min : 245.0E-03
Spec Limit Max : 454.0E-03
Spec limits are represented in bold lines on the graphic.



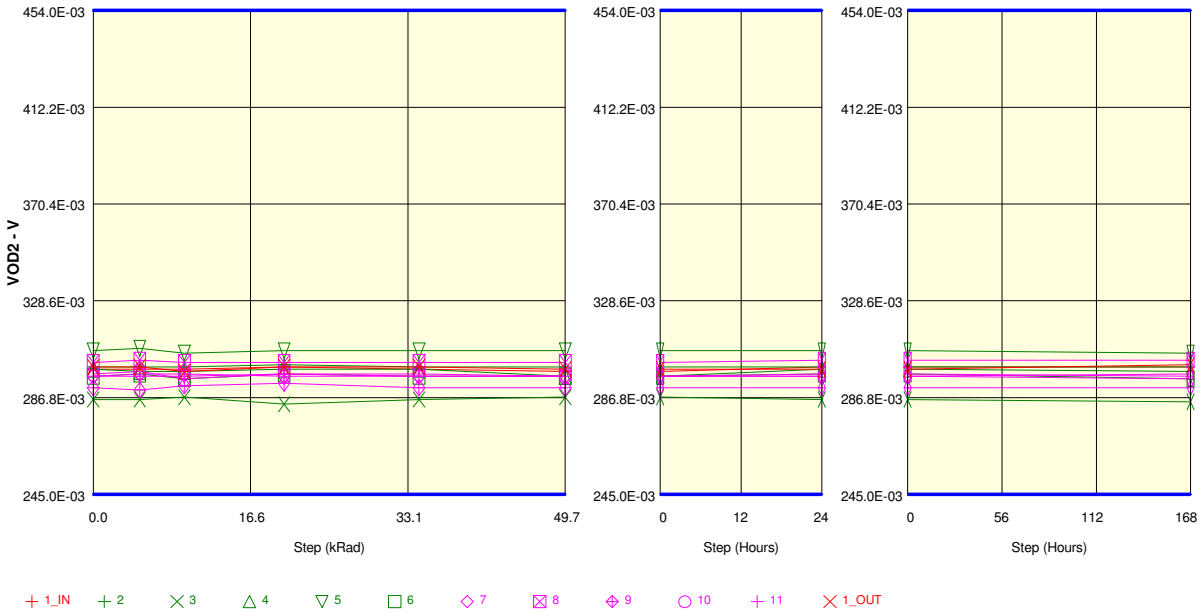
Measurements

VOD1	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	299.0E-03	300.0E-03	299.0E-03	299.0E-03	299.0E-03	299.0E-03	299.0E-03	299.0E-03
1_OUT_REF	300.0E-03	298.0E-03	299.0E-03	300.0E-03	300.0E-03	299.0E-03	299.0E-03	298.0E-03
ON samples								
2	300.0E-03	299.0E-03	300.0E-03	300.0E-03	300.0E-03	300.0E-03	300.0E-03	299.0E-03
3	286.0E-03	285.0E-03	286.0E-03	285.0E-03	286.0E-03	286.0E-03	286.0E-03	285.0E-03
4	298.0E-03	298.0E-03	297.0E-03	298.0E-03	298.0E-03	297.0E-03	298.0E-03	297.0E-03
5	306.0E-03	308.0E-03	306.0E-03	307.0E-03	306.0E-03	307.0E-03	307.0E-03	305.0E-03
6	296.0E-03	297.0E-03	295.0E-03	296.0E-03	296.0E-03	296.0E-03	296.0E-03	294.0E-03
Statistics								
Min	286.0E-03	285.0E-03	286.0E-03	285.0E-03	286.0E-03	286.0E-03	286.0E-03	285.0E-03
Max	306.0E-03	308.0E-03	306.0E-03	307.0E-03	306.0E-03	307.0E-03	307.0E-03	305.0E-03
Average	297.2E-03	297.4E-03	296.8E-03	297.2E-03	297.2E-03	297.2E-03	297.4E-03	296.0E-03
Std Deviation	6.5E-03	7.3E-03	6.6E-03	7.1E-03	6.5E-03	6.8E-03	6.8E-03	6.6E-03

Measurements

VOD1	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	299.0E-03	300.0E-03	299.0E-03	299.0E-03	299.0E-03	299.0E-03	299.0E-03	299.0E-03
1_OUT_REF	300.0E-03	298.0E-03	299.0E-03	300.0E-03	300.0E-03	299.0E-03	299.0E-03	298.0E-03
OFF samples								
7	296.0E-03	297.0E-03	296.0E-03	295.0E-03	296.0E-03	296.0E-03	295.0E-03	295.0E-03
8	303.0E-03	304.0E-03	303.0E-03	302.0E-03	303.0E-03	303.0E-03	304.0E-03	303.0E-03
9	290.0E-03	291.0E-03	292.0E-03	291.0E-03	290.0E-03	290.0E-03	291.0E-03	291.0E-03
10	297.0E-03	297.0E-03	295.0E-03	296.0E-03	297.0E-03	296.0E-03	295.0E-03	295.0E-03
11	295.0E-03	296.0E-03	295.0E-03	296.0E-03	295.0E-03	297.0E-03	296.0E-03	295.0E-03
Statistics								
Min	290.0E-03	291.0E-03	292.0E-03	291.0E-03	290.0E-03	290.0E-03	291.0E-03	291.0E-03
Max	303.0E-03	304.0E-03	303.0E-03	302.0E-03	303.0E-03	303.0E-03	304.0E-03	303.0E-03
Average	296.2E-03	297.0E-03	296.2E-03	296.0E-03	296.2E-03	296.4E-03	296.2E-03	295.8E-03
Std Deviation	4.2E-03	4.1E-03	3.7E-03	3.5E-03	4.2E-03	4.1E-03	4.3E-03	3.9E-03

Parameter : Differential Output Voltage : VOD2
Test conditions : RL=100ohm
Unit : V
Spec Limit Min : 245.0E-03
Spec Limit Max : 454.0E-03
Spec limits are represented in bold lines on the graphic.



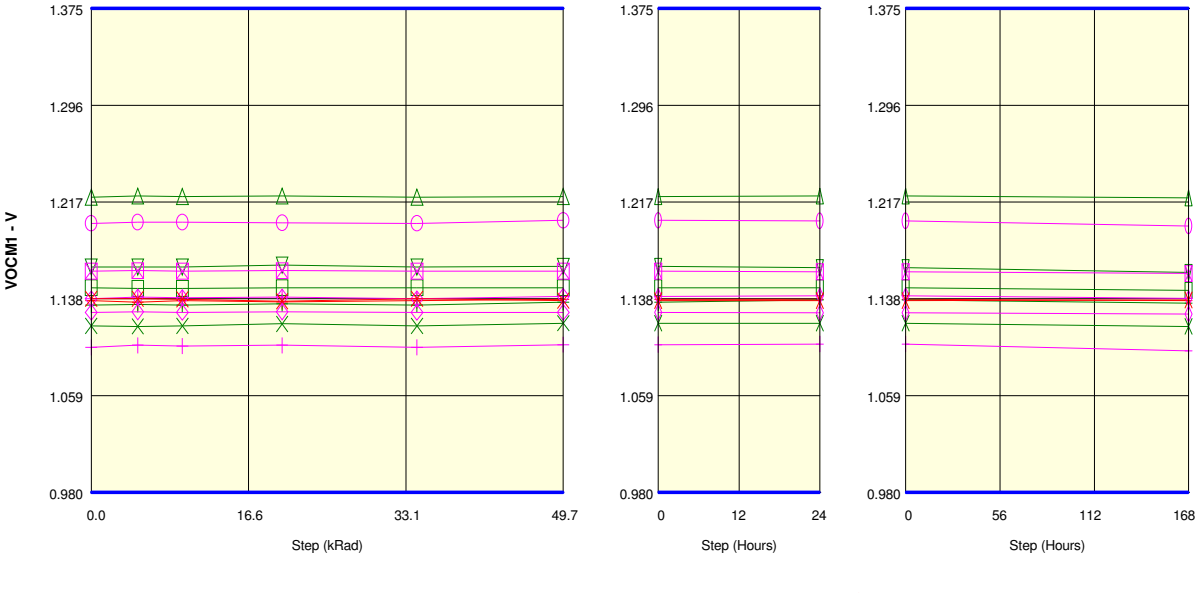
Measurements

VOD2	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	299.0E-03	299.0E-03	299.0E-03	300.0E-03	299.0E-03	298.0E-03	300.0E-03	300.0E-03
1_OUT_REF	300.0E-03	300.0E-03	298.0E-03	300.0E-03	300.0E-03	299.0E-03	299.0E-03	301.0E-03
ON samples								
2	300.0E-03	300.0E-03	300.0E-03	301.0E-03	300.0E-03	300.0E-03	300.0E-03	300.0E-03
3	286.0E-03	286.0E-03	287.0E-03	284.0E-03	286.0E-03	287.0E-03	286.0E-03	285.0E-03
4	299.0E-03	298.0E-03	298.0E-03	299.0E-03	299.0E-03	296.0E-03	299.0E-03	298.0E-03
5	307.0E-03	308.0E-03	306.0E-03	307.0E-03	307.0E-03	307.0E-03	307.0E-03	306.0E-03
6	296.0E-03	297.0E-03	295.0E-03	297.0E-03	296.0E-03	296.0E-03	297.0E-03	295.0E-03
Statistics								
Min	286.0E-03	286.0E-03	287.0E-03	284.0E-03	286.0E-03	287.0E-03	286.0E-03	285.0E-03
Max	307.0E-03	308.0E-03	306.0E-03	307.0E-03	307.0E-03	307.0E-03	307.0E-03	306.0E-03
Average	297.6E-03	297.8E-03	297.2E-03	297.6E-03	297.6E-03	297.2E-03	297.8E-03	296.8E-03
Std Deviation	6.8E-03	7.1E-03	6.2E-03	7.6E-03	6.8E-03	6.5E-03	6.8E-03	6.9E-03

Measurements

VOD2	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	299.0E-03	299.0E-03	299.0E-03	300.0E-03	299.0E-03	298.0E-03	300.0E-03	300.0E-03
1_OUT_REF	300.0E-03	300.0E-03	298.0E-03	300.0E-03	300.0E-03	299.0E-03	299.0E-03	301.0E-03
OFF samples								
7	296.0E-03	297.0E-03	297.0E-03	296.0E-03	296.0E-03	296.0E-03	296.0E-03	297.0E-03
8	302.0E-03	303.0E-03	302.0E-03	302.0E-03	302.0E-03	302.0E-03	303.0E-03	303.0E-03
9	291.0E-03	290.0E-03	292.0E-03	293.0E-03	291.0E-03	291.0E-03	291.0E-03	291.0E-03
10	297.0E-03	298.0E-03	295.0E-03	297.0E-03	297.0E-03	296.0E-03	296.0E-03	295.0E-03
11	296.0E-03	296.0E-03	296.0E-03	297.0E-03	296.0E-03	296.0E-03	297.0E-03	296.0E-03
Statistics								
Min	291.0E-03	290.0E-03	292.0E-03	293.0E-03	291.0E-03	291.0E-03	291.0E-03	291.0E-03
Max	302.0E-03	303.0E-03	302.0E-03	302.0E-03	302.0E-03	302.0E-03	303.0E-03	303.0E-03
Average	296.4E-03	296.8E-03	296.4E-03	297.0E-03	296.4E-03	296.2E-03	296.6E-03	296.4E-03
Std Deviation	3.5E-03	4.2E-03	3.3E-03	2.9E-03	3.5E-03	3.5E-03	3.8E-03	3.9E-03

Parameter : Common Mode Output Voltage : VOCM1
Test conditions : RL=100ohm
Unit : V
Spec Limit Min : 0.980
Spec Limit Max : 1.375
Spec limits are represented in bold lines on the graphic.



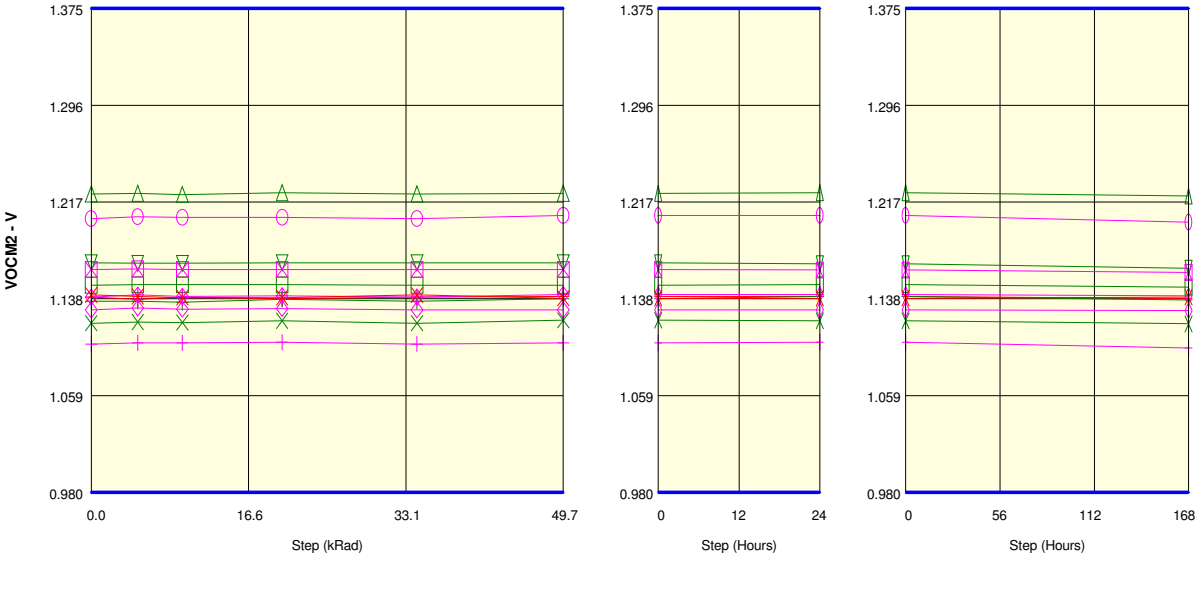
Measurements

VOCM1	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.137	1.135	1.137	1.136	1.137	1.138	1.138	1.137
1_OUT_REF	1.138	1.138	1.138	1.136	1.138	1.137	1.137	1.137
ON samples								
2	1.133	1.134	1.133	1.134	1.133	1.135	1.137	1.135
3	1.116	1.116	1.116	1.118	1.116	1.118	1.118	1.116
4	1.221	1.222	1.222	1.222	1.221	1.222	1.222	1.221
5	1.164	1.164	1.164	1.166	1.164	1.165	1.164	1.160
6	1.147	1.147	1.147	1.147	1.147	1.147	1.147	1.145
Statistics								
Min	1.116	1.116	1.116	1.118	1.116	1.118	1.118	1.116
Max	1.221	1.222	1.222	1.222	1.221	1.222	1.222	1.221
Average	1.156	1.156	1.156	1.157	1.156	1.157	1.158	1.155
Std Deviation	0.036	0.036	0.036	0.036	0.036	0.036	0.035	0.036

Measurements

VOCM1	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.137	1.135	1.137	1.136	1.137	1.138	1.138	1.137
1_OUT_REF	1.138	1.138	1.138	1.136	1.138	1.137	1.137	1.137
OFF samples								
7	1.127	1.128	1.127	1.128	1.127	1.127	1.127	1.126
8	1.161	1.161	1.161	1.161	1.161	1.161	1.160	1.159
9	1.138	1.140	1.139	1.140	1.138	1.140	1.141	1.139
10	1.200	1.201	1.201	1.200	1.200	1.202	1.202	1.198
11	1.099	1.100	1.100	1.100	1.099	1.101	1.101	1.096
Statistics								
Min	1.099	1.100	1.100	1.100	1.099	1.101	1.101	1.096
Max	1.200	1.201	1.201	1.200	1.200	1.202	1.202	1.198
Average	1.145	1.146	1.145	1.146	1.145	1.146	1.146	1.143
Std Deviation	0.034	0.034	0.034	0.034	0.034	0.034	0.034	0.034

Parameter : Common Mode Output Voltage : VOCM2
Test conditions : RL=100ohm
Unit : V
Spec Limit Min : 0.980
Spec Limit Max : 1.375
Spec limits are represented in bold lines on the graphic.



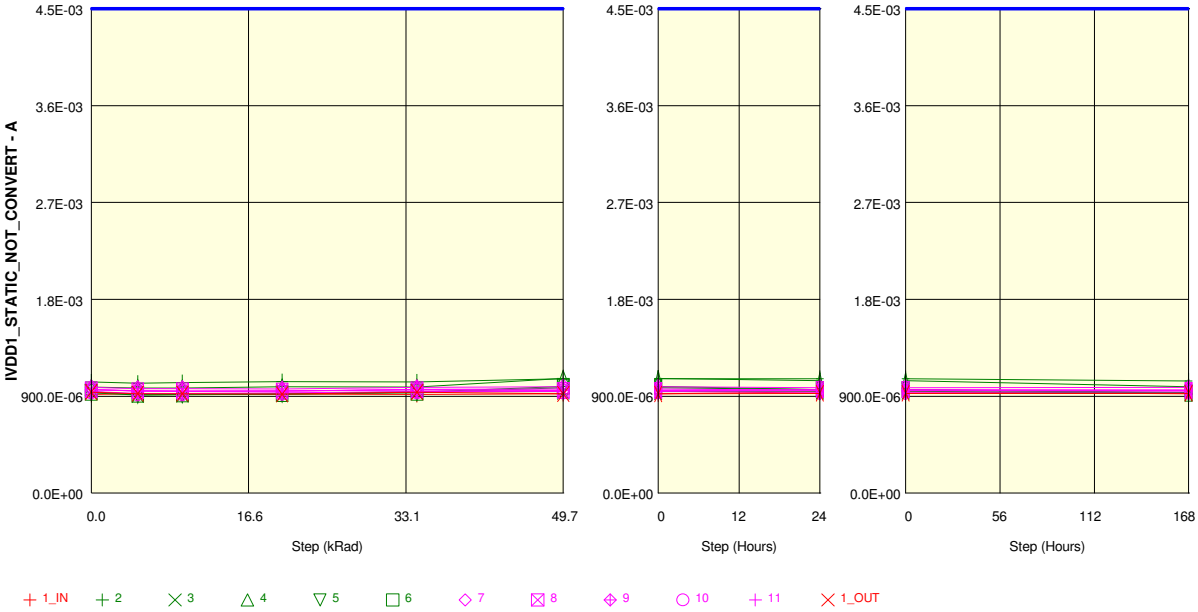
Measurements

VOCM2	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.140	1.138	1.140	1.138	1.140	1.140	1.140	1.138
1_OUT_REF	1.141	1.140	1.139	1.139	1.141	1.139	1.139	1.140
ON samples								
2	1.136	1.136	1.135	1.138	1.136	1.138	1.140	1.137
3	1.118	1.119	1.119	1.120	1.118	1.121	1.120	1.118
4	1.224	1.224	1.223	1.225	1.224	1.224	1.225	1.222
5	1.168	1.167	1.167	1.168	1.168	1.168	1.167	1.163
6	1.149	1.150	1.150	1.150	1.149	1.149	1.150	1.148
Statistics								
Min	1.118	1.119	1.119	1.120	1.118	1.121	1.120	1.118
Max	1.224	1.224	1.223	1.225	1.224	1.224	1.225	1.222
Average	1.159	1.159	1.159	1.160	1.159	1.160	1.160	1.157
Std Deviation	0.036	0.036	0.036	0.036	0.036	0.036	0.036	0.036

Measurements

VOCM2	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.140	1.138	1.140	1.138	1.140	1.140	1.140	1.138
1_OUT_REF	1.141	1.140	1.139	1.139	1.141	1.139	1.139	1.140
OFF samples								
7	1.129	1.131	1.130	1.130	1.129	1.129	1.129	1.129
8	1.162	1.163	1.162	1.162	1.162	1.162	1.162	1.160
9	1.140	1.141	1.140	1.141	1.140	1.142	1.142	1.141
10	1.204	1.205	1.205	1.205	1.204	1.206	1.206	1.201
11	1.101	1.102	1.102	1.103	1.101	1.102	1.103	1.098
Statistics								
Min	1.101	1.102	1.102	1.103	1.101	1.102	1.103	1.098
Max	1.204	1.205	1.205	1.205	1.204	1.206	1.206	1.201
Average	1.147	1.148	1.148	1.148	1.147	1.148	1.148	1.145
Std Deviation	0.034	0.034	0.034	0.034	0.034	0.035	0.035	0.034

Parameter : Static-Not Converting : IVDD1_STATIC_NOT_CONVERT
Test conditions :
Unit : A
Spec Limit Max : 4.5E-03
Spec limits are represented in bold lines on the graphic.



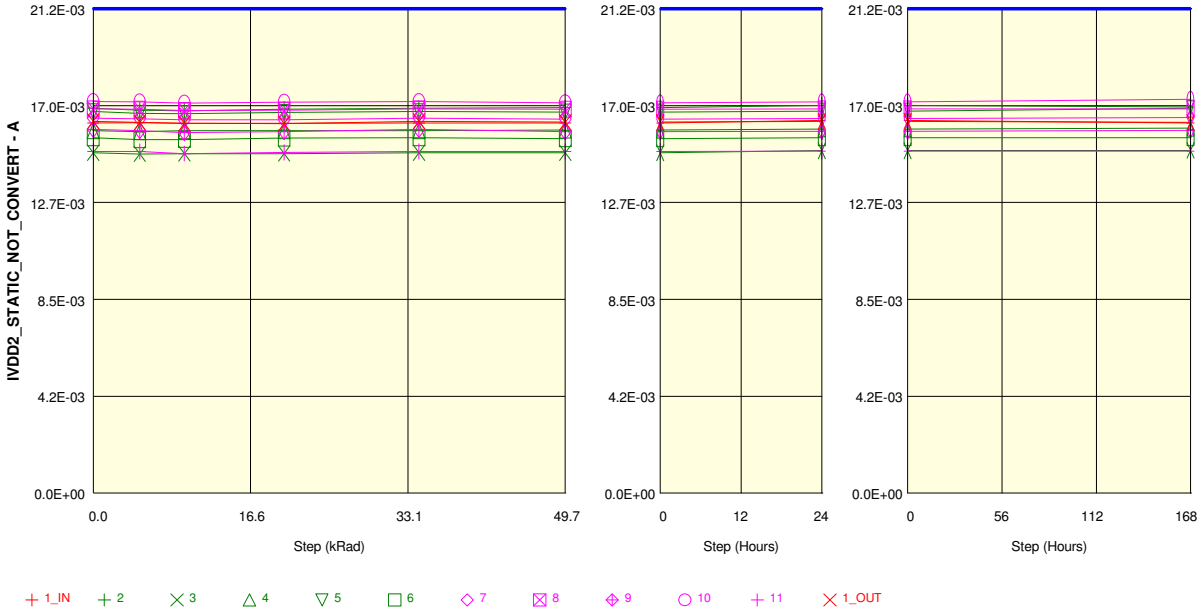
Measurements

IVDD1_STATIC_NOT_CONVERT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	915.4E-06	919.4E-06	922.3E-06	918.4E-06	915.4E-06	922.1E-06	938.8E-06	922.5E-06
1_OUT_REF	936.4E-06	923.7E-06	922.6E-06	917.6E-06	936.4E-06	921.1E-06	924.8E-06	926.6E-06
ON samples								
2	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.1E-03	1.1E-03	1.0E-03
3	941.6E-06	913.5E-06	916.1E-06	918.2E-06	941.6E-06	942.6E-06	944.8E-06	926.8E-06
4	984.2E-06	976.4E-06	975.9E-06	985.2E-06	984.2E-06	1.1E-03	1.0E-03	989.3E-06
5	931.2E-06	910.9E-06	912.9E-06	917.9E-06	931.2E-06	978.2E-06	962.2E-06	934.5E-06
6	937.4E-06	919.0E-06	921.7E-06	923.2E-06	937.4E-06	991.8E-06	961.6E-06	928.8E-06
Statistics								
Min	931.2E-06	910.9E-06	912.9E-06	917.9E-06	931.2E-06	942.6E-06	944.8E-06	926.8E-06
Max	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.0E-03	1.1E-03	1.1E-03	1.0E-03
Average	965.3E-06	948.2E-06	950.7E-06	955.7E-06	965.3E-06	1.0E-03	994.7E-06	963.9E-06
Std Deviation	38.2E-06	43.8E-06	44.5E-06	46.7E-06	38.2E-06	48.8E-06	47.9E-06	44.4E-06

Measurements

IVDD1_STATIC_NOT_CONVERT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	915.4E-06	919.4E-06	922.3E-06	918.4E-06	915.4E-06	922.1E-06	938.8E-06	922.5E-06
1_OUT_REF	936.4E-06	923.7E-06	922.6E-06	917.6E-06	936.4E-06	921.1E-06	924.8E-06	926.6E-06
OFF samples								
7	980.6E-06	968.7E-06	969.9E-06	966.4E-06	980.6E-06	986.6E-06	977.0E-06	979.6E-06
8	958.8E-06	951.1E-06	949.2E-06	948.0E-06	958.8E-06	953.2E-06	960.4E-06	954.2E-06
9	960.8E-06	948.6E-06	943.7E-06	948.0E-06	960.8E-06	950.8E-06	954.0E-06	951.3E-06
10	941.2E-06	925.4E-06	925.0E-06	930.5E-06	941.2E-06	943.0E-06	937.9E-06	939.4E-06
11	963.2E-06	945.3E-06	944.8E-06	944.6E-06	963.2E-06	966.2E-06	956.6E-06	959.3E-06
Statistics								
Min	941.2E-06	925.4E-06	925.0E-06	930.5E-06	941.2E-06	943.0E-06	937.9E-06	939.4E-06
Max	980.6E-06	968.7E-06	969.9E-06	966.4E-06	980.6E-06	986.6E-06	977.0E-06	979.6E-06
Average	960.9E-06	947.8E-06	946.5E-06	947.5E-06	960.9E-06	960.0E-06	957.2E-06	956.8E-06
Std Deviation	12.5E-06	13.8E-06	14.3E-06	11.5E-06	12.5E-06	15.3E-06	12.5E-06	13.2E-06

Parameter : Static-Not Converting : IVDD2_STATIC_NOT_CONVERT
Test conditions :
Unit : A
Spec Limit Max : 21.2E-03
Spec limits are represented in bold lines on the graphic.



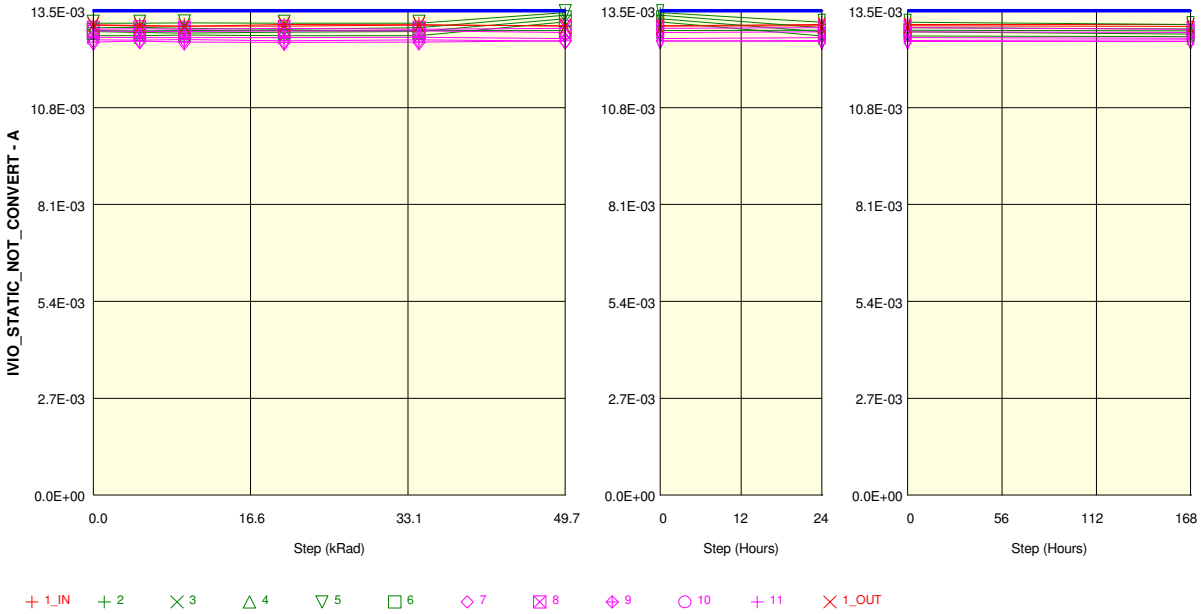
Measurements

IVDD2_STATIC_NOT_CONVERT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.3E-03	16.2E-03
1_OUT_REF	16.3E-03	16.2E-03	16.2E-03	16.2E-03	16.3E-03	16.2E-03	16.3E-03	16.2E-03
ON samples								
2	16.8E-03	16.8E-03	16.7E-03	16.8E-03	16.8E-03	16.9E-03	17.0E-03	16.9E-03
3	14.9E-03	14.9E-03	14.9E-03	14.9E-03	14.9E-03	14.9E-03	15.0E-03	15.0E-03
4	15.9E-03	15.8E-03	15.9E-03	15.9E-03	15.9E-03	15.9E-03	15.9E-03	16.0E-03
5	16.7E-03	16.6E-03	16.6E-03	16.7E-03	16.7E-03	16.7E-03	16.7E-03	16.8E-03
6	15.6E-03	15.5E-03	15.5E-03	15.5E-03	15.6E-03	15.5E-03	15.6E-03	15.6E-03
Statistics								
Min	14.9E-03	14.9E-03	14.9E-03	14.9E-03	14.9E-03	14.9E-03	15.0E-03	15.0E-03
Max	16.8E-03	16.8E-03	16.7E-03	16.8E-03	16.8E-03	16.9E-03	17.0E-03	16.9E-03
Average	16.0E-03	15.9E-03	15.9E-03	15.9E-03	16.0E-03	16.0E-03	16.0E-03	16.1E-03
Std Deviation	725.6E-06	716.4E-06	701.1E-06	719.3E-06	725.6E-06	727.9E-06	733.5E-06	738.6E-06

Measurements

IVDD2_STATIC_NOT_CONVERT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.3E-03	16.2E-03
1_OUT_REF	16.3E-03	16.2E-03	16.2E-03	16.2E-03	16.3E-03	16.2E-03	16.3E-03	16.2E-03
OFF samples								
7	16.4E-03	16.4E-03	16.3E-03	16.3E-03	16.4E-03	16.4E-03	16.4E-03	16.5E-03
8	16.8E-03	16.8E-03	16.8E-03	16.8E-03	16.8E-03	16.8E-03	16.8E-03	16.8E-03
9	15.9E-03	15.9E-03	15.8E-03	15.8E-03	15.9E-03	15.8E-03	15.8E-03	15.9E-03
10	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.2E-03
11	15.0E-03	15.0E-03	14.9E-03	14.9E-03	15.0E-03	14.9E-03	15.0E-03	15.0E-03
Statistics								
Min	15.0E-03	15.0E-03	14.9E-03	14.9E-03	15.0E-03	14.9E-03	15.0E-03	15.0E-03
Max	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.1E-03	17.2E-03
Average	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.2E-03	16.3E-03
Std Deviation	764.6E-06	763.9E-06	781.3E-06	768.7E-06	764.6E-06	760.4E-06	766.0E-06	789.6E-06

Parameter : Static-Not Converting : IVIO_STATIC_NOT_CONVERT
Test conditions :
Unit : A
Spec Limit Max : 13.5E-03
Spec limits are represented in bold lines on the graphic.



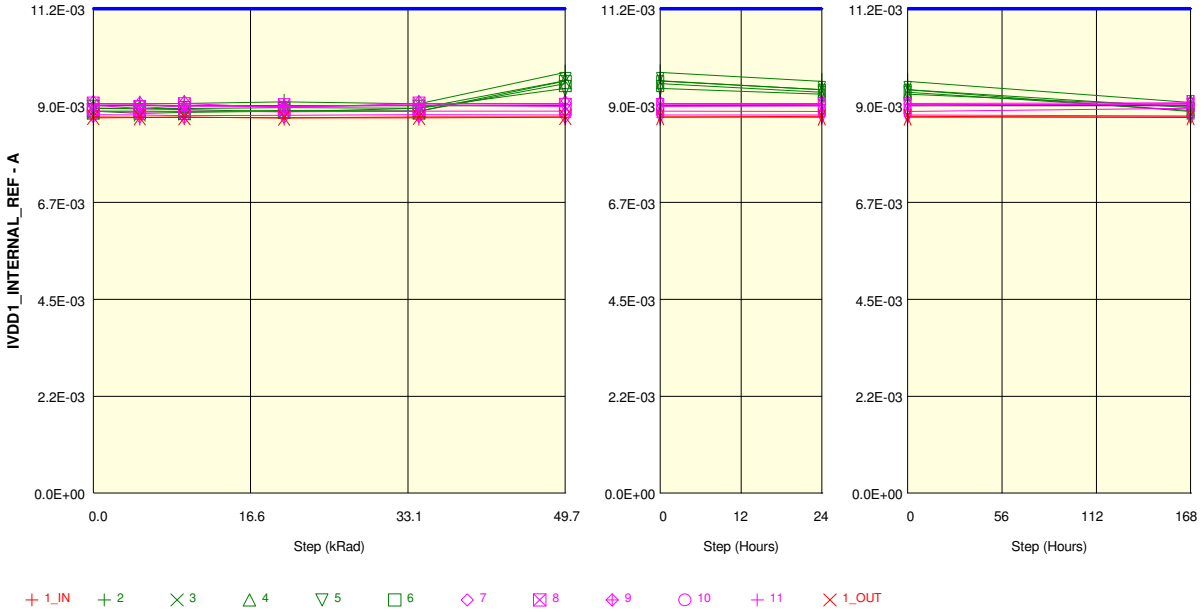
Measurements

IVIO_STATIC_NOT_CONVERT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03
1_OUT_REF	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03
ON samples								
2	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.4E-03	13.0E-03	13.0E-03
3	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.8E-03	13.2E-03	12.8E-03	12.8E-03
4	13.0E-03	12.9E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	12.9E-03
5	13.2E-03	13.2E-03	13.2E-03	13.2E-03	13.2E-03	13.5E-03	13.2E-03	13.1E-03
6	12.9E-03	12.9E-03	12.9E-03	12.9E-03	12.9E-03	13.3E-03	12.9E-03	12.9E-03
Statistics								
Min	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.8E-03	13.0E-03	12.8E-03	12.8E-03
Max	13.2E-03	13.2E-03	13.2E-03	13.2E-03	13.2E-03	13.5E-03	13.2E-03	13.1E-03
Average	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.3E-03	13.0E-03	12.9E-03
Std Deviation	115.8E-06	121.8E-06	118.5E-06	114.8E-06	115.8E-06	173.3E-06	127.1E-06	116.3E-06

Measurements

IVIO_STATIC_NOT_CONVERT	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03
1_OUT_REF	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03	13.1E-03
OFF samples								
7	12.7E-03	12.7E-03	12.7E-03	12.7E-03	12.7E-03	12.7E-03	12.7E-03	12.7E-03
8	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03
9	12.6E-03	12.7E-03	12.6E-03	12.6E-03	12.6E-03	12.7E-03	12.6E-03	12.6E-03
10	12.9E-03	12.9E-03	12.9E-03	12.9E-03	12.9E-03	12.9E-03	12.9E-03	12.9E-03
11	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.7E-03	12.8E-03	12.7E-03
Statistics								
Min	12.6E-03	12.7E-03	12.6E-03	12.6E-03	12.6E-03	12.7E-03	12.6E-03	12.6E-03
Max	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03	13.0E-03
Average	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.8E-03	12.8E-03
Std Deviation	139.2E-06	134.5E-06	135.1E-06	152.3E-06	139.2E-06	139.9E-06	147.2E-06	130.0E-06

Parameter : Supply Current With Internal Reference : IVDD1_INTERNAL_REF
Test conditions : f=10MSPS
Unit : A
Spec Limit Max : 11.2E-03
Spec limits are represented in bold lines on the graphic.



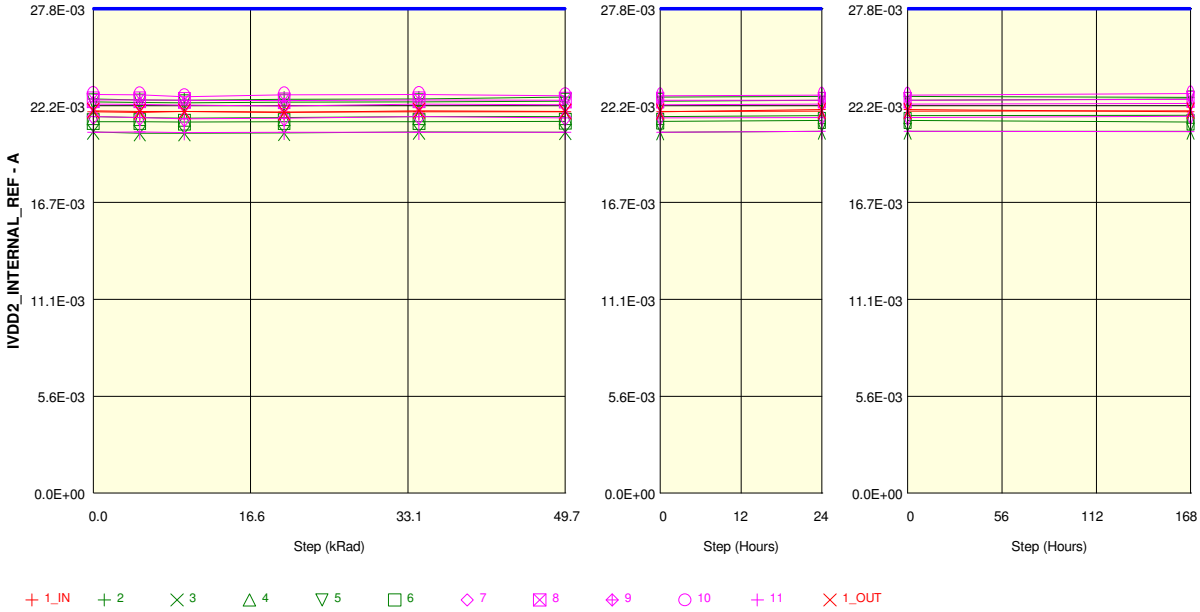
Measurements

IVDD1_INTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03
1_OUT_REF	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03
ON samples								
2	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.7E-03	9.5E-03	9.0E-03
3	8.8E-03	8.8E-03	8.8E-03	8.8E-03	8.8E-03	9.5E-03	9.3E-03	8.8E-03
4	8.9E-03	8.9E-03	8.9E-03	8.9E-03	8.9E-03	9.5E-03	9.3E-03	8.9E-03
5	8.9E-03	8.9E-03	8.9E-03	8.8E-03	8.9E-03	9.4E-03	9.2E-03	8.9E-03
6	8.8E-03	8.8E-03	8.8E-03	8.8E-03	8.8E-03	9.5E-03	9.3E-03	8.8E-03
Statistics								
Min	8.8E-03	8.8E-03	8.8E-03	8.8E-03	8.8E-03	9.4E-03	9.2E-03	8.8E-03
Max	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.7E-03	9.5E-03	9.0E-03
Average	8.9E-03	8.9E-03	8.9E-03	8.9E-03	8.9E-03	9.5E-03	9.3E-03	8.9E-03
Std Deviation	65.6E-06	75.8E-06	73.6E-06	84.2E-06	65.6E-06	118.5E-06	101.7E-06	76.0E-06

Measurements

IVDD1_INTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03
1_OUT_REF	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03
OFF samples								
7	9.0E-03	9.0E-03	9.0E-03	8.9E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03
8	9.0E-03	8.9E-03	9.0E-03	8.9E-03	9.0E-03	8.9E-03	9.0E-03	9.0E-03
9	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03
10	8.8E-03	8.8E-03	8.8E-03	8.8E-03	8.8E-03	8.8E-03	8.8E-03	8.9E-03
11	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03
Statistics								
Min	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03	8.7E-03
Max	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03	9.0E-03
Average	8.9E-03	8.9E-03	8.9E-03	8.9E-03	8.9E-03	8.9E-03	8.9E-03	8.9E-03
Std Deviation	101.5E-06	95.6E-06	103.3E-06	85.4E-06	101.5E-06	99.8E-06	106.5E-06	111.9E-06

Parameter : Supply Current With Internal Reference : IVDD2_INTERNAL_REF
Test conditions : f=10MSPS
Unit : A
Spec Limit Max : 27.8E-03
Spec limits are represented in bold lines on the graphic.



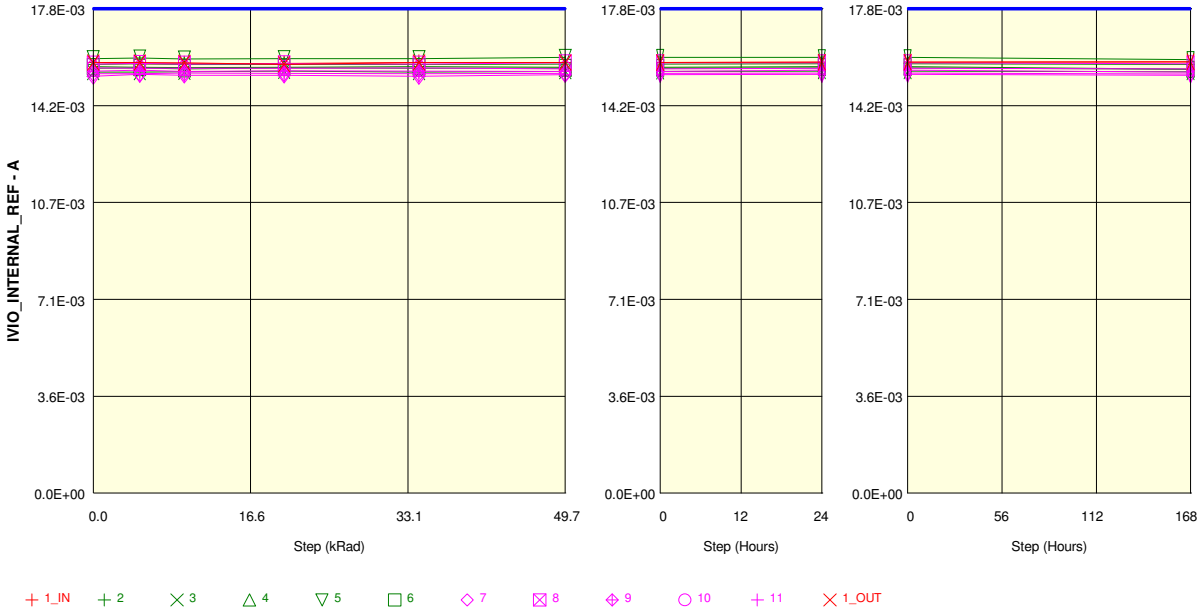
Measurements

IVDD2_INTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	22.0E-03	21.9E-03
1_OUT_REF	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	22.0E-03
ON samples								
2	22.6E-03	22.6E-03	22.5E-03	22.6E-03	22.6E-03	22.7E-03	22.8E-03	22.7E-03
3	20.7E-03	20.6E-03	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.8E-03	20.8E-03
4	21.6E-03	21.6E-03	21.5E-03	21.6E-03	21.6E-03	21.6E-03	21.7E-03	21.7E-03
5	22.5E-03	22.4E-03	22.4E-03	22.4E-03	22.5E-03	22.5E-03	22.5E-03	22.6E-03
6	21.3E-03	21.3E-03	21.3E-03	21.3E-03	21.3E-03	21.3E-03	21.4E-03	21.3E-03
Statistics								
Min	20.7E-03	20.6E-03	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.8E-03	20.8E-03
Max	22.6E-03	22.6E-03	22.5E-03	22.6E-03	22.6E-03	22.7E-03	22.8E-03	22.7E-03
Average	21.8E-03	21.7E-03	21.7E-03	21.7E-03	21.8E-03	21.8E-03	21.8E-03	21.8E-03
Std Deviation	708.5E-06	715.9E-06	704.8E-06	722.6E-06	708.5E-06	738.4E-06	737.9E-06	755.5E-06

Measurements

IVDD2_INTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	22.0E-03	21.9E-03
1_OUT_REF	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	21.9E-03	22.0E-03
OFF samples								
7	22.3E-03	22.3E-03	22.3E-03	22.2E-03	22.3E-03	22.3E-03	22.3E-03	22.4E-03
8	22.6E-03	22.6E-03	22.5E-03	22.5E-03	22.6E-03	22.6E-03	22.6E-03	22.6E-03
9	21.6E-03	21.6E-03	21.5E-03	21.5E-03	21.6E-03	21.6E-03	21.6E-03	21.6E-03
10	22.9E-03	22.9E-03	22.8E-03	22.9E-03	22.9E-03	22.8E-03	22.8E-03	22.9E-03
11	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.8E-03	20.8E-03
Statistics								
Min	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.7E-03	20.8E-03	20.8E-03
Max	22.9E-03	22.9E-03	22.8E-03	22.9E-03	22.9E-03	22.8E-03	22.8E-03	22.9E-03
Average	22.0E-03	22.0E-03	22.0E-03	22.0E-03	22.0E-03	22.0E-03	22.0E-03	22.1E-03
Std Deviation	770.5E-06	763.9E-06	762.9E-06	769.3E-06	770.5E-06	761.9E-06	752.5E-06	777.4E-06

Parameter : Supply Current With Internal Reference : IVIO_INTERNAL_REF
Test conditions : f=10MSPS
Unit : A
Spec Limit Max : 17.8E-03
Spec limits are represented in bold lines on the graphic.



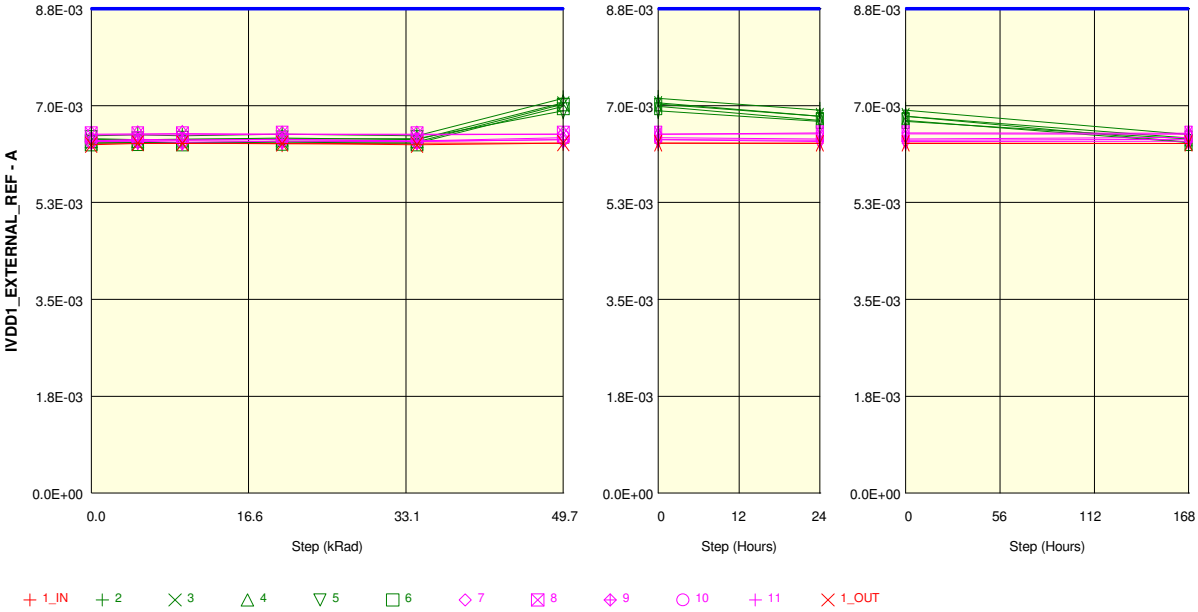
Measurements

IVIO_INTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.9E-03
1_OUT_REF	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.9E-03
ON samples								
2	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03
3	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03
4	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03
5	16.0E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	15.9E-03
6	15.7E-03	15.7E-03	15.6E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.6E-03
Statistics								
Min	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03
Max	16.0E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	15.9E-03
Average	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03
Std Deviation	165.9E-06	173.3E-06	162.7E-06	155.2E-06	165.9E-06	178.9E-06	167.5E-06	161.3E-06

Measurements

IVIO_INTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.9E-03
1_OUT_REF	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.9E-03
OFF samples								
7	15.4E-03	15.4E-03	15.4E-03	15.4E-03	15.4E-03	15.4E-03	15.4E-03	15.4E-03
8	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03
9	15.3E-03	15.4E-03	15.4E-03	15.4E-03	15.3E-03	15.4E-03	15.4E-03	15.4E-03
10	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03
11	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03
Statistics								
Min	15.3E-03	15.4E-03	15.4E-03	15.4E-03	15.3E-03	15.4E-03	15.4E-03	15.4E-03
Max	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03
Average	15.5E-03	15.6E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.6E-03	15.5E-03
Std Deviation	158.2E-06	146.9E-06	145.6E-06	147.4E-06	158.2E-06	154.8E-06	149.6E-06	151.0E-06

Parameter : Supply Current With External Reference : IVDD1_EXTERNAL_REF
Test conditions : f=10MSPS
Unit : A
Spec Limit Max : 8.8E-03
Spec limits are represented in bold lines on the graphic.



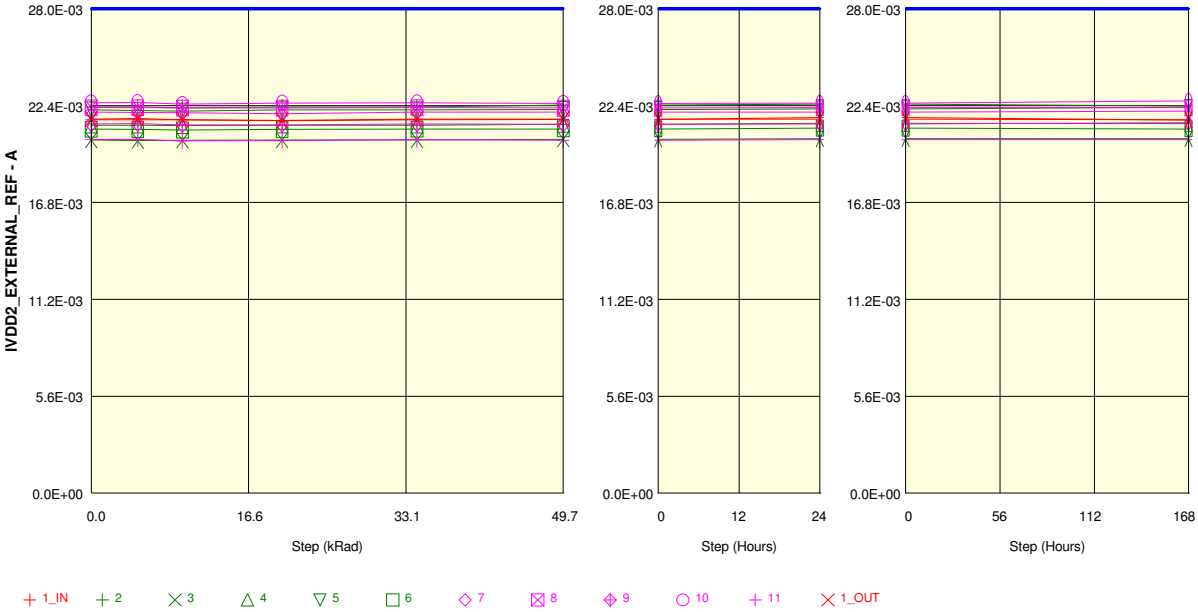
Measurements

IVDD1_EXTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	6.4E-03	6.4E-03	6.4E-03	6.3E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03
1_OUT_REF	6.3E-03	6.4E-03	6.4E-03	6.4E-03	6.3E-03	6.4E-03	6.4E-03	6.4E-03
ON samples								
2	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	7.2E-03	7.0E-03	6.5E-03
3	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	7.1E-03	6.8E-03	6.4E-03
4	6.4E-03	6.4E-03	6.4E-03	6.5E-03	6.4E-03	7.1E-03	6.8E-03	6.5E-03
5	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.9E-03	6.8E-03	6.4E-03
6	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	7.0E-03	6.8E-03	6.4E-03
Statistics								
Min	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.9E-03	6.8E-03	6.4E-03
Max	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	7.2E-03	7.0E-03	6.5E-03
Average	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	7.1E-03	6.8E-03	6.4E-03
Std Deviation	46.3E-06	50.5E-06	47.4E-06	50.4E-06	46.3E-06	74.9E-06	72.6E-06	52.5E-06

Measurements

IVDD1_EXTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	6.4E-03	6.4E-03	6.4E-03	6.3E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03
1_OUT_REF	6.3E-03	6.4E-03	6.4E-03	6.4E-03	6.3E-03	6.4E-03	6.4E-03	6.4E-03
OFF samples								
7	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03
8	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03
9	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03
10	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.5E-03	6.4E-03	6.5E-03
11	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03
Statistics								
Min	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03
Max	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03
Average	6.4E-03	6.5E-03	6.4E-03	6.5E-03	6.4E-03	6.5E-03	6.5E-03	6.5E-03
Std Deviation	59.1E-06	54.5E-06	60.6E-06	54.5E-06	59.1E-06	45.4E-06	62.6E-06	53.0E-06

Parameter : Supply Current With External Reference : IVDD2_EXTERNAL_REF
Test conditions : f=10MSPS
Unit : A
Spec Limit Max : 28.0E-03
Spec limits are represented in bold lines on the graphic.



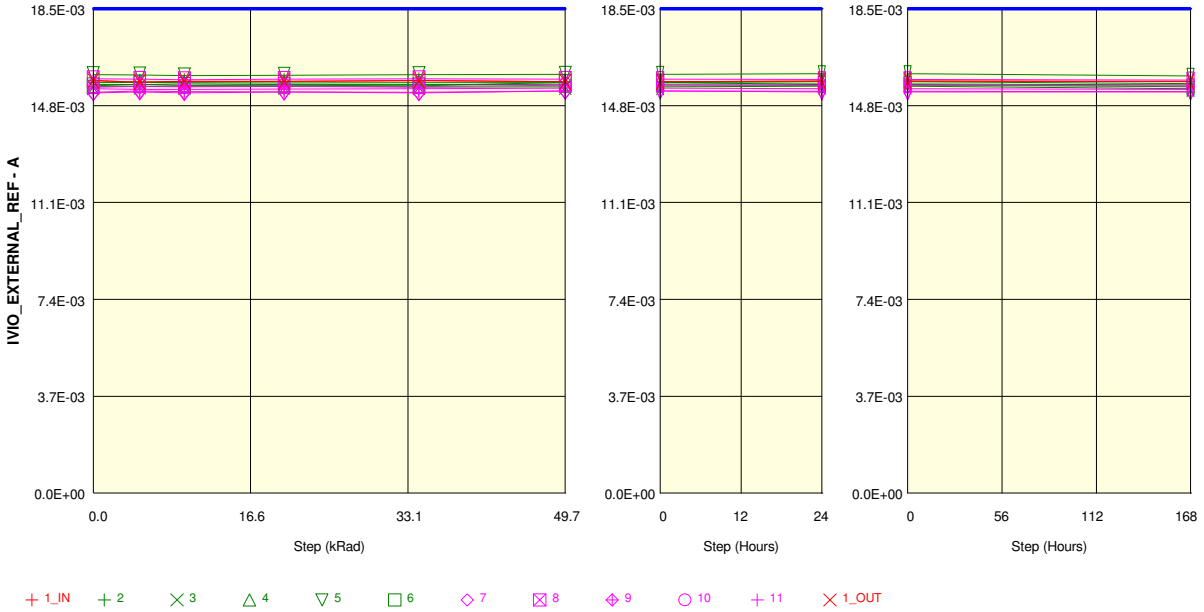
Measurements

IVDD2_EXTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	21.6E-03	21.6E-03	21.6E-03	21.5E-03	21.6E-03	21.6E-03	21.7E-03	21.6E-03
1_OUT_REF	21.6E-03	21.6E-03	21.6E-03	21.5E-03	21.6E-03	21.6E-03	21.6E-03	21.6E-03
ON samples								
2	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.4E-03	22.5E-03	22.4E-03
3	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.5E-03	20.5E-03	20.5E-03
4	21.3E-03	21.3E-03	21.2E-03	21.3E-03	21.3E-03	21.3E-03	21.4E-03	21.4E-03
5	22.2E-03	22.1E-03	22.1E-03	22.2E-03	22.2E-03	22.2E-03	22.2E-03	22.3E-03
6	21.0E-03	21.0E-03	21.0E-03	21.0E-03	21.0E-03	21.1E-03	21.1E-03	21.1E-03
Statistics								
Min	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.5E-03	20.5E-03	20.5E-03
Max	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.4E-03	22.5E-03	22.4E-03
Average	21.4E-03	21.4E-03	21.4E-03	21.4E-03	21.4E-03	21.5E-03	21.5E-03	21.5E-03
Std Deviation	716.4E-06	724.9E-06	696.2E-06	716.5E-06	716.4E-06	723.9E-06	732.3E-06	732.0E-06

Measurements

IVDD2_EXTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	21.6E-03	21.6E-03	21.6E-03	21.5E-03	21.6E-03	21.6E-03	21.7E-03	21.6E-03
1_OUT_REF	21.6E-03	21.6E-03	21.6E-03	21.5E-03	21.6E-03	21.6E-03	21.6E-03	21.6E-03
OFF samples								
7	22.0E-03	22.0E-03	22.0E-03	21.9E-03	22.0E-03	22.0E-03	22.0E-03	22.1E-03
8	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.3E-03	22.3E-03
9	21.3E-03	21.4E-03	21.3E-03	21.3E-03	21.3E-03	21.3E-03	21.3E-03	21.4E-03
10	22.6E-03	22.6E-03	22.5E-03	22.5E-03	22.6E-03	22.5E-03	22.6E-03	22.7E-03
11	20.4E-03	20.5E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03
Statistics								
Min	20.4E-03	20.5E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03	20.4E-03
Max	22.6E-03	22.6E-03	22.5E-03	22.5E-03	22.6E-03	22.5E-03	22.6E-03	22.7E-03
Average	21.7E-03	21.7E-03	21.7E-03	21.7E-03	21.7E-03	21.7E-03	21.7E-03	21.8E-03
Std Deviation	766.9E-06	753.8E-06	771.9E-06	777.1E-06	766.9E-06	768.2E-06	765.0E-06	779.2E-06

Parameter : Supply Current With External Reference : IVIO_EXTERNAL_REF
Test conditions : f=10MSPS
Unit : A
Spec Limit Max : 18.5E-03
Spec limits are represented in bold lines on the graphic.



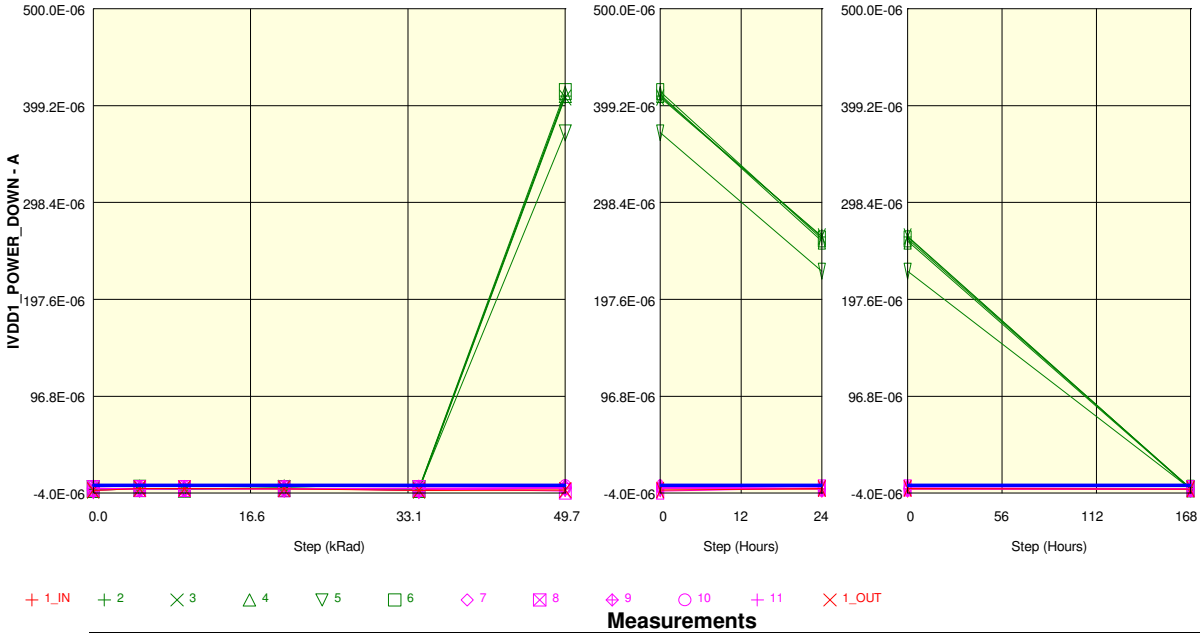
Measurements

IVIO_EXTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	15.8E-03	15.7E-03	15.7E-03	15.7E-03	15.8E-03	15.7E-03	15.7E-03	15.7E-03
1_OUT_REF	15.8E-03	15.7E-03	15.7E-03	15.7E-03	15.8E-03	15.7E-03	15.7E-03	15.7E-03
ON samples								
2	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.6E-03
3	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.4E-03
4	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03
5	16.0E-03	16.0E-03	15.9E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	15.9E-03
6	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.6E-03	15.7E-03	15.6E-03	15.5E-03
Statistics								
Min	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.4E-03
Max	16.0E-03	16.0E-03	15.9E-03	16.0E-03	16.0E-03	16.0E-03	16.0E-03	15.9E-03
Average	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.7E-03	15.6E-03
Std Deviation	168.7E-06	157.2E-06	146.0E-06	155.8E-06	168.7E-06	160.9E-06	171.3E-06	168.8E-06

Measurements

IVIO_EXTERNAL_REF	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	15.8E-03	15.7E-03	15.7E-03	15.7E-03	15.8E-03	15.7E-03	15.7E-03	15.7E-03
1_OUT_REF	15.8E-03	15.7E-03	15.7E-03	15.7E-03	15.8E-03	15.7E-03	15.7E-03	15.7E-03
OFF samples								
7	15.3E-03	15.4E-03	15.3E-03	15.3E-03	15.3E-03	15.4E-03	15.3E-03	15.3E-03
8	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03
9	15.3E-03	15.3E-03	15.3E-03	15.3E-03	15.3E-03	15.4E-03	15.3E-03	15.3E-03
10	15.5E-03	15.6E-03	15.5E-03	15.5E-03	15.5E-03	15.6E-03	15.6E-03	15.6E-03
11	15.4E-03	15.4E-03	15.4E-03	15.4E-03	15.4E-03	15.5E-03	15.5E-03	15.4E-03
Statistics								
Min	15.3E-03	15.3E-03	15.3E-03	15.3E-03	15.3E-03	15.4E-03	15.3E-03	15.3E-03
Max	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03	15.8E-03
Average	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03	15.5E-03
Std Deviation	195.3E-06	174.6E-06	174.6E-06	180.7E-06	195.3E-06	167.8E-06	175.1E-06	167.9E-06

Parameter : Supply current Power Down Mode : IVDD1_POWER_DOWN
Test conditions : EN0=0; EN1=0
Unit : A
Spec Limit Max : 4.0E-06
Spec limits are represented in bold lines on the graphic.



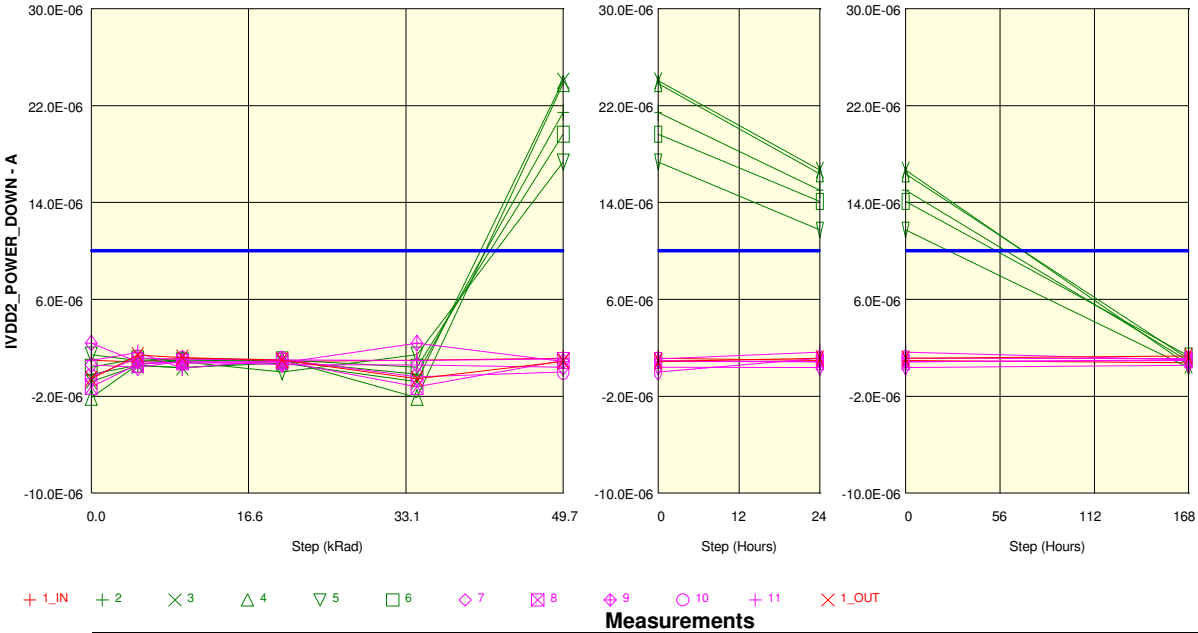
Measurements

IVDD1_POWER_DOWN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	-220.0E-09	390.0E-09	614.0E-09	430.0E-09	-220.0E-09	228.0E-09	-100.0E-09	298.0E-09
1_OUT_REF	-1.2E-06	622.0E-09	688.0E-09	392.0E-09	-1.2E-06	-940.0E-09	578.0E-09	-60.0E-09
ON samples								
2	60.0E-09	614.0E-09	396.0E-09	830.0E-09	60.0E-09	**409.3E-06**	**262.5E-06**	664.0E-09
3	-1.4E-06	608.0E-09	384.0E-09	1.2E-06	-1.4E-06	**407.7E-06**	**263.1E-06**	428.0E-09
4	-160.0E-09	518.0E-09	114.0E-09	942.0E-09	-160.0E-09	**410.9E-06**	**258.2E-06**	432.0E-09
5	280.0E-09	750.0E-09	734.0E-09	642.0E-09	280.0E-09	**371.2E-06**	**226.9E-06**	304.0E-09
6	520.0E-09	698.0E-09	686.0E-09	678.0E-09	520.0E-09	**413.7E-06**	**260.5E-06**	906.0E-09
Statistics								
Min	**-1.4E-06**	518.0E-09	114.0E-09	642.0E-09	-1.4E-06	371.2E-06	226.9E-06	304.0E-09
Max	**520.0E-09**	750.0E-09	734.0E-09	1.2E-06	520.0E-09	413.7E-06	263.1E-06	906.0E-09
Average	**-140.0E-09**	637.6E-09	462.8E-09	849.6E-09	-140.0E-09	402.6E-06	254.3E-06	546.8E-09
Std Deviation	**669.3E-09**	80.0E-09	226.1E-09	187.3E-09	669.3E-09	15.8E-06	13.8E-06	214.0E-09

Measurements

IVDD1_POWER_DOWN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	-220.0E-09	390.0E-09	614.0E-09	430.0E-09	-220.0E-09	228.0E-09	-100.0E-09	298.0E-09
1_OUT_REF	-1.2E-06	622.0E-09	688.0E-09	392.0E-09	-1.2E-06	-940.0E-09	578.0E-09	-60.0E-09
OFF samples								
7	1.0E-06	296.0E-09	354.0E-09	446.0E-09	1.0E-06	780.0E-09	866.0E-09	664.0E-09
8	660.0E-09	488.0E-09	502.0E-09	352.0E-09	660.0E-09	-2.1E-06	1.4E-06	480.0E-09
9	-1.4E-06	536.0E-09	362.0E-09	580.0E-09	-1.4E-06	1.8E-06	662.0E-09	422.0E-09
10	270.0E-09	268.0E-09	640.0E-09	744.0E-09	270.0E-09	1.8E-06	420.0E-09	-400.0E-09
11	820.0E-09	306.0E-09	604.0E-09	458.0E-09	820.0E-09	1.3E-06	544.0E-09	446.0E-09
Statistics								
Min	-1.4E-06	268.0E-09	354.0E-09	352.0E-09	-1.4E-06	-2.1E-06	420.0E-09	-400.0E-09
Max	1.0E-06	536.0E-09	640.0E-09	744.0E-09	1.0E-06	1.8E-06	1.4E-06	664.0E-09
Average	282.0E-09	378.8E-09	492.4E-09	516.0E-09	282.0E-09	720.0E-09	770.4E-09	322.4E-09
Std Deviation	868.2E-09	110.5E-09	118.7E-09	135.1E-09	868.2E-09	1.5E-06	329.4E-09	371.1E-09

Parameter : Supply current Power Down Mode : IVDD2_POWER_DOWN
Test conditions : EN0=0; EN1=0
Unit : A
Spec Limit Max : 10.0E-06
Spec limits are represented in bold lines on the graphic.



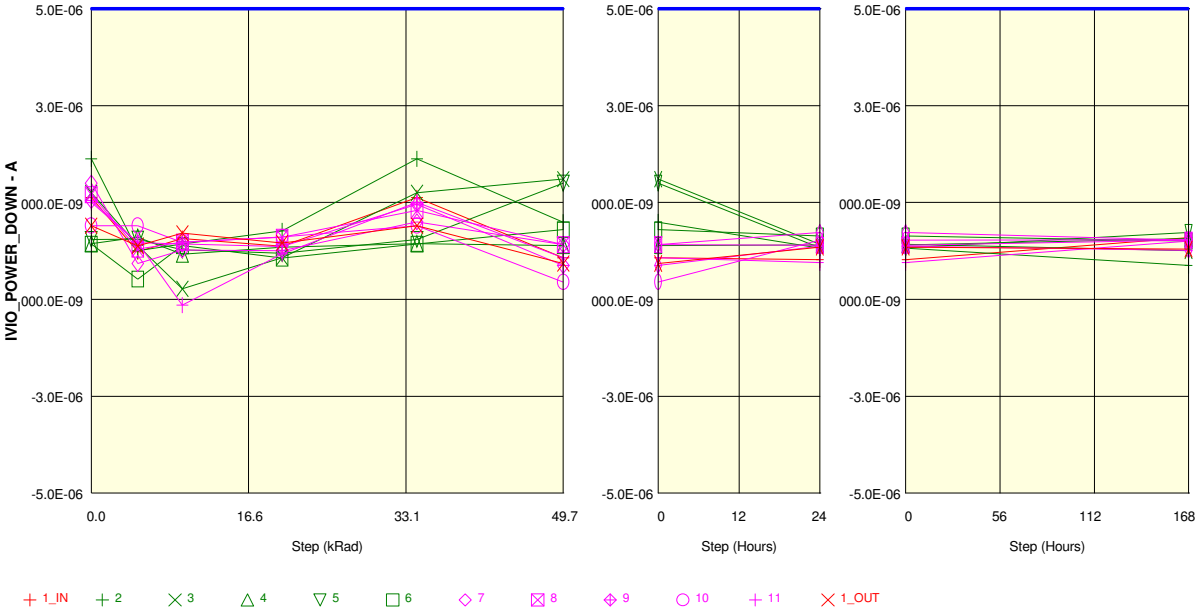
Measurements

IVDD2_POWER_DOWN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	980.0E-09	816.0E-09	1.2E-06	888.0E-09	980.0E-09	1.1E-06	962.0E-09	760.0E-09
1_OUT_REF	-560.0E-09	1.4E-06	1.2E-06	978.0E-09	-560.0E-09	870.0E-09	1.1E-06	1.3E-06
ON samples								
2	-200.0E-09	564.0E-09	344.0E-09	914.0E-09	-200.0E-09	**21.5E-06**	**15.0E-06**	894.0E-09
3	-800.0E-09	522.0E-09	360.0E-09	738.0E-09	-800.0E-09	**24.1E-06**	**16.7E-06**	534.0E-09
4	-2.1E-06	610.0E-09	1.1E-06	1.0E-06	-2.1E-06	**23.8E-06**	**16.4E-06**	1.1E-06
5	1.4E-06	960.0E-09	852.0E-09	0.0E+00	1.4E-06	**17.3E-06**	**11.7E-06**	372.0E-09
6	402.0E-09	1.1E-06	936.0E-09	998.0E-09	402.0E-09	**19.6E-06**	**14.1E-06**	1.3E-06
Statistics								
Min	**-2.1E-06**	522.0E-09	344.0E-09	0.0E+00	-2.1E-06	17.3E-06	11.7E-06	372.0E-09
Max	**1.4E-06**	1.1E-06	1.1E-06	1.0E-06	1.4E-06	24.1E-06	16.7E-06	1.3E-06
Average	**-259.6E-09**	750.0E-09	714.4E-09	732.8E-09	-259.6E-09	21.3E-06	14.8E-06	834.8E-09
Std Deviation	**1.2E-06**	231.8E-09	304.8E-09	379.3E-09	1.2E-06	2.6E-06	1.8E-06	342.8E-09

Measurements

IVDD2_POWER_DOWN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	980.0E-09	816.0E-09	1.2E-06	888.0E-09	980.0E-09	1.1E-06	962.0E-09	760.0E-09
1_OUT_REF	-560.0E-09	1.4E-06	1.2E-06	978.0E-09	-560.0E-09	870.0E-09	1.1E-06	1.3E-06
OFF samples								
7	594.0E-09	380.0E-09	872.0E-09	606.0E-09	594.0E-09	388.0E-09	360.0E-09	544.0E-09
8	-1.2E-06	642.0E-09	830.0E-09	876.0E-09	-1.2E-06	942.0E-09	836.0E-09	994.0E-09
9	2.4E-06	846.0E-09	736.0E-09	758.0E-09	2.4E-06	888.0E-09	850.0E-09	938.0E-09
10	-420.0E-09	1.2E-06	1.0E-06	1.0E-06	-420.0E-09	0.0E+00	1.1E-06	1.1E-06
11	940.0E-09	1.6E-06	320.0E-09	1.0E-06	940.0E-09	1.1E-06	1.6E-06	998.0E-09
Statistics								
Min	-1.2E-06	380.0E-09	320.0E-09	606.0E-09	-1.2E-06	0.0E+00	360.0E-09	544.0E-09
Max	2.4E-06	1.6E-06	1.0E-06	1.0E-06	2.4E-06	1.1E-06	1.6E-06	1.1E-06
Average	454.8E-09	928.4E-09	759.2E-09	856.0E-09	454.8E-09	656.8E-09	963.2E-09	916.0E-09
Std Deviation	1.2E-06	427.0E-09	240.4E-09	159.1E-09	1.2E-06	401.5E-09	416.4E-09	193.8E-09

Parameter : Supply current Power Down Mode : IVIO_POWER_DOWN
Test conditions : EN0=0; EN1=0
Unit : A
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



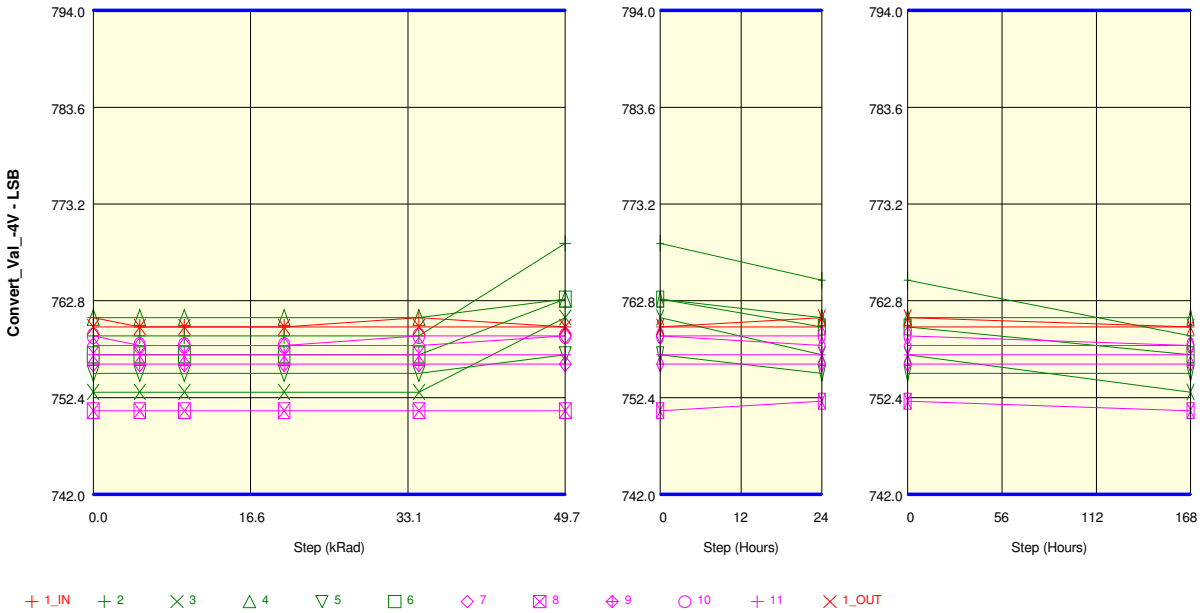
Measurements

IVIO_POWER_DOWN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.1E-06	-16.0E-09	256.0E-09	100.0E-09	1.1E-06	-140.0E-09	-180.0E-09	274.0E-09
1_OUT_REF	520.0E-09	106.0E-09	364.0E-09	166.0E-09	520.0E-09	-260.0E-09	74.0E-09	36.0E-09
ON samples								
2	1.9E-06	2.0E-09	142.0E-09	412.0E-09	1.9E-06	598.0E-09	54.0E-09	-300.0E-09
3	1.2E-06	112.0E-09	-780.0E-09	-138.0E-09	1.2E-06	1.5E-06	136.0E-09	2.0E-09
4	154.0E-09	282.0E-09	-74.0E-09	82.0E-09	154.0E-09	108.0E-09	124.0E-09	256.0E-09
5	236.0E-09	244.0E-09	26.0E-09	-46.0E-09	236.0E-09	1.4E-06	60.0E-09	386.0E-09
6	140.0E-09	-580.0E-09	108.0E-09	-148.0E-09	140.0E-09	436.0E-09	310.0E-09	200.0E-09
Statistics								
Min	140.0E-09	-580.0E-09	-780.0E-09	-148.0E-09	140.0E-09	108.0E-09	54.0E-09	-300.0E-09
Max	1.9E-06	282.0E-09	142.0E-09	412.0E-09	1.9E-06	1.5E-06	310.0E-09	386.0E-09
Average	726.0E-09	12.0E-09	-115.6E-09	32.4E-09	726.0E-09	804.4E-09	136.8E-09	108.8E-09
Std Deviation	709.0E-09	312.2E-09	340.5E-09	207.0E-09	709.0E-09	543.0E-09	92.6E-09	238.9E-09

Measurements

IVIO_POWER_DOWN	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	1.1E-06	-16.0E-09	256.0E-09	100.0E-09	1.1E-06	-140.0E-09	-180.0E-09	274.0E-09
1_OUT_REF	520.0E-09	106.0E-09	364.0E-09	166.0E-09	520.0E-09	-260.0E-09	74.0E-09	36.0E-09
OFF samples								
7	1.4E-06	-260.0E-09	22.0E-09	8.0E-09	600.0E-09	130.0E-09	382.0E-09	228.0E-09
8	1.2E-06	38.0E-09	184.0E-09	278.0E-09	840.0E-09	128.0E-09	118.0E-09	228.0E-09
9	1.0E-06	170.0E-09	138.0E-09	92.0E-09	960.0E-09	-300.0E-09	100.0E-09	14.0E-09
10	520.0E-09	520.0E-09	180.0E-09	286.0E-09	520.0E-09	-640.0E-09	228.0E-09	232.0E-09
11	1.0E-06	170.0E-09	-1.1E-06	-60.0E-09	1.0E-06	-142.0E-09	-240.0E-09	202.0E-09
Statistics								
Min	520.0E-09	-260.0E-09	-1.1E-06	-60.0E-09	520.0E-09	-640.0E-09	-240.0E-09	14.0E-09
Max	1.4E-06	520.0E-09	184.0E-09	286.0E-09	1.0E-06	130.0E-09	382.0E-09	232.0E-09
Average	1.0E-06	127.6E-09	-119.2E-09	120.8E-09	784.0E-09	-164.8E-09	117.6E-09	180.8E-09
Std Deviation	288.0E-09	251.3E-09	503.8E-09	140.2E-09	192.0E-09	288.9E-09	205.1E-09	84.1E-09

Parameter : Convert Value : Convert_Val_-4V
Test conditions : Convert Voltage around -4V. REF=4.096V Mode External
Unit : LSB
Spec Limit Min : 742.0
Spec Limit Max : 794.0
Spec limits are represented in bold lines on the graphic.



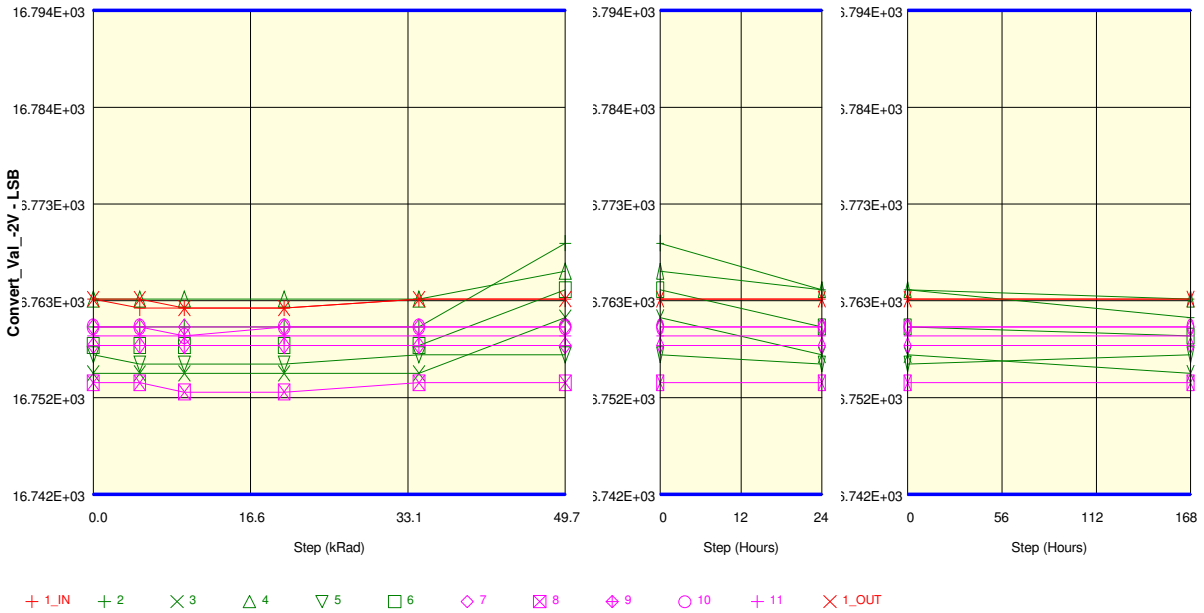
Measurements

Convert_Val_-4V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	761.0	760.0	760.0	760.0	761.0	760.0	760.0	760.0
1_OUT_REF	760.0	760.0	760.0	760.0	760.0	760.0	761.0	760.0
ON samples								
2	759.0	759.0	759.0	759.0	759.0	769.0	765.0	759.0
3	753.0	753.0	753.0	753.0	753.0	761.0	757.0	753.0
4	761.0	761.0	761.0	761.0	761.0	763.0	761.0	761.0
5	755.0	755.0	755.0	755.0	755.0	757.0	755.0	755.0
6	757.0	757.0	757.0	757.0	757.0	763.0	760.0	757.0
Statistics								
Min	753.0	753.0	753.0	753.0	753.0	757.0	755.0	753.0
Max	761.0	761.0	761.0	761.0	761.0	769.0	765.0	761.0
Average	757.0	757.0	757.0	757.0	757.0	762.6	759.6	757.0
Std Deviation	2.8	2.8	2.8	2.8	2.8	3.9	3.4	2.8

Measurements

Convert_Val_-4V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	761.0	760.0	760.0	760.0	761.0	760.0	760.0	760.0
1_OUT_REF	760.0	760.0	760.0	760.0	760.0	760.0	761.0	760.0
OFF samples								
7	758.0	758.0	758.0	758.0	758.0	759.0	758.0	758.0
8	751.0	751.0	751.0	751.0	751.0	751.0	752.0	751.0
9	756.0	756.0	756.0	756.0	756.0	756.0	756.0	756.0
10	759.0	758.0	758.0	758.0	759.0	759.0	759.0	758.0
11	757.0	757.0	757.0	757.0	757.0	757.0	757.0	757.0
Statistics								
Min	751.0	751.0	751.0	751.0	751.0	751.0	752.0	751.0
Max	759.0	758.0	758.0	758.0	759.0	759.0	759.0	758.0
Average	756.2	756.0	756.0	756.0	756.2	756.4	756.4	756.0
Std Deviation	2.8	2.6	2.6	2.6	2.8	2.9	2.4	2.6

Parameter : Convert Value : Convert_Val_-2V
Test conditions : Convert Voltage -2V. REF=4.096V Mode External
Unit : LSB
Spec Limit Min : 16.742E+03
Spec Limit Max : 16.794E+03
Spec limits are represented in bold lines on the graphic.



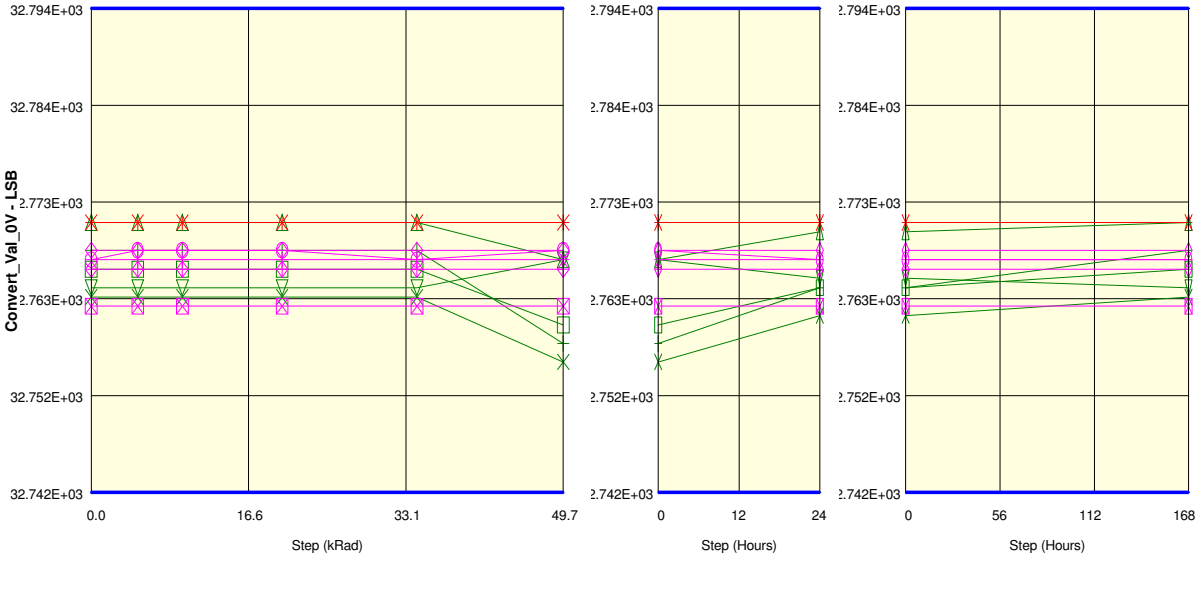
Measurements

Convert_Val_-2V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	16.763E+03	16.762E+03	16.762E+03	16.762E+03	16.763E+03	16.763E+03	16.763E+03	16.763E+03
1_OUT_REF	16.763E+03	16.763E+03	16.762E+03	16.762E+03	16.763E+03	16.763E+03	16.763E+03	16.763E+03
ON samples								
2	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.769E+03	16.764E+03	16.761E+03
3	16.755E+03	16.755E+03	16.755E+03	16.755E+03	16.755E+03	16.761E+03	16.757E+03	16.755E+03
4	16.763E+03	16.763E+03	16.763E+03	16.763E+03	16.763E+03	16.766E+03	16.764E+03	16.763E+03
5	16.757E+03	16.756E+03	16.756E+03	16.756E+03	16.757E+03	16.757E+03	16.756E+03	16.757E+03
6	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.764E+03	16.760E+03	16.759E+03
Statistics								
Min	16.755E+03	16.755E+03	16.755E+03	16.755E+03	16.755E+03	16.757E+03	16.756E+03	16.755E+03
Max	16.763E+03	16.763E+03	16.763E+03	16.763E+03	16.763E+03	16.769E+03	16.764E+03	16.763E+03
Average	16.759E+03	16.758E+03	16.758E+03	16.758E+03	16.759E+03	16.763E+03	16.760E+03	16.759E+03
Std Deviation	2.728E+00	2.871E+00	2.871E+00	2.871E+00	2.728E+00	4.128E+00	3.370E+00	2.828E+00

Measurements

Convert_Val_-2V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	16.763E+03	16.762E+03	16.762E+03	16.762E+03	16.763E+03	16.763E+03	16.763E+03	16.763E+03
1_OUT_REF	16.763E+03	16.763E+03	16.762E+03	16.762E+03	16.763E+03	16.763E+03	16.763E+03	16.763E+03
OFF samples								
7	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03
8	16.754E+03	16.754E+03	16.753E+03	16.753E+03	16.754E+03	16.754E+03	16.754E+03	16.754E+03
9	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03
10	16.760E+03	16.760E+03	16.759E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03
11	16.759E+03	16.759E+03	16.759E+03	16.759E+03	16.759E+03	16.759E+03	16.759E+03	16.759E+03
Statistics								
Min	16.754E+03	16.754E+03	16.753E+03	16.753E+03	16.754E+03	16.754E+03	16.754E+03	16.754E+03
Max	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03	16.760E+03
Average	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03	16.758E+03
Std Deviation	2.227E+00	2.227E+00	2.482E+00	2.608E+00	2.227E+00	2.227E+00	2.227E+00	2.227E+00

Parameter : Convert Value : Convert_Val_0V
Test conditions : Convert Voltage 0V. REF=4.096V Mode External
Unit : LSB
Spec Limit Min : 32.742E+03
Spec Limit Max : 32.794E+03
Spec limits are represented in bold lines on the graphic.



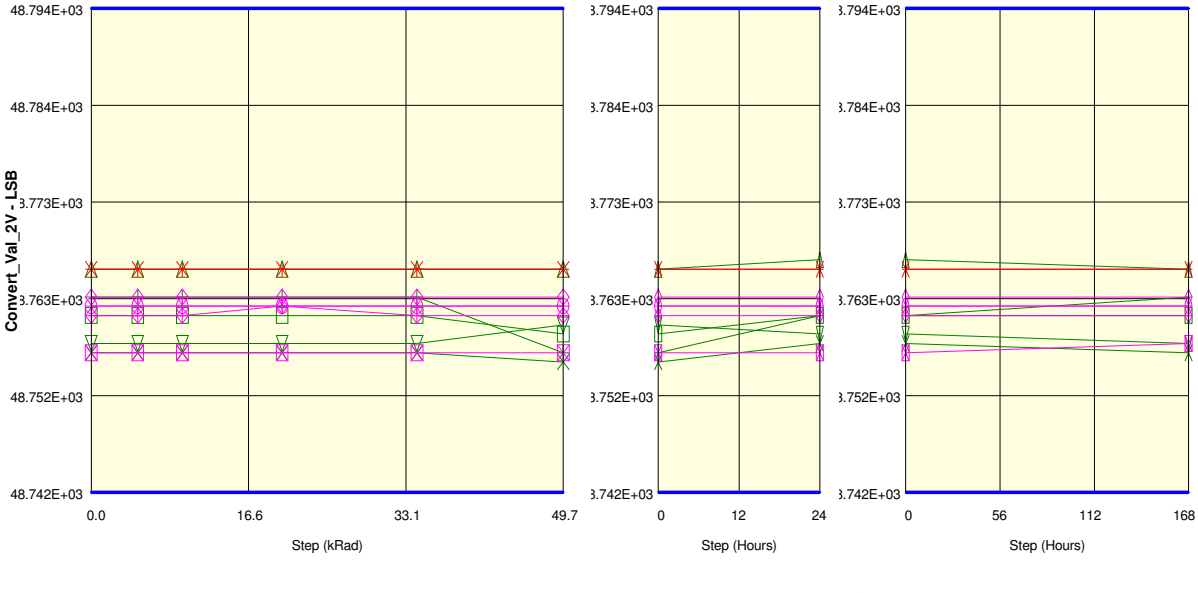
Measurements

Convert_Val_0V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03
1_OUT_REF	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03
ON samples								
2	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.758E+03	32.764E+03	32.768E+03
3	32.763E+03	32.763E+03	32.763E+03	32.763E+03	32.763E+03	32.756E+03	32.761E+03	32.763E+03
4	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.767E+03	32.770E+03	32.771E+03
5	32.764E+03	32.764E+03	32.764E+03	32.764E+03	32.764E+03	32.767E+03	32.765E+03	32.764E+03
6	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.760E+03	32.764E+03	32.766E+03
Statistics								
Min	32.763E+03	32.763E+03	32.763E+03	32.763E+03	32.763E+03	32.756E+03	32.761E+03	32.763E+03
Max	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.767E+03	32.770E+03	32.771E+03
Average	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.762E+03	32.765E+03	32.766E+03
Std Deviation	2.871E+00	2.871E+00	2.871E+00	2.871E+00	2.871E+00	4.587E+00	2.926E+00	2.871E+00

Measurements

Convert_Val_0V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03
1_OUT_REF	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03	32.771E+03
OFF samples								
7	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03
8	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03
9	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03
10	32.767E+03	32.768E+03	32.768E+03	32.768E+03	32.767E+03	32.768E+03	32.767E+03	32.767E+03
11	32.767E+03	32.767E+03	32.767E+03	32.767E+03	32.767E+03	32.767E+03	32.767E+03	32.767E+03
Statistics								
Min	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03	32.762E+03
Max	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03	32.768E+03
Average	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03	32.766E+03
Std Deviation	2.098E+00	2.227E+00	2.227E+00	2.227E+00	2.098E+00	2.227E+00	2.098E+00	2.098E+00

Parameter : Convert Value : Convert_Val_2V
Test conditions : Convert Voltage 2V. REF=4.096V Mode External
Unit : LSB
Spec Limit Min : 48.742E+03
Spec Limit Max : 48.794E+03
Spec limits are represented in bold lines on the graphic.



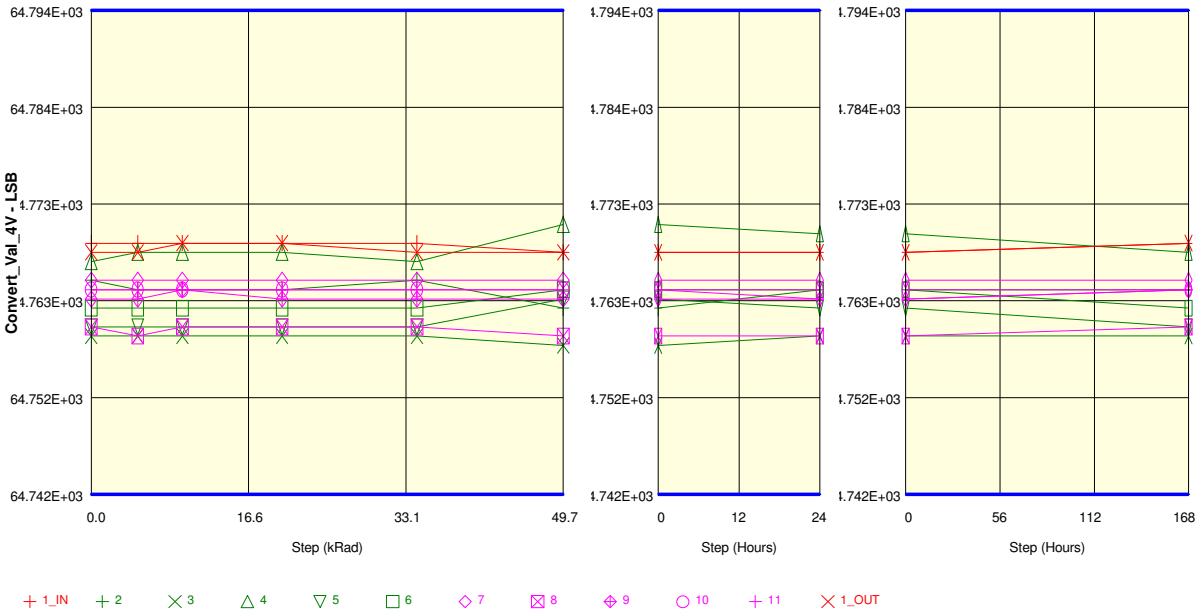
Measurements

Convert_Val_2V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03
1_OUT_REF	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03
ON samples								
2	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.757E+03	48.761E+03	48.763E+03
3	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.756E+03	48.758E+03	48.757E+03
4	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.767E+03	48.766E+03
5	48.758E+03	48.758E+03	48.758E+03	48.758E+03	48.758E+03	48.760E+03	48.759E+03	48.758E+03
6	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.759E+03	48.761E+03	48.761E+03
Statistics								
Min	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.756E+03	48.758E+03	48.757E+03
Max	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.767E+03	48.766E+03
Average	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.760E+03	48.761E+03	48.761E+03
Std Deviation	3.286E+00	3.286E+00	3.286E+00	3.286E+00	3.286E+00	3.499E+00	3.124E+00	3.286E+00

Measurements

Convert_Val_2V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03
1_OUT_REF	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03	48.766E+03
OFF samples								
7	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03
8	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.758E+03
9	48.761E+03	48.761E+03	48.761E+03	48.762E+03	48.761E+03	48.761E+03	48.761E+03	48.761E+03
10	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03
11	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03	48.762E+03
Statistics								
Min	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.757E+03	48.758E+03
Max	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03	48.763E+03
Average	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.761E+03	48.761E+03
Std Deviation	2.098E+00	2.098E+00	2.098E+00	2.135E+00	2.098E+00	2.098E+00	2.098E+00	1.720E+00

Parameter : Convert Value : Convert_Val_4V
Test conditions : Convert Voltage 4V. REF=4.096V Mode External
Unit : LSB
Spec Limit Min : 64.742E+03
Spec Limit Max : 64.794E+03
Spec limits are represented in bold lines on the graphic.



Measurements

Convert_Val_4V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	64.769E+03	64.769E+03	64.769E+03	64.769E+03	64.769E+03	64.768E+03	64.768E+03	64.769E+03
1_OUT_REF	64.768E+03	64.768E+03	64.769E+03	64.769E+03	64.768E+03	64.768E+03	64.768E+03	64.769E+03
ON samples								
2	64.765E+03	64.764E+03	64.764E+03	64.764E+03	64.765E+03	64.762E+03	64.764E+03	64.764E+03
3	64.759E+03	64.759E+03	64.759E+03	64.759E+03	64.759E+03	64.758E+03	64.759E+03	64.759E+03
4	64.767E+03	64.768E+03	64.768E+03	64.768E+03	64.767E+03	64.771E+03	64.770E+03	64.768E+03
5	64.760E+03	64.760E+03	64.760E+03	64.760E+03	64.760E+03	64.763E+03	64.762E+03	64.760E+03
6	64.762E+03	64.762E+03	64.762E+03	64.762E+03	64.762E+03	64.764E+03	64.764E+03	64.762E+03
Statistics								
Min	64.759E+03	64.759E+03	64.759E+03	64.759E+03	64.759E+03	64.758E+03	64.759E+03	64.759E+03
Max	64.767E+03	64.768E+03	64.768E+03	64.768E+03	64.767E+03	64.771E+03	64.770E+03	64.768E+03
Average	64.763E+03	64.763E+03	64.763E+03	64.763E+03	64.763E+03	64.764E+03	64.764E+03	64.763E+03
Std Deviation	3.007E+00	3.200E+00	3.200E+00	3.200E+00	3.007E+00	4.224E+00	3.600E+00	3.200E+00

Measurements

Convert_Val_4V	0 kRad	4.9 kRad	9.6 kRad	20.1 kRad	34.3 kRad	49.7 kRad	24 Hours	168 Hours
1_IN_REF	64.769E+03	64.769E+03	64.769E+03	64.769E+03	64.769E+03	64.768E+03	64.768E+03	64.769E+03
1_OUT_REF	64.768E+03	64.768E+03	64.769E+03	64.769E+03	64.768E+03	64.768E+03	64.768E+03	64.769E+03
OFF samples								
7	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03
8	64.760E+03	64.759E+03	64.760E+03	64.760E+03	64.760E+03	64.759E+03	64.759E+03	64.760E+03
9	64.763E+03	64.763E+03	64.764E+03	64.763E+03	64.763E+03	64.763E+03	64.763E+03	64.764E+03
10	64.764E+03	64.764E+03	64.764E+03	64.764E+03	64.764E+03	64.764E+03	64.764E+03	64.764E+03
11	64.764E+03	64.764E+03	64.764E+03	64.764E+03	64.764E+03	64.764E+03	64.763E+03	64.764E+03
Statistics								
Min	64.760E+03	64.759E+03	64.760E+03	64.760E+03	64.760E+03	64.759E+03	64.759E+03	64.760E+03
Max	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03	64.765E+03
Average	64.763E+03	64.763E+03	64.763E+03	64.763E+03	64.763E+03	64.763E+03	64.763E+03	64.763E+03
Std Deviation	1.720E+00	2.098E+00	1.744E+00	1.720E+00	1.720E+00	2.098E+00	2.040E+00	1.744E+00

Appendix 1: CO^{60} irradiation certificate

Co^{60} IRRADIATION CERTIFICATE

Customer: HIR Case followed up by: JPA
FAO: Frédéric TILHAC

Source: Coblat-60 (Co60)	
Certificate	N° 36708 of 08/10/2015
Activity	14.8 TBq of 04/09/2015

Reference : PV/ATR/GAMRAY-210/XX31/HIR/JPA/1712
Device irradiated : NA
Irradiation certificate applied only to the device subjected to the irradiation
In agreement with the quality procedure according ESCC 22900 (Pro.026 Rev. 5)

Irradiation environment

	Units	Min	Max	Time-weighted average
Temperature	°C	18.8	20.9	19.9
Relative humidity	%	35.0	51.4	41.9

Dose rate measurement

The instruments used for dose rate measurement is a PTW ionization chamber(TM30013) and universal dosemeter UNIDOS E which is controlled annually.

UNIDOS E	Serial number: 82253	Certificate number: 17D243	Date: 02/11/2017
TM30013	Serial number: 9314	Certificate number: 17D243	Date: 02/11/2017

The measurement unit of the international system for the dose rate is Gy/s. We commonly use rad/h (1 Gy/h = 100 rad/h).
The dose rate is measured at the center of the device.

TRAD position	Date	Dose rate [rad/h] (Kerma in the air)
210-13	14/12/2017	220.73

Dosimetry

Each exit and input of Cobalt-60 source is logged in a digital file. We compute the dose at each step taking into account the source decay, the dose rate measured by the gamma probe and the downtime irradiation.

TRAD position	Date	Total ionizing dose [krad] (Kerma in the air)
210-13	08/01/2018	-
	09/01/2018	4.90
	10/01/2018	9.60
	12/01/2018	20.13
	15/01/2018	34.29
	18/01/2018	49.69

Measurement uncertainty : 1.6%
ESCC 22900: The dose at the device under test shall be measured to a resolution of better than 10%. The test devices shall be exposed to within 10% of the specified radiation dose level(s).
The gamma-ray dose rate of a Cobalt 60 source shall be calibrated in accordance with the requirements of ESCC Basic Specification No. 21500 to 5% or better. Dosimetry shall be traceable to national standards.