TOTAL IONIZING DOSE TEST REPORT

Part Type: MT41K512M8RH-125

Package: FBGA-78

Description: 4Gb (64Mb x 8 x 8 banks) DDR3L SDRAM

Manufacturer: Micron Technology Inc.

Date Code: 1502

Esa Estec Purchase Order N° 4000112477/14/NL/HB dated December 4, 2014

Esa Estec Technical Responsible: Christian POIVEY

Hirex reference:	HRX/TID/01585	Issue:01	Date:	October 30, 2018
Written by:	O. PERROTIN	Test Lab Business Manager		
Approved by:	R. SELLIER	Test Lab Production Manager		

CHANGE RECORD

ISSUE	DATE	PAGE	DESCRIPTION OF CHANGES
01	October 30, 2018	All	Original Issue

TOTAL IONIZING DOSE TEST REPORT
on Micron Technology Inc.
MT41K512M8RH-125
4Gb (64Mb x 8 x 8 banks) DDR3L SDRAM

TABLE OF CONTENTS

LIST OF FIGURES:

LIST OF TABLES:

1 Introduction

Two total ionizing dose verification test batches for the Micron Technology Inc. MT41K512M8RH-125, 4Gb (64Mb x 8 x 8 banks) DDR3L SDRAM have been performed with an accumulated dose of 193 krad(Si) for batch 1 at a dose rate of 235 rad(Si)/hour and 146kRad(Si) for batch 2 at a dose rate of 210 rad(Si)/hour, in response to Esa Estec purchase order reference 4000112477/14/NL/HB.

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 Syderal.
Test has been performed in accordance with Hirex Engineering proposal reference HRX/PRO/04531 Issue 01.

Batch 1 was performed at UCL Facilities in dynamic bias ON with in-situ monitoring.
Batch 2 was performed at TRAD Facilities in static bias ON and bias OFF.

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

2 Applicable and Reference Documents

2.1 Applicable Documents

- Hirex Engineering proposal: HRX/PRO/04531 Issue 01
- Total dose radiation test plan: HRX/TDP/0093 issue 02.
- Hirex Engineering Detail Design Document: HRX/DDD/02389 Issue 01.
- Hirex Engineering Test Conditions: HRX/TC/01888 Issue 01.
- ESCC Basic Specification No. 22900 issue 05.

2.2 Reference Documents

- Micron Datasheet rev.H dated April 2013.

3 Test Samples

35 samples of the MT41K512M8RH-125 device have been tested:

- Batch 1:
  - 10 samples in Dynamic Low frequency,
  - 10 samples in Dynamic Max frequency.
- Batch 2:
  - 10 samples in static bias ON,
  - 5 samples in static bias OFF.

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

Run 1

Serial Numbers	Allocation
SN 1 to 10	Dynamic Low Frequency
SN11 to 20	Dynamic Max Frequency

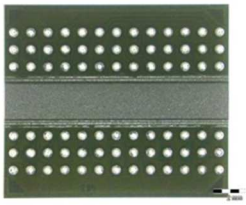
Run 2

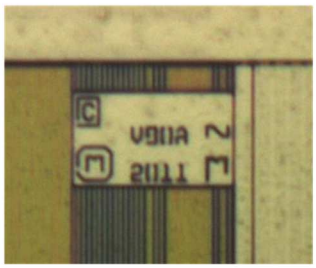
Serial Numbers	Allocation
SN 37	Control
SN 21 to 30	Biased ON
SN 31 to 35	Biased OFF

Identification of the MT41K512M8RH-125 is provided below:

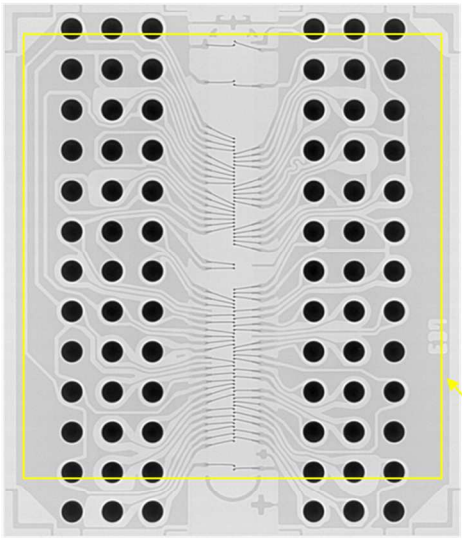
Part Number:	MT41K512M8RH-125
Top Marking:	5AE77 D9QBJ logo JJQZ
Diffusion Lot:	-
Date Code:	1502

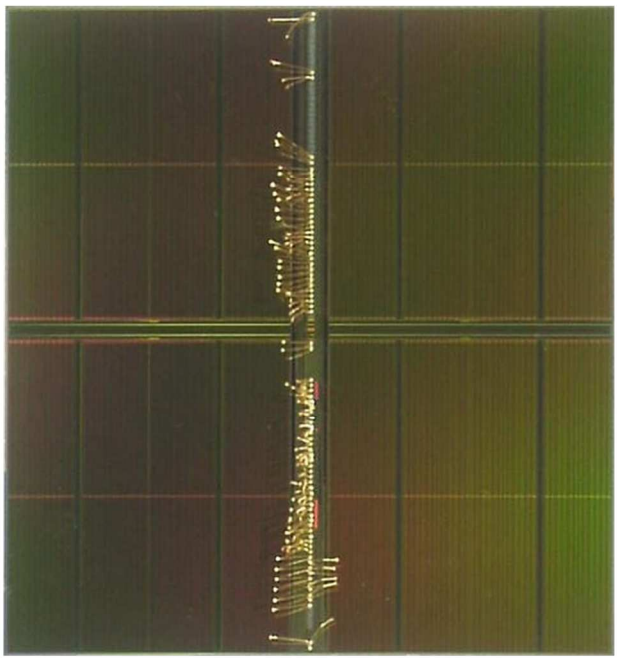
Identification of the component including external marking and any die identification is provided on the following photos (see Physical Analysis Report HRX/RCA/00104 issue 01).





Part type : MT41K512M8RH-125:E
Marking : JGVQ
5AE77
D9QBJ
logo
Date code : 1502
Packaging : 78-Ball FBGA 9 x 10.5 mm
Die size : 8.1 x 8.7 mm
Assembly type : Single flip chip wire bonded down center





4 Experimental Conditions

4.1 Radiation Source Dose Rate and Annealing

Batch 1:
The dose exposures were performed in parallel at UCL in Louvain (Belgium)
In this irradiation facilities, 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.

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 (RADCAL Model 2186) was performed at each board location. The dose received by the devices has been controlled by the measurement of one Alanine pellet dosimeter placed onto each bias board

Total Irradiation Dose	Pellet Dosimetry data	Dose rate	Annealing steps	Start Exposure Date	End Exposure Date	Comment
krad (Si)	krad(Si)	rad(Si)/h				
200	193	235	-	23/04/2018 11:00	25/05/2018 10:00	Dry-Ice during 5 days after exposure
-	-	-	24 h / Room	30/05/2018 14:30	01/06/2018 14:30	
-	-	-	168 h / 100°C	01/06/2018 16:30	08/06/2018 14:30	

Batch 2:
The dose exposures were performed in parallel at GAMRAY facility in Toulouse (France).
In this irradiation facilities, 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.

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.

The radiation environment at GAMRAY is specified in Appendix 2 - Irradiation Certificate.

Total Irradiation Dose	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	-	-	19/06/2018		-	-	11:35	22
30	30.0	210	-	25/06/2018	09:29	10:00	10:30	11:23	22
45	45.9	210		28/06/2018	14:13	14:30	15:00	16:04	21
100	100.9	210	-	09/07/2018	09:36	10:30	11:14	11:35	22
250	146.2 (*)	210	-	18/07/2018	14:18	14:39	16:05	16:20	22
350 (note 2)	-	-	-	-	-	-	-	-	
500 (note 2)	-	-	-	-	-	-	-	-	
-	-	-	24 h / Room	19/07/2018	14:30	15:00	16:12	16:30	
-	-	-	168 h / 100°C	26/07/2018	14:00	14:37	15:13	-	21

Note (*): See appendix 2: Vdd Power supply currents increased up to the clamping current (400mA for 5 devices)
Note 2 : Step not performed

4.2 Batch 1 – Dynamic bias during dose exposures and in-situ measurements conditions

Dynamic bias conditions and in-situ test results are provided in appendix 3.

4.3 Batch 2 – Static bias during dose exposures and measurements conditions

4.3.1 Static bias conditions

During exposures at Gamray bias board provided by HIREX (reference: PL329A as per figure 1) allowed to bias 10 samples in accordance with the bias conditions provided in Figure 2.
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.

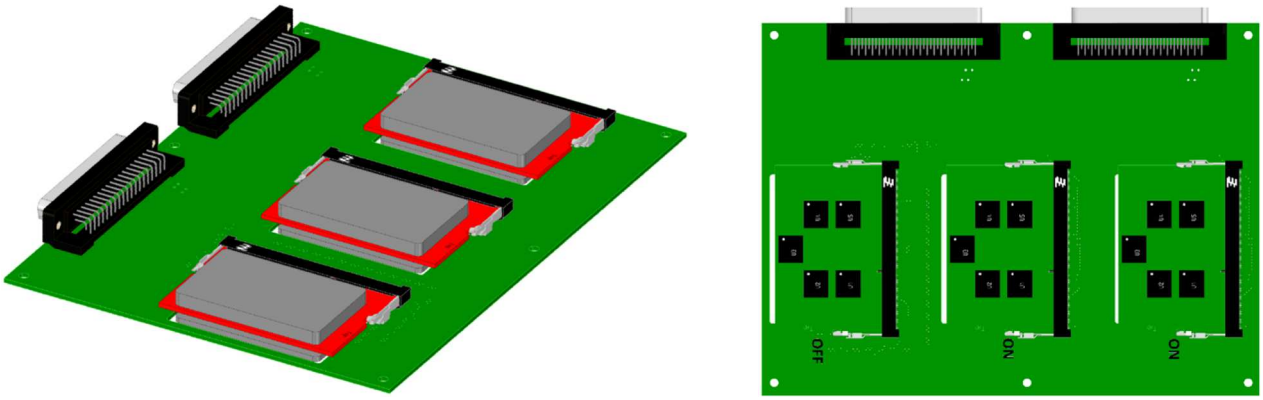


Figure 1 : PL239A – Bias board

Pin Name	Configuration
A[15:0]	Odd addresses Pull Up Even addresses: Pull Down
BA[2:0]	Odd BA: Pull Up Even BA: Pull Down
CK, CK#	Pull Up
CKE	Pull Up
CS#	Pull Down
DM	Pull Down
ODT	Pull Up
RAS#, CAS#, WE#	Pull Up
RESET#	Pull Up
DQ[7:0]	Odd addresses Pull Up Even addresses: Pull Down
DQS, DQS#	Pull Up
VDD	1.35V
VDDQ	1.35V
VREFCA	0.675V
VREFDQ	0.675V
VSS	GND
VSSQ	GND
ZQ	GND

Pull Up: R = 1kΩ to VDDQ ; Pull Down: R = 1kΩ to GND
Vdd + VddQ power supplies have been monitored during exposure and annealings.

Figure 2 : Static bias conditions during Irradiation Exposures and Annealing

4.3.2 Electrical Measurements

Electrical parameters test setup synoptic for MT41K512M8RH-125 is provided in Figure 2.

A MUTEST Tester was used to perform required measurements.

Dedicated test fixture board (Hirex reference: CT254A) was designed to ensure proper measurement conditions.

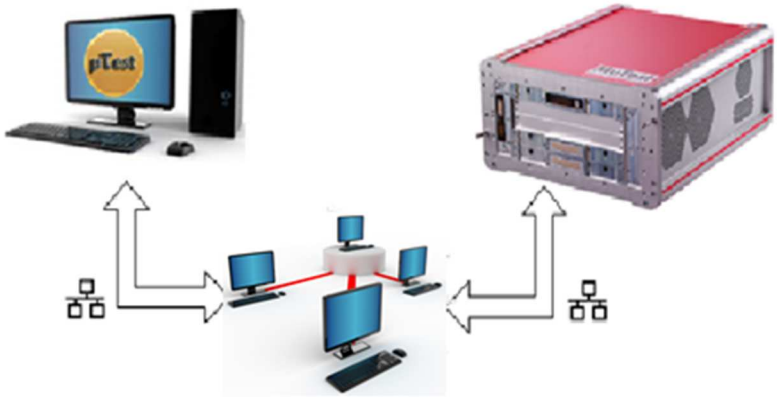


Figure 3: MT41K512M8RH-125 test setup synoptic

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

ID	Parameters	Symbol	Test conditions	Min	Nom	Max	Unit
DC & ICC Test: VDD=VDDQ=1.35V VrefDQ=VrefCA=0.675V, fCK=**800MHz** unless otherwise specified							
10000	Continuity Positive	Cont_Pos		0.1	-	1.5	V
10100	Continuity Negative	Cont_Neg		-1.5	-	-0.1	V
10400	Operating Current 0 -> One Bank Activate-> Precharge	IDD0	VilAC160, VihAC160; RST=0V or VDDQ	-	-	55	mA
10500	Operating Current 1 -> One Bank Activate-> Read-> Precharge	IDD1	VilAC160, VihAC160; RST=0V or VDDQ	-	-	70	mA
10600	Precharge power-down current: Slow exit	IDD2P0	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	18	mA
10700	Precharge power-down current: Fast exit	IDD2P1	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	32	mA
10800	Precharge standby current	IDD2N	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	32	mA
11000	Precharge standby ODT current	IDD2NT	Vil=0.515, Vih=0.835			39	mA
10850	Precharge quiet standby current	IDD2Q	VilAC160, VihAC160 ;RST=0V or VDDQ			32	mA
10870	Active power-down current	IDD3P	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	38	mA
10900	Active standby current	IDD3N	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	38	mA
11200	Burst read operating current	IDD4R	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	157	mA
11300	Burst write operating current	IDD4W	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	125	mA
11400	Burst auto refresh current	IDD5B	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	235	mA
11500	Extended temperature self refresh	IDD6ET	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	25	mA
11600	All banks interleaved read current	IDD7	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	220	mA
11700	Reset current	IDD8	VilAC160, VihAC160 ;RST=0V or VDDQ	-	-	34	mA
11800	Differential cross point voltage	Vox	VrefDQ=0.675V	VrefDQ -0.205	-	VrefDQ +0.205	V
11900	Input High Voltage	Vih_AC160	Except CKE, RESET,ODT & differential pin;	-	-	Vref + 0.16	V
12000	Input Low Voltage	Vil_AC160	Except CKE, RESET,ODT & differential pin;	Vref	-	-	V

ID	Parameters	Symbol	Test conditions	Min	Nom	Max	Unit
				- 0.160			
19001	Differential cross_point voltage	Vix_min_CK	GoNOGO;	Vref - 0.150	-	Vref + 0.150	V
19000	Differential cross_point voltage	Vix_min_DQS	GoNOGO;	Vref - 0.150	-	Vref + 0.150	V
12000	Differential cross_point voltage	Vix_max_CK	GoNOGO;	Vref - 0.150	-	Vref + 0.150	V
12001	Differential cross_point voltage	Vix_max_DQS	GoNOGO;	Vref - 0.150	-	Vref + 0.150	V
12300	Output low leakage Current	IOZL	Vout=0V	-5	-	5	µA
12400	Output high leakage Current	IOZH	Vout=1.35V	-5	-	5	µA
12500	Input Low Leakage Current	IIL	Vin=0V	-2	-	2	µA
12600	Input High Leakage Current	IIH	Vin=1.35V	-2	-	2	µA
FUNC Test : VDD=VDDQ=1.35VVrefDQ=VrefCA=0.675V, RTT_Tester=50ohms, VTT=VDDQ/2 , fCK=**800MHz** unless otherwise specified							
14900	Functional Checkerboard BL 4	Func_Test_2_row_2_bank_BL4	go/no go, Vil=0V, Vih=1.35V tREFI<7.8ms	-	-	-	P/F
10200	Functional Checkerboard BL 8	Func_Test_2_row_2_bank	go/no go, Vil=0V, Vih=1.35V tREFI<7.8ms	-	-	-	P/F
10300	Functional Checkerboard Full Memory	Func_Test_all_row_8_bank	go/no go, Vil=0V, Vih=1.35V tREFI<7.8ms	-	-	-	P/F
AC Test: VDD=VDDQ=1.35V; VrefDQ=VrefCA=Vol=Voh=0.675V; Vil=0V Vih=1.35V; RTT_Tester=50ohms; VTT=VDDQ/2; fCK=**800MHz** unless otherwise specified							
12700	ACTIVATE to ACTIVATE or REFRESH command Period	tRC	go/no go	-	-	48.75	ns
12800	REFRESH to ACTIVATE or REFRESH	tRFC	go/no go (4Gb memory)	-	-	260	ns
12900	ACTIVATE to PRECHARGE Command Period	tRAS	go/no go	-	-	35	ns
13000	ACTIVATE to internal Read or WRITE delay	tRCD	go/no go	-	-	13.75	ns
13100	ACTIVATE to ACTIVATE min command period	tRRD	go/no go	-	-	4	nCK
14500	Four Activate Window	tFAW	go/no go	-	-	30	ns
14600	CAS to CAS command delay	tCCD	go/no go	-	-	4	nCK

ID	Parameters	Symbol	Test conditions	Min	Nom	Max	Unit
14700	PECHARGE Command period	tRP	go/no go	-	-	13.75	ns
14800	Write Recovery Time	tWR	go/no go	-	-	15	ns
13200	Clock Cycle time	tCK	go/no go	1.25	-	-	ns
13300	DQS, DQS# rising to/from rising CK, CK# Upper Bits	tDQSCK	Search ; Note 3	-225	-	225	ps
13400	Input Setup Time (fast slew rate)	tIS	go/no go ; CAS#; RAS#; CS#; WE# Note 2	-	-	365	ps
13500	Input Hold Time (fast slew rate)	tIH	go/no go ; CAS#; RAS#; CS#; WE# Note 2	-	-	400	ps
13600	Data-In Setup Time to DQS-In (DQ, DM)	tDS	go/no go Note 2	-	-	258	ps
13700	Data-In Hold Time to DQS-In (DQ, DM)	tDH	go/no go Note 2	-	-	265	ps
13800	CLK to First Rising Edge of DQS-In	tDQSS _MIN	go/no go Note 4	-0.27	-	-	nCK
13900	CLK to First Rising Edge of DQS-In	tDQSS_MAX	go/no go Note 4	-	-	0.27	nCK
14000	Data-Out to High Impedance from CK/CK#	tHZDQ	go/no go Note 3	-	-	225	ps
14100	DQS to High Impedance from CK/CK#	tHZDQS	go/no go Note 3	-	-	225	ps
14200	DQS/DQS# Low Impedance from CK/CK#	tLZDQS	go/no go Note 2	-630	-	405	ps
14300	DQ to Low Impedance from CK/CK#	tLZDQ	go/no go Note 2	-630	-	405	ps
14400	Refresh Interval	tRef		64			ms

Note 1: Limit include ETA 1632+ ETA 864 = 240ps
Note 2: Limit include ETA1632 + ETA1632 = 180ps
Note 3: ETA1632 may be applied after characterization
Note 4: Placement margin included

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 Micron Technology Inc. MT41K512M8RH-125 4Gb (64Mb x 8 x 8 banks) DDR3L SDRAM in FBGA-78 package.

35 samples plus one control sample have been used during testing. They were exposed under two batches to radiation using a dose rate of 220 rad(Si)/h (Batch 1 with 2 x 10 parts) and 210 rad(Si)/hour (batch 2 with 10 + 5 parts) at room temperature.

Batch 1: Dynamic bias mode with in-situ measurements.
In-situ test conditions and results during exposure and annealing of bath 2 in dynamic bias mode are provided in a specific test report provided in **appendix 4**.

Batch 2: Static bias mode with remote testing.

- In-situ current Monitoring:

An in-situ current monitoring of Vdd+Vddq power supply current has been performed during exposure and annealing (**see appendix 1**) by group of 5 samples. We observed an increase of the current supplies after 70 kRad(Si).
Between 120kRad(Si) and 130 kRad(Si), power supply currents reach the clamping value (400mA).
It has been decided to stop exposure at 146 kRad(Si).
During Annealing 24h at room temperature and 168h at 100°C no recovery has been observed.

- Remote electrical parameter measurements

Test results including tables and graphics are provided in **appendix 2** for each remote measured parameter.

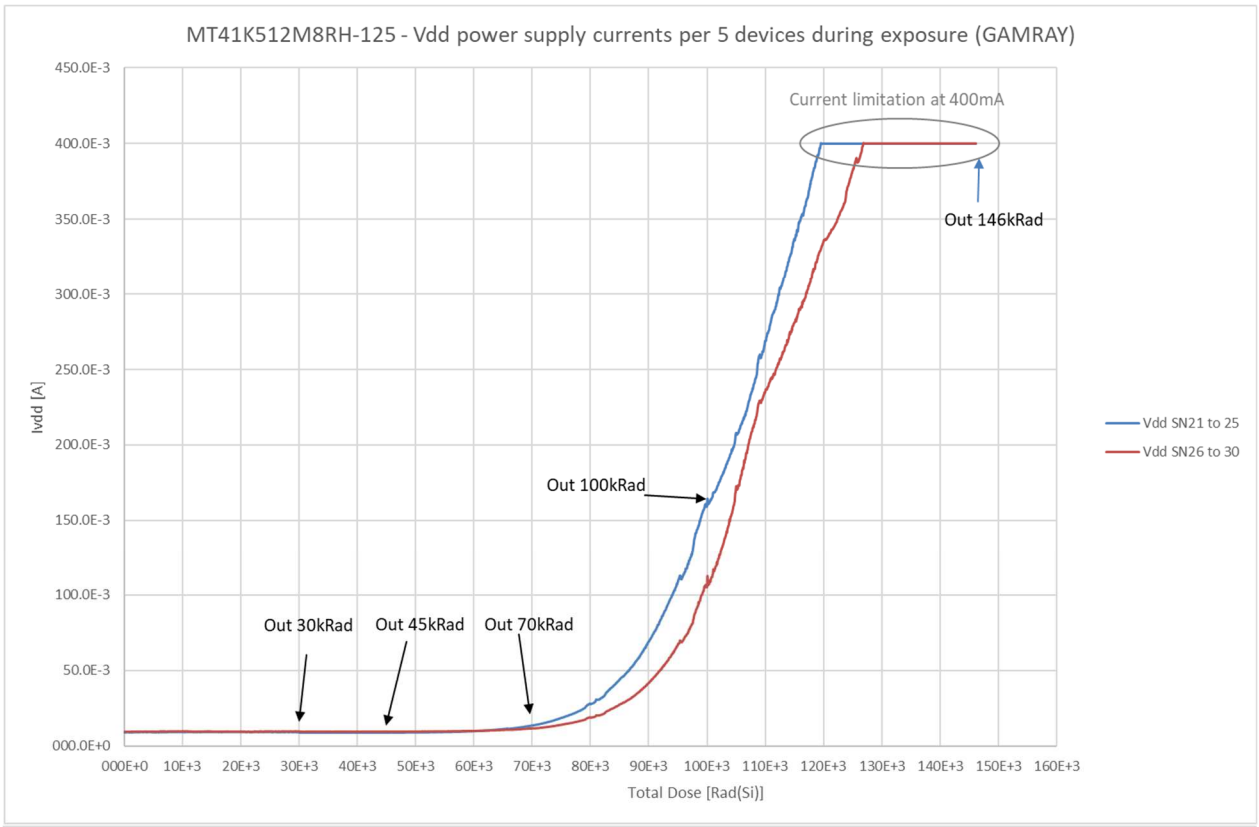
- Statistics are provided for biased ON and biased OFF samples.
- Control sample have been measured before and after each electrical measurement step.
- Corresponding control sample data (identified respectively “IN” and “OUT”) are provided here after.
- Failed values (if any) with respect to specified limits are highlighted in bold red font in the tables.

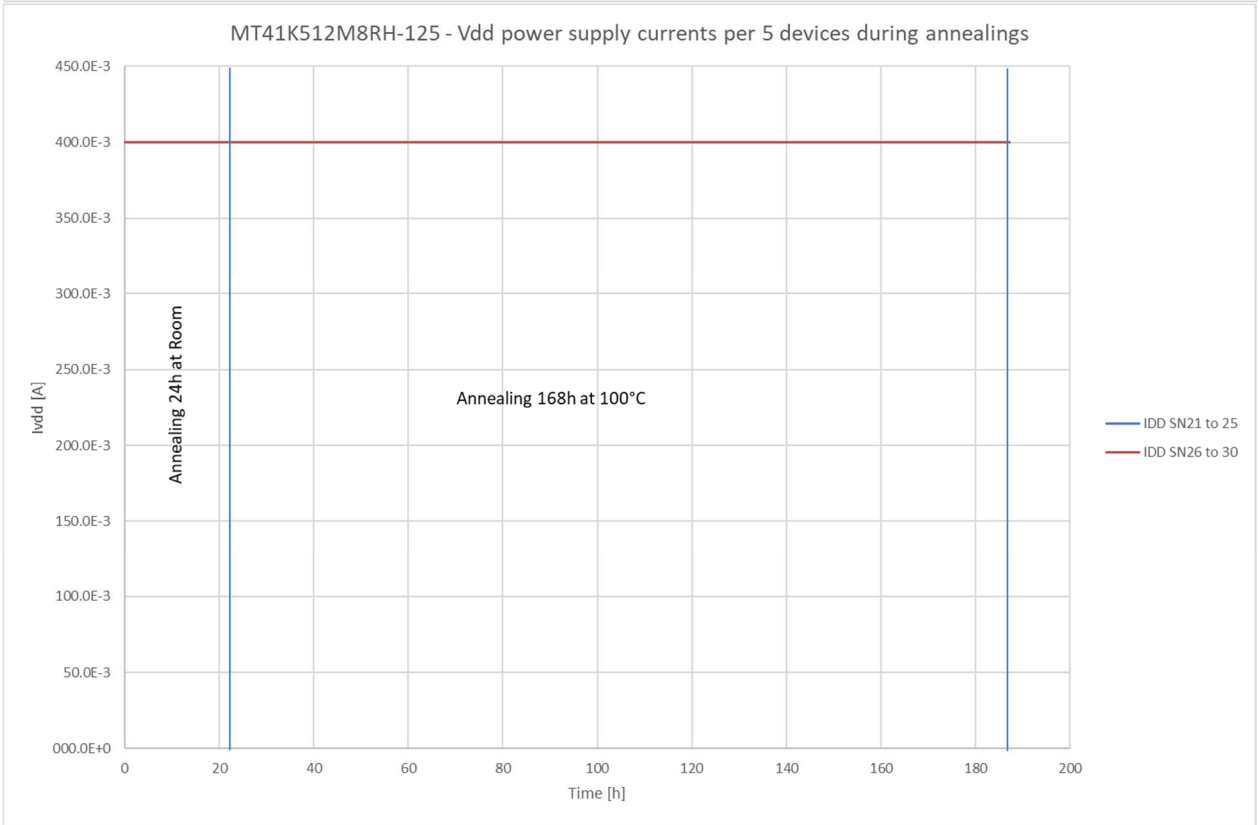
➔ **Batch 2 conclusion**

Biased OFF samples (SN31 to 35) remained within specification limits all along testing. No significant drift has been observed.

Biased ON samples (SN21 to 30):
- Power supply currents was out of specification limits after 100 kRad(Si) step and continued to increase up to 170mA at 146 kRad(Si) step. No recovery has been observed during annealing steps.
- Most samples lost functionality at 146 kRad(Si) step. No recovery has been observed during annealing steps.
- Due to these loss of functionality, some parameters are no longer measurable especially on SN28.

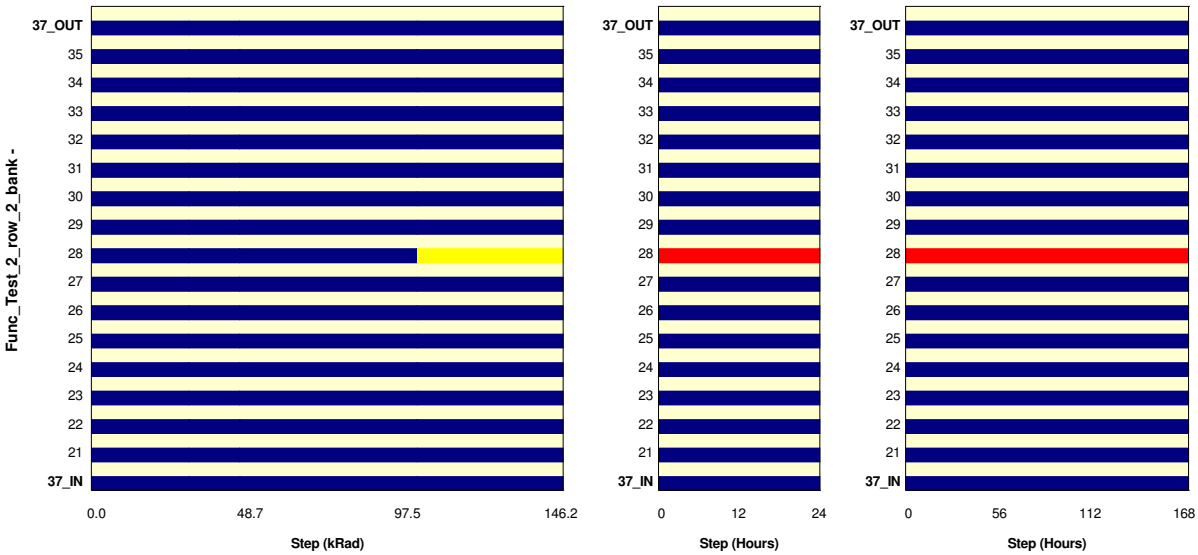
Appendix 1: Batch 2 - In-situ static current bias ON monitoring





Appendix 2: Batch 2 - Remote static bias electrical measurements

Parameter : Functional Checkerboard BL 8 : Func_Test_2_row_2_bank
Test conditions : go/no go. Vil=0V. Vih=1.35V tREFI<7.8ms
Unit :
No spec limit specified.



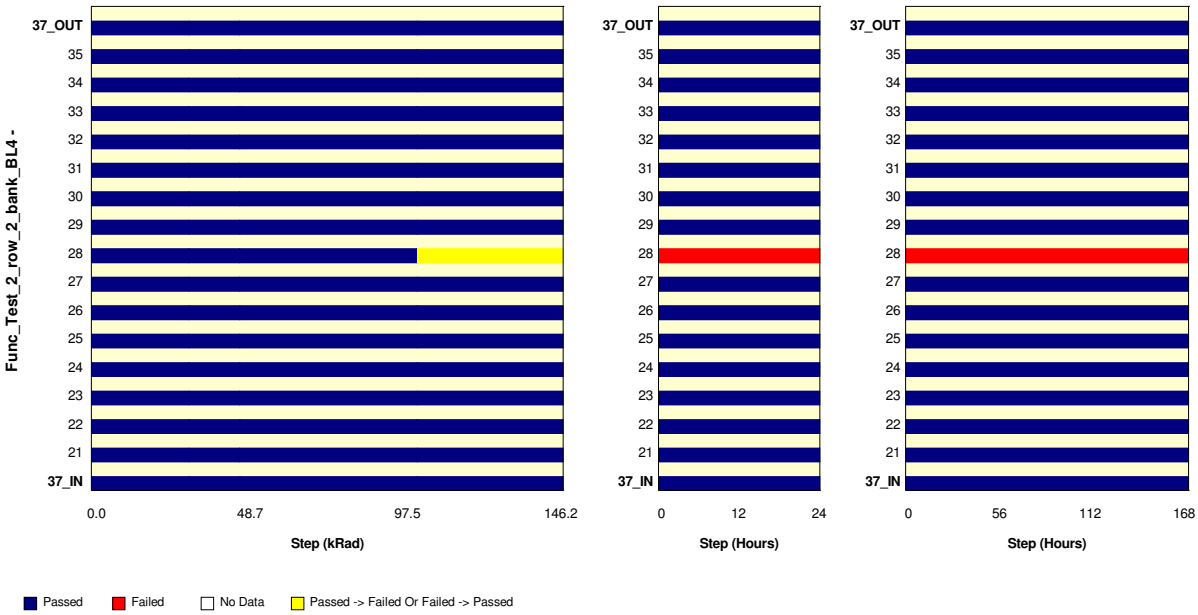
Measurements

Func_Test_2_row_2_bank	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

Func_Test_2_row_2_bank	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Functional Checkerboard BL 4 : Func_Test_2_row_2_bank_BL4
Test conditions : go/no go. Vil=0V. Vih=1.35V tREFI<7.8ms
Unit :
No spec limit specified.



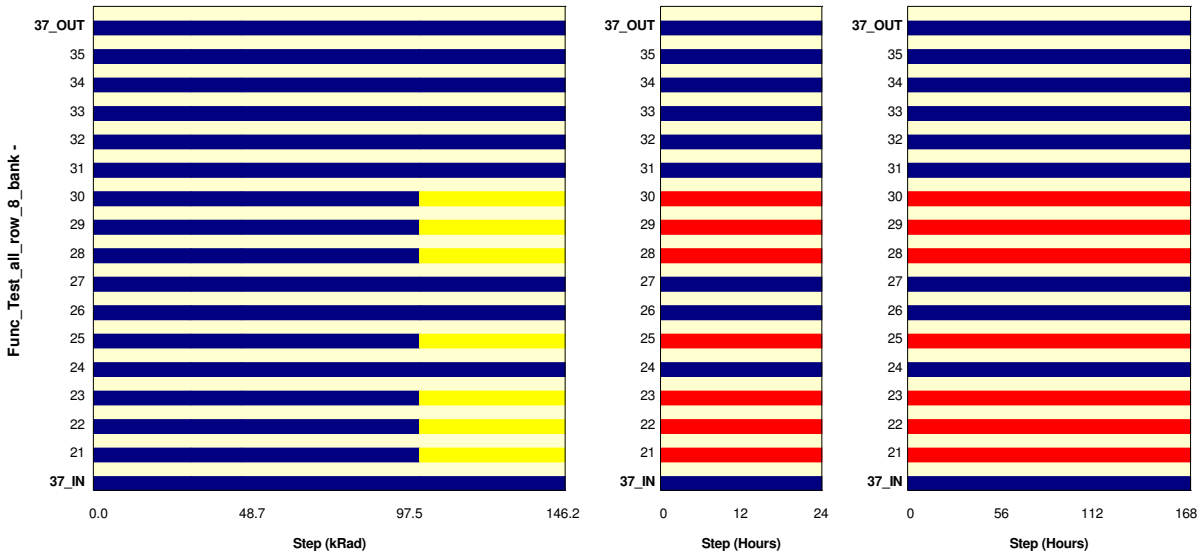
Measurements

Func_Test_2_row_2_bank_BL4	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

Func_Test_2_row_2_bank_BL4	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Functional Checkerboard Full Memory : Func_Test_all_row_8_bank
Test conditions : go/no go. Vil=0V. Vih=1.35V tREFI<7.8ms
Unit :
No spec limit specified.



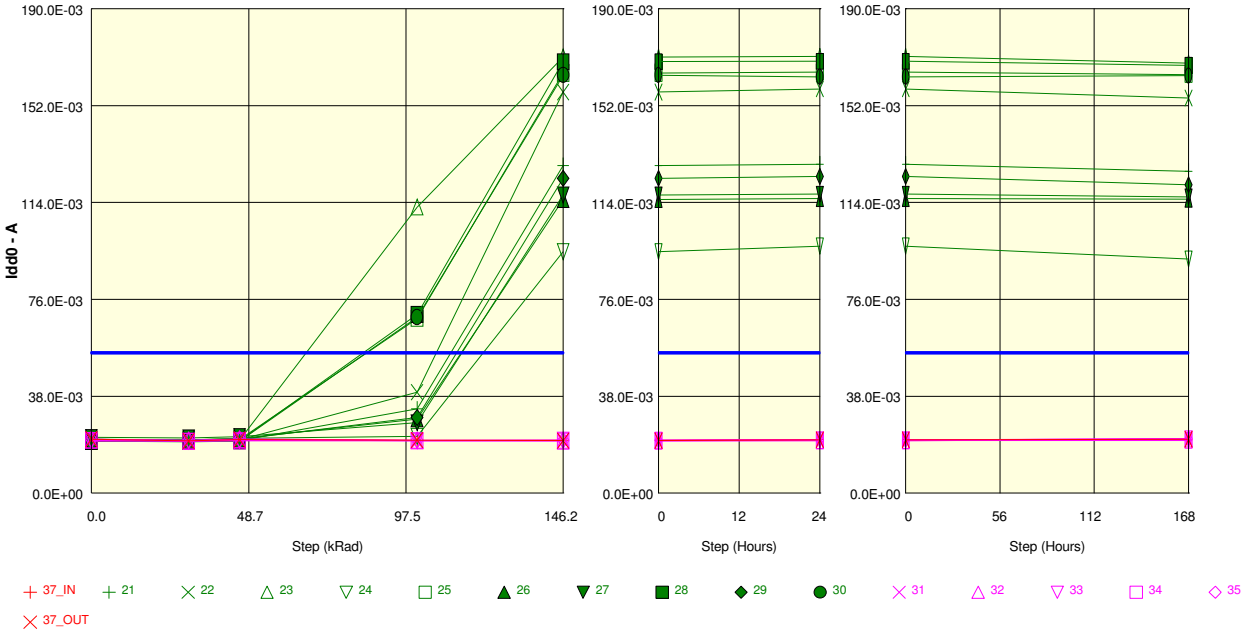
Measurements

Func_Test_all_row_8_bank	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
22	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
23	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
30	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL

Measurements

Func_Test_all_row_8_bank	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Operating Current 0 -> One Bank Activate-> Precharge : Idd0
Test conditions : VilAC160. VihAC160; RST=0V or VDDQ
Unit : A
Spec Limit Max : 55.0E-03
Spec limits are represented in bold lines on the graphic.



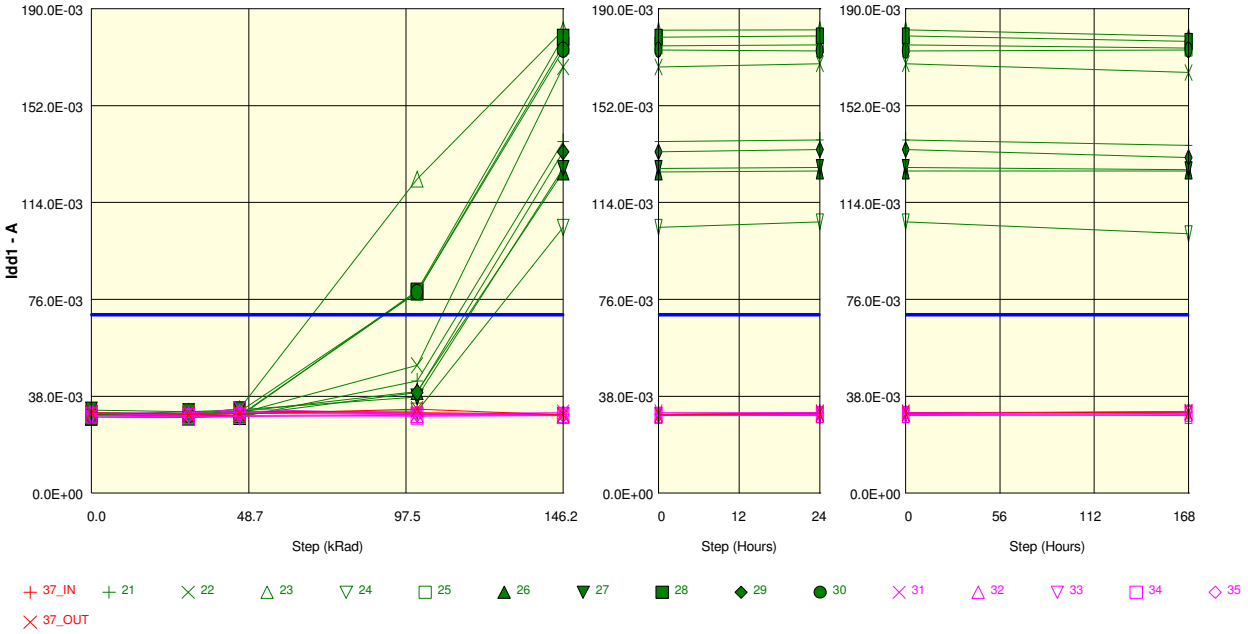
Measurements

Idd0	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	20.9E-03	20.7E-03	21.1E-03	20.5E-03	20.8E-03	21.0E-03	20.9E-03
37_OUT_REF	21.1E-03	20.4E-03	21.0E-03	20.8E-03	20.6E-03	20.9E-03	21.1E-03
ON samples							
21	20.5E-03	20.2E-03	20.6E-03	33.0E-03	128.4E-03	129.0E-03	126.3E-03
22	20.6E-03	20.3E-03	20.9E-03	39.6E-03	157.4E-03	158.6E-03	155.0E-03
23	20.2E-03	20.2E-03	20.8E-03	112.2E-03	171.1E-03	171.4E-03	168.7E-03
24	21.1E-03	20.9E-03	21.4E-03	22.2E-03	94.7E-03	96.9E-03	91.8E-03
25	20.8E-03	20.6E-03	21.0E-03	68.5E-03	164.7E-03	165.1E-03	164.3E-03
26	20.6E-03	20.9E-03	21.4E-03	29.1E-03	115.2E-03	115.6E-03	115.4E-03
27	21.8E-03	21.6E-03	22.1E-03	27.5E-03	116.9E-03	117.3E-03	116.3E-03
28	20.1E-03	20.3E-03	20.4E-03	70.1E-03	169.3E-03	169.4E-03	167.8E-03
29	21.1E-03	20.5E-03	21.1E-03	29.7E-03	123.5E-03	124.2E-03	121.0E-03
30	20.3E-03	20.0E-03	20.3E-03	69.0E-03	163.9E-03	163.3E-03	163.8E-03
Statistics							
Min	20.1E-03	20.0E-03	20.3E-03	22.2E-03	94.7E-03	96.9E-03	91.8E-03
Max	21.8E-03	21.6E-03	22.1E-03	112.2E-03	171.1E-03	171.4E-03	168.7E-03
Average	20.7E-03	20.6E-03	21.0E-03	50.1E-03	140.5E-03	141.1E-03	139.0E-03
Std Deviation	472.9E-06	455.2E-06	517.7E-06	27.4E-03	26.3E-03	25.9E-03	26.5E-03

Measurements

Idd0	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	20.9E-03	20.7E-03	21.1E-03	20.5E-03	20.8E-03	21.0E-03	20.9E-03
37_OUT_REF	21.1E-03	20.4E-03	21.0E-03	20.8E-03	20.6E-03	20.9E-03	21.1E-03
OFF samples							
31	21.1E-03	20.5E-03	21.0E-03	20.4E-03	20.7E-03	20.9E-03	21.2E-03
32	20.8E-03	20.7E-03	20.9E-03	20.6E-03	20.6E-03	20.4E-03	21.2E-03
33	20.3E-03	20.4E-03	20.5E-03	20.5E-03	20.8E-03	20.9E-03	21.2E-03
34	20.7E-03	20.1E-03	20.4E-03	20.4E-03	20.3E-03	20.5E-03	20.7E-03
35	21.1E-03	20.8E-03	21.2E-03	20.8E-03	20.8E-03	20.9E-03	21.4E-03
Statistics							
Min	20.3E-03	20.1E-03	20.4E-03	20.4E-03	20.3E-03	20.4E-03	20.7E-03
Max	21.1E-03	20.8E-03	21.2E-03	20.8E-03	20.8E-03	20.9E-03	21.4E-03
Average	20.8E-03	20.5E-03	20.8E-03	20.5E-03	20.6E-03	20.7E-03	21.1E-03
Std Deviation	271.7E-06	219.6E-06	318.1E-06	142.3E-06	192.9E-06	195.2E-06	225.0E-06

Parameter : Operating Current 1 -> One Bank Activate-> Read-> Precharge : Idd1
Test conditions : VilAC160. VihAC160; RST=0V or VDDQ
Unit : A
Spec Limit Max : 70.0E-03
Spec limits are represented in bold lines on the graphic.



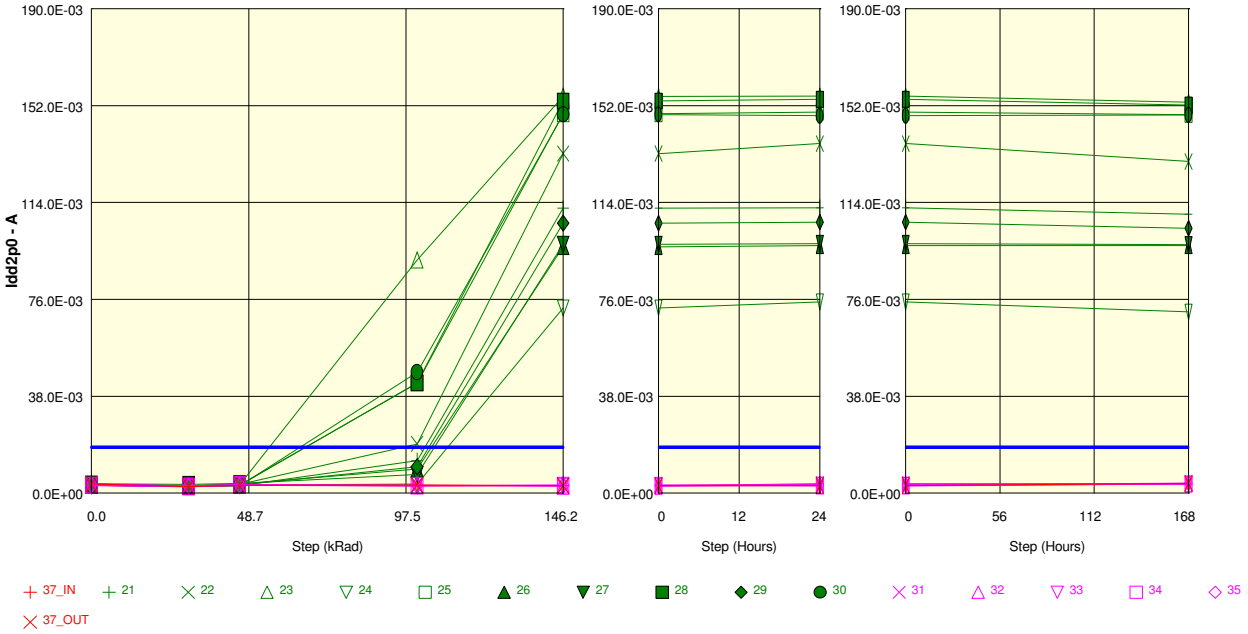
Measurements

Idd1	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	31.3E-03	30.9E-03	31.5E-03	31.4E-03	30.9E-03	31.5E-03	31.7E-03
37_OUT_REF	31.5E-03	30.9E-03	31.1E-03	32.9E-03	30.7E-03	31.3E-03	31.7E-03
ON samples							
21	31.0E-03	30.5E-03	29.7E-03	43.9E-03	137.9E-03	138.5E-03	136.4E-03
22	30.9E-03	30.7E-03	31.3E-03	50.1E-03	167.2E-03	168.5E-03	165.0E-03
23	30.6E-03	31.0E-03	33.0E-03	123.2E-03	181.6E-03	181.8E-03	179.2E-03
24	30.9E-03	30.8E-03	31.8E-03	32.2E-03	104.3E-03	106.5E-03	101.7E-03
25	31.4E-03	31.1E-03	31.9E-03	78.8E-03	175.5E-03	175.9E-03	174.6E-03
26	30.8E-03	31.9E-03	32.0E-03	39.8E-03	125.9E-03	126.4E-03	126.3E-03
27	32.5E-03	31.9E-03	32.7E-03	37.7E-03	127.4E-03	127.8E-03	126.9E-03
28	29.7E-03	29.6E-03	30.0E-03	79.3E-03	178.8E-03	179.4E-03	177.2E-03
29	30.9E-03	30.0E-03	30.3E-03	39.5E-03	133.9E-03	134.8E-03	131.7E-03
30	30.6E-03	30.5E-03	30.3E-03	78.8E-03	173.9E-03	173.5E-03	173.9E-03
Statistics							
Min	29.7E-03	29.6E-03	29.7E-03	32.2E-03	104.3E-03	106.5E-03	101.7E-03
Max	32.5E-03	31.9E-03	33.0E-03	123.2E-03	181.6E-03	181.8E-03	179.2E-03
Average	31.0E-03	30.8E-03	31.3E-03	60.3E-03	150.6E-03	151.3E-03	149.3E-03
Std Deviation	666.1E-06	700.2E-06	1.1E-03	27.4E-03	26.3E-03	25.9E-03	26.3E-03

Measurements

Idd1	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	31.3E-03	30.9E-03	31.5E-03	31.4E-03	30.9E-03	31.5E-03	31.7E-03
37_OUT_REF	31.5E-03	30.9E-03	31.1E-03	32.9E-03	30.7E-03	31.3E-03	31.7E-03
OFF samples							
31	31.4E-03	31.3E-03	32.9E-03	31.1E-03	31.5E-03	31.5E-03	31.6E-03
32	31.4E-03	30.3E-03	31.3E-03	30.8E-03	30.8E-03	30.8E-03	30.3E-03
33	30.2E-03	30.2E-03	30.0E-03	30.5E-03	30.5E-03	30.3E-03	30.8E-03
34	30.5E-03	29.7E-03	30.3E-03	30.2E-03	30.3E-03	30.8E-03	31.3E-03
35	31.3E-03	30.6E-03	31.7E-03	31.1E-03	30.8E-03	31.3E-03	32.1E-03
Statistics							
Min	30.2E-03	29.7E-03	30.0E-03	30.2E-03	30.3E-03	30.3E-03	30.3E-03
Max	31.4E-03	31.3E-03	32.9E-03	31.1E-03	31.5E-03	31.5E-03	32.1E-03
Average	31.0E-03	30.4E-03	31.2E-03	30.7E-03	30.8E-03	30.9E-03	31.2E-03
Std Deviation	522.8E-06	546.8E-06	1.0E-03	361.4E-06	394.8E-06	403.8E-06	621.9E-06

Parameter : Precharge power-down current: Slow exit : Idd2p0
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 18.0E-03
Spec limits are represented in bold lines on the graphic.



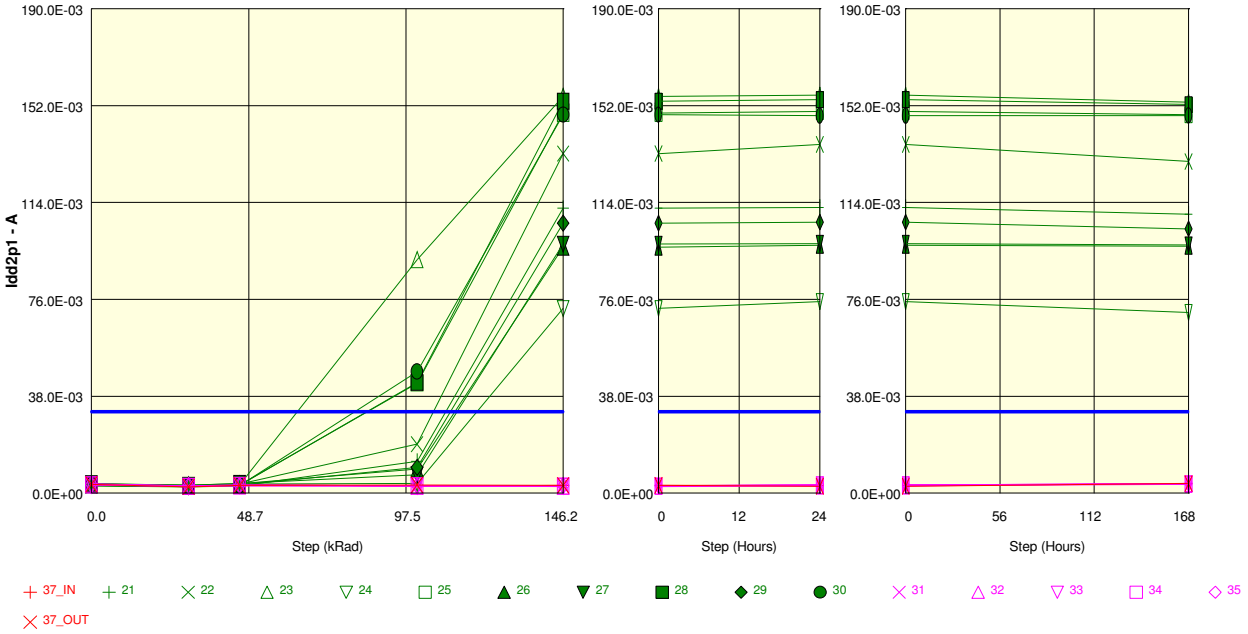
Measurements

Idd2p0	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.2E-03	2.9E-03	3.2E-03	2.7E-03	2.9E-03	3.6E-03	3.4E-03
37_OUT_REF	3.5E-03	2.6E-03	3.1E-03	3.1E-03	2.9E-03	2.9E-03	3.8E-03
ON samples							
21	3.1E-03	2.5E-03	2.9E-03	12.7E-03	111.7E-03	112.0E-03	109.4E-03
22	3.1E-03	2.6E-03	3.3E-03	19.3E-03	133.2E-03	137.1E-03	130.1E-03
23	3.1E-03	2.8E-03	3.1E-03	91.5E-03	155.7E-03	155.8E-03	153.4E-03
24	3.1E-03	2.9E-03	3.2E-03	3.4E-03	72.6E-03	75.0E-03	71.0E-03
25	3.2E-03	2.7E-03	3.2E-03	43.2E-03	148.9E-03	149.5E-03	148.6E-03
26	3.2E-03	2.9E-03	3.4E-03	9.3E-03	96.7E-03	97.0E-03	97.0E-03
27	3.5E-03	3.4E-03	3.7E-03	7.3E-03	97.6E-03	98.0E-03	97.4E-03
28	3.0E-03	2.7E-03	3.0E-03	43.3E-03	153.8E-03	154.5E-03	152.2E-03
29	3.5E-03	2.7E-03	3.1E-03	10.3E-03	105.8E-03	106.3E-03	103.9E-03
30	3.0E-03	2.6E-03	2.7E-03	47.4E-03	148.6E-03	148.0E-03	148.3E-03
Statistics							
Min	3.0E-03	2.5E-03	2.7E-03	3.4E-03	72.6E-03	75.0E-03	71.0E-03
Max	3.5E-03	3.4E-03	3.7E-03	91.5E-03	155.7E-03	155.8E-03	153.4E-03
Average	3.2E-03	2.8E-03	3.2E-03	28.8E-03	122.5E-03	123.3E-03	121.1E-03
Std Deviation	184.0E-06	228.7E-06	262.9E-06	26.2E-03	27.8E-03	27.6E-03	27.7E-03

Measurements

Idd2p0	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.2E-03	2.9E-03	3.2E-03	2.7E-03	2.9E-03	3.6E-03	3.4E-03
37_OUT_REF	3.5E-03	2.6E-03	3.1E-03	3.1E-03	2.9E-03	2.9E-03	3.8E-03
OFF samples							
31	3.4E-03	2.7E-03	3.2E-03	3.0E-03	2.9E-03	3.4E-03	3.8E-03
32	3.5E-03	2.8E-03	3.1E-03	2.7E-03	3.2E-03	2.7E-03	3.5E-03
33	2.9E-03	2.6E-03	3.2E-03	2.9E-03	3.0E-03	3.0E-03	3.5E-03
34	3.0E-03	2.3E-03	3.1E-03	3.0E-03	2.7E-03	3.0E-03	3.5E-03
35	3.3E-03	2.8E-03	3.4E-03	3.0E-03	3.0E-03	3.2E-03	3.9E-03
Statistics							
Min	2.9E-03	2.3E-03	3.1E-03	2.7E-03	2.7E-03	2.7E-03	3.5E-03
Max	3.5E-03	2.8E-03	3.4E-03	3.0E-03	3.2E-03	3.4E-03	3.9E-03
Average	3.2E-03	2.6E-03	3.2E-03	2.9E-03	3.0E-03	3.1E-03	3.6E-03
Std Deviation	223.1E-06	187.5E-06	111.8E-06	94.5E-06	157.3E-06	204.2E-06	175.2E-06

Parameter : Precharge power-down current: Fast exit : Idd2p1
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 32.0E-03
Spec limits are represented in bold lines on the graphic.



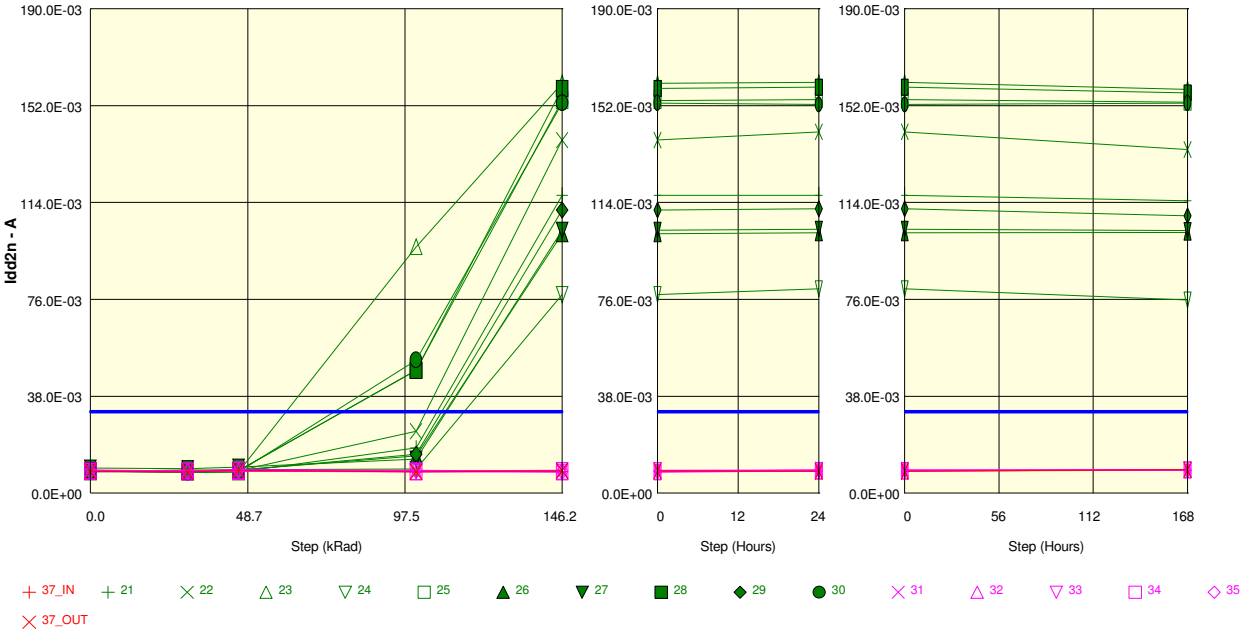
Measurements

Idd2p1	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.4E-03	2.7E-03	3.4E-03	2.7E-03	3.1E-03	3.0E-03	3.6E-03
37_OUT_REF	3.4E-03	2.4E-03	3.1E-03	3.2E-03	3.0E-03	2.7E-03	3.7E-03
ON samples							
21	2.8E-03	2.4E-03	2.7E-03	12.5E-03	111.7E-03	112.1E-03	109.4E-03
22	2.9E-03	2.5E-03	3.5E-03	19.2E-03	133.2E-03	136.7E-03	130.1E-03
23	3.2E-03	2.7E-03	3.1E-03	91.6E-03	155.6E-03	156.1E-03	153.4E-03
24	3.2E-03	2.6E-03	3.4E-03	3.7E-03	72.4E-03	75.1E-03	70.9E-03
25	3.4E-03	2.6E-03	3.2E-03	43.1E-03	149.1E-03	149.7E-03	148.4E-03
26	3.4E-03	3.1E-03	3.6E-03	9.4E-03	96.4E-03	97.2E-03	96.9E-03
27	3.7E-03	3.0E-03	3.8E-03	7.2E-03	97.7E-03	98.0E-03	97.3E-03
28	3.2E-03	2.8E-03	3.1E-03	43.3E-03	153.8E-03	154.4E-03	152.4E-03
29	3.5E-03	3.1E-03	3.1E-03	10.0E-03	105.9E-03	106.3E-03	103.7E-03
30	3.1E-03	2.6E-03	2.9E-03	47.7E-03	148.4E-03	148.0E-03	148.1E-03
Statistics							
Min	2.8E-03	2.4E-03	2.7E-03	3.7E-03	72.4E-03	75.1E-03	70.9E-03
Max	3.7E-03	3.1E-03	3.8E-03	91.6E-03	155.6E-03	156.1E-03	153.4E-03
Average	3.2E-03	2.7E-03	3.2E-03	28.8E-03	122.4E-03	123.4E-03	121.1E-03
Std Deviation	263.9E-06	225.1E-06	311.2E-06	26.3E-03	27.9E-03	27.6E-03	27.7E-03

Measurements

Idd2p1	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.4E-03	2.7E-03	3.4E-03	2.7E-03	3.1E-03	3.0E-03	3.6E-03
37_OUT_REF	3.4E-03	2.4E-03	3.1E-03	3.2E-03	3.0E-03	2.7E-03	3.7E-03
OFF samples							
31	3.5E-03	2.8E-03	3.2E-03	2.7E-03	2.9E-03	3.1E-03	3.7E-03
32	3.5E-03	2.8E-03	2.8E-03	2.6E-03	2.8E-03	2.9E-03	3.4E-03
33	3.1E-03	2.6E-03	3.0E-03	2.8E-03	2.7E-03	3.2E-03	3.4E-03
34	3.2E-03	2.5E-03	2.9E-03	2.9E-03	2.5E-03	2.8E-03	3.7E-03
35	3.3E-03	2.9E-03	3.1E-03	2.9E-03	2.9E-03	3.1E-03	3.8E-03
Statistics							
Min	3.1E-03	2.5E-03	2.8E-03	2.6E-03	2.5E-03	2.8E-03	3.4E-03
Max	3.5E-03	2.9E-03	3.2E-03	2.9E-03	2.9E-03	3.2E-03	3.8E-03
Average	3.3E-03	2.7E-03	3.0E-03	2.8E-03	2.8E-03	3.0E-03	3.6E-03
Std Deviation	166.5E-06	137.0E-06	141.3E-06	105.0E-06	147.5E-06	162.0E-06	190.7E-06

Parameter : Precharge standby current : Idd2n
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 32.0E-03
Spec limits are represented in bold lines on the graphic.



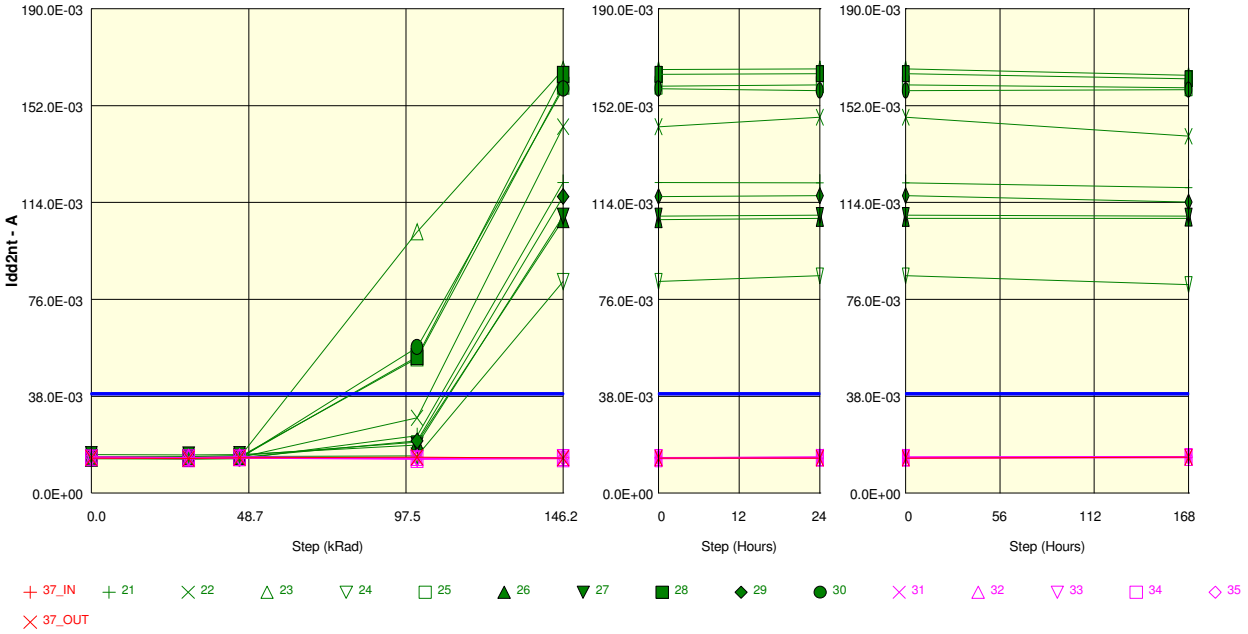
Measurements

Idd2n	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	8.5E-03	8.6E-03	8.8E-03	8.5E-03	8.4E-03	8.6E-03	8.9E-03
37_OUT_REF	8.5E-03	8.4E-03	8.9E-03	8.3E-03	8.6E-03	8.5E-03	9.2E-03
ON samples							
21	8.6E-03	8.1E-03	8.4E-03	17.7E-03	116.8E-03	116.8E-03	114.6E-03
22	8.7E-03	8.4E-03	8.7E-03	24.2E-03	138.6E-03	141.7E-03	134.8E-03
23	8.4E-03	8.5E-03	8.3E-03	96.6E-03	160.8E-03	161.1E-03	158.4E-03
24	8.7E-03	8.5E-03	9.2E-03	9.4E-03	77.8E-03	80.2E-03	75.7E-03
25	8.7E-03	8.5E-03	8.7E-03	48.2E-03	153.9E-03	154.4E-03	153.3E-03
26	8.5E-03	9.0E-03	9.0E-03	14.6E-03	101.8E-03	102.1E-03	102.3E-03
27	9.8E-03	9.6E-03	10.1E-03	13.3E-03	103.2E-03	103.6E-03	103.0E-03
28	8.7E-03	8.4E-03	8.7E-03	48.1E-03	158.8E-03	159.3E-03	157.1E-03
29	8.7E-03	8.4E-03	8.9E-03	15.2E-03	111.1E-03	111.5E-03	108.8E-03
30	8.5E-03	8.1E-03	8.3E-03	52.2E-03	153.1E-03	152.4E-03	153.0E-03
Statistics							
Min	8.4E-03	8.1E-03	8.3E-03	9.4E-03	77.8E-03	80.2E-03	75.7E-03
Max	9.8E-03	9.6E-03	10.1E-03	96.6E-03	160.8E-03	161.1E-03	158.4E-03
Average	8.7E-03	8.5E-03	8.8E-03	33.9E-03	127.6E-03	128.3E-03	126.1E-03
Std Deviation	364.6E-06	420.9E-06	515.6E-06	26.0E-03	27.7E-03	27.4E-03	27.6E-03

Measurements

Idd2n	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	8.5E-03	8.6E-03	8.8E-03	8.5E-03	8.4E-03	8.6E-03	8.9E-03
37_OUT_REF	8.5E-03	8.4E-03	8.9E-03	8.3E-03	8.6E-03	8.5E-03	9.2E-03
OFF samples							
31	9.0E-03	8.6E-03	8.5E-03	8.7E-03	8.9E-03	9.0E-03	9.1E-03
32	8.8E-03	8.7E-03	8.5E-03	8.4E-03	8.5E-03	8.7E-03	9.0E-03
33	8.7E-03	8.7E-03	9.2E-03	8.6E-03	8.8E-03	8.7E-03	9.1E-03
34	8.4E-03	8.4E-03	8.7E-03	8.4E-03	8.2E-03	8.7E-03	9.1E-03
35	8.9E-03	8.5E-03	9.0E-03	8.9E-03	8.5E-03	9.0E-03	8.9E-03
Statistics							
Min	8.4E-03	8.4E-03	8.5E-03	8.4E-03	8.2E-03	8.7E-03	8.9E-03
Max	9.0E-03	8.7E-03	9.2E-03	8.9E-03	8.9E-03	9.0E-03	9.1E-03
Average	8.8E-03	8.6E-03	8.8E-03	8.6E-03	8.6E-03	8.8E-03	9.0E-03
Std Deviation	195.3E-06	131.5E-06	254.3E-06	175.2E-06	236.1E-06	141.3E-06	77.2E-06

Parameter : Precharge standby ODT current : Idd2nt
Test conditions : Vil=0.515. Vih=0.835
Unit : A
Spec Limit Max : 39.0E-03
Spec limits are represented in bold lines on the graphic.



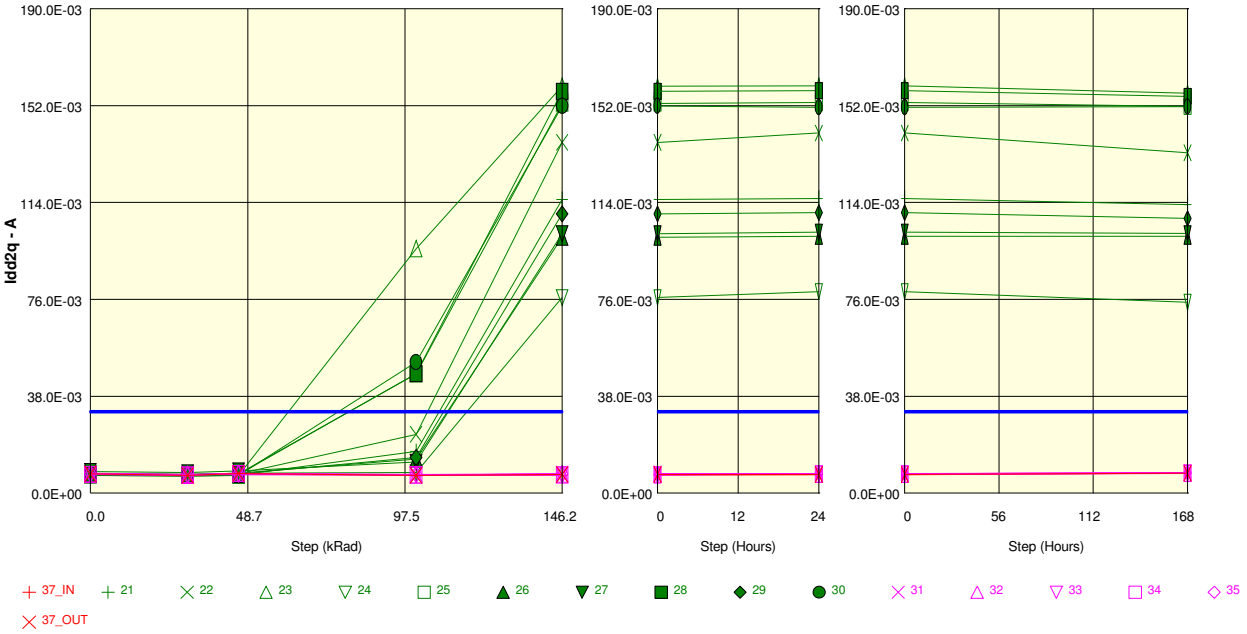
Measurements

Idd2nt	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	13.7E-03	14.0E-03	13.8E-03	13.6E-03	13.8E-03	13.7E-03	14.0E-03
37_OUT_REF	13.7E-03	13.5E-03	13.9E-03	14.0E-03	13.7E-03	13.7E-03	14.1E-03
ON samples							
21	13.7E-03	13.4E-03	13.4E-03	22.5E-03	121.9E-03	121.8E-03	119.9E-03
22	14.0E-03	13.6E-03	13.9E-03	29.5E-03	143.7E-03	147.5E-03	140.0E-03
23	13.6E-03	13.6E-03	14.0E-03	102.5E-03	166.1E-03	166.4E-03	163.9E-03
24	14.1E-03	14.0E-03	14.3E-03	14.5E-03	83.1E-03	85.2E-03	81.7E-03
25	14.0E-03	13.9E-03	14.2E-03	52.9E-03	159.6E-03	160.2E-03	159.0E-03
26	13.7E-03	14.3E-03	14.6E-03	20.0E-03	107.3E-03	107.7E-03	107.9E-03
27	15.1E-03	15.0E-03	15.1E-03	18.8E-03	108.6E-03	109.0E-03	108.6E-03
28	13.7E-03	13.7E-03	13.9E-03	53.5E-03	164.3E-03	164.6E-03	162.5E-03
29	14.3E-03	14.2E-03	13.9E-03	20.4E-03	116.4E-03	116.7E-03	114.1E-03
30	13.4E-03	13.2E-03	13.5E-03	57.2E-03	158.6E-03	157.9E-03	158.3E-03
Statistics							
Min	13.4E-03	13.2E-03	13.4E-03	14.5E-03	83.1E-03	85.2E-03	81.7E-03
Max	15.1E-03	15.0E-03	15.1E-03	102.5E-03	166.1E-03	166.4E-03	163.9E-03
Average	14.0E-03	13.9E-03	14.1E-03	39.2E-03	133.0E-03	133.7E-03	131.6E-03
Std Deviation	447.8E-06	476.8E-06	489.3E-06	26.2E-03	27.8E-03	27.5E-03	27.5E-03

Measurements

Idd2nt	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	13.7E-03	14.0E-03	13.8E-03	13.6E-03	13.8E-03	13.7E-03	14.0E-03
37_OUT_REF	13.7E-03	13.5E-03	13.9E-03	14.0E-03	13.7E-03	13.7E-03	14.1E-03
OFF samples							
31	14.1E-03	13.9E-03	14.2E-03	13.6E-03	13.9E-03	14.0E-03	14.2E-03
32	14.1E-03	14.0E-03	13.9E-03	13.8E-03	13.9E-03	13.9E-03	13.8E-03
33	13.7E-03	13.8E-03	13.7E-03	13.6E-03	13.9E-03	13.9E-03	14.3E-03
34	13.7E-03	13.4E-03	13.7E-03	13.2E-03	13.4E-03	13.7E-03	14.0E-03
35	14.2E-03	14.0E-03	14.2E-03	13.7E-03	13.9E-03	14.2E-03	14.3E-03
Statistics							
Min	13.7E-03	13.4E-03	13.7E-03	13.2E-03	13.4E-03	13.7E-03	13.8E-03
Max	14.2E-03	14.0E-03	14.2E-03	13.8E-03	13.9E-03	14.2E-03	14.3E-03
Average	14.0E-03	13.8E-03	14.0E-03	13.6E-03	13.8E-03	13.9E-03	14.1E-03
Std Deviation	219.6E-06	201.9E-06	206.3E-06	213.4E-06	185.0E-06	161.9E-06	194.4E-06

Parameter : Precharge quiet standby current : Idd2q
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 32.0E-03
Spec limits are represented in bold lines on the graphic.



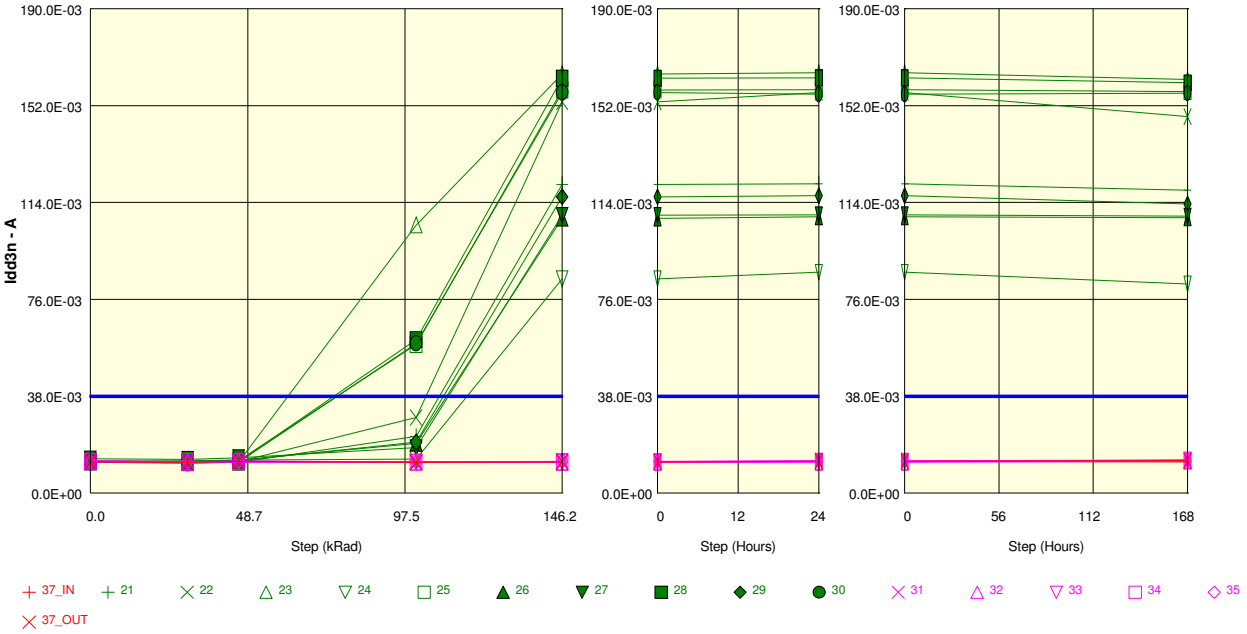
Measurements

Idd2q	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	7.1E-03	7.3E-03	7.4E-03	6.9E-03	7.1E-03	7.2E-03	7.7E-03
37_OUT_REF	7.4E-03	6.9E-03	7.6E-03	7.0E-03	7.3E-03	7.3E-03	7.8E-03
ON samples							
21	7.1E-03	6.9E-03	7.1E-03	16.2E-03	115.2E-03	115.5E-03	113.1E-03
22	7.4E-03	7.1E-03	7.4E-03	23.0E-03	137.6E-03	141.3E-03	133.5E-03
23	7.2E-03	7.0E-03	7.0E-03	95.9E-03	159.7E-03	159.8E-03	157.0E-03
24	7.6E-03	7.3E-03	7.8E-03	7.9E-03	76.7E-03	79.0E-03	74.8E-03
25	7.2E-03	7.0E-03	7.5E-03	46.7E-03	152.9E-03	153.2E-03	151.7E-03
26	7.4E-03	7.3E-03	7.8E-03	13.2E-03	100.3E-03	100.7E-03	100.7E-03
27	8.4E-03	8.0E-03	8.6E-03	12.1E-03	101.7E-03	102.4E-03	101.8E-03
28	7.1E-03	7.0E-03	7.3E-03	46.9E-03	157.6E-03	157.8E-03	155.7E-03
29	7.6E-03	7.3E-03	7.4E-03	13.9E-03	109.6E-03	110.1E-03	107.7E-03
30	7.0E-03	6.6E-03	6.9E-03	51.3E-03	151.9E-03	151.4E-03	151.6E-03
Statistics							
Min	7.0E-03	6.6E-03	6.9E-03	7.9E-03	76.7E-03	79.0E-03	74.8E-03
Max	8.4E-03	8.0E-03	8.6E-03	95.9E-03	159.7E-03	159.8E-03	157.0E-03
Average	7.4E-03	7.2E-03	7.5E-03	32.7E-03	126.3E-03	127.1E-03	124.8E-03
Std Deviation	389.0E-06	351.5E-06	470.6E-06	26.2E-03	27.8E-03	27.4E-03	27.5E-03

Measurements

Idd2q	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	7.1E-03	7.3E-03	7.4E-03	6.9E-03	7.1E-03	7.2E-03	7.7E-03
37_OUT_REF	7.4E-03	6.9E-03	7.6E-03	7.0E-03	7.3E-03	7.3E-03	7.8E-03
OFF samples							
31	7.8E-03	7.3E-03	7.2E-03	7.0E-03	7.4E-03	7.5E-03	8.1E-03
32	7.5E-03	7.3E-03	7.8E-03	7.0E-03	7.4E-03	7.3E-03	7.6E-03
33	7.3E-03	7.1E-03	7.5E-03	7.3E-03	7.2E-03	7.5E-03	7.9E-03
34	7.3E-03	6.8E-03	7.6E-03	7.1E-03	7.0E-03	7.4E-03	7.7E-03
35	7.6E-03	7.2E-03	7.6E-03	7.3E-03	7.4E-03	7.6E-03	7.9E-03
Statistics							
Min	7.3E-03	6.8E-03	7.2E-03	7.0E-03	7.0E-03	7.3E-03	7.6E-03
Max	7.8E-03	7.3E-03	7.8E-03	7.3E-03	7.4E-03	7.6E-03	8.1E-03
Average	7.5E-03	7.2E-03	7.5E-03	7.1E-03	7.3E-03	7.5E-03	7.8E-03
Std Deviation	161.0E-06	202.1E-06	187.6E-06	128.0E-06	174.4E-06	124.5E-06	174.3E-06

Parameter : Active standby current : Idd3n
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 38.0E-03
Spec limits are represented in bold lines on the graphic.



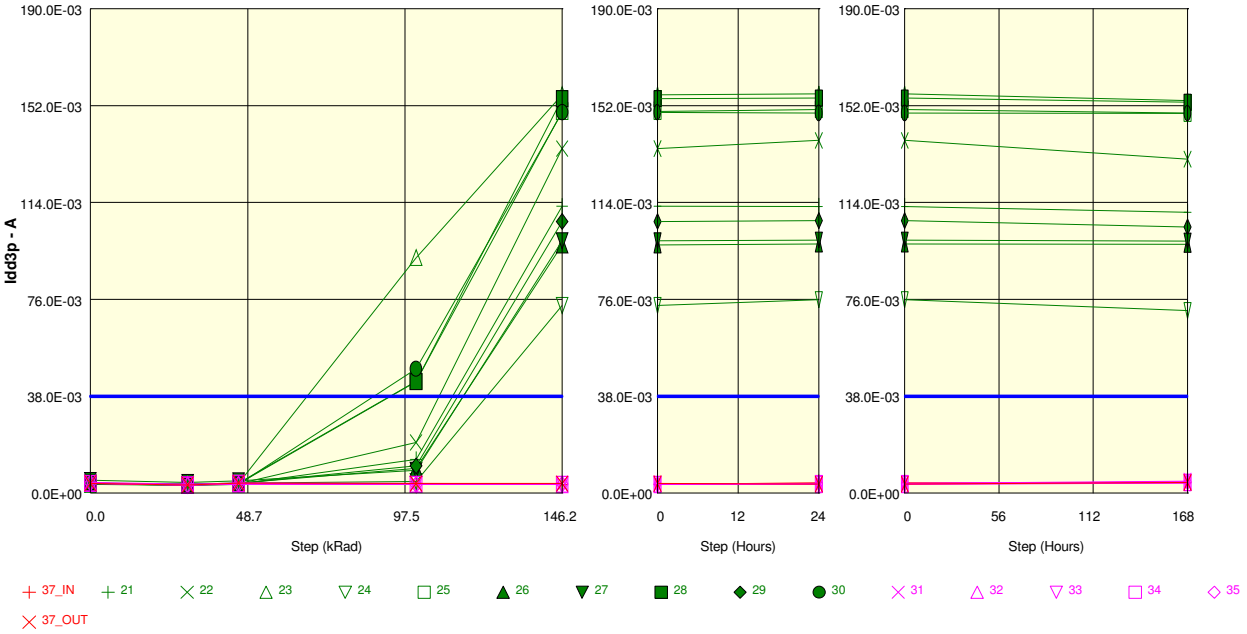
Measurements

Idd3n	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	12.5E-03	12.3E-03	12.3E-03	12.0E-03	12.2E-03	12.5E-03	12.3E-03
37_OUT_REF	12.3E-03	12.0E-03	12.5E-03	12.0E-03	12.2E-03	12.5E-03	12.6E-03
ON samples							
21	12.1E-03	11.9E-03	12.0E-03	22.2E-03	**121.0E-03**	**121.3E-03**	**118.8E-03**
22	12.5E-03	12.2E-03	12.3E-03	29.6E-03	**153.4E-03**	**157.2E-03**	**147.7E-03**
23	12.1E-03	12.0E-03	12.0E-03	**105.2E-03**	**164.4E-03**	**164.9E-03**	**162.2E-03**
24	12.6E-03	12.3E-03	12.9E-03	13.3E-03	**84.1E-03**	**86.6E-03**	**82.0E-03**
25	12.6E-03	12.1E-03	12.6E-03	**58.2E-03**	**158.1E-03**	**158.3E-03**	**157.5E-03**
26	12.5E-03	12.6E-03	12.9E-03	19.5E-03	**107.8E-03**	**108.4E-03**	**108.0E-03**
27	13.4E-03	13.2E-03	13.8E-03	17.8E-03	**109.0E-03**	**109.2E-03**	**108.6E-03**
28	12.3E-03	12.0E-03	12.4E-03	**60.2E-03**	**162.8E-03**	**163.0E-03**	**161.0E-03**
29	12.5E-03	12.4E-03	12.6E-03	20.0E-03	**116.3E-03**	**116.7E-03**	**113.5E-03**
30	12.0E-03	11.6E-03	12.0E-03	**58.7E-03**	**157.2E-03**	**156.4E-03**	**156.9E-03**
Statistics							
Min	12.0E-03	11.6E-03	12.0E-03	13.3E-03	84.1E-03	86.6E-03	82.0E-03
Max	13.4E-03	13.2E-03	13.8E-03	105.2E-03	164.4E-03	164.9E-03	162.2E-03
Average	12.4E-03	12.2E-03	12.6E-03	40.5E-03	133.4E-03	134.2E-03	131.6E-03
Std Deviation	362.6E-06	418.6E-06	517.7E-06	27.9E-03	27.5E-03	27.2E-03	27.2E-03

Measurements

Idd3n	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	12.5E-03	12.3E-03	12.3E-03	12.0E-03	12.2E-03	12.5E-03	12.3E-03
37_OUT_REF	12.3E-03	12.0E-03	12.5E-03	12.0E-03	12.2E-03	12.5E-03	12.6E-03
OFF samples							
31	12.6E-03	12.3E-03	12.2E-03	12.1E-03	12.3E-03	12.6E-03	12.8E-03
32	12.7E-03	12.4E-03	12.6E-03	12.1E-03	12.3E-03	12.4E-03	12.8E-03
33	12.5E-03	12.4E-03	12.3E-03	12.1E-03	12.4E-03	12.5E-03	12.9E-03
34	12.2E-03	11.9E-03	12.2E-03	12.1E-03	12.0E-03	12.0E-03	12.5E-03
35	12.5E-03	12.4E-03	12.5E-03	12.2E-03	12.5E-03	12.6E-03	12.9E-03
Statistics							
Min	12.2E-03	11.9E-03	12.2E-03	12.1E-03	12.0E-03	12.0E-03	12.5E-03
Max	12.7E-03	12.4E-03	12.6E-03	12.2E-03	12.5E-03	12.6E-03	12.9E-03
Average	12.5E-03	12.3E-03	12.4E-03	12.1E-03	12.3E-03	12.4E-03	12.8E-03
Std Deviation	161.9E-06	189.0E-06	142.3E-06	38.6E-06	147.4E-06	213.4E-06	135.9E-06

Parameter : Active power-down current : Idd3p
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 38.0E-03
Spec limits are represented in bold lines on the graphic.



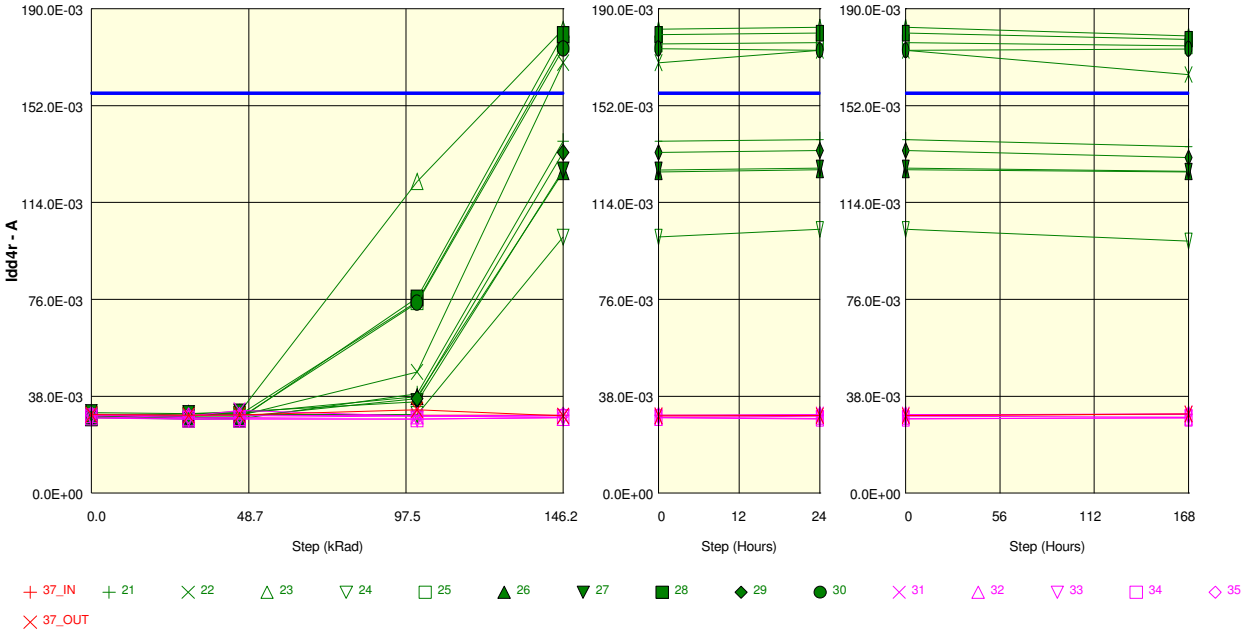
Measurements

Idd3p	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.8E-03	3.3E-03	3.7E-03	3.3E-03	3.3E-03	4.0E-03	4.0E-03
37_OUT_REF	3.8E-03	3.2E-03	3.9E-03	3.7E-03	3.7E-03	3.5E-03	4.2E-03
ON samples							
21	3.6E-03	3.2E-03	3.4E-03	13.2E-03	112.6E-03	112.5E-03	110.1E-03
22	3.8E-03	3.2E-03	3.5E-03	19.8E-03	135.2E-03	138.4E-03	131.0E-03
23	3.4E-03	3.1E-03	3.7E-03	92.3E-03	156.3E-03	156.6E-03	153.9E-03
24	4.0E-03	3.5E-03	4.0E-03	4.5E-03	73.6E-03	75.9E-03	71.6E-03
25	3.8E-03	3.0E-03	3.9E-03	43.8E-03	149.7E-03	150.5E-03	149.1E-03
26	3.7E-03	3.5E-03	3.9E-03	9.7E-03	97.4E-03	97.7E-03	97.6E-03
27	4.9E-03	4.2E-03	4.8E-03	8.9E-03	98.9E-03	99.2E-03	98.8E-03
28	3.9E-03	3.3E-03	3.6E-03	43.7E-03	154.8E-03	155.0E-03	153.3E-03
29	3.8E-03	3.2E-03	3.8E-03	10.6E-03	106.6E-03	106.9E-03	104.4E-03
30	3.8E-03	2.9E-03	3.4E-03	48.7E-03	149.4E-03	149.1E-03	149.0E-03
Statistics							
Min	3.4E-03	2.9E-03	3.4E-03	4.5E-03	73.6E-03	75.9E-03	71.6E-03
Max	4.9E-03	4.2E-03	4.8E-03	92.3E-03	156.3E-03	156.6E-03	153.9E-03
Average	3.9E-03	3.3E-03	3.8E-03	29.5E-03	123.4E-03	124.2E-03	121.9E-03
Std Deviation	392.0E-06	353.6E-06	379.6E-06	26.2E-03	27.8E-03	27.6E-03	27.7E-03

Measurements

Idd3p	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.8E-03	3.3E-03	3.7E-03	3.3E-03	3.3E-03	4.0E-03	4.0E-03
37_OUT_REF	3.8E-03	3.2E-03	3.9E-03	3.7E-03	3.7E-03	3.5E-03	4.2E-03
OFF samples							
31	4.2E-03	3.5E-03	3.9E-03	3.7E-03	3.6E-03	3.8E-03	4.6E-03
32	3.9E-03	3.2E-03	3.4E-03	3.4E-03	3.3E-03	3.3E-03	4.0E-03
33	3.8E-03	3.2E-03	3.9E-03	3.3E-03	3.3E-03	3.8E-03	4.3E-03
34	3.7E-03	3.1E-03	3.7E-03	3.4E-03	3.4E-03	3.5E-03	4.0E-03
35	3.9E-03	3.1E-03	3.4E-03	3.3E-03	3.5E-03	3.5E-03	4.4E-03
Statistics							
Min	3.7E-03	3.1E-03	3.4E-03	3.3E-03	3.3E-03	3.3E-03	4.0E-03
Max	4.2E-03	3.5E-03	3.9E-03	3.7E-03	3.6E-03	3.8E-03	4.6E-03
Average	3.9E-03	3.2E-03	3.7E-03	3.4E-03	3.4E-03	3.6E-03	4.3E-03
Std Deviation	168.3E-06	147.5E-06	234.8E-06	159.1E-06	115.8E-06	202.1E-06	245.4E-06

Parameter : Burst read operating current : Idd4r
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 157.0E-03
Spec limits are represented in bold lines on the graphic.



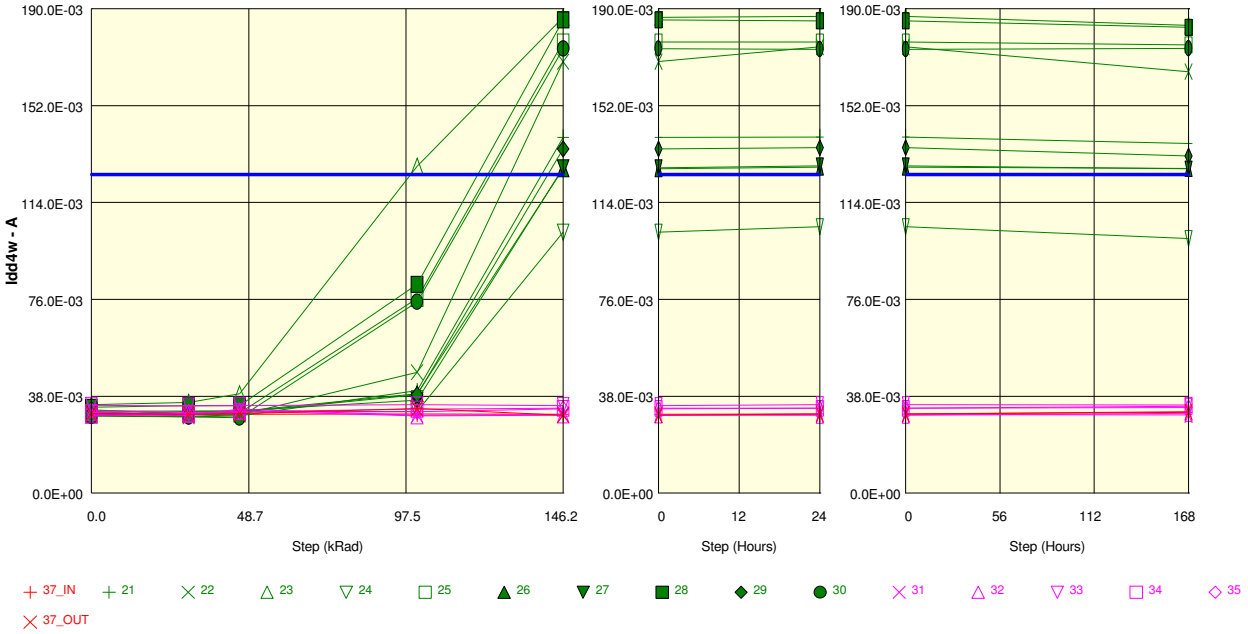
Measurements

Idd4r	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	30.9E-03	30.5E-03	30.8E-03	30.6E-03	30.5E-03	30.5E-03	30.9E-03
37_OUT_REF	30.8E-03	30.4E-03	30.6E-03	32.7E-03	30.3E-03	30.3E-03	31.0E-03
ON samples							
21	30.1E-03	29.8E-03	29.2E-03	38.9E-03	138.0E-03	138.6E-03	135.9E-03
22	30.8E-03	30.1E-03	30.3E-03	47.5E-03	**168.9E-03**	**173.7E-03**	**164.3E-03**
23	29.8E-03	30.2E-03	31.6E-03	122.3E-03	**182.0E-03**	**182.7E-03**	**179.3E-03**
24	30.1E-03	30.5E-03	30.8E-03	30.8E-03	100.5E-03	103.5E-03	98.9E-03
25	30.8E-03	30.3E-03	30.7E-03	75.1E-03	**176.2E-03**	**176.8E-03**	**175.5E-03**
26	29.8E-03	31.1E-03	31.3E-03	37.8E-03	126.1E-03	126.8E-03	126.0E-03
27	31.5E-03	31.1E-03	31.8E-03	35.7E-03	126.7E-03	127.6E-03	126.3E-03
28	29.5E-03	28.9E-03	29.0E-03	76.5E-03	**179.9E-03**	**180.4E-03**	**178.0E-03**
29	30.0E-03	29.6E-03	29.9E-03	37.0E-03	133.7E-03	134.4E-03	131.6E-03
30	29.8E-03	29.6E-03	29.4E-03	74.6E-03	**174.3E-03**	**173.7E-03**	**174.2E-03**
Statistics							
Min	29.5E-03	28.9E-03	29.0E-03	30.8E-03	100.5E-03	103.5E-03	98.9E-03
Max	31.5E-03	31.1E-03	31.8E-03	122.3E-03	182.0E-03	182.7E-03	179.3E-03
Average	30.2E-03	30.1E-03	30.4E-03	57.6E-03	150.6E-03	151.8E-03	149.0E-03
Std Deviation	569.0E-06	655.8E-06	961.5E-06	27.6E-03	27.4E-03	27.2E-03	27.1E-03

Measurements

Idd4r	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	30.9E-03	30.5E-03	30.8E-03	30.6E-03	30.5E-03	30.5E-03	30.9E-03
37_OUT_REF	30.8E-03	30.4E-03	30.6E-03	32.7E-03	30.3E-03	30.3E-03	31.0E-03
OFF samples							
31	30.6E-03	30.1E-03	32.4E-03	30.1E-03	30.3E-03	30.7E-03	31.1E-03
32	30.6E-03	29.5E-03	29.6E-03	30.2E-03	29.6E-03	30.1E-03	29.8E-03
33	29.4E-03	29.1E-03	29.2E-03	29.1E-03	29.5E-03	29.1E-03	29.7E-03
34	29.9E-03	28.9E-03	29.0E-03	29.1E-03	29.6E-03	29.3E-03	29.4E-03
35	30.8E-03	30.3E-03	30.5E-03	30.3E-03	30.6E-03	30.8E-03	30.9E-03
Statistics							
Min	29.4E-03	28.9E-03	29.0E-03	29.1E-03	29.5E-03	29.1E-03	29.4E-03
Max	30.8E-03	30.3E-03	32.4E-03	30.3E-03	30.6E-03	30.8E-03	31.1E-03
Average	30.3E-03	29.6E-03	30.1E-03	29.7E-03	29.9E-03	30.0E-03	30.2E-03
Std Deviation	535.6E-06	543.4E-06	1.2E-03	560.9E-06	436.8E-06	716.6E-06	702.8E-06

Parameter : Burst write operating current : Idd4w
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 125.0E-03
Spec limits are represented in bold lines on the graphic.



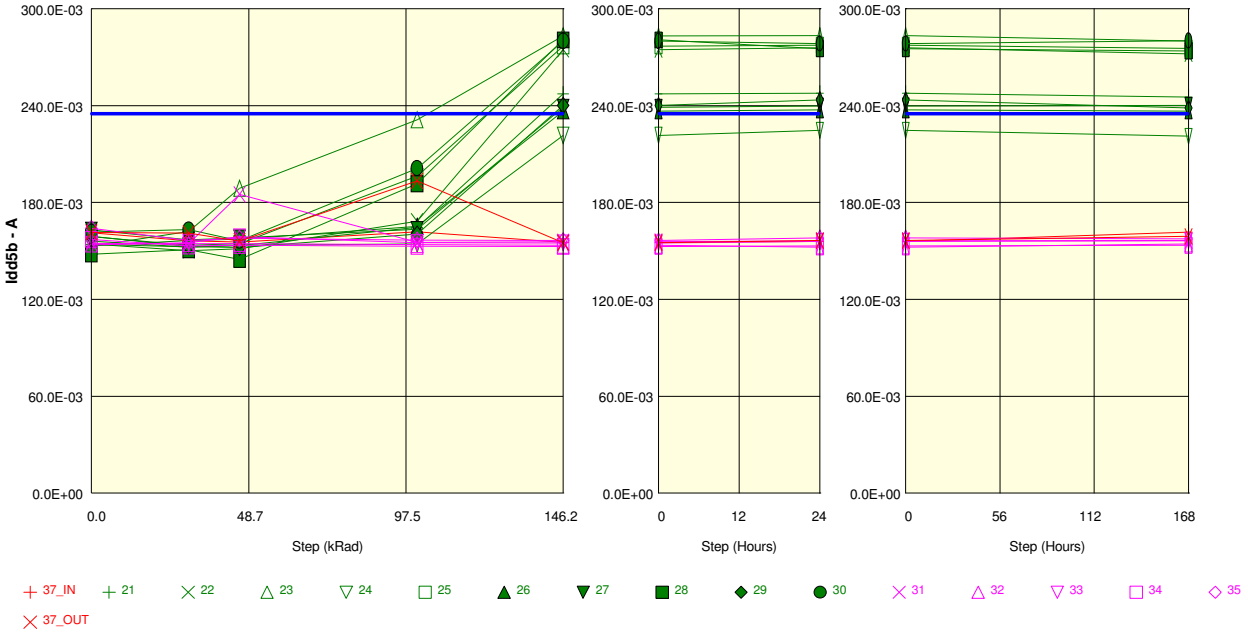
Measurements

Idd4w	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	31.1E-03	30.8E-03	30.9E-03	31.0E-03	30.9E-03	31.1E-03	31.6E-03
37_OUT_REF	31.2E-03	30.9E-03	31.2E-03	33.1E-03	30.6E-03	31.0E-03	31.8E-03
ON samples							
21	30.4E-03	29.9E-03	30.2E-03	40.2E-03	139.5E-03	139.7E-03	137.3E-03
22	32.1E-03	30.1E-03	30.6E-03	47.4E-03	169.3E-03	175.1E-03	165.4E-03
23	34.5E-03	35.5E-03	38.9E-03	128.2E-03	186.7E-03	187.0E-03	183.5E-03
24	31.3E-03	31.3E-03	31.9E-03	32.1E-03	102.4E-03	104.5E-03	99.9E-03
25	31.3E-03	30.8E-03	31.4E-03	76.4E-03	177.0E-03	177.1E-03	175.9E-03
26	30.6E-03	32.1E-03	32.1E-03	39.0E-03	127.2E-03	127.9E-03	127.3E-03
27	32.2E-03	32.2E-03	32.3E-03	36.4E-03	127.6E-03	128.3E-03	127.2E-03
28	33.7E-03	34.2E-03	34.2E-03	81.8E-03	185.6E-03	185.3E-03	182.8E-03
29	32.6E-03	31.1E-03	31.6E-03	38.5E-03	135.0E-03	135.5E-03	132.3E-03
30	30.1E-03	29.8E-03	29.5E-03	75.0E-03	174.4E-03	174.1E-03	174.5E-03
Statistics							
Min	30.1E-03	29.8E-03	29.5E-03	32.1E-03	102.4E-03	104.5E-03	99.9E-03
Max	34.5E-03	35.5E-03	38.9E-03	128.2E-03	186.7E-03	187.0E-03	183.5E-03
Average	31.9E-03	31.7E-03	32.3E-03	59.5E-03	152.5E-03	153.4E-03	150.6E-03
Std Deviation	1.4E-03	1.8E-03	2.5E-03	29.0E-03	28.1E-03	27.9E-03	27.8E-03

Measurements

Idd4w	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	31.1E-03	30.8E-03	30.9E-03	31.0E-03	30.9E-03	31.1E-03	31.6E-03
37_OUT_REF	31.2E-03	30.9E-03	31.2E-03	33.1E-03	30.6E-03	31.0E-03	31.8E-03
OFF samples							
31	30.7E-03	30.6E-03	32.8E-03	30.5E-03	30.8E-03	30.8E-03	30.7E-03
32	30.5E-03	30.6E-03	32.2E-03	30.3E-03	30.6E-03	30.4E-03	31.3E-03
33	34.4E-03	34.2E-03	34.2E-03	34.5E-03	34.2E-03	34.7E-03	34.5E-03
34	31.6E-03	31.2E-03	32.0E-03	32.9E-03	33.2E-03	33.2E-03	34.1E-03
35	32.3E-03	31.6E-03	31.7E-03	31.9E-03	33.0E-03	33.3E-03	33.6E-03
Statistics							
Min	30.5E-03	30.6E-03	31.7E-03	30.3E-03	30.6E-03	30.4E-03	30.7E-03
Max	34.4E-03	34.2E-03	34.2E-03	34.5E-03	34.2E-03	34.7E-03	34.5E-03
Average	31.9E-03	31.6E-03	32.6E-03	32.0E-03	32.4E-03	32.5E-03	32.8E-03
Std Deviation	1.4E-03	1.3E-03	901.3E-06	1.6E-03	1.4E-03	1.6E-03	1.5E-03

Parameter : Burst auto refresh current : Idd5b
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 235.0E-03
Spec limits are represented in bold lines on the graphic.



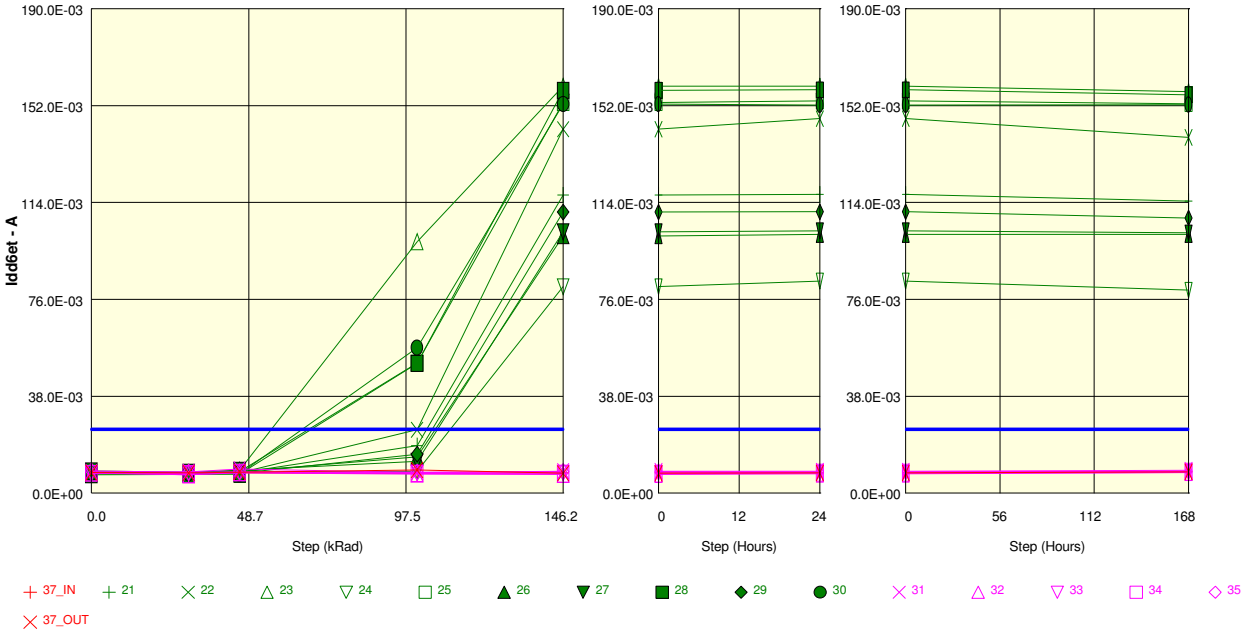
Measurements

Idd5b	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	161.3E-03	156.3E-03	155.5E-03	161.8E-03	155.4E-03	155.9E-03	161.7E-03
37_OUT_REF	161.6E-03	161.0E-03	156.0E-03	193.3E-03	155.2E-03	156.4E-03	158.9E-03
ON samples							
21	156.0E-03	152.3E-03	153.3E-03	164.7E-03	247.3E-03	247.6E-03	245.3E-03
22	154.2E-03	150.3E-03	151.3E-03	168.4E-03	274.8E-03	275.8E-03	272.3E-03
23	152.9E-03	162.1E-03	188.9E-03	231.3E-03	283.4E-03	283.5E-03	280.1E-03
24	154.1E-03	152.7E-03	153.5E-03	154.2E-03	221.7E-03	224.6E-03	221.1E-03
25	158.8E-03	153.6E-03	154.6E-03	196.3E-03	276.9E-03	277.5E-03	275.5E-03
26	153.1E-03	156.4E-03	157.2E-03	165.2E-03	236.7E-03	237.4E-03	236.8E-03
27	163.0E-03	156.9E-03	158.0E-03	163.3E-03	239.1E-03	239.9E-03	240.2E-03
28	148.0E-03	150.7E-03	144.7E-03	191.6E-03	280.8E-03	275.3E-03	273.8E-03
29	159.0E-03	152.7E-03	152.1E-03	160.4E-03	240.2E-03	243.7E-03	238.5E-03
30	161.6E-03	163.2E-03	156.3E-03	201.2E-03	280.1E-03	278.4E-03	280.2E-03
Statistics							
Min	148.0E-03	150.3E-03	144.7E-03	154.2E-03	221.7E-03	224.6E-03	221.1E-03
Max	163.0E-03	163.2E-03	188.9E-03	231.3E-03	283.4E-03	283.5E-03	280.2E-03
Average	156.1E-03	155.1E-03	157.0E-03	179.7E-03	258.1E-03	258.4E-03	256.4E-03
Std Deviation	4.3E-03	4.3E-03	11.2E-03	23.2E-03	22.0E-03	20.6E-03	20.9E-03

Measurements

Idd5b	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	161.3E-03	156.3E-03	155.5E-03	161.8E-03	155.4E-03	155.9E-03	161.7E-03
37_OUT_REF	161.6E-03	161.0E-03	156.0E-03	193.3E-03	155.2E-03	156.4E-03	158.9E-03
OFF samples							
31	154.9E-03	154.4E-03	185.1E-03	155.3E-03	155.7E-03	156.3E-03	156.4E-03
32	154.2E-03	154.5E-03	154.6E-03	153.8E-03	153.4E-03	152.3E-03	154.2E-03
33	153.7E-03	155.2E-03	158.8E-03	155.2E-03	155.0E-03	155.8E-03	156.3E-03
34	157.2E-03	153.1E-03	153.4E-03	153.0E-03	152.8E-03	153.1E-03	153.4E-03
35	164.1E-03	156.5E-03	157.8E-03	156.7E-03	156.5E-03	158.0E-03	157.5E-03
Statistics							
Min	153.7E-03	153.1E-03	153.4E-03	153.0E-03	152.8E-03	152.3E-03	153.4E-03
Max	164.1E-03	156.5E-03	185.1E-03	156.7E-03	156.5E-03	158.0E-03	157.5E-03
Average	156.8E-03	154.7E-03	161.9E-03	154.8E-03	154.7E-03	155.1E-03	155.6E-03
Std Deviation	3.8E-03	1.1E-03	11.7E-03	1.3E-03	1.4E-03	2.1E-03	1.5E-03

Parameter : Extended temperature self refresh : Idd6et
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 25.0E-03
Spec limits are represented in bold lines on the graphic.



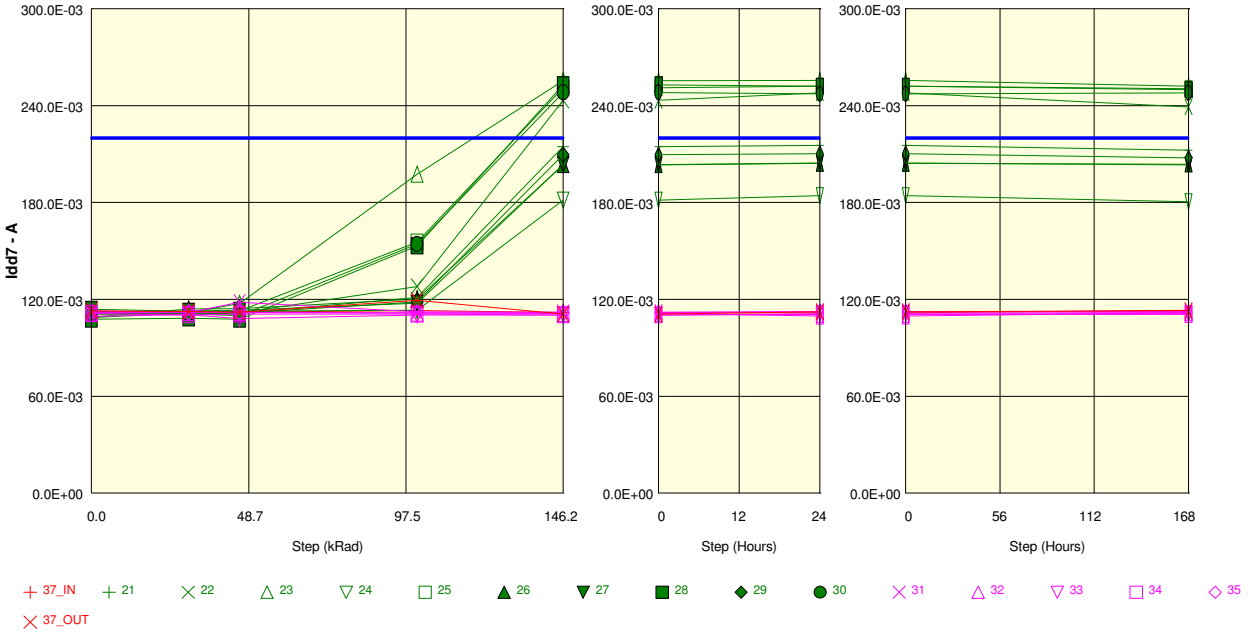
Measurements

Idd6et	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	7.9E-03	7.8E-03	7.9E-03	7.6E-03	7.8E-03	7.9E-03	8.4E-03
37_OUT_REF	7.9E-03	7.9E-03	8.2E-03	9.0E-03	7.7E-03	7.8E-03	8.4E-03
ON samples							
21	7.8E-03	7.4E-03	7.9E-03	18.6E-03	116.9E-03	117.2E-03	114.5E-03
22	7.5E-03	7.4E-03	7.8E-03	24.8E-03	142.8E-03	146.9E-03	139.5E-03
23	7.7E-03	7.7E-03	8.9E-03	98.6E-03	159.6E-03	159.7E-03	157.5E-03
24	8.0E-03	7.5E-03	8.2E-03	8.5E-03	80.9E-03	83.2E-03	79.5E-03
25	8.4E-03	7.8E-03	8.4E-03	51.0E-03	153.3E-03	153.8E-03	152.8E-03
26	7.7E-03	8.0E-03	8.4E-03	14.2E-03	101.0E-03	101.5E-03	101.4E-03
27	8.7E-03	8.2E-03	8.9E-03	12.5E-03	102.5E-03	102.9E-03	102.1E-03
28	7.1E-03	7.3E-03	7.4E-03	50.8E-03	158.0E-03	158.3E-03	156.3E-03
29	8.2E-03	7.8E-03	7.8E-03	15.2E-03	110.2E-03	110.4E-03	107.9E-03
30	7.7E-03	7.6E-03	7.4E-03	57.0E-03	152.6E-03	152.2E-03	152.3E-03
Statistics							
Min	7.1E-03	7.3E-03	7.4E-03	8.5E-03	80.9E-03	83.2E-03	79.5E-03
Max	8.7E-03	8.2E-03	8.9E-03	98.6E-03	159.6E-03	159.7E-03	157.5E-03
Average	7.9E-03	7.7E-03	8.1E-03	35.1E-03	127.8E-03	128.6E-03	126.4E-03
Std Deviation	423.3E-06	254.7E-06	503.3E-06	27.3E-03	27.2E-03	27.0E-03	27.0E-03

Measurements

Idd6et	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	7.9E-03	7.8E-03	7.9E-03	7.6E-03	7.8E-03	7.9E-03	8.4E-03
37_OUT_REF	7.9E-03	7.9E-03	8.2E-03	9.0E-03	7.7E-03	7.8E-03	8.4E-03
OFF samples							
31	8.4E-03	8.3E-03	9.4E-03	8.1E-03	8.5E-03	8.5E-03	8.9E-03
32	7.9E-03	7.1E-03	7.8E-03	7.4E-03	7.3E-03	7.4E-03	7.9E-03
33	7.6E-03	7.6E-03	8.2E-03	7.8E-03	7.9E-03	8.2E-03	8.5E-03
34	7.7E-03	7.1E-03	7.9E-03	7.6E-03	7.4E-03	7.8E-03	8.1E-03
35	8.6E-03	8.2E-03	8.4E-03	8.2E-03	8.4E-03	8.3E-03	8.5E-03
Statistics							
Min	7.6E-03	7.1E-03	7.8E-03	7.4E-03	7.3E-03	7.4E-03	7.9E-03
Max	8.6E-03	8.3E-03	9.4E-03	8.2E-03	8.5E-03	8.5E-03	8.9E-03
Average	8.0E-03	7.7E-03	8.3E-03	7.8E-03	7.9E-03	8.0E-03	8.4E-03
Std Deviation	385.3E-06	493.5E-06	564.2E-06	297.5E-06	495.0E-06	394.4E-06	352.9E-06

Parameter : All banks interleaved read current : Idd7
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 220.0E-03
Spec limits are represented in bold lines on the graphic.



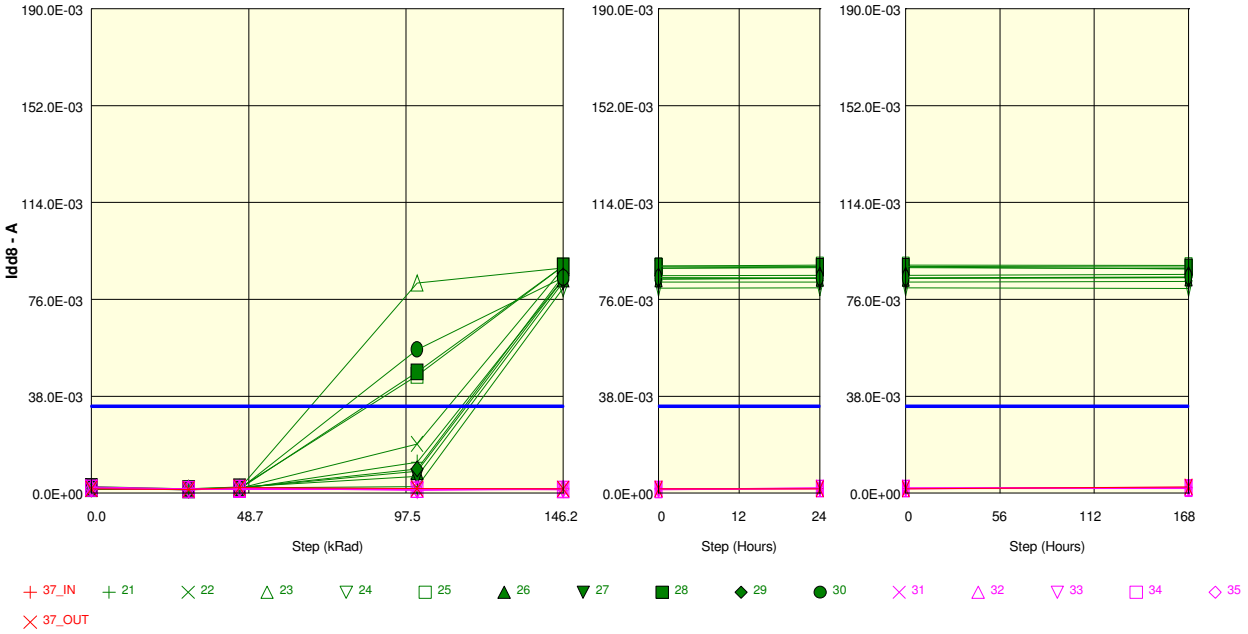
Measurements

Idd7	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	112.4E-03	111.6E-03	111.9E-03	113.0E-03	111.8E-03	111.6E-03	113.2E-03
37_OUT_REF	113.0E-03	112.6E-03	111.9E-03	119.4E-03	110.9E-03	112.2E-03	113.0E-03
ON samples							
21	111.1E-03	110.9E-03	111.4E-03	121.1E-03	214.6E-03	215.5E-03	212.5E-03
22	111.4E-03	111.4E-03	111.7E-03	128.0E-03	**243.2E-03**	**248.1E-03**	**239.2E-03**
23	108.7E-03	111.6E-03	117.4E-03	197.5E-03	**255.5E-03**	**255.6E-03**	**252.3E-03**
24	111.5E-03	112.2E-03	112.7E-03	113.2E-03	181.5E-03	184.3E-03	180.4E-03
25	112.5E-03	112.6E-03	112.9E-03	155.5E-03	**251.2E-03**	**252.0E-03**	**250.6E-03**
26	109.0E-03	114.0E-03	114.1E-03	120.2E-03	203.4E-03	204.4E-03	203.7E-03
27	113.8E-03	112.7E-03	113.3E-03	117.6E-03	203.6E-03	204.4E-03	203.4E-03
28	107.6E-03	108.3E-03	107.7E-03	153.2E-03	**252.9E-03**	**252.2E-03**	**250.0E-03**
29	112.2E-03	111.6E-03	111.5E-03	118.3E-03	209.6E-03	210.3E-03	207.6E-03
30	110.8E-03	111.0E-03	109.7E-03	154.2E-03	**248.2E-03**	**247.3E-03**	**247.9E-03**
Statistics							
Min	107.6E-03	108.3E-03	107.7E-03	113.2E-03	181.5E-03	184.3E-03	180.4E-03
Max	113.8E-03	114.0E-03	117.4E-03	197.5E-03	255.5E-03	255.6E-03	252.3E-03
Average	110.9E-03	111.6E-03	112.2E-03	137.9E-03	226.4E-03	227.4E-03	224.8E-03
Std Deviation	1.8E-03	1.4E-03	2.5E-03	25.4E-03	25.3E-03	24.9E-03	24.7E-03

Measurements

Idd7	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	112.4E-03	111.6E-03	111.9E-03	113.0E-03	111.8E-03	111.6E-03	113.2E-03
37_OUT_REF	113.0E-03	112.6E-03	111.9E-03	119.4E-03	110.9E-03	112.2E-03	113.0E-03
OFF samples							
31	111.7E-03	111.9E-03	118.2E-03	112.1E-03	112.1E-03	112.6E-03	112.3E-03
32	112.0E-03	111.9E-03	111.9E-03	111.5E-03	111.2E-03	109.7E-03	111.6E-03
33	109.4E-03	110.6E-03	108.2E-03	110.4E-03	110.4E-03	111.0E-03	111.0E-03
34	111.2E-03	110.4E-03	110.8E-03	110.8E-03	110.3E-03	110.7E-03	110.7E-03
35	112.9E-03	111.8E-03	112.0E-03	111.6E-03	111.6E-03	112.2E-03	111.9E-03
Statistics							
Min	109.4E-03	110.4E-03	108.2E-03	110.4E-03	110.3E-03	109.7E-03	110.7E-03
Max	112.9E-03	111.9E-03	118.2E-03	112.1E-03	112.1E-03	112.6E-03	112.3E-03
Average	111.4E-03	111.3E-03	112.2E-03	111.3E-03	111.1E-03	111.2E-03	111.5E-03
Std Deviation	1.2E-03	658.2E-06	3.3E-03	616.6E-06	676.2E-06	1.0E-03	572.6E-06

Parameter : Reset current : Idd8
Test conditions : VilAC160. VihAC160 ;RST=0V or VDDQ
Unit : A
Spec Limit Max : 34.0E-03
Spec limits are represented in bold lines on the graphic.



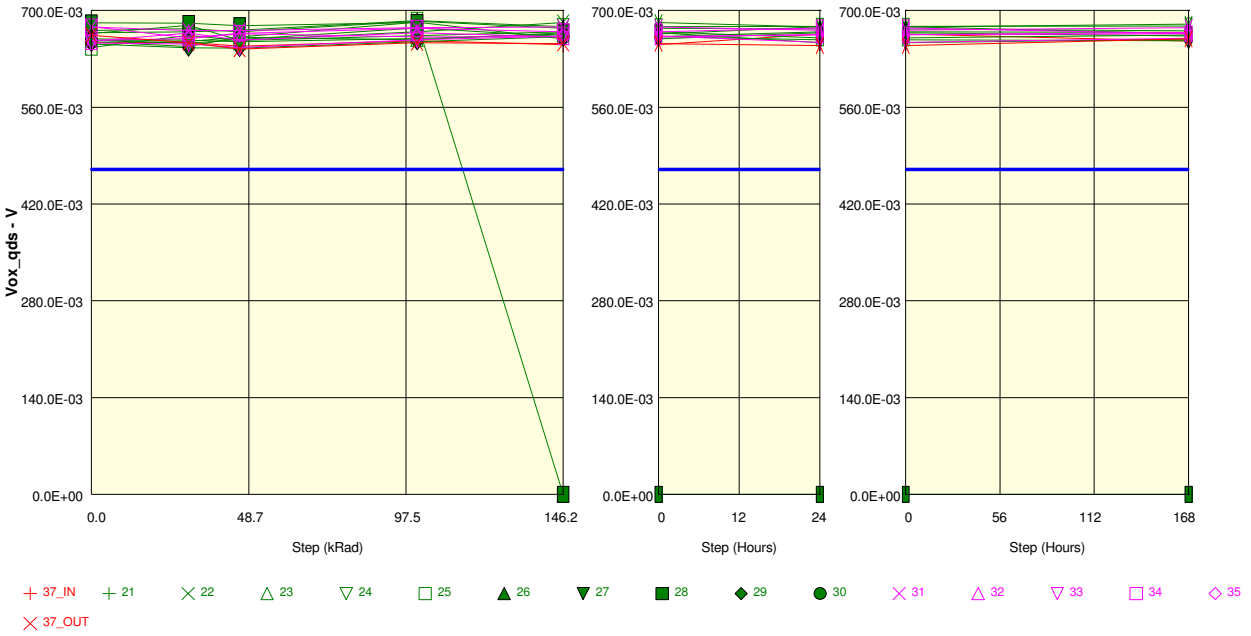
Measurements

Idd8	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	1.5E-03	1.5E-03	1.5E-03	1.3E-03	1.6E-03	1.8E-03	2.1E-03
37_OUT_REF	1.6E-03	1.4E-03	2.1E-03	1.8E-03	1.6E-03	1.6E-03	2.4E-03
ON samples							
21	1.5E-03	1.4E-03	1.6E-03	12.0E-03	**84.1E-03**	**84.4E-03**	**84.5E-03**
22	1.6E-03	1.5E-03	1.9E-03	19.3E-03	**88.2E-03**	**88.5E-03**	**88.0E-03**
23	1.8E-03	1.3E-03	1.7E-03	**82.4E-03**	**88.3E-03**	**88.7E-03**	**87.9E-03**
24	2.0E-03	1.4E-03	2.0E-03	2.5E-03	**80.3E-03**	**80.5E-03**	**80.3E-03**
25	1.9E-03	1.6E-03	2.0E-03	**46.1E-03**	**89.1E-03**	**89.5E-03**	**89.2E-03**
26	1.7E-03	1.8E-03	2.0E-03	8.5E-03	**83.9E-03**	**84.4E-03**	**84.5E-03**
27	2.5E-03	1.6E-03	2.4E-03	6.4E-03	**82.8E-03**	**82.8E-03**	**83.1E-03**
28	2.0E-03	1.4E-03	1.6E-03	**47.5E-03**	**89.0E-03**	**88.9E-03**	**88.7E-03**
29	2.0E-03	1.3E-03	2.0E-03	9.5E-03	**85.2E-03**	**85.5E-03**	**85.8E-03**
30	1.6E-03	1.3E-03	1.5E-03	**56.3E-03**	**84.5E-03**	**84.4E-03**	**84.8E-03**
Statistics							
Min	1.5E-03	1.3E-03	1.5E-03	2.5E-03	80.3E-03	80.5E-03	80.3E-03
Max	2.5E-03	1.8E-03	2.4E-03	82.4E-03	89.1E-03	89.5E-03	89.2E-03
Average	1.9E-03	1.5E-03	1.9E-03	29.0E-03	85.5E-03	85.7E-03	85.7E-03
Std Deviation	267.7E-06	159.2E-06	243.0E-06	25.7E-03	2.8E-03	2.9E-03	2.7E-03

Measurements

Idd8	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	1.5E-03	1.5E-03	1.5E-03	1.3E-03	1.6E-03	1.8E-03	2.1E-03
37_OUT_REF	1.6E-03	1.4E-03	2.1E-03	1.8E-03	1.6E-03	1.6E-03	2.4E-03
OFF samples							
31	2.3E-03	1.6E-03	1.8E-03	1.5E-03	1.5E-03	2.0E-03	2.2E-03
32	2.0E-03	1.5E-03	1.4E-03	1.3E-03	1.5E-03	1.6E-03	2.1E-03
33	1.9E-03	1.3E-03	1.8E-03	1.0E-03	1.5E-03	1.9E-03	2.1E-03
34	1.9E-03	1.2E-03	1.8E-03	1.5E-03	1.3E-03	1.8E-03	1.7E-03
35	1.7E-03	1.6E-03	1.8E-03	1.4E-03	1.6E-03	1.8E-03	2.0E-03
Statistics							
Min	1.7E-03	1.2E-03	1.4E-03	1.0E-03	1.3E-03	1.6E-03	1.7E-03
Max	2.3E-03	1.6E-03	1.8E-03	1.5E-03	1.6E-03	2.0E-03	2.2E-03
Average	2.0E-03	1.5E-03	1.7E-03	1.4E-03	1.5E-03	1.8E-03	2.0E-03
Std Deviation	202.0E-06	156.3E-06	161.0E-06	170.0E-06	105.0E-06	125.7E-06	175.2E-06

Parameter : Differential cross point voltage : Vox_qds
Test conditions : VrefDQ=0.675V
Unit : V
Spec Limit Min : 470.0E-03
Spec Limit Max : 880.0E-03
Spec limits are represented in bold lines on the graphic.



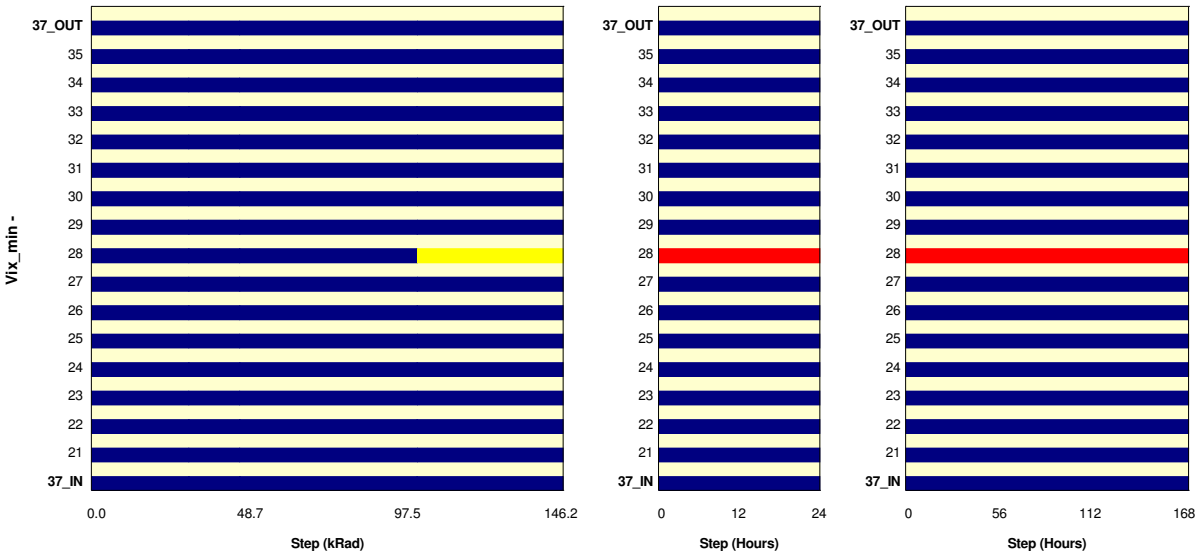
Measurements

Vox_qds	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	653.6E-03	653.8E-03	648.4E-03	656.5E-03	650.3E-03	665.6E-03	655.4E-03
37_OUT_REF	664.1E-03	653.3E-03	644.0E-03	653.5E-03	652.3E-03	649.1E-03	658.9E-03
ON samples							
21	654.9E-03	648.0E-03	661.8E-03	683.0E-03	658.8E-03	667.7E-03	663.1E-03
22	667.0E-03	678.5E-03	657.0E-03	669.3E-03	682.8E-03	676.0E-03	680.1E-03
23	658.9E-03	657.0E-03	654.9E-03	659.2E-03	665.7E-03	676.6E-03	666.4E-03
24	668.0E-03	669.1E-03	671.9E-03	685.5E-03	676.9E-03	677.1E-03	677.8E-03
25	646.6E-03	664.1E-03	656.7E-03	663.8E-03	669.3E-03	660.3E-03	664.4E-03
26	670.8E-03	673.8E-03	669.3E-03	684.3E-03	674.4E-03	673.5E-03	670.5E-03
27	657.4E-03	655.1E-03	661.0E-03	657.5E-03	667.7E-03	653.3E-03	658.5E-03
28	682.1E-03	681.5E-03	678.2E-03	682.7E-03	1.0E-09	1.0E-09	1.0E-09
29	651.9E-03	645.6E-03	645.1E-03	654.9E-03	662.2E-03	657.6E-03	655.9E-03
30	656.6E-03	652.8E-03	658.1E-03	674.8E-03	662.2E-03	669.3E-03	668.2E-03
Statistics							
Min	646.6E-03	645.6E-03	645.1E-03	654.9E-03	1.0E-09	1.0E-09	1.0E-09
Max	682.1E-03	681.5E-03	678.2E-03	685.5E-03	682.8E-03	677.1E-03	680.1E-03
Average	661.4E-03	662.5E-03	661.4E-03	671.5E-03	602.0E-03	601.1E-03	600.5E-03
Std Deviation	10.0E-03	12.1E-03	9.0E-03	11.5E-03	200.8E-03	200.5E-03	200.3E-03

Measurements

Vox_qds	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	653.6E-03	653.8E-03	648.4E-03	656.5E-03	650.3E-03	665.6E-03	655.4E-03
37_OUT_REF	664.1E-03	653.3E-03	644.0E-03	653.5E-03	652.3E-03	649.1E-03	658.9E-03
OFF samples							
31	676.0E-03	670.7E-03	671.0E-03	675.2E-03	675.9E-03	671.4E-03	675.1E-03
32	655.3E-03	667.4E-03	657.0E-03	667.9E-03	662.0E-03	665.0E-03	666.4E-03
33	653.0E-03	651.6E-03	646.6E-03	657.5E-03	663.2E-03	653.8E-03	660.0E-03
34	676.2E-03	660.0E-03	666.9E-03	674.1E-03	669.3E-03	674.7E-03	666.8E-03
35	656.7E-03	659.2E-03	666.0E-03	661.7E-03	662.5E-03	665.1E-03	668.3E-03
Statistics							
Min	653.0E-03	651.6E-03	646.6E-03	657.5E-03	662.0E-03	653.8E-03	660.0E-03
Max	676.2E-03	670.7E-03	671.0E-03	675.2E-03	675.9E-03	674.7E-03	675.1E-03
Average	663.4E-03	661.8E-03	661.5E-03	667.3E-03	666.6E-03	666.0E-03	667.3E-03
Std Deviation	10.4E-03	6.7E-03	8.7E-03	6.9E-03	5.4E-03	7.2E-03	4.8E-03

Parameter : Differential cross_point voltage : Vix_minCK
Test conditions : GoNOGO;
Unit :
No spec limit specified.



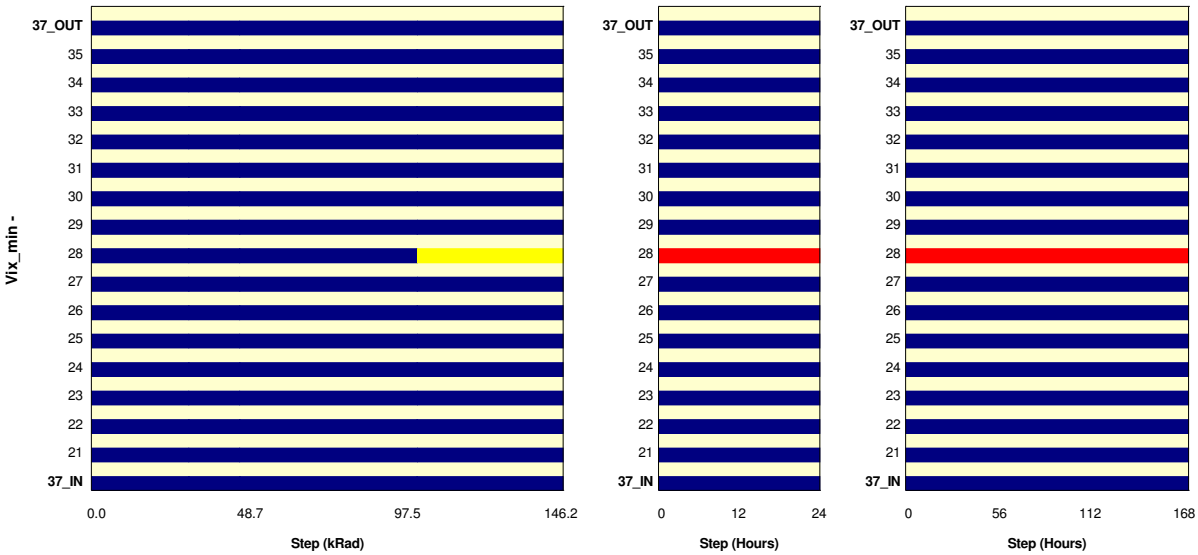
Measurements

Vix_minCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

Vix_minCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Differential cross_point voltage : Vix_minDQS
Test conditions : GoNOGO;
Unit :
No spec limit specified.



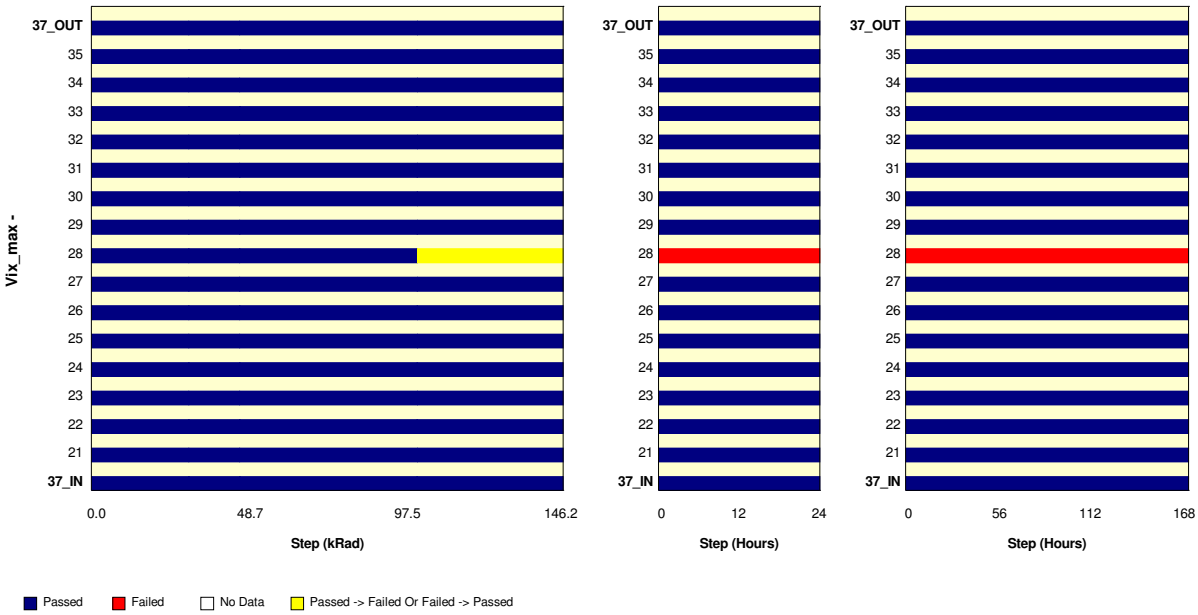
Measurements

Vix_minDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

Vix_minDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Differential cross_point voltage : Vix_maxCK
Test conditions : GoNOGO;
Unit :
No spec limit specified.



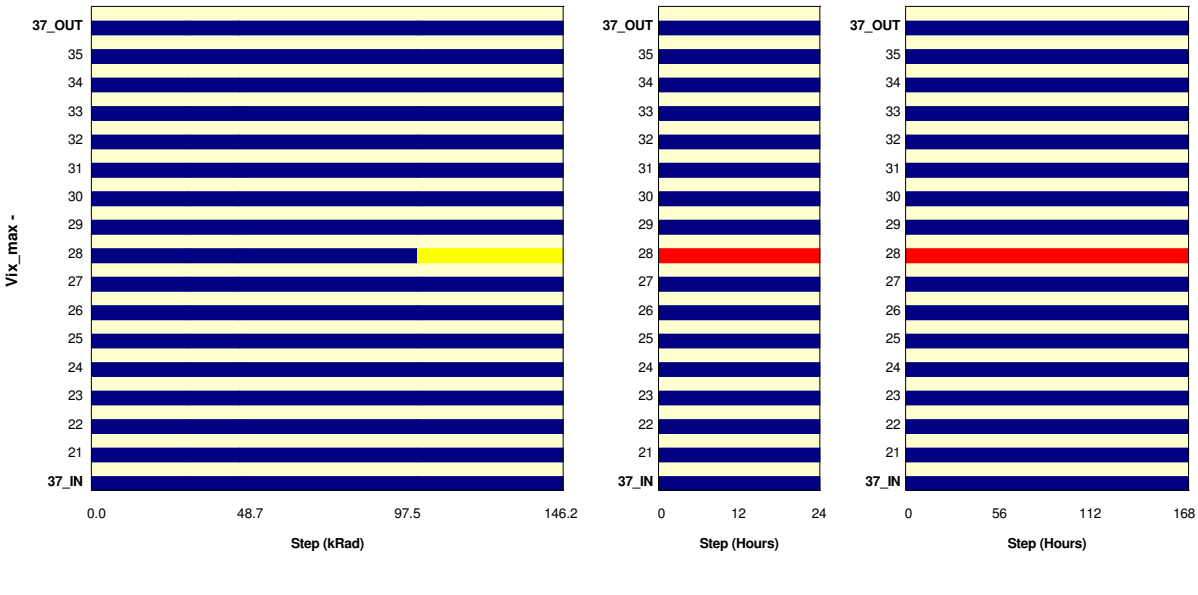
Measurements

Vix_maxCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

Vix_maxCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Differential cross_point voltage : Vix_maxDQS
Test conditions : GoNOGO;
Unit :
No spec limit specified.



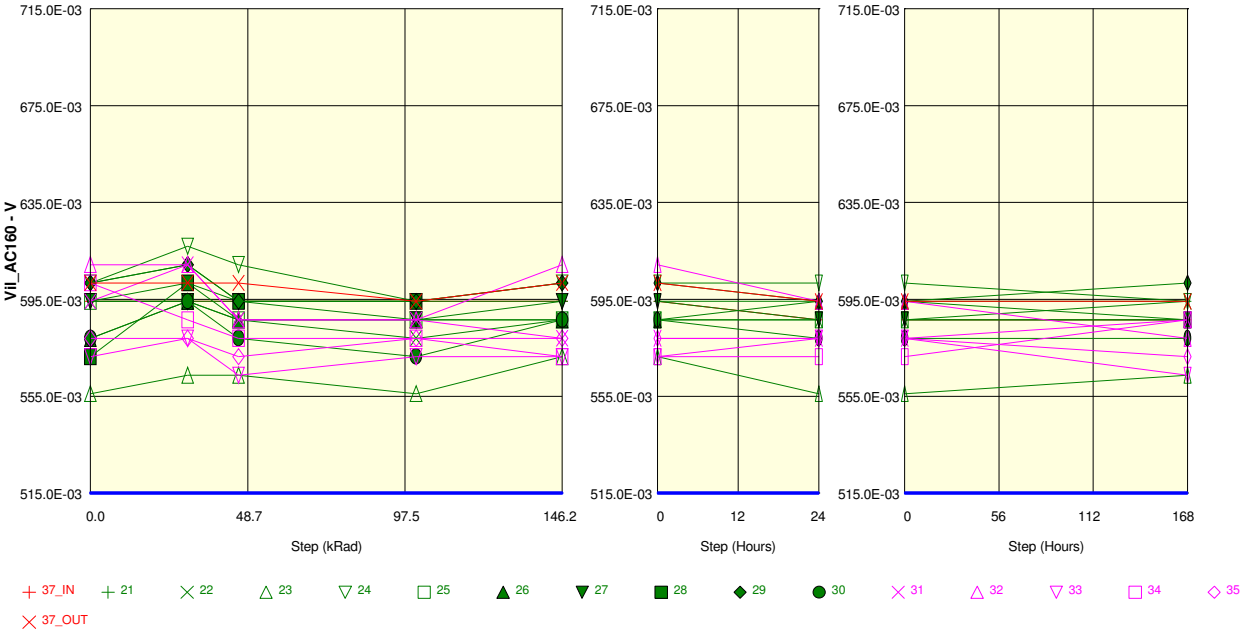
Measurements

Vix_maxDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

Vix_maxDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Input Low Voltage : Vil_AC160
Test conditions : Except CKE. RESET.ODT & differential pin;
Unit : V
Spec Limit Min : 515.0E-03
Spec limits are represented in bold lines on the graphic.



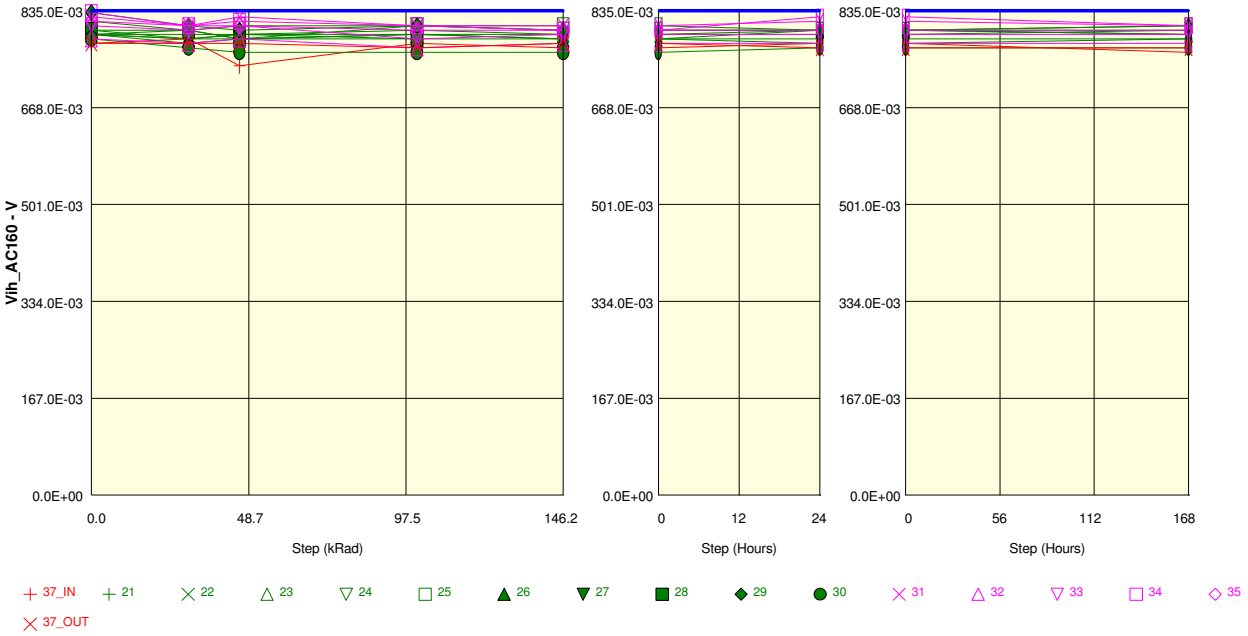
Measurements

Vil_AC160	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	594.1E-03	594.1E-03	594.1E-03	594.1E-03	594.1E-03	586.5E-03	586.5E-03
37_OUT_REF	601.8E-03	601.8E-03	601.8E-03	594.1E-03	601.8E-03	594.1E-03	594.1E-03
ON samples							
21	601.8E-03	609.4E-03	594.1E-03	594.1E-03	594.1E-03	594.1E-03	594.1E-03
22	594.1E-03	601.8E-03	586.5E-03	578.9E-03	586.5E-03	586.5E-03	594.1E-03
23	556.1E-03	563.7E-03	563.7E-03	556.1E-03	571.3E-03	556.1E-03	563.7E-03
24	601.8E-03	617.0E-03	609.4E-03	594.1E-03	601.8E-03	601.8E-03	594.1E-03
25	594.1E-03	594.1E-03	586.5E-03	586.5E-03	586.5E-03	586.5E-03	586.5E-03
26	578.9E-03	594.1E-03	586.5E-03	586.5E-03	586.5E-03	594.1E-03	586.5E-03
27	594.1E-03	594.1E-03	594.1E-03	586.5E-03	594.1E-03	586.5E-03	586.5E-03
28	571.3E-03	601.8E-03	594.1E-03	594.1E-03			
29	601.8E-03	609.4E-03	594.1E-03	594.1E-03	601.8E-03	594.1E-03	601.8E-03
30	578.9E-03	594.1E-03	578.9E-03	571.3E-03	586.5E-03	578.9E-03	578.9E-03
Statistics							
Min	556.1E-03	563.7E-03	563.7E-03	556.1E-03	571.3E-03	556.1E-03	563.7E-03
Max	601.8E-03	617.0E-03	609.4E-03	594.1E-03	601.8E-03	601.8E-03	601.8E-03
Average	587.3E-03	598.0E-03	588.8E-03	584.2E-03	589.9E-03	586.5E-03	587.4E-03
Std Deviation	14.6E-03	13.7E-03	11.3E-03	11.8E-03	8.9E-03	12.4E-03	10.4E-03

Measurements

Vil_AC160	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	594.1E-03	594.1E-03	594.1E-03	594.1E-03	594.1E-03	586.5E-03	586.5E-03
37_OUT_REF	601.8E-03	601.8E-03	601.8E-03	594.1E-03	601.8E-03	594.1E-03	594.1E-03
OFF samples							
31	594.1E-03	609.4E-03	586.5E-03	586.5E-03	578.9E-03	578.9E-03	586.5E-03
32	609.4E-03	609.4E-03	586.5E-03	586.5E-03	609.4E-03	594.1E-03	578.9E-03
33	571.3E-03	578.9E-03	563.7E-03	571.3E-03	571.3E-03	578.9E-03	563.7E-03
34	601.8E-03	586.5E-03	578.9E-03	578.9E-03	571.3E-03	571.3E-03	586.5E-03
35	578.9E-03	578.9E-03	571.3E-03	578.9E-03	578.9E-03	578.9E-03	571.3E-03
Statistics							
Min	571.3E-03	578.9E-03	563.7E-03	571.3E-03	571.3E-03	571.3E-03	563.7E-03
Max	609.4E-03	609.4E-03	586.5E-03	586.5E-03	609.4E-03	594.1E-03	586.5E-03
Average	591.1E-03	592.6E-03	577.4E-03	580.4E-03	582.0E-03	580.4E-03	577.4E-03
Std Deviation	14.1E-03	14.0E-03	8.9E-03	5.7E-03	14.1E-03	7.5E-03	8.9E-03

Parameter : Input High Voltage : Vih_AC160
Test conditions : Except CKE. RESET.ODT & differential pin;
Unit : V
Spec Limit Max : 835.0E-03
Spec limits are represented in bold lines on the graphic.



Measurements

Vih_AC160	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	778.7E-03	786.3E-03	740.6E-03	778.7E-03	771.1E-03	778.7E-03	763.5E-03
37_OUT_REF	778.7E-03	778.7E-03	778.7E-03	771.1E-03	778.7E-03	771.1E-03	771.1E-03
ON samples							
21	794.0E-03	778.7E-03	786.3E-03	794.0E-03	786.3E-03	786.3E-03	786.3E-03
22	794.0E-03	794.0E-03	794.0E-03	801.6E-03	794.0E-03	794.0E-03	801.6E-03
23	794.0E-03	786.3E-03	786.3E-03	794.0E-03	794.0E-03	801.6E-03	794.0E-03
24	794.0E-03	801.6E-03	786.3E-03	809.2E-03	801.6E-03	801.6E-03	801.6E-03
25	816.8E-03	801.6E-03	809.2E-03	809.2E-03	809.2E-03	801.6E-03	809.2E-03
26	801.6E-03	786.3E-03	794.0E-03	794.0E-03	786.3E-03	801.6E-03	794.0E-03
27	794.0E-03	786.3E-03	794.0E-03	786.3E-03	786.3E-03	778.7E-03	786.3E-03
28	801.6E-03	801.6E-03	786.3E-03	786.3E-03			
29	832.0E-03	809.2E-03	801.6E-03	809.2E-03	801.6E-03	801.6E-03	809.2E-03
30	786.3E-03	771.1E-03	763.5E-03	763.5E-03	763.5E-03	771.1E-03	771.1E-03
Statistics							
Min	786.3E-03	771.1E-03	763.5E-03	763.5E-03	763.5E-03	771.1E-03	771.1E-03
Max	832.0E-03	809.2E-03	809.2E-03	809.2E-03	809.2E-03	801.6E-03	809.2E-03
Average	800.8E-03	791.7E-03	790.1E-03	794.7E-03	791.4E-03	793.1E-03	794.8E-03
Std Deviation	12.9E-03	11.3E-03	11.4E-03	13.4E-03	12.4E-03	11.0E-03	11.6E-03

Measurements

Vih_AC160	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	778.7E-03	786.3E-03	740.6E-03	778.7E-03	771.1E-03	778.7E-03	763.5E-03
37_OUT_REF	778.7E-03	778.7E-03	778.7E-03	771.1E-03	778.7E-03	771.1E-03	771.1E-03
OFF samples							
31	824.4E-03	809.2E-03	824.4E-03	809.2E-03	809.2E-03	816.8E-03	809.2E-03
32	786.3E-03	778.7E-03	786.3E-03	771.1E-03	778.7E-03	778.7E-03	778.7E-03
33	809.2E-03	801.6E-03	809.2E-03	786.3E-03	794.0E-03	794.0E-03	794.0E-03
34	832.0E-03	809.2E-03	816.8E-03	809.2E-03	801.6E-03	824.4E-03	809.2E-03
35	816.8E-03	809.2E-03	809.2E-03	801.6E-03	801.6E-03	801.6E-03	801.6E-03
Statistics							
Min	786.3E-03	778.7E-03	786.3E-03	771.1E-03	778.7E-03	778.7E-03	778.7E-03
Max	832.0E-03	809.2E-03	824.4E-03	809.2E-03	809.2E-03	824.4E-03	809.2E-03
Average	813.8E-03	801.6E-03	809.2E-03	795.5E-03	797.0E-03	803.1E-03	798.5E-03
Std Deviation	15.7E-03	11.8E-03	12.7E-03	14.8E-03	10.3E-03	16.3E-03	11.4E-03

Parameter : Input Low Leakage Current : Iil_CAS
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iil_CAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.3E-09	-28.1E-09	-20.8E-09	-25.6E-09	-15.9E-09	-20.8E-09	-17.1E-09
37_OUT_REF	-22.0E-09	-24.4E-09	-19.5E-09	-17.1E-09	-23.2E-09	-22.0E-09	-18.3E-09
ON samples							
21	-28.1E-09	-18.3E-09	-19.5E-09	-18.3E-09	-14.6E-09	-22.0E-09	-17.1E-09
22	-15.9E-09	-15.9E-09	-20.8E-09	-17.1E-09	-18.3E-09	-15.9E-09	-24.4E-09
23	-12.2E-09	-19.5E-09	-20.8E-09	-18.3E-09	-13.4E-09	-22.0E-09	-22.0E-09
24	-22.0E-09	-20.8E-09	-19.5E-09	-17.1E-09	-22.0E-09	-14.6E-09	-22.0E-09
25	-19.5E-09	-22.0E-09	-17.1E-09	-25.6E-09	-25.6E-09	-18.3E-09	-26.9E-09
26	-19.5E-09	-15.9E-09	-9.8E-09	-18.3E-09	-12.2E-09	-18.3E-09	-22.0E-09
27	-25.6E-09	-17.1E-09	-20.8E-09	-15.9E-09	-18.3E-09	-22.0E-09	-14.6E-09
28	-18.3E-09	-28.1E-09	-12.2E-09	-15.9E-09	-18.3E-09	-24.4E-09	-14.6E-09
29	-24.4E-09	-22.0E-09	-18.3E-09	-14.6E-09	-22.0E-09	-24.4E-09	-23.2E-09
30	-30.5E-09	-17.1E-09	-22.0E-09	-15.9E-09	-19.5E-09	-22.0E-09	-20.8E-09
Statistics							
Min	-30.5E-09	-28.1E-09	-22.0E-09	-25.6E-09	-25.6E-09	-24.4E-09	-26.9E-09
Max	-12.2E-09	-15.9E-09	-9.8E-09	-14.6E-09	-12.2E-09	-14.6E-09	-14.6E-09
Average	-21.6E-09	-19.7E-09	-18.1E-09	-17.7E-09	-18.4E-09	-20.4E-09	-20.8E-09
Std Deviation	5.4E-09	3.6E-09	3.8E-09	2.9E-09	4.0E-09	3.2E-09	3.9E-09

Measurements

Iil_CAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.3E-09	-28.1E-09	-20.8E-09	-25.6E-09	-15.9E-09	-20.8E-09	-17.1E-09
37_OUT_REF	-22.0E-09	-24.4E-09	-19.5E-09	-17.1E-09	-23.2E-09	-22.0E-09	-18.3E-09
OFF samples							
31	-23.2E-09	-29.3E-09	-12.2E-09	-17.1E-09	-20.8E-09	-18.3E-09	-17.1E-09
32	-18.3E-09	-15.9E-09	-19.5E-09	-15.9E-09	-28.1E-09	-18.3E-09	-23.2E-09
33	-18.3E-09	-22.0E-09	-15.9E-09	-23.2E-09	-18.3E-09	-12.2E-09	-22.0E-09
34	-24.4E-09	-15.9E-09	-11.0E-09	-18.3E-09	-19.5E-09	-15.9E-09	-12.2E-09
35	-15.9E-09	-23.2E-09	-22.0E-09	-17.1E-09	-26.9E-09	-20.8E-09	-25.6E-09
Statistics							
Min	-24.4E-09	-29.3E-09	-22.0E-09	-23.2E-09	-28.1E-09	-20.8E-09	-25.6E-09
Max	-15.9E-09	-15.9E-09	-11.0E-09	-15.9E-09	-18.3E-09	-12.2E-09	-12.2E-09
Average	-20.0E-09	-21.2E-09	-16.1E-09	-18.3E-09	-22.7E-09	-17.1E-09	-20.0E-09
Std Deviation	3.2E-09	5.0E-09	4.2E-09	2.6E-09	4.0E-09	2.9E-09	4.8E-09

Parameter : Input Low Leakage Current : Iil_CS
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iil_CS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.8E-09	-14.6E-09	-11.0E-09	-3.7E-09	-9.8E-09	-12.2E-09	-8.5E-09
37_OUT_REF	-11.0E-09	-13.4E-09	-6.1E-09	-7.3E-09	-9.8E-09	-8.5E-09	-13.4E-09
ON samples							
21	-8.5E-09	-14.6E-09	-12.2E-09	-6.1E-09	-8.5E-09	-9.8E-09	-13.4E-09
22	-8.5E-09	-12.2E-09	-13.4E-09	-9.8E-09	-9.8E-09	-9.8E-09	-13.4E-09
23	-12.2E-09	-4.9E-09	-12.2E-09	-11.0E-09	-3.7E-09	-3.7E-09	-6.1E-09
24	-12.2E-09	-4.9E-09	-9.8E-09	-11.0E-09	-8.5E-09	-9.8E-09	-8.5E-09
25	-13.4E-09	-12.2E-09	-3.7E-09	-12.2E-09	-9.8E-09	-7.3E-09	-7.3E-09
26	-4.9E-09	-17.1E-09	-4.9E-09	-8.5E-09	-8.5E-09	-7.3E-09	-9.8E-09
27	-8.5E-09	-11.0E-09	-15.9E-09	-6.1E-09	-11.0E-09	-3.7E-09	-11.0E-09
28	-11.0E-09	-8.5E-09	-12.2E-09	-11.0E-09	-8.5E-09	-11.0E-09	-11.0E-09
29	-6.1E-09	-15.9E-09	-7.3E-09	-4.9E-09	-11.0E-09	-8.5E-09	-9.8E-09
30	-7.3E-09	-17.1E-09	-7.3E-09	-9.8E-09	-12.2E-09	-14.6E-09	-7.3E-09
Statistics							
Min	-13.4E-09	-17.1E-09	-15.9E-09	-12.2E-09	-12.2E-09	-14.6E-09	-13.4E-09
Max	-4.9E-09	-4.9E-09	-3.7E-09	-4.9E-09	-3.7E-09	-3.7E-09	-6.1E-09
Average	-9.3E-09	-11.8E-09	-9.9E-09	-9.0E-09	-9.2E-09	-8.5E-09	-9.8E-09
Std Deviation	2.7E-09	4.3E-09	3.8E-09	2.4E-09	2.2E-09	3.1E-09	2.4E-09

Measurements

Iil_CS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.8E-09	-14.6E-09	-11.0E-09	-3.7E-09	-9.8E-09	-12.2E-09	-8.5E-09
37_OUT_REF	-11.0E-09	-13.4E-09	-6.1E-09	-7.3E-09	-9.8E-09	-8.5E-09	-13.4E-09
OFF samples							
31	-6.1E-09	-9.8E-09	-9.8E-09	-11.0E-09	-8.5E-09	-7.3E-09	-8.5E-09
32	-4.9E-09	-15.9E-09	-6.1E-09	-12.2E-09	-7.3E-09	-7.3E-09	-9.8E-09
33	-9.8E-09	-11.0E-09	-7.3E-09	-4.9E-09	-12.2E-09	-3.7E-09	-11.0E-09
34	-8.5E-09	-9.8E-09	-7.3E-09	-8.5E-09	-8.5E-09	-14.6E-09	-12.2E-09
35	-11.0E-09	-9.8E-09	-12.2E-09	-13.4E-09	-6.1E-09	-12.2E-09	-11.0E-09
Statistics							
Min	-11.0E-09	-15.9E-09	-12.2E-09	-13.4E-09	-12.2E-09	-14.6E-09	-12.2E-09
Max	-4.9E-09	-9.8E-09	-6.1E-09	-4.9E-09	-6.1E-09	-3.7E-09	-8.5E-09
Average	-8.1E-09	-11.2E-09	-8.5E-09	-10.0E-09	-8.5E-09	-9.0E-09	-10.5E-09
Std Deviation	2.3E-09	2.4E-09	2.2E-09	3.0E-09	2.0E-09	3.9E-09	1.2E-09

Parameter : Input Low Leakage Current : Iil_RAS
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iil_RAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-4.9E-09	-3.7E-09	-14.6E-09	-8.5E-09	0.0E+00	-8.5E-09
37_OUT_REF	-7.3E-09	-8.5E-09	-4.9E-09	-4.9E-09	-3.7E-09	-12.2E-09	-7.3E-09
ON samples							
21	-8.5E-09	-7.3E-09	-7.3E-09	0.0E+00	-9.8E-09	-8.5E-09	-2.4E-09
22	-1.2E-09	-14.6E-09	-7.3E-09	-9.8E-09	-6.1E-09	0.0E+00	-2.4E-09
23	-8.5E-09	-2.4E-09	-11.0E-09	-8.5E-09	-6.1E-09	-6.1E-09	-12.2E-09
24	-8.5E-09	-7.3E-09	-9.8E-09	-9.8E-09	-12.2E-09	-1.2E-09	-4.9E-09
25	-4.9E-09	-1.2E-09	-7.3E-09	-4.9E-09	-12.2E-09	-8.5E-09	-6.1E-09
26	3.7E-09	-6.1E-09	-7.3E-09	-9.8E-09	-7.3E-09	-2.4E-09	-6.1E-09
27	-14.6E-09	-6.1E-09	-2.4E-09	-12.2E-09	-4.9E-09	-11.0E-09	-9.8E-09
28	-11.0E-09	-6.1E-09	-7.3E-09	-11.0E-09	-4.9E-09	-4.9E-09	-9.8E-09
29	-2.4E-09	-7.3E-09	-9.8E-09	-7.3E-09	-11.0E-09	-2.4E-09	-6.1E-09
30	-9.8E-09	-1.2E-09	-4.9E-09	-7.3E-09	0.0E+00	-7.3E-09	-3.7E-09
Statistics							
Min	-14.6E-09	-14.6E-09	-11.0E-09	-12.2E-09	-12.2E-09	-11.0E-09	-12.2E-09
Max	3.7E-09	-1.2E-09	-2.4E-09	0.0E+00	0.0E+00	0.0E+00	-2.4E-09
Average	-6.6E-09	-6.0E-09	-7.4E-09	-8.1E-09	-7.4E-09	-5.2E-09	-6.3E-09
Std Deviation	5.1E-09	3.7E-09	2.3E-09	3.3E-09	3.7E-09	3.5E-09	3.1E-09

Measurements

Iil_RAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-4.9E-09	-3.7E-09	-14.6E-09	-8.5E-09	0.0E+00	-8.5E-09
37_OUT_REF	-7.3E-09	-8.5E-09	-4.9E-09	-4.9E-09	-3.7E-09	-12.2E-09	-7.3E-09
OFF samples							
31	-3.7E-09	-4.9E-09	-12.2E-09	-8.5E-09	-3.7E-09	-7.3E-09	1.2E-09
32	-12.2E-09	-15.9E-09	-11.0E-09	-9.8E-09	-3.7E-09	-7.3E-09	-2.4E-09
33	-7.3E-09	0.0E+00	-11.0E-09	-3.7E-09	-4.9E-09	-1.2E-09	-12.2E-09
34	-2.4E-09	-4.9E-09	-8.5E-09	-1.2E-09	-2.4E-09	-7.3E-09	-14.6E-09
35	-3.7E-09	-15.9E-09	-2.4E-09	-17.1E-09	-2.4E-09	-6.1E-09	0.0E+00
Statistics							
Min	-12.2E-09	-15.9E-09	-12.2E-09	-17.1E-09	-4.9E-09	-7.3E-09	-14.6E-09
Max	-2.4E-09	0.0E+00	-2.4E-09	-1.2E-09	-2.4E-09	-1.2E-09	1.2E-09
Average	-5.9E-09	-8.3E-09	-9.0E-09	-8.1E-09	-3.4E-09	-5.9E-09	-5.6E-09
Std Deviation	3.6E-09	6.4E-09	3.5E-09	5.5E-09	913.5E-12	2.4E-09	6.5E-09

Parameter : Input Low Leakage Current : Iil_RESET
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iil_RESET	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	4.8E-09	936.3E-12	-589.6E-12	173.3E-12	-1.4E-09	-4.4E-09	-589.6E-12
37_OUT_REF	-2.1E-09	-1.4E-09	-1.4E-09	173.3E-12	3.2E-09	1.7E-09	-2.9E-09
ON samples							
21	936.3E-12	936.3E-12	2.5E-09	1.7E-09	4.0E-09	-589.6E-12	-3.6E-09
22	-589.6E-12	173.3E-12	-6.7E-09	173.3E-12	-4.4E-09	-2.9E-09	-2.1E-09
23	-2.1E-09	-7.5E-09	-589.6E-12	-4.4E-09	2.5E-09	-3.6E-09	-2.1E-09
24	-3.6E-09	173.3E-12	-2.1E-09	-2.1E-09	-3.6E-09	2.5E-09	-1.4E-09
25	-1.4E-09	173.3E-12	2.5E-09	1.7E-09	-2.9E-09	-3.6E-09	2.5E-09
26	-2.9E-09	-2.9E-09	-589.6E-12	-5.2E-09	173.3E-12	936.3E-12	173.3E-12
27	173.3E-12	-2.9E-09	-1.4E-09	-2.1E-09	-2.1E-09	3.2E-09	-2.1E-09
28	3.2E-09	-1.4E-09	-589.6E-12	-2.9E-09	-5.2E-09	-7.5E-09	-5.9E-09
29	-2.9E-09	-589.6E-12	-2.1E-09	-4.4E-09	-2.9E-09	173.3E-12	173.3E-12
30	-1.4E-09	-5.2E-09	-589.6E-12	-1.4E-09	-3.6E-09	936.3E-12	-4.4E-09
Statistics							
Min	-3.6E-09	-7.5E-09	-6.7E-09	-5.2E-09	-5.2E-09	-7.5E-09	-5.9E-09
Max	3.2E-09	936.3E-12	2.5E-09	1.7E-09	4.0E-09	3.2E-09	2.5E-09
Average	-1.0E-09	-1.9E-09	-971.1E-12	-1.9E-09	-1.8E-09	-1.0E-09	-1.9E-09
Std Deviation	2.0E-09	2.6E-09	2.4E-09	2.3E-09	2.9E-09	3.1E-09	2.3E-09

Measurements

Iil_RESET	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	4.8E-09	936.3E-12	-589.6E-12	173.3E-12	-1.4E-09	-4.4E-09	-589.6E-12
37_OUT_REF	-2.1E-09	-1.4E-09	-1.4E-09	173.3E-12	3.2E-09	1.7E-09	-2.9E-09
OFF samples							
31	-1.4E-09	-5.9E-09	-1.4E-09	-2.9E-09	936.3E-12	-2.1E-09	-3.6E-09
32	3.2E-09	-1.4E-09	-1.4E-09	-2.1E-09	1.7E-09	1.7E-09	-589.6E-12
33	173.3E-12	1.7E-09	-1.4E-09	173.3E-12	-589.6E-12	1.7E-09	-2.1E-09
34	-589.6E-12	-589.6E-12	-2.1E-09	-1.4E-09	-3.6E-09	936.3E-12	-5.9E-09
35	-2.9E-09	-589.6E-12	-589.6E-12	-5.2E-09	1.7E-09	-589.6E-12	936.3E-12
Statistics							
Min	-2.9E-09	-5.9E-09	-2.1E-09	-5.2E-09	-3.6E-09	-2.1E-09	-5.9E-09
Max	3.2E-09	1.7E-09	-589.6E-12	173.3E-12	1.7E-09	1.7E-09	936.3E-12
Average	-284.4E-12	-1.4E-09	-1.4E-09	-2.3E-09	20.7E-12	325.9E-12	-2.3E-09
Std Deviation	2.0E-09	2.5E-09	482.5E-12	1.8E-09	2.0E-09	1.5E-09	2.4E-09

Parameter : Input Low Leakage Current : Iil_WE
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iil_WE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-13.4E-09	-18.3E-09	-14.6E-09	-14.6E-09	-19.5E-09	-19.5E-09
37_OUT_REF	-17.1E-09	-15.9E-09	-15.9E-09	-12.2E-09	-17.1E-09	-13.4E-09	-19.5E-09
ON samples							
21	-17.1E-09	-17.1E-09	-11.0E-09	-13.4E-09	-17.1E-09	-17.1E-09	-19.5E-09
22	-13.4E-09	-15.9E-09	-20.8E-09	-19.5E-09	-15.9E-09	-22.0E-09	-12.2E-09
23	-13.4E-09	-17.1E-09	-17.1E-09	-20.8E-09	-18.3E-09	-13.4E-09	-15.9E-09
24	-18.3E-09	-13.4E-09	-12.2E-09	-17.1E-09	-14.6E-09	-18.3E-09	-15.9E-09
25	-14.6E-09	-18.3E-09	-14.6E-09	-11.0E-09	-15.9E-09	-14.6E-09	-18.3E-09
26	-20.8E-09	-18.3E-09	-17.1E-09	-14.6E-09	-18.3E-09	-12.2E-09	-14.6E-09
27	-12.2E-09	-15.9E-09	-14.6E-09	-13.4E-09	-12.2E-09	-18.3E-09	-11.0E-09
28	-12.2E-09	-15.9E-09	-22.0E-09	-22.0E-09	-15.9E-09	-18.3E-09	-14.6E-09
29	-12.2E-09	-14.6E-09	-13.4E-09	-17.1E-09	-20.8E-09	-17.1E-09	-15.9E-09
30	-15.9E-09	-15.9E-09	-22.0E-09	-15.9E-09	-11.0E-09	-20.8E-09	-15.9E-09
Statistics							
Min	-20.8E-09	-18.3E-09	-22.0E-09	-22.0E-09	-20.8E-09	-22.0E-09	-19.5E-09
Max	-12.2E-09	-13.4E-09	-11.0E-09	-11.0E-09	-11.0E-09	-12.2E-09	-11.0E-09
Average	-15.0E-09	-16.2E-09	-16.5E-09	-16.5E-09	-16.0E-09	-17.2E-09	-15.4E-09
Std Deviation	2.8E-09	1.4E-09	3.8E-09	3.3E-09	2.8E-09	2.9E-09	2.4E-09

Measurements

Iil_WE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-13.4E-09	-18.3E-09	-14.6E-09	-14.6E-09	-19.5E-09	-19.5E-09
37_OUT_REF	-17.1E-09	-15.9E-09	-15.9E-09	-12.2E-09	-17.1E-09	-13.4E-09	-19.5E-09
OFF samples							
31	-18.3E-09	-19.5E-09	-14.6E-09	-15.9E-09	-9.8E-09	-18.3E-09	-18.3E-09
32	-19.5E-09	-17.1E-09	-14.6E-09	-15.9E-09	-14.6E-09	-12.2E-09	-17.1E-09
33	-13.4E-09	-15.9E-09	-17.1E-09	-17.1E-09	-13.4E-09	-14.6E-09	-18.3E-09
34	-17.1E-09	-18.3E-09	-20.8E-09	-14.6E-09	-15.9E-09	-19.5E-09	-17.1E-09
35	-14.6E-09	-9.8E-09	-19.5E-09	-14.6E-09	-13.4E-09	-14.6E-09	-9.8E-09
Statistics							
Min	-19.5E-09	-19.5E-09	-20.8E-09	-17.1E-09	-15.9E-09	-19.5E-09	-18.3E-09
Max	-13.4E-09	-9.8E-09	-14.6E-09	-14.6E-09	-9.8E-09	-12.2E-09	-9.8E-09
Average	-16.6E-09	-16.1E-09	-17.3E-09	-15.6E-09	-13.4E-09	-15.9E-09	-16.1E-09
Std Deviation	2.3E-09	3.4E-09	2.5E-09	913.7E-12	2.0E-09	2.7E-09	3.2E-09

Parameter : Input Low Leakage Current : IilADD(0)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

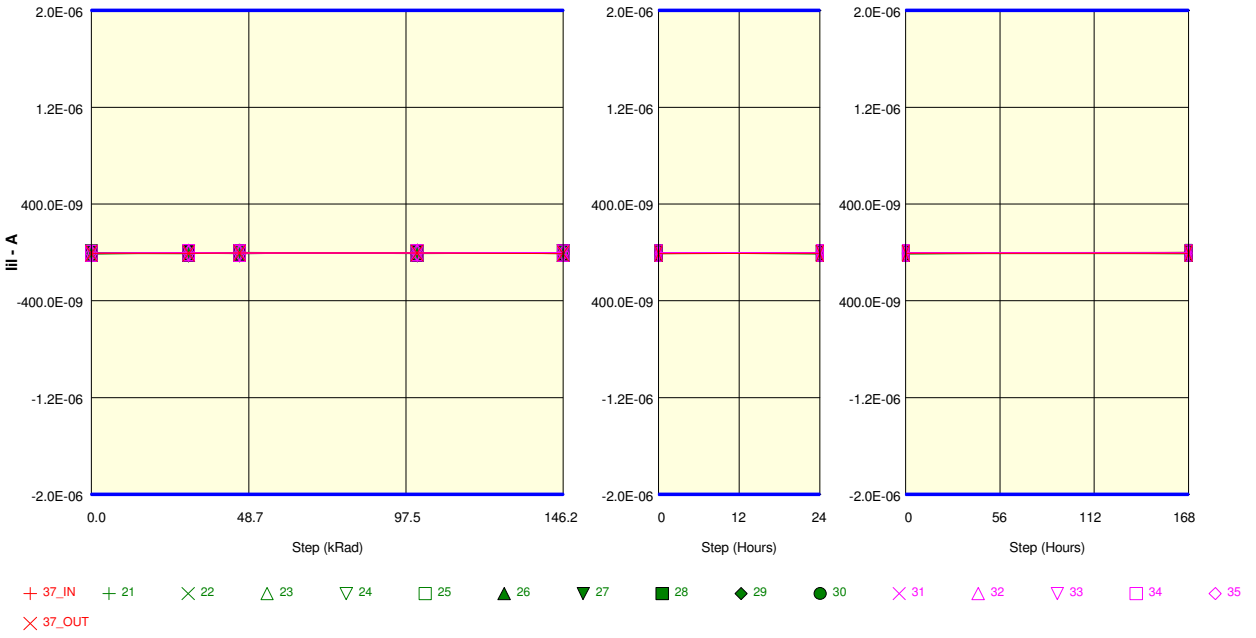
Measurements

IilADD(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.2E-09	173.3E-12	-4.4E-09	-2.1E-09	-2.1E-09	-589.6E-12	-589.6E-12
37_OUT_REF	-3.6E-09	-6.7E-09	-2.9E-09	936.3E-12	-1.4E-09	-2.9E-09	-2.1E-09
ON samples							
21	-2.1E-09	-589.6E-12	-1.4E-09	-2.9E-09	-2.9E-09	173.3E-12	1.7E-09
22	-589.6E-12	-4.4E-09	-1.4E-09	936.3E-12	-2.9E-09	173.3E-12	-1.4E-09
23	-589.6E-12	173.3E-12	-2.1E-09	-2.9E-09	-4.4E-09	-589.6E-12	-5.9E-09
24	936.3E-12	-3.6E-09	-3.6E-09	-5.9E-09	-589.6E-12	2.5E-09	-589.6E-12
25	1.7E-09	-589.6E-12	-2.1E-09	-2.1E-09	-2.9E-09	-1.4E-09	-2.9E-09
26	1.7E-09	-1.4E-09	936.3E-12	-5.9E-09	173.3E-12	-2.1E-09	-2.1E-09
27	-2.1E-09	-5.2E-09	-3.6E-09	-2.9E-09	-5.9E-09	-589.6E-12	-4.4E-09
28	-589.6E-12	936.3E-12	-2.1E-09	-5.2E-09	-7.5E-09	-3.6E-09	-3.6E-09
29	2.5E-09	-2.9E-09	-4.4E-09	-1.4E-09	-589.6E-12	-1.4E-09	1.7E-09
30	2.5E-09	1.7E-09	-2.1E-09	-2.9E-09	-3.6E-09	-4.4E-09	-5.2E-09
Statistics							
Min	-2.1E-09	-5.2E-09	-4.4E-09	-5.9E-09	-7.5E-09	-4.4E-09	-5.9E-09
Max	2.5E-09	1.7E-09	936.3E-12	936.3E-12	173.3E-12	2.5E-09	1.7E-09
Average	325.9E-12	-1.6E-09	-2.2E-09	-3.1E-09	-3.1E-09	-1.1E-09	-2.3E-09
Std Deviation	1.7E-09	2.2E-09	1.4E-09	2.0E-09	2.3E-09	1.9E-09	2.5E-09

Measurements

IilADD(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	3.2E-09	173.3E-12	-4.4E-09	-2.1E-09	-2.1E-09	-589.6E-12	-589.6E-12
37_OUT_REF	-3.6E-09	-6.7E-09	-2.9E-09	936.3E-12	-1.4E-09	-2.9E-09	-2.1E-09
OFF samples							
31	-589.6E-12	-1.4E-09	-2.9E-09	-2.1E-09	-1.4E-09	-5.9E-09	-5.9E-09
32	936.3E-12	-2.9E-09	936.3E-12	173.3E-12	-5.2E-09	-2.1E-09	-4.4E-09
33	-3.6E-09	-2.1E-09	936.3E-12	1.7E-09	-2.1E-09	-2.1E-09	-2.1E-09
34	-589.6E-12	-589.6E-12	-5.9E-09	-3.6E-09	173.3E-12	-5.2E-09	173.3E-12
35	-1.4E-09	-589.6E-12	-5.2E-09	-2.9E-09	-2.1E-09	-2.9E-09	-2.1E-09
Statistics							
Min	-3.6E-09	-2.9E-09	-5.9E-09	-3.6E-09	-5.2E-09	-5.9E-09	-5.9E-09
Max	936.3E-12	-589.6E-12	936.3E-12	1.7E-09	173.3E-12	-2.1E-09	173.3E-12
Average	-1.0E-09	-1.5E-09	-2.4E-09	-1.4E-09	-2.1E-09	-3.6E-09	-2.9E-09
Std Deviation	1.5E-09	889.7E-12	2.9E-09	2.0E-09	1.7E-09	1.6E-09	2.1E-09

Parameter : Input Low Leakage Current : IilADD(1)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



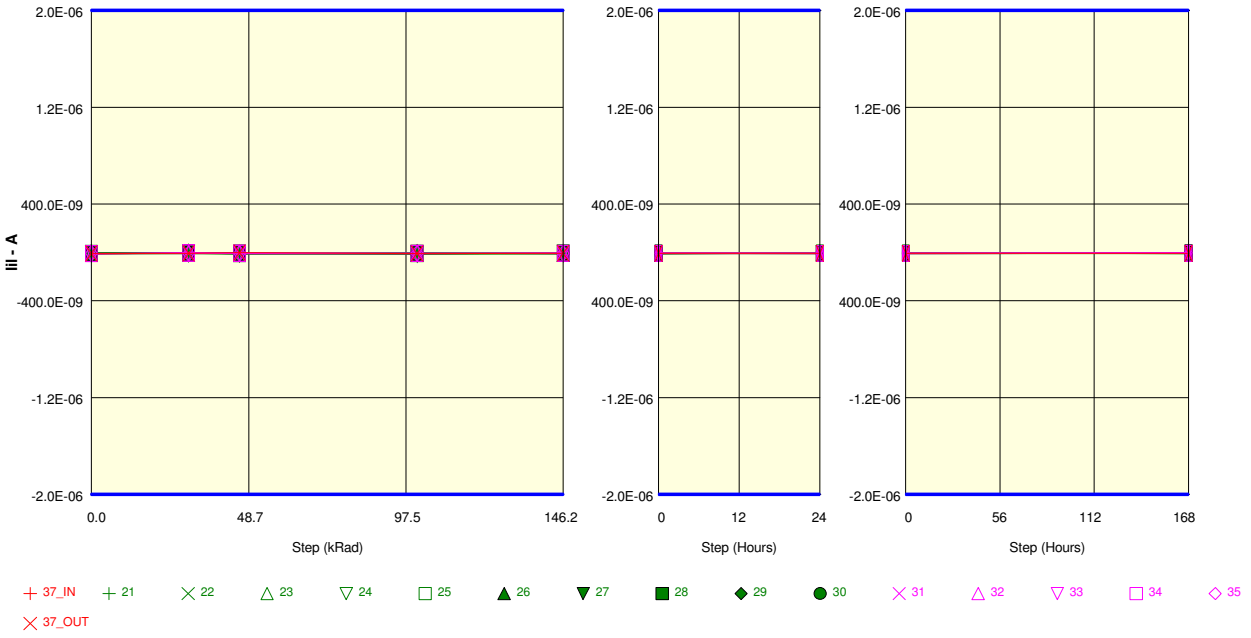
Measurements

IilADD(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-5.9E-09	-6.7E-09	-5.9E-09	-6.7E-09	-2.1E-09	-589.6E-12
37_OUT_REF	-7.5E-09	-6.7E-09	-3.6E-09	-4.4E-09	-9.0E-09	-5.9E-09	-6.7E-09
ON samples							
21	-4.4E-09	-4.4E-09	-4.4E-09	-5.9E-09	-3.6E-09	-5.2E-09	-3.6E-09
22	-2.1E-09	-4.4E-09	-2.9E-09	-6.7E-09	-3.6E-09	-3.6E-09	-4.4E-09
23	-7.5E-09	-6.7E-09	-8.2E-09	-2.9E-09	-9.0E-09	-2.1E-09	-9.0E-09
24	-9.7E-09	-9.0E-09	-4.4E-09	-6.7E-09	-5.2E-09	-12.8E-09	-589.6E-12
25	-6.7E-09	-3.6E-09	-5.9E-09	-6.7E-09	-4.4E-09	-3.6E-09	-9.0E-09
26	-8.2E-09	-5.2E-09	-4.4E-09	-4.4E-09	-7.5E-09	-9.0E-09	-2.9E-09
27	-4.4E-09	-6.7E-09	-6.7E-09	-3.6E-09	-2.9E-09	-6.7E-09	-3.6E-09
28	-6.7E-09	-8.2E-09	-2.1E-09	-8.2E-09	-3.6E-09	-5.9E-09	-5.2E-09
29	-10.5E-09	-3.6E-09	-8.2E-09	-1.4E-09	-9.0E-09	-5.9E-09	-2.1E-09
30	-9.0E-09	-5.9E-09	-589.6E-12	-7.5E-09	-2.9E-09	-9.0E-09	-8.2E-09
Statistics							
Min	-10.5E-09	-9.0E-09	-8.2E-09	-8.2E-09	-9.0E-09	-12.8E-09	-9.0E-09
Max	-2.1E-09	-3.6E-09	-589.6E-12	-1.4E-09	-2.9E-09	-2.1E-09	-589.6E-12
Average	-6.9E-09	-5.8E-09	-4.8E-09	-5.4E-09	-5.2E-09	-6.4E-09	-4.9E-09
Std Deviation	2.5E-09	1.8E-09	2.4E-09	2.1E-09	2.3E-09	3.0E-09	2.8E-09

Measurements

IilADD(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-5.9E-09	-6.7E-09	-5.9E-09	-6.7E-09	-2.1E-09	-589.6E-12
37_OUT_REF	-7.5E-09	-6.7E-09	-3.6E-09	-4.4E-09	-9.0E-09	-5.9E-09	-6.7E-09
OFF samples							
31	-6.7E-09	-5.9E-09	-2.9E-09	-5.9E-09	-2.1E-09	-2.9E-09	-3.6E-09
32	-3.6E-09	-4.4E-09	-5.9E-09	-3.6E-09	-6.7E-09	-6.7E-09	-5.2E-09
33	-7.5E-09	-2.1E-09	-2.1E-09	-5.2E-09	-4.4E-09	-6.7E-09	-5.2E-09
34	-9.0E-09	-2.1E-09	-8.2E-09	-2.1E-09	-4.4E-09	-1.4E-09	-4.4E-09
35	-5.9E-09	-5.2E-09	-6.7E-09	-2.9E-09	-7.5E-09	-5.2E-09	-6.7E-09
Statistics							
Min	-9.0E-09	-5.9E-09	-8.2E-09	-5.9E-09	-7.5E-09	-6.7E-09	-6.7E-09
Max	-3.6E-09	-2.1E-09	-2.1E-09	-2.1E-09	-2.1E-09	-1.4E-09	-3.6E-09
Average	-6.5E-09	-3.9E-09	-5.2E-09	-3.9E-09	-5.0E-09	-4.6E-09	-5.0E-09
Std Deviation	1.8E-09	1.6E-09	2.3E-09	1.4E-09	1.9E-09	2.1E-09	1.0E-09

Parameter : Input Low Leakage Current : IilADD(10)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilADD(10)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.8E-09	-5.2E-09	-7.5E-09	-5.9E-09	-4.4E-09	-7.5E-09	-5.9E-09
37_OUT_REF	-9.0E-09	-7.5E-09	-2.1E-09	-9.0E-09	-5.9E-09	-6.7E-09	-5.9E-09
ON samples							
21	-4.4E-09	-5.9E-09	-6.7E-09	-6.7E-09	-10.5E-09	-4.4E-09	-8.2E-09
22	-5.2E-09	-4.4E-09	-7.5E-09	-6.7E-09	-9.0E-09	-9.0E-09	-9.0E-09
23	-7.5E-09	-3.6E-09	-7.5E-09	-11.3E-09	-9.7E-09	-3.6E-09	-9.0E-09
24	-9.0E-09	-9.0E-09	-9.0E-09	-6.7E-09	-3.6E-09	-5.9E-09	-2.9E-09
25	-6.7E-09	-6.7E-09	-4.4E-09	-8.2E-09	-5.9E-09	-5.2E-09	-5.2E-09
26	-5.9E-09	-1.4E-09	-10.5E-09	-8.2E-09	-9.0E-09	-7.5E-09	-3.6E-09
27	-9.7E-09	-7.5E-09	-12.0E-09	-14.3E-09	-7.5E-09	-9.0E-09	-7.5E-09
28	-9.7E-09	-2.1E-09	-7.5E-09	-5.9E-09	-9.7E-09	-8.2E-09	-7.5E-09
29	-2.9E-09	-6.7E-09	-8.2E-09	-2.9E-09	-7.5E-09	-6.7E-09	-5.2E-09
30	-12.0E-09	-9.7E-09	-10.5E-09	-9.7E-09	-6.7E-09	-5.9E-09	-4.4E-09
Statistics							
Min	-12.0E-09	-9.7E-09	-12.0E-09	-14.3E-09	-10.5E-09	-9.0E-09	-9.0E-09
Max	-2.9E-09	-1.4E-09	-4.4E-09	-2.9E-09	-3.6E-09	-3.6E-09	-2.9E-09
Average	-7.3E-09	-5.7E-09	-8.4E-09	-8.1E-09	-7.9E-09	-6.5E-09	-6.2E-09
Std Deviation	2.7E-09	2.6E-09	2.1E-09	3.0E-09	2.0E-09	1.8E-09	2.1E-09

Measurements

IilADD(10)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.8E-09	-5.2E-09	-7.5E-09	-5.9E-09	-4.4E-09	-7.5E-09	-5.9E-09
37_OUT_REF	-9.0E-09	-7.5E-09	-2.1E-09	-9.0E-09	-5.9E-09	-6.7E-09	-5.9E-09
OFF samples							
31	-9.0E-09	-6.7E-09	-8.2E-09	-9.0E-09	-7.5E-09	-6.7E-09	-5.9E-09
32	-10.5E-09	-7.5E-09	-6.7E-09	-6.7E-09	-4.4E-09	-4.4E-09	-4.4E-09
33	-9.0E-09	-2.9E-09	-5.2E-09	-6.7E-09	-8.2E-09	-8.2E-09	-7.5E-09
34	-9.0E-09	-4.4E-09	-8.2E-09	-8.2E-09	-5.9E-09	-8.2E-09	-6.7E-09
35	-7.5E-09	-9.0E-09	-7.5E-09	-6.7E-09	-6.7E-09	-5.9E-09	-1.4E-09
Statistics							
Min	-10.5E-09	-9.0E-09	-8.2E-09	-9.0E-09	-8.2E-09	-8.2E-09	-7.5E-09
Max	-7.5E-09	-2.9E-09	-5.2E-09	-6.7E-09	-4.4E-09	-4.4E-09	-1.4E-09
Average	-9.0E-09	-6.1E-09	-7.2E-09	-7.5E-09	-6.5E-09	-6.7E-09	-5.2E-09
Std Deviation	965.1E-12	2.2E-09	1.1E-09	965.0E-12	1.3E-09	1.4E-09	2.2E-09

Parameter : Input Low Leakage Current : IilADD(11)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

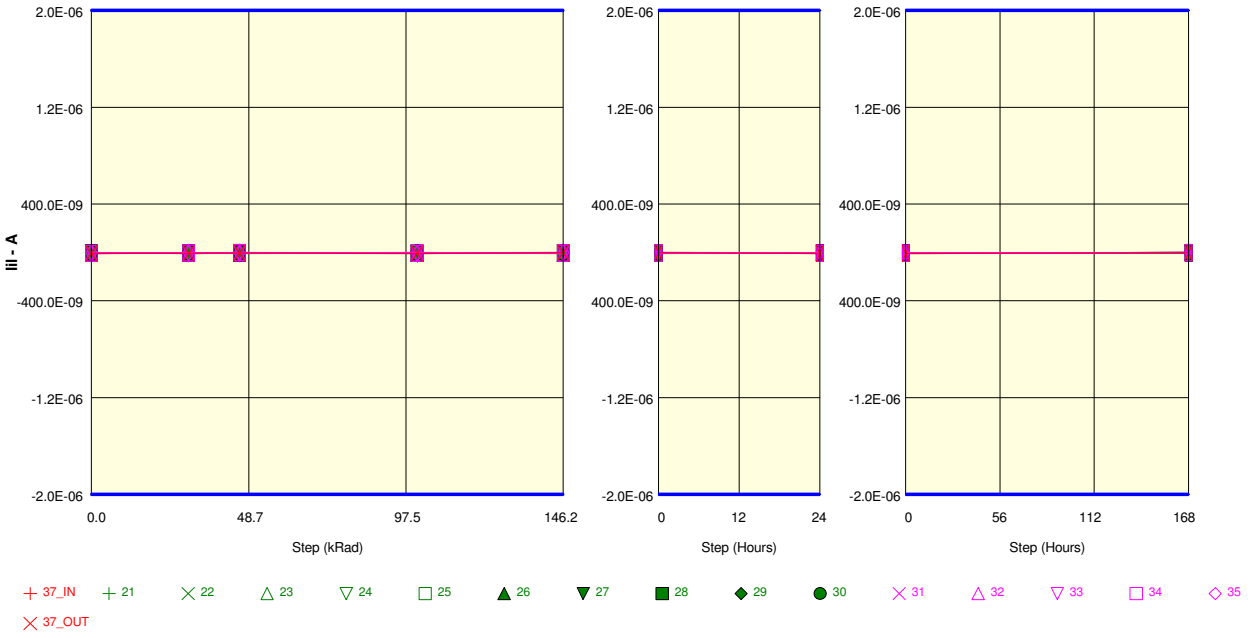
Measurements

IilADD(11)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	173.3E-12	-2.1E-09	-5.2E-09	-5.9E-09	-2.1E-09	-2.1E-09	-3.6E-09
37_OUT_REF	-2.1E-09	1.7E-09	-2.9E-09	-2.9E-09	-2.1E-09	-589.6E-12	-589.6E-12
ON samples							
21	-2.1E-09	936.3E-12	-3.6E-09	-9.0E-09	-3.6E-09	-2.1E-09	-1.4E-09
22	-2.9E-09	-2.1E-09	-3.6E-09	173.3E-12	2.5E-09	-2.1E-09	1.7E-09
23	-2.9E-09	936.3E-12	-2.1E-09	-5.2E-09	1.7E-09	173.3E-12	-1.4E-09
24	-2.1E-09	-5.2E-09	-3.6E-09	-3.6E-09	173.3E-12	-3.6E-09	-2.1E-09
25	1.7E-09	1.7E-09	-3.6E-09	1.7E-09	-2.1E-09	-3.6E-09	1.7E-09
26	173.3E-12	-1.4E-09	-589.6E-12	-1.4E-09	-3.6E-09	-2.1E-09	-2.1E-09
27	936.3E-12	-2.9E-09	-5.2E-09	173.3E-12	-4.4E-09	-2.9E-09	-3.6E-09
28	-4.4E-09	-2.9E-09	173.3E-12	-2.1E-09	1.7E-09	-2.1E-09	-2.9E-09
29	936.3E-12	-6.7E-09	-589.6E-12	-589.6E-12	-589.6E-12	-2.1E-09	2.5E-09
30	-5.2E-09	-589.6E-12	-2.9E-09	-6.7E-09	-589.6E-12	936.3E-12	173.3E-12
Statistics							
Min	-5.2E-09	-6.7E-09	-5.2E-09	-9.0E-09	-4.4E-09	-3.6E-09	-3.6E-09
Max	1.7E-09	1.7E-09	173.3E-12	1.7E-09	2.5E-09	936.3E-12	2.5E-09
Average	-1.6E-09	-1.8E-09	-2.6E-09	-2.6E-09	-894.8E-12	-2.0E-09	-742.2E-12
Std Deviation	2.3E-09	2.6E-09	1.6E-09	3.2E-09	2.3E-09	1.4E-09	2.0E-09

Measurements

IilADD(11)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	173.3E-12	-2.1E-09	-5.2E-09	-5.9E-09	-2.1E-09	-2.1E-09	-3.6E-09
37_OUT_REF	-2.1E-09	1.7E-09	-2.9E-09	-2.9E-09	-2.1E-09	-589.6E-12	-589.6E-12
OFF samples							
31	-3.6E-09	-1.4E-09	-3.6E-09	-2.1E-09	173.3E-12	-2.9E-09	173.3E-12
32	-589.6E-12	-589.6E-12	936.3E-12	1.7E-09	936.3E-12	-3.6E-09	173.3E-12
33	-589.6E-12	-2.9E-09	-1.4E-09	-2.1E-09	-589.6E-12	-589.6E-12	-2.1E-09
34	936.3E-12	936.3E-12	-589.6E-12	-2.9E-09	-5.2E-09	-5.2E-09	-1.4E-09
35	-2.9E-09	1.7E-09	-1.4E-09	-7.5E-09	-5.2E-09	-1.4E-09	-2.1E-09
Statistics							
Min	-3.6E-09	-2.9E-09	-3.6E-09	-7.5E-09	-5.2E-09	-5.2E-09	-2.1E-09
Max	936.3E-12	1.7E-09	936.3E-12	1.7E-09	936.3E-12	-589.6E-12	173.3E-12
Average	-1.4E-09	-437.0E-12	-1.2E-09	-2.6E-09	-2.0E-09	-2.7E-09	-1.0E-09
Std Deviation	1.7E-09	1.6E-09	1.5E-09	2.9E-09	2.7E-09	1.6E-09	1.0E-09

Parameter : Input Low Leakage Current : IilADD(12)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



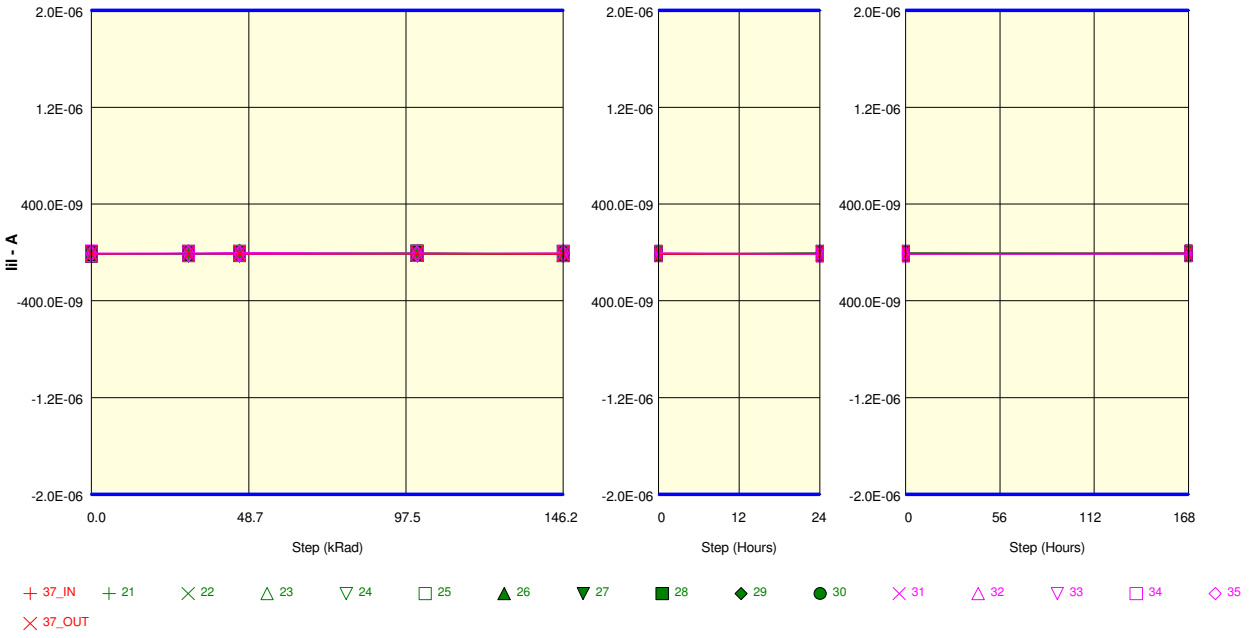
Measurements

IilADD(12)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-5.9E-09	-7.5E-09	-5.2E-09	-5.9E-09	-5.9E-09	-2.9E-09
37_OUT_REF	-9.0E-09	-6.7E-09	-3.6E-09	-9.0E-09	-1.4E-09	-9.0E-09	-1.4E-09
ON samples							
21	-2.1E-09	-8.2E-09	-7.5E-09	-3.6E-09	-2.9E-09	-4.4E-09	-589.6E-12
22	-2.9E-09	-9.0E-09	-4.4E-09	-2.9E-09	-589.6E-12	-2.1E-09	-3.6E-09
23	-4.4E-09	-9.0E-09	-6.7E-09	-8.2E-09	-4.4E-09	-5.2E-09	936.3E-12
24	-9.7E-09	-3.6E-09	-5.2E-09	-6.7E-09	-2.9E-09	-3.6E-09	-1.4E-09
25	-2.1E-09	-4.4E-09	-8.2E-09	-5.2E-09	-8.2E-09	-2.1E-09	-4.4E-09
26	-4.4E-09	-4.4E-09	-4.4E-09	-4.4E-09	-5.9E-09	-5.2E-09	-589.6E-12
27	-7.5E-09	-5.2E-09	-4.4E-09	-5.9E-09	-4.4E-09	-2.1E-09	-4.4E-09
28	-5.2E-09	-3.6E-09	-4.4E-09	-6.7E-09	-5.9E-09	-3.6E-09	-4.4E-09
29	-7.5E-09	-2.9E-09	-5.2E-09	-2.9E-09	-2.9E-09	-9.0E-09	-4.4E-09
30	-6.7E-09	-2.9E-09	-4.4E-09	-2.9E-09	-3.6E-09	-4.4E-09	-3.6E-09
Statistics							
Min	-9.7E-09	-9.0E-09	-8.2E-09	-8.2E-09	-8.2E-09	-9.0E-09	-4.4E-09
Max	-2.1E-09	-2.9E-09	-4.4E-09	-2.9E-09	-589.6E-12	-2.1E-09	936.3E-12
Average	-5.2E-09	-5.3E-09	-5.5E-09	-4.9E-09	-4.2E-09	-4.2E-09	-2.6E-09
Std Deviation	2.4E-09	2.3E-09	1.4E-09	1.8E-09	2.0E-09	2.0E-09	1.9E-09

Measurements

IilADD(12)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-5.9E-09	-7.5E-09	-5.2E-09	-5.9E-09	-5.9E-09	-2.9E-09
37_OUT_REF	-9.0E-09	-6.7E-09	-3.6E-09	-9.0E-09	-1.4E-09	-9.0E-09	-1.4E-09
OFF samples							
31	-4.4E-09	-5.9E-09	-5.2E-09	-589.6E-12	-4.4E-09	-5.2E-09	-2.9E-09
32	-5.2E-09	-3.6E-09	-5.2E-09	-5.2E-09	-4.4E-09	-5.9E-09	-589.6E-12
33	-9.7E-09	-3.6E-09	-5.2E-09	-6.7E-09	-2.9E-09	-4.4E-09	-589.6E-12
34	-5.9E-09	-4.4E-09	-589.6E-12	-5.9E-09	-6.7E-09	-5.9E-09	-3.6E-09
35	-2.1E-09	-1.4E-09	-5.2E-09	-6.7E-09	-589.6E-12	-4.4E-09	173.3E-12
Statistics							
Min	-9.7E-09	-5.9E-09	-5.2E-09	-6.7E-09	-6.7E-09	-5.9E-09	-3.6E-09
Max	-2.1E-09	-1.4E-09	-589.6E-12	-589.6E-12	-589.6E-12	-4.4E-09	173.3E-12
Average	-5.5E-09	-3.8E-09	-4.3E-09	-5.0E-09	-3.8E-09	-5.2E-09	-1.5E-09
Std Deviation	2.5E-09	1.5E-09	1.8E-09	2.3E-09	2.0E-09	682.4E-12	1.5E-09

Parameter : Input Low Leakage Current : IilADD(13)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



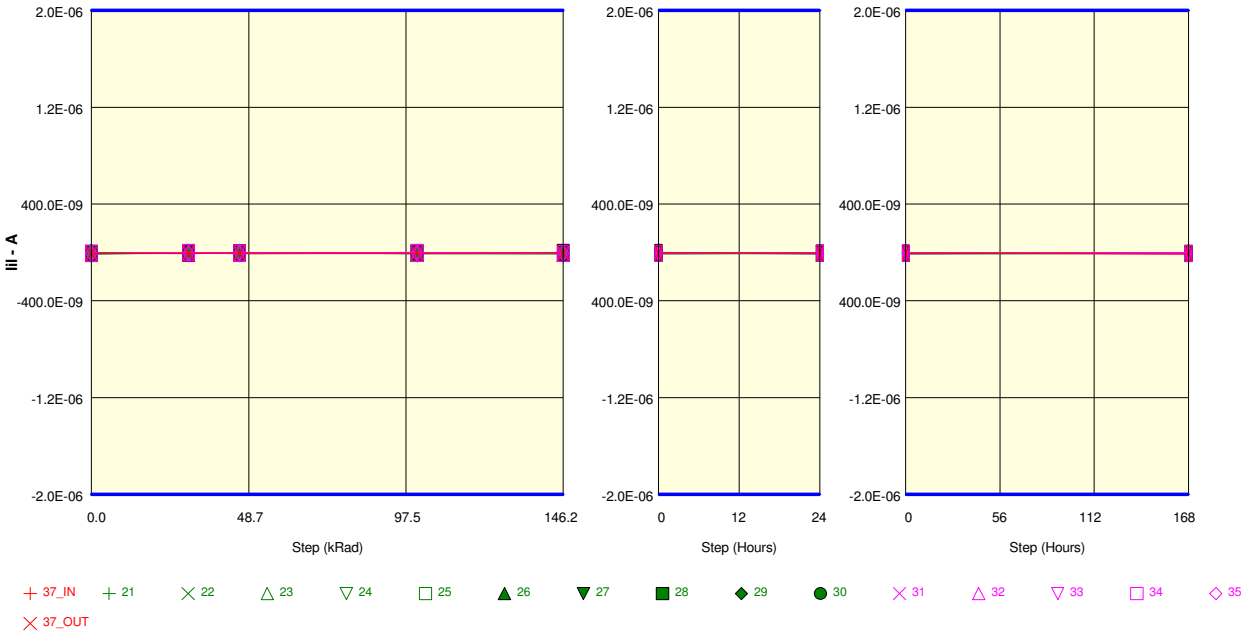
Measurements

IilADD(13)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-8.2E-09	-9.7E-09	-9.7E-09	-5.9E-09	-14.3E-09	-6.7E-09	-7.5E-09
37_OUT_REF	-12.0E-09	-8.2E-09	-11.3E-09	-10.5E-09	-13.6E-09	-9.0E-09	-7.5E-09
ON samples							
21	-11.3E-09	-6.7E-09	-12.0E-09	-11.3E-09	-8.2E-09	-6.7E-09	-10.5E-09
22	-8.2E-09	-10.5E-09	-9.0E-09	-7.5E-09	-8.2E-09	-5.2E-09	-8.2E-09
23	-8.2E-09	-9.0E-09	-10.5E-09	-9.0E-09	-8.2E-09	-10.5E-09	-5.9E-09
24	-8.2E-09	-15.1E-09	-7.5E-09	-6.7E-09	-9.7E-09	-8.2E-09	-3.6E-09
25	-9.7E-09	-11.3E-09	-8.2E-09	-5.2E-09	-10.5E-09	-6.7E-09	-7.5E-09
26	-13.6E-09	-9.7E-09	-5.2E-09	-9.0E-09	-5.9E-09	-11.3E-09	-10.5E-09
27	-13.6E-09	-7.5E-09	-15.1E-09	-11.3E-09	-8.2E-09	-8.2E-09	-7.5E-09
28	-12.8E-09	-8.2E-09	-9.7E-09	-5.9E-09	-6.7E-09	-8.2E-09	-8.2E-09
29	-10.5E-09	-9.7E-09	-9.0E-09	-9.7E-09	-10.5E-09	-5.2E-09	-6.7E-09
30	-10.5E-09	-9.0E-09	-5.2E-09	-8.2E-09	-15.1E-09	-9.0E-09	-13.6E-09
Statistics							
Min	-13.6E-09	-15.1E-09	-15.1E-09	-11.3E-09	-15.1E-09	-11.3E-09	-13.6E-09
Max	-8.2E-09	-6.7E-09	-5.2E-09	-5.2E-09	-5.9E-09	-5.2E-09	-3.6E-09
Average	-10.7E-09	-9.7E-09	-9.1E-09	-8.4E-09	-9.1E-09	-7.9E-09	-8.2E-09
Std Deviation	2.0E-09	2.2E-09	2.9E-09	2.0E-09	2.4E-09	1.9E-09	2.6E-09

Measurements

IilADD(13)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-8.2E-09	-9.7E-09	-9.7E-09	-5.9E-09	-14.3E-09	-6.7E-09	-7.5E-09
37_OUT_REF	-12.0E-09	-8.2E-09	-11.3E-09	-10.5E-09	-13.6E-09	-9.0E-09	-7.5E-09
OFF samples							
31	-9.7E-09	-5.2E-09	-2.9E-09	-6.7E-09	-7.5E-09	-10.5E-09	-8.2E-09
32	-12.0E-09	-9.7E-09	-3.6E-09	-9.7E-09	-11.3E-09	-13.6E-09	-11.3E-09
33	-5.2E-09	-7.5E-09	-10.5E-09	-7.5E-09	-8.2E-09	-8.2E-09	-5.2E-09
34	-12.0E-09	-12.0E-09	-7.5E-09	-7.5E-09	-5.9E-09	-6.7E-09	-8.2E-09
35	-8.2E-09	-9.0E-09	-13.6E-09	-10.5E-09	-4.4E-09	-9.0E-09	-10.5E-09
Statistics							
Min	-12.0E-09	-12.0E-09	-13.6E-09	-10.5E-09	-11.3E-09	-13.6E-09	-11.3E-09
Max	-5.2E-09	-5.2E-09	-2.9E-09	-6.7E-09	-4.4E-09	-6.7E-09	-5.2E-09
Average	-9.4E-09	-8.7E-09	-7.6E-09	-8.4E-09	-7.5E-09	-9.6E-09	-8.7E-09
Std Deviation	2.6E-09	2.3E-09	4.0E-09	1.5E-09	2.3E-09	2.3E-09	2.1E-09

Parameter : Input Low Leakage Current : IilADD(14)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



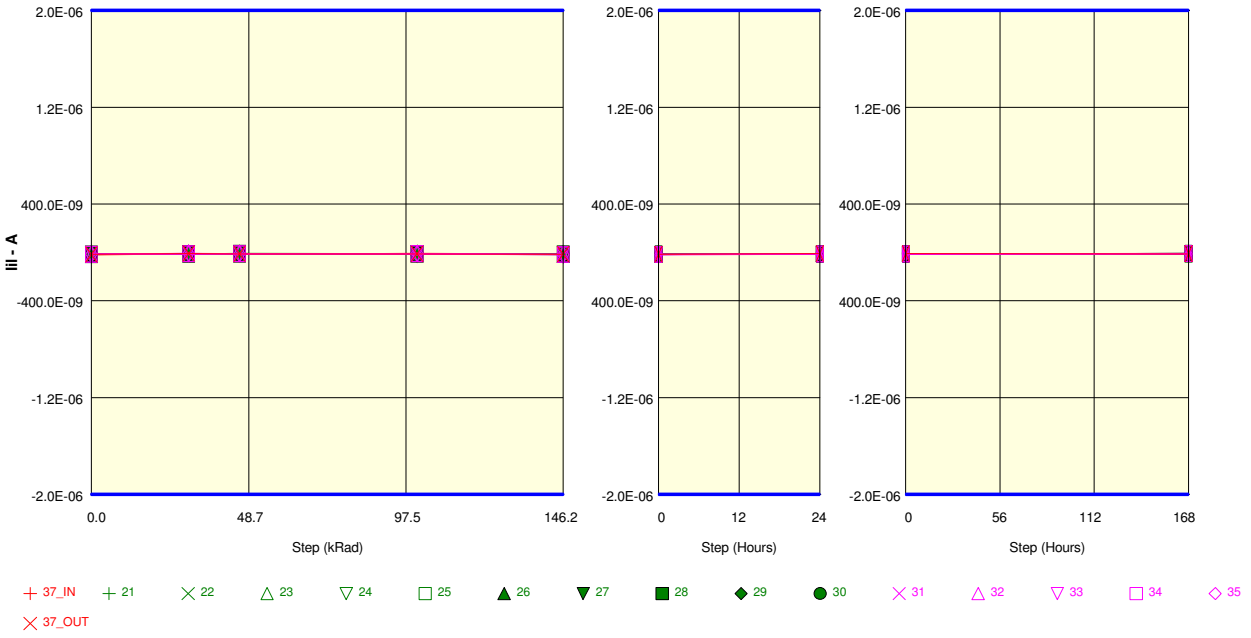
Measurements

IilADD(14)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-5.2E-09	-8.2E-09	-5.9E-09	-7.5E-09	-7.5E-09	-5.9E-09
37_OUT_REF	-9.7E-09	-6.7E-09	-4.4E-09	-7.5E-09	-4.4E-09	-6.7E-09	-10.5E-09
ON samples							
21	-8.2E-09	-3.6E-09	-8.2E-09	-7.5E-09	-3.6E-09	-4.4E-09	-5.9E-09
22	-4.4E-09	-4.4E-09	-5.9E-09	-3.6E-09	-5.2E-09	-11.3E-09	-5.9E-09
23	-5.9E-09	-9.0E-09	-5.2E-09	-5.2E-09	-4.4E-09	-9.0E-09	-3.6E-09
24	-6.7E-09	-7.5E-09	-3.6E-09	-8.2E-09	-9.0E-09	-8.2E-09	-8.2E-09
25	-10.5E-09	-7.5E-09	-4.4E-09	-9.7E-09	-5.9E-09	-7.5E-09	-7.5E-09
26	-5.2E-09	-3.6E-09	-5.2E-09	-6.7E-09	-5.9E-09	-5.9E-09	-3.6E-09
27	-7.5E-09	-2.1E-09	-5.2E-09	-8.2E-09	-589.6E-12	-7.5E-09	-7.5E-09
28	-9.7E-09	-5.9E-09	-5.9E-09	-4.4E-09	-5.2E-09	-4.4E-09	-9.0E-09
29	-9.7E-09	-6.7E-09	-9.0E-09	-9.0E-09	-10.5E-09	-6.7E-09	-5.2E-09
30	-3.6E-09	-8.2E-09	-5.2E-09	-7.5E-09	-3.6E-09	-5.2E-09	-3.6E-09
Statistics							
Min	-10.5E-09	-9.0E-09	-9.0E-09	-9.7E-09	-10.5E-09	-11.3E-09	-9.0E-09
Max	-3.6E-09	-2.1E-09	-3.6E-09	-3.6E-09	-589.6E-12	-4.4E-09	-3.6E-09
Average	-7.2E-09	-5.9E-09	-5.8E-09	-7.0E-09	-5.4E-09	-7.0E-09	-6.0E-09
Std Deviation	2.3E-09	2.2E-09	1.6E-09	1.9E-09	2.6E-09	2.1E-09	1.9E-09

Measurements

IilADD(14)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-5.2E-09	-8.2E-09	-5.9E-09	-7.5E-09	-7.5E-09	-5.9E-09
37_OUT_REF	-9.7E-09	-6.7E-09	-4.4E-09	-7.5E-09	-4.4E-09	-6.7E-09	-10.5E-09
OFF samples							
31	-7.5E-09	-5.9E-09	-4.4E-09	-4.4E-09	-6.7E-09	-9.7E-09	-7.5E-09
32	-9.7E-09	-5.2E-09	-5.2E-09	-6.7E-09	-7.5E-09	-4.4E-09	-1.4E-09
33	-7.5E-09	-5.2E-09	-5.2E-09	173.3E-12	-9.0E-09	-5.9E-09	-9.0E-09
34	-8.2E-09	-589.6E-12	-6.7E-09	-4.4E-09	-6.7E-09	-5.2E-09	-10.5E-09
35	-9.7E-09	-7.5E-09	-4.4E-09	-2.1E-09	-5.9E-09	-9.0E-09	-4.4E-09
Statistics							
Min	-9.7E-09	-7.5E-09	-6.7E-09	-6.7E-09	-9.0E-09	-9.7E-09	-10.5E-09
Max	-7.5E-09	-589.6E-12	-4.4E-09	173.3E-12	-5.9E-09	-4.4E-09	-1.4E-09
Average	-8.5E-09	-4.9E-09	-5.2E-09	-3.5E-09	-7.2E-09	-6.8E-09	-6.5E-09
Std Deviation	1.0E-09	2.3E-09	835.8E-12	2.3E-09	1.0E-09	2.1E-09	3.3E-09

Parameter : Input Low Leakage Current : IilADD(15)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilADD(15)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.4E-09	-11.3E-09	-15.1E-09	-7.5E-09	-10.5E-09	-13.6E-09	-10.5E-09
37_OUT_REF	-15.8E-09	-8.2E-09	-11.3E-09	-11.3E-09	-15.1E-09	-9.0E-09	-10.5E-09
ON samples							
21	-15.1E-09	-10.5E-09	-12.0E-09	-16.6E-09	-18.9E-09	-12.8E-09	-9.0E-09
22	-12.8E-09	-13.6E-09	-13.6E-09	-14.3E-09	-18.9E-09	-12.0E-09	-8.2E-09
23	-16.6E-09	-8.2E-09	-9.7E-09	-10.5E-09	-15.1E-09	-12.0E-09	-13.6E-09
24	-15.1E-09	-9.0E-09	-11.3E-09	-13.6E-09	-13.6E-09	-10.5E-09	-11.3E-09
25	-15.1E-09	-12.8E-09	-11.3E-09	-12.0E-09	-15.1E-09	-14.3E-09	-12.8E-09
26	-18.1E-09	-12.0E-09	-14.3E-09	-14.3E-09	-15.8E-09	-13.6E-09	-7.5E-09
27	-16.6E-09	-10.5E-09	-6.7E-09	-9.7E-09	-14.3E-09	-15.1E-09	-9.7E-09
28	-15.1E-09	-13.6E-09	-10.5E-09	-12.0E-09	-14.3E-09	-13.6E-09	-6.7E-09
29	-17.4E-09	-9.7E-09	-10.5E-09	-9.7E-09	-13.6E-09	-9.7E-09	-11.3E-09
30	-13.6E-09	-11.3E-09	-9.7E-09	-13.6E-09	-15.1E-09	-9.0E-09	-12.0E-09
Statistics							
Min	-18.1E-09	-13.6E-09	-14.3E-09	-16.6E-09	-18.9E-09	-15.1E-09	-13.6E-09
Max	-12.8E-09	-8.2E-09	-6.7E-09	-9.7E-09	-13.6E-09	-9.0E-09	-6.7E-09
Average	-15.5E-09	-11.1E-09	-11.0E-09	-12.6E-09	-15.5E-09	-12.3E-09	-10.2E-09
Std Deviation	1.6E-09	1.8E-09	2.0E-09	2.1E-09	1.8E-09	1.9E-09	2.2E-09

Measurements

IilADD(15)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.4E-09	-11.3E-09	-15.1E-09	-7.5E-09	-10.5E-09	-13.6E-09	-10.5E-09
37_OUT_REF	-15.8E-09	-8.2E-09	-11.3E-09	-11.3E-09	-15.1E-09	-9.0E-09	-10.5E-09
OFF samples							
31	-16.6E-09	-13.6E-09	-11.3E-09	-14.3E-09	-13.6E-09	-14.3E-09	-11.3E-09
32	-12.8E-09	-7.5E-09	-8.2E-09	-12.0E-09	-14.3E-09	-12.8E-09	-7.5E-09
33	-13.6E-09	-11.3E-09	-12.0E-09	-11.3E-09	-21.2E-09	-13.6E-09	-11.3E-09
34	-17.4E-09	-11.3E-09	-11.3E-09	-9.0E-09	-17.4E-09	-11.3E-09	-10.5E-09
35	-15.8E-09	-6.7E-09	-10.5E-09	-9.7E-09	-18.9E-09	-9.7E-09	-12.8E-09
Statistics							
Min	-17.4E-09	-13.6E-09	-12.0E-09	-14.3E-09	-21.2E-09	-14.3E-09	-12.8E-09
Max	-12.8E-09	-6.7E-09	-8.2E-09	-9.0E-09	-13.6E-09	-9.7E-09	-7.5E-09
Average	-15.2E-09	-10.1E-09	-10.7E-09	-11.3E-09	-17.1E-09	-12.3E-09	-10.7E-09
Std Deviation	1.8E-09	2.6E-09	1.3E-09	1.9E-09	2.8E-09	1.6E-09	1.8E-09

Parameter : Input Low Leakage Current : IilADD(2)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

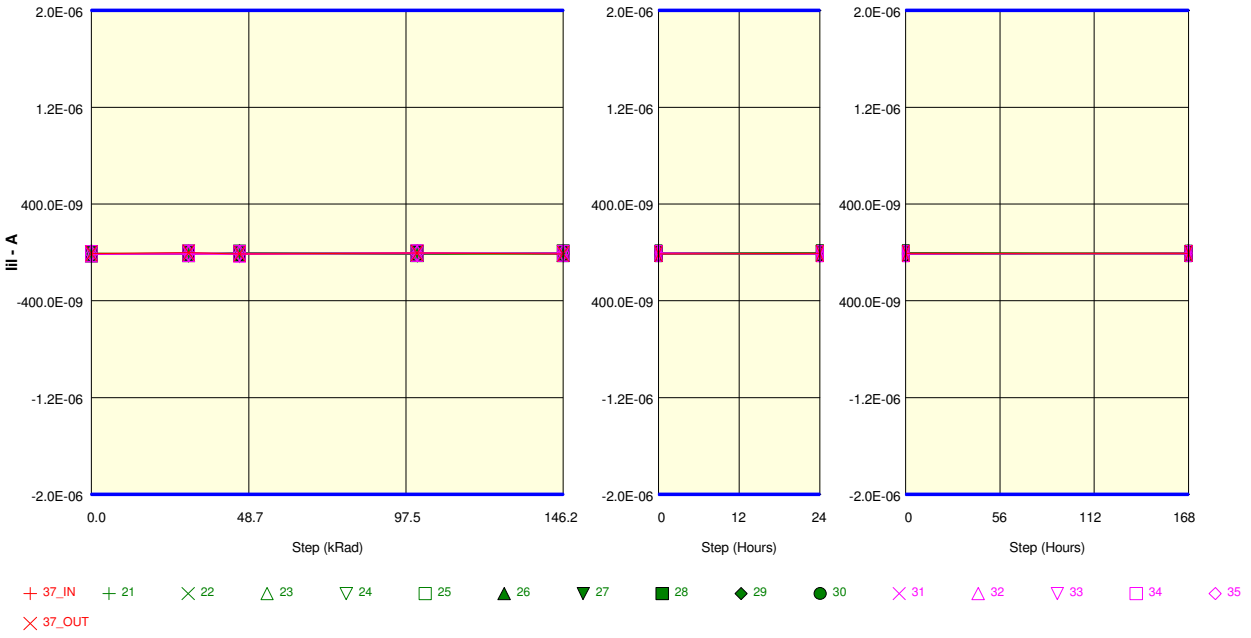
Measurements

IilADD(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-4.4E-09	-6.7E-09	-5.2E-09	-1.4E-09	-1.4E-09	-5.9E-09	-4.4E-09
37_OUT_REF	936.3E-12	-2.1E-09	-9.0E-09	-10.5E-09	-9.7E-09	-5.9E-09	-7.5E-09
ON samples							
21	-6.7E-09	-6.7E-09	-9.7E-09	-6.7E-09	-3.6E-09	-10.5E-09	-5.2E-09
22	-6.7E-09	-8.2E-09	-5.9E-09	-589.6E-12	-3.6E-09	-1.4E-09	-8.2E-09
23	-3.6E-09	-3.6E-09	-8.2E-09	-5.2E-09	-2.9E-09	-2.1E-09	-3.6E-09
24	-8.2E-09	936.3E-12	-5.9E-09	-2.9E-09	-9.0E-09	-8.2E-09	-5.9E-09
25	-5.9E-09	-1.4E-09	-5.2E-09	-5.9E-09	-2.1E-09	-4.4E-09	-3.6E-09
26	-8.2E-09	-4.4E-09	-7.5E-09	-7.5E-09	-7.5E-09	-10.5E-09	-5.9E-09
27	-5.9E-09	-4.4E-09	-7.5E-09	-6.7E-09	-5.9E-09	-4.4E-09	-8.2E-09
28	-5.9E-09	-2.1E-09	-2.1E-09	-2.1E-09	-6.7E-09	-4.4E-09	-4.4E-09
29	-11.3E-09	-2.9E-09	-8.2E-09	-4.4E-09	-8.2E-09	-2.9E-09	-7.5E-09
30	-10.5E-09	-3.6E-09	-5.2E-09	-8.2E-09	-6.7E-09	-4.4E-09	-7.5E-09
Statistics							
Min	-11.3E-09	-8.2E-09	-9.7E-09	-8.2E-09	-9.0E-09	-10.5E-09	-8.2E-09
Max	-3.6E-09	936.3E-12	-2.1E-09	-589.6E-12	-2.1E-09	-1.4E-09	-3.6E-09
Average	-7.3E-09	-3.6E-09	-6.5E-09	-5.0E-09	-5.6E-09	-5.3E-09	-6.0E-09
Std Deviation	2.2E-09	2.5E-09	2.0E-09	2.4E-09	2.3E-09	3.1E-09	1.7E-09

Measurements

IilADD(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-4.4E-09	-6.7E-09	-5.2E-09	-1.4E-09	-1.4E-09	-5.9E-09	-4.4E-09
37_OUT_REF	936.3E-12	-2.1E-09	-9.0E-09	-10.5E-09	-9.7E-09	-5.9E-09	-7.5E-09
OFF samples							
31	-9.7E-09	-2.9E-09	-7.5E-09	-9.0E-09	-2.1E-09	-5.9E-09	-10.5E-09
32	-5.2E-09	-3.6E-09	-4.4E-09	-5.9E-09	-4.4E-09	-8.2E-09	-9.0E-09
33	-8.2E-09	173.3E-12	-6.7E-09	-7.5E-09	-5.2E-09	-5.2E-09	-6.7E-09
34	-7.5E-09	-8.2E-09	-6.7E-09	-5.9E-09	-5.2E-09	-7.5E-09	-6.7E-09
35	-5.9E-09	-6.7E-09	-5.2E-09	-3.6E-09	-7.5E-09	-5.9E-09	-6.7E-09
Statistics							
Min	-9.7E-09	-8.2E-09	-7.5E-09	-9.0E-09	-7.5E-09	-8.2E-09	-10.5E-09
Max	-5.2E-09	173.3E-12	-4.4E-09	-3.6E-09	-2.1E-09	-5.2E-09	-6.7E-09
Average	-7.3E-09	-4.3E-09	-6.1E-09	-6.4E-09	-4.9E-09	-6.5E-09	-7.9E-09
Std Deviation	1.6E-09	3.0E-09	1.1E-09	1.8E-09	1.7E-09	1.1E-09	1.6E-09

Parameter : Input Low Leakage Current : IilADD(3)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilADD(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-7.5E-09	-7.5E-09	-8.2E-09	-10.5E-09	-9.7E-09	-9.0E-09	-9.7E-09
37_OUT_REF	-9.7E-09	-2.9E-09	-10.5E-09	-4.4E-09	-11.3E-09	-6.7E-09	-6.7E-09
ON samples							
21	-9.0E-09	-8.2E-09	-6.7E-09	-10.5E-09	-2.9E-09	-7.5E-09	-9.0E-09
22	-5.9E-09	-5.9E-09	-6.7E-09	-9.7E-09	-10.5E-09	-11.3E-09	-9.7E-09
23	-12.8E-09	-9.7E-09	-5.9E-09	-11.3E-09	-5.9E-09	-8.2E-09	-5.9E-09
24	-9.0E-09	-5.9E-09	-12.8E-09	-6.7E-09	-9.7E-09	-3.6E-09	-7.5E-09
25	-9.0E-09	-11.3E-09	-5.2E-09	-6.7E-09	-6.7E-09	-2.9E-09	-8.2E-09
26	-8.2E-09	-8.2E-09	-7.5E-09	-5.9E-09	-9.0E-09	-6.7E-09	-5.9E-09
27	-8.2E-09	-6.7E-09	-9.7E-09	-7.5E-09	-3.6E-09	-8.2E-09	-5.9E-09
28	-10.5E-09	-5.9E-09	-9.0E-09	-9.0E-09	-10.5E-09	-6.7E-09	-12.0E-09
29	-9.7E-09	-9.0E-09	-4.4E-09	-3.6E-09	-9.7E-09	-13.6E-09	-9.0E-09
30	-6.7E-09	-11.3E-09	-7.5E-09	-12.0E-09	-5.9E-09	-10.5E-09	-5.2E-09
Statistics							
Min	-12.8E-09	-11.3E-09	-12.8E-09	-12.0E-09	-10.5E-09	-13.6E-09	-12.0E-09
Max	-5.9E-09	-5.9E-09	-4.4E-09	-3.6E-09	-2.9E-09	-2.9E-09	-5.2E-09
Average	-8.9E-09	-8.2E-09	-7.5E-09	-8.3E-09	-7.5E-09	-7.9E-09	-7.8E-09
Std Deviation	1.8E-09	2.0E-09	2.3E-09	2.5E-09	2.7E-09	3.1E-09	2.1E-09

Measurements

IilADD(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-7.5E-09	-7.5E-09	-8.2E-09	-10.5E-09	-9.7E-09	-9.0E-09	-9.7E-09
37_OUT_REF	-9.7E-09	-2.9E-09	-10.5E-09	-4.4E-09	-11.3E-09	-6.7E-09	-6.7E-09
OFF samples							
31	-12.8E-09	-10.5E-09	-8.2E-09	-5.2E-09	-8.2E-09	-8.2E-09	-7.5E-09
32	-12.8E-09	-10.5E-09	-13.6E-09	-8.2E-09	-5.2E-09	-10.5E-09	-5.9E-09
33	-10.5E-09	-5.2E-09	-6.7E-09	-4.4E-09	-9.0E-09	-7.5E-09	-10.5E-09
34	-8.2E-09	-8.2E-09	-12.8E-09	-5.2E-09	-9.7E-09	-11.3E-09	-8.2E-09
35	-10.5E-09	-7.5E-09	-6.7E-09	-9.7E-09	-5.2E-09	-8.2E-09	-6.7E-09
Statistics							
Min	-12.8E-09	-10.5E-09	-13.6E-09	-9.7E-09	-9.7E-09	-11.3E-09	-10.5E-09
Max	-8.2E-09	-5.2E-09	-6.7E-09	-4.4E-09	-5.2E-09	-7.5E-09	-5.9E-09
Average	-11.0E-09	-8.4E-09	-9.6E-09	-6.5E-09	-7.5E-09	-9.1E-09	-7.8E-09
Std Deviation	1.7E-09	2.0E-09	3.0E-09	2.1E-09	1.9E-09	1.5E-09	1.6E-09

Parameter : Input Low Leakage Current : IilADD(4)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

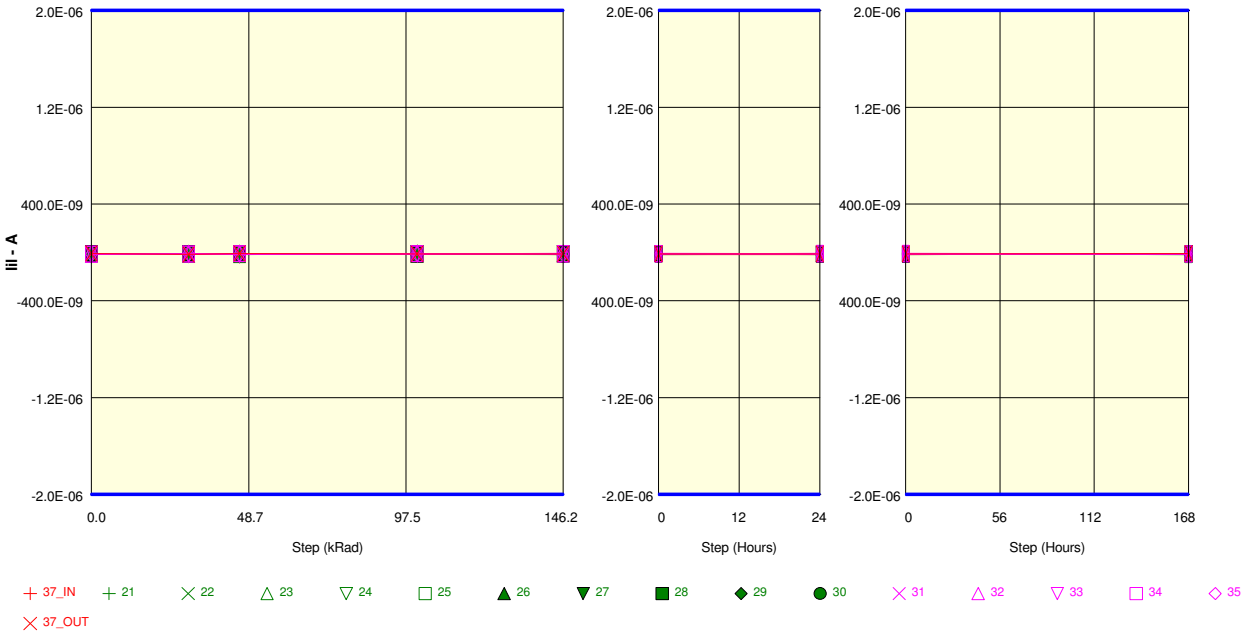
Measurements

IilADD(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.1E-09	-10.5E-09	-19.7E-09	-11.3E-09	-14.3E-09	-15.1E-09	-13.6E-09
37_OUT_REF	-13.6E-09	-19.7E-09	-14.3E-09	-18.1E-09	-12.8E-09	-19.7E-09	-15.1E-09
ON samples							
21	-19.7E-09	-21.2E-09	-16.6E-09	-15.1E-09	-18.1E-09	-16.6E-09	-18.9E-09
22	-16.6E-09	-15.8E-09	-17.4E-09	-15.1E-09	-15.8E-09	-15.1E-09	-15.1E-09
23	-15.1E-09	-14.3E-09	-13.6E-09	-13.6E-09	-19.7E-09	-15.1E-09	-18.1E-09
24	-17.4E-09	-16.6E-09	-18.1E-09	-19.7E-09	-18.1E-09	-15.8E-09	-18.9E-09
25	-15.8E-09	-15.1E-09	-12.8E-09	-12.8E-09	-14.3E-09	-18.9E-09	-15.8E-09
26	-15.8E-09	-20.4E-09	-14.3E-09	-17.4E-09	-19.7E-09	-15.1E-09	-15.1E-09
27	-14.3E-09	-16.6E-09	-15.1E-09	-15.1E-09	-15.8E-09	-16.6E-09	-16.6E-09
28	-15.8E-09	-12.0E-09	-13.6E-09	-18.9E-09	-18.9E-09	-19.7E-09	-18.1E-09
29	-19.7E-09	-15.1E-09	-16.6E-09	-15.8E-09	-17.4E-09	-16.6E-09	-14.3E-09
30	-12.8E-09	-15.1E-09	-15.8E-09	-20.4E-09	-19.7E-09	-16.6E-09	-15.1E-09
Statistics							
Min	-19.7E-09	-21.2E-09	-18.1E-09	-20.4E-09	-19.7E-09	-19.7E-09	-18.9E-09
Max	-12.8E-09	-12.0E-09	-12.8E-09	-12.8E-09	-14.3E-09	-15.1E-09	-14.3E-09
Average	-16.3E-09	-16.2E-09	-15.4E-09	-16.4E-09	-17.8E-09	-16.6E-09	-16.6E-09
Std Deviation	2.1E-09	2.6E-09	1.7E-09	2.5E-09	1.8E-09	1.5E-09	1.7E-09

Measurements

IilADD(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.1E-09	-10.5E-09	-19.7E-09	-11.3E-09	-14.3E-09	-15.1E-09	-13.6E-09
37_OUT_REF	-13.6E-09	-19.7E-09	-14.3E-09	-18.1E-09	-12.8E-09	-19.7E-09	-15.1E-09
OFF samples							
31	-18.1E-09	-18.9E-09	-15.1E-09	-12.0E-09	-15.8E-09	-15.1E-09	-15.8E-09
32	-17.4E-09	-17.4E-09	-16.6E-09	-15.8E-09	-15.8E-09	-17.4E-09	-14.3E-09
33	-18.9E-09	-12.8E-09	-15.8E-09	-16.6E-09	-17.4E-09	-19.7E-09	-14.3E-09
34	-16.6E-09	-15.8E-09	-13.6E-09	-16.6E-09	-17.4E-09	-17.4E-09	-13.6E-09
35	-15.1E-09	-12.0E-09	-19.7E-09	-15.1E-09	-13.6E-09	-18.9E-09	-14.3E-09
Statistics							
Min	-18.9E-09	-18.9E-09	-19.7E-09	-16.6E-09	-17.4E-09	-19.7E-09	-15.8E-09
Max	-15.1E-09	-12.0E-09	-13.6E-09	-12.0E-09	-13.6E-09	-15.1E-09	-13.6E-09
Average	-17.2E-09	-15.4E-09	-16.2E-09	-15.2E-09	-16.0E-09	-17.7E-09	-14.5E-09
Std Deviation	1.3E-09	2.6E-09	2.0E-09	1.7E-09	1.4E-09	1.6E-09	747.2E-12

Parameter : Input Low Leakage Current : IilADD(5)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilADD(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.6E-09	-12.0E-09	-15.1E-09	-8.2E-09	-18.1E-09	-18.1E-09	-12.0E-09
37_OUT_REF	-9.7E-09	-15.8E-09	-9.7E-09	-11.3E-09	-11.3E-09	-12.0E-09	-9.7E-09
ON samples							
21	-9.7E-09	-10.5E-09	-13.6E-09	-10.5E-09	-14.3E-09	-12.0E-09	-11.3E-09
22	-14.3E-09	-11.3E-09	-15.1E-09	-9.7E-09	-10.5E-09	-14.3E-09	-16.6E-09
23	-12.0E-09	-14.3E-09	-12.0E-09	-16.6E-09	-12.0E-09	-12.8E-09	-12.8E-09
24	-15.8E-09	-14.3E-09	-14.3E-09	-11.3E-09	-8.2E-09	-12.0E-09	-15.1E-09
25	-9.7E-09	-12.8E-09	-18.1E-09	-9.0E-09	-11.3E-09	-10.5E-09	-18.9E-09
26	-12.8E-09	-12.8E-09	-11.3E-09	-10.5E-09	-10.5E-09	-10.5E-09	-9.7E-09
27	-15.8E-09	-11.3E-09	-16.6E-09	-11.3E-09	-11.3E-09	-19.7E-09	-11.3E-09
28	-9.7E-09	-9.7E-09	-9.7E-09	-14.3E-09	-15.1E-09	-17.4E-09	-10.5E-09
29	-15.1E-09	-13.6E-09	-11.3E-09	-8.2E-09	-12.8E-09	-10.5E-09	-18.1E-09
30	-12.8E-09	-9.7E-09	-10.5E-09	-16.6E-09	-18.1E-09	-13.6E-09	-10.5E-09
Statistics							
Min	-15.8E-09	-14.3E-09	-18.1E-09	-16.6E-09	-18.1E-09	-19.7E-09	-18.9E-09
Max	-9.7E-09	-9.7E-09	-9.7E-09	-8.2E-09	-8.2E-09	-10.5E-09	-9.7E-09
Average	-12.8E-09	-12.0E-09	-13.3E-09	-11.8E-09	-12.4E-09	-13.3E-09	-13.5E-09
Std Deviation	2.3E-09	1.7E-09	2.6E-09	2.9E-09	2.7E-09	2.9E-09	3.2E-09

Measurements

IilADD(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.6E-09	-12.0E-09	-15.1E-09	-8.2E-09	-18.1E-09	-18.1E-09	-12.0E-09
37_OUT_REF	-9.7E-09	-15.8E-09	-9.7E-09	-11.3E-09	-11.3E-09	-12.0E-09	-9.7E-09
OFF samples							
31	-12.0E-09	-9.7E-09	-11.3E-09	-12.8E-09	-7.5E-09	-9.7E-09	-11.3E-09
32	-12.8E-09	-13.6E-09	-12.0E-09	-12.0E-09	-12.8E-09	-13.6E-09	-12.8E-09
33	-12.0E-09	-14.3E-09	-14.3E-09	-15.1E-09	-9.7E-09	-13.6E-09	-12.8E-09
34	-15.8E-09	-12.8E-09	-9.0E-09	-9.7E-09	-10.5E-09	-7.5E-09	-12.8E-09
35	-14.3E-09	-12.0E-09	-13.6E-09	-12.0E-09	-12.8E-09	-12.8E-09	-12.8E-09
Statistics							
Min	-15.8E-09	-14.3E-09	-14.3E-09	-15.1E-09	-12.8E-09	-13.6E-09	-12.8E-09
Max	-12.0E-09	-9.7E-09	-9.0E-09	-9.7E-09	-7.5E-09	-7.5E-09	-11.3E-09
Average	-13.4E-09	-12.5E-09	-12.0E-09	-12.3E-09	-10.7E-09	-11.4E-09	-12.5E-09
Std Deviation	1.5E-09	1.6E-09	1.9E-09	1.7E-09	2.0E-09	2.4E-09	610.4E-12

Parameter : Input Low Leakage Current : IilADD(6)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

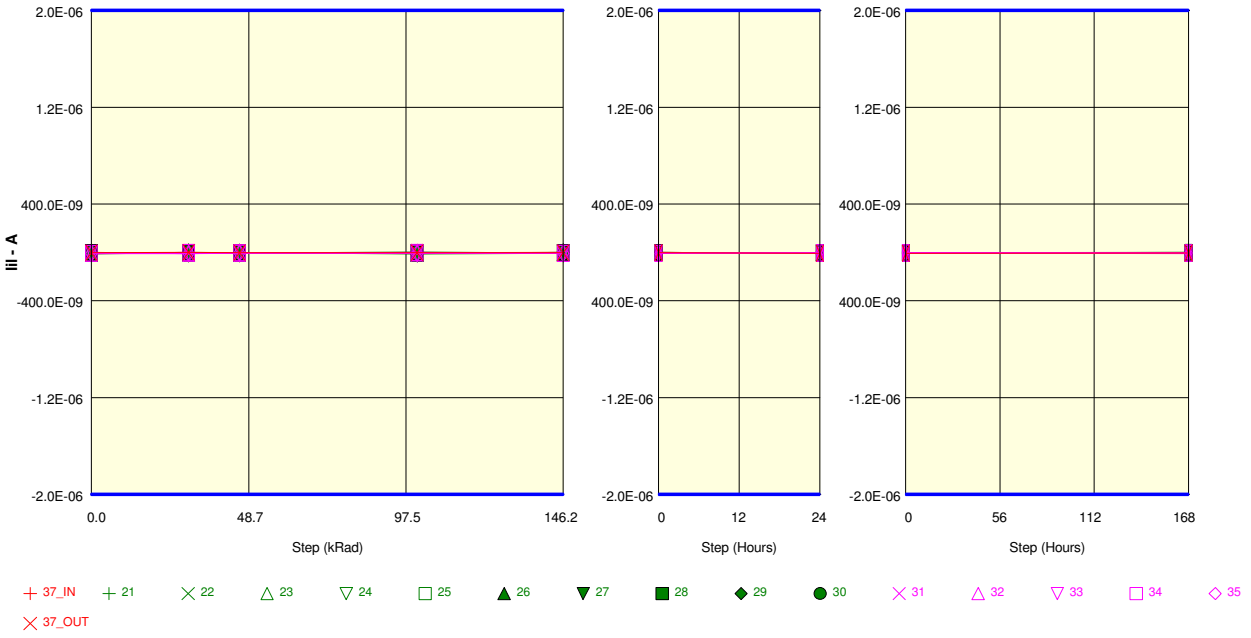
Measurements

IilADD(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-3.6E-09	-5.9E-09	-1.4E-09	-4.4E-09	173.3E-12	173.3E-12
37_OUT_REF	-589.6E-12	2.5E-09	-3.6E-09	-7.5E-09	-7.5E-09	173.3E-12	173.3E-12
ON samples							
21	-3.6E-09	-5.2E-09	-3.6E-09	-3.6E-09	-5.2E-09	-4.4E-09	-2.9E-09
22	-2.1E-09	-5.9E-09	936.3E-12	-3.6E-09	936.3E-12	-2.1E-09	-2.9E-09
23	-4.4E-09	-1.4E-09	-589.6E-12	-5.9E-09	-4.4E-09	936.3E-12	-3.6E-09
24	-2.9E-09	-5.9E-09	-589.6E-12	-5.9E-09	-1.4E-09	-589.6E-12	936.3E-12
25	-2.1E-09	-2.9E-09	1.7E-09	173.3E-12	-7.5E-09	-589.6E-12	-2.1E-09
26	-2.1E-09	-5.2E-09	-1.4E-09	-5.9E-09	-3.6E-09	173.3E-12	-2.1E-09
27	-5.2E-09	-6.7E-09	-1.4E-09	-2.1E-09	936.3E-12	-5.9E-09	1.7E-09
28	173.3E-12	-1.4E-09	-2.1E-09	936.3E-12	-1.4E-09	173.3E-12	-5.2E-09
29	-3.6E-09	173.3E-12	-1.4E-09	-6.7E-09	936.3E-12	-2.9E-09	-2.9E-09
30	-5.9E-09	-589.6E-12	-5.9E-09	-3.6E-09	-2.9E-09	-1.4E-09	-589.6E-12
Statistics							
Min	-5.9E-09	-6.7E-09	-5.9E-09	-6.7E-09	-7.5E-09	-5.9E-09	-5.2E-09
Max	173.3E-12	173.3E-12	1.7E-09	936.3E-12	936.3E-12	936.3E-12	1.7E-09
Average	-3.2E-09	-3.5E-09	-1.4E-09	-3.6E-09	-2.3E-09	-1.7E-09	-2.0E-09
Std Deviation	1.7E-09	2.4E-09	2.1E-09	2.5E-09	2.7E-09	2.1E-09	2.0E-09

Measurements

IilADD(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-3.6E-09	-5.9E-09	-1.4E-09	-4.4E-09	173.3E-12	173.3E-12
37_OUT_REF	-589.6E-12	2.5E-09	-3.6E-09	-7.5E-09	-7.5E-09	173.3E-12	173.3E-12
OFF samples							
31	-5.9E-09	-1.4E-09	-4.4E-09	-5.9E-09	-2.1E-09	-5.9E-09	1.7E-09
32	-4.4E-09	-1.4E-09	-2.9E-09	-2.9E-09	-589.6E-12	-2.1E-09	-589.6E-12
33	-2.9E-09	-2.9E-09	-589.6E-12	-6.7E-09	-2.9E-09	-5.2E-09	1.7E-09
34	-4.4E-09	-6.7E-09	-2.9E-09	-3.6E-09	-5.2E-09	-3.6E-09	-1.4E-09
35	-1.4E-09	173.3E-12	-2.9E-09	-4.4E-09	-3.6E-09	-7.5E-09	173.3E-12
Statistics							
Min	-5.9E-09	-6.7E-09	-4.4E-09	-6.7E-09	-5.2E-09	-7.5E-09	-1.4E-09
Max	-1.4E-09	173.3E-12	-589.6E-12	-2.9E-09	-589.6E-12	-2.1E-09	1.7E-09
Average	-3.8E-09	-2.4E-09	-2.7E-09	-4.7E-09	-2.9E-09	-4.9E-09	325.9E-12
Std Deviation	1.6E-09	2.3E-09	1.2E-09	1.4E-09	1.5E-09	1.8E-09	1.2E-09

Parameter : Input Low Leakage Current : IilADD(7)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



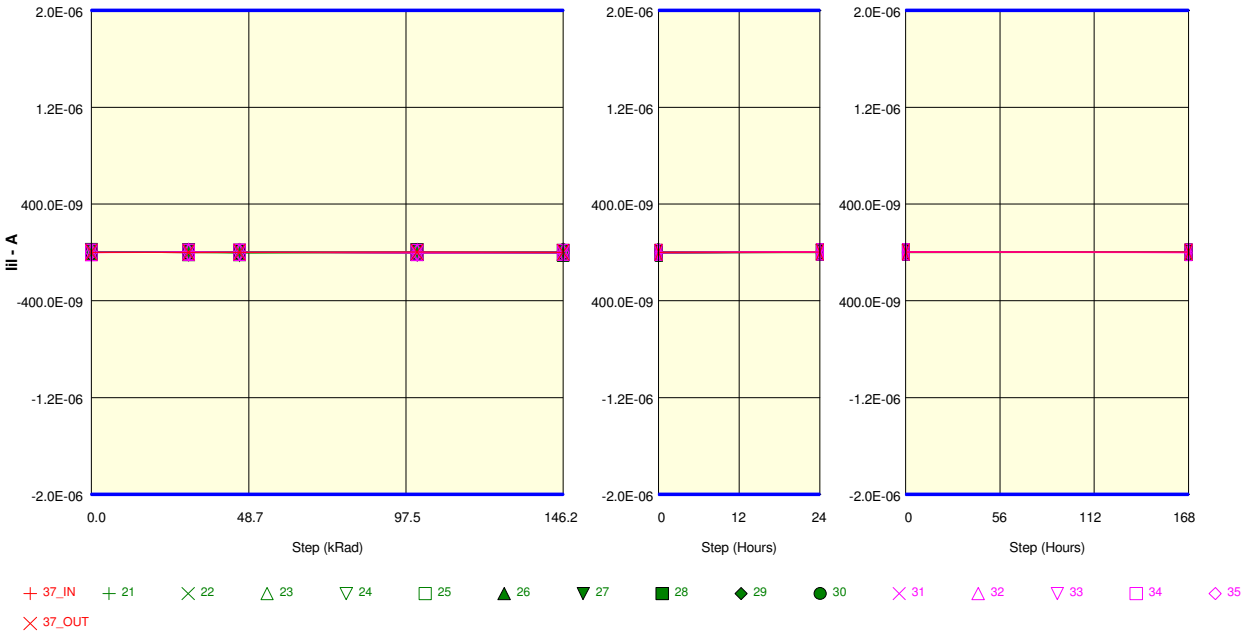
Measurements

IilADD(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	173.3E-12	-5.9E-09	-5.9E-09	-2.9E-09	-589.6E-12	-6.7E-09	-2.9E-09
37_OUT_REF	-2.9E-09	-589.6E-12	-2.1E-09	-2.1E-09	-2.1E-09	-6.7E-09	-4.4E-09
ON samples							
21	-5.2E-09	-4.4E-09	-4.4E-09	-3.6E-09	-2.1E-09	-4.4E-09	-4.4E-09
22	-10.5E-09	-1.4E-09	-5.2E-09	2.5E-09	-4.4E-09	-2.9E-09	-3.6E-09
23	-5.9E-09	173.3E-12	-2.9E-09	-9.0E-09	173.3E-12	-5.9E-09	-1.4E-09
24	-2.1E-09	-3.6E-09	-2.9E-09	-11.3E-09	-5.9E-09	-2.9E-09	173.3E-12
25	-5.2E-09	-7.5E-09	-5.2E-09	-3.6E-09	-2.9E-09	-5.2E-09	-5.2E-09
26	-3.6E-09	-2.1E-09	-4.4E-09	-5.2E-09	-1.4E-09	-5.2E-09	-6.7E-09
27	-2.9E-09	-5.9E-09	-7.5E-09	-5.2E-09	-5.2E-09	-2.1E-09	-7.5E-09
28	-3.6E-09	-1.4E-09	-3.6E-09	-3.6E-09	-2.1E-09	-5.2E-09	-2.1E-09
29	-5.9E-09	-6.7E-09	-5.2E-09	-4.4E-09	173.3E-12	-7.5E-09	-5.9E-09
30	-5.2E-09	-2.1E-09	-2.9E-09	-4.4E-09	-3.6E-09	-3.6E-09	-589.6E-12
Statistics							
Min	-10.5E-09	-7.5E-09	-7.5E-09	-11.3E-09	-5.9E-09	-7.5E-09	-7.5E-09
Max	-2.1E-09	173.3E-12	-2.9E-09	2.5E-09	173.3E-12	-2.1E-09	173.3E-12
Average	-5.0E-09	-3.5E-09	-4.4E-09	-4.8E-09	-2.7E-09	-4.5E-09	-3.7E-09
Std Deviation	2.2E-09	2.4E-09	1.4E-09	3.4E-09	2.0E-09	1.5E-09	2.5E-09

Measurements

IilADD(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	173.3E-12	-5.9E-09	-5.9E-09	-2.9E-09	-589.6E-12	-6.7E-09	-2.9E-09
37_OUT_REF	-2.9E-09	-589.6E-12	-2.1E-09	-2.1E-09	-2.1E-09	-6.7E-09	-4.4E-09
OFF samples							
31	-2.9E-09	-9.7E-09	-6.7E-09	-6.7E-09	-2.9E-09	-7.5E-09	-5.2E-09
32	-4.4E-09	-8.2E-09	-1.4E-09	-4.4E-09	-5.9E-09	-5.9E-09	-3.6E-09
33	-9.0E-09	-2.9E-09	-2.9E-09	-6.7E-09	-5.9E-09	-2.9E-09	-1.4E-09
34	-5.9E-09	-589.6E-12	-5.9E-09	-589.6E-12	-6.7E-09	-4.4E-09	-8.2E-09
35	-9.7E-09	-8.2E-09	-3.6E-09	-6.7E-09	-5.9E-09	-2.9E-09	-3.6E-09
Statistics							
Min	-9.7E-09	-9.7E-09	-6.7E-09	-6.7E-09	-6.7E-09	-7.5E-09	-8.2E-09
Max	-2.9E-09	-589.6E-12	-1.4E-09	-589.6E-12	-2.9E-09	-2.9E-09	-1.4E-09
Average	-6.4E-09	-5.9E-09	-4.1E-09	-5.0E-09	-5.5E-09	-4.7E-09	-4.4E-09
Std Deviation	2.6E-09	3.5E-09	2.0E-09	2.4E-09	1.3E-09	1.8E-09	2.3E-09

Parameter : Input Low Leakage Current : IilADD(8)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilADD(8)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	4.0E-09	-1.4E-09	173.3E-12	-3.6E-09	1.7E-09	1.7E-09	4.8E-09
37_OUT_REF	1.7E-09	936.3E-12	1.7E-09	2.5E-09	1.7E-09	4.0E-09	2.5E-09
ON samples							
21	6.3E-09	2.5E-09	1.7E-09	-2.1E-09	-1.4E-09	-1.4E-09	-589.6E-12
22	936.3E-12	-589.6E-12	2.5E-09	-2.1E-09	173.3E-12	173.3E-12	4.0E-09
23	5.5E-09	3.2E-09	3.2E-09	1.7E-09	1.7E-09	173.3E-12	4.0E-09
24	936.3E-12	1.7E-09	173.3E-12	3.2E-09	-3.6E-09	936.3E-12	-589.6E-12
25	7.8E-09	936.3E-12	173.3E-12	936.3E-12	-1.4E-09	5.5E-09	3.2E-09
26	2.5E-09	-2.1E-09	-2.1E-09	936.3E-12	4.8E-09	1.7E-09	936.3E-12
27	2.5E-09	1.7E-09	-5.2E-09	2.5E-09	173.3E-12	2.5E-09	1.7E-09
28	173.3E-12	2.5E-09	173.3E-12	1.7E-09	-3.6E-09	3.2E-09	936.3E-12
29	3.2E-09	2.5E-09	-1.4E-09	-3.6E-09	-4.4E-09	4.0E-09	173.3E-12
30	5.5E-09	1.7E-09	2.5E-09	1.7E-09	5.5E-09	173.3E-12	3.2E-09
Statistics							
Min	173.3E-12	-2.1E-09	-5.2E-09	-3.6E-09	-4.4E-09	-1.4E-09	-589.6E-12
Max	7.8E-09	3.2E-09	3.2E-09	3.2E-09	5.5E-09	5.5E-09	4.0E-09
Average	3.5E-09	1.4E-09	173.4E-12	478.5E-12	-208.1E-12	1.7E-09	1.7E-09
Std Deviation	2.5E-09	1.5E-09	2.4E-09	2.2E-09	3.2E-09	2.0E-09	1.7E-09

Measurements

IilADD(8)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	4.0E-09	-1.4E-09	173.3E-12	-3.6E-09	1.7E-09	1.7E-09	4.8E-09
37_OUT_REF	1.7E-09	936.3E-12	1.7E-09	2.5E-09	1.7E-09	4.0E-09	2.5E-09
OFF samples							
31	-589.6E-12	173.3E-12	1.7E-09	-3.6E-09	-4.4E-09	-589.6E-12	1.7E-09
32	-2.1E-09	4.8E-09	936.3E-12	2.5E-09	3.2E-09	4.8E-09	-1.4E-09
33	3.2E-09	-2.1E-09	936.3E-12	-589.6E-12	-2.1E-09	5.5E-09	2.5E-09
34	-2.1E-09	1.7E-09	1.7E-09	-2.1E-09	936.3E-12	3.2E-09	936.3E-12
35	1.7E-09	173.3E-12	1.7E-09	-1.4E-09	-2.9E-09	173.3E-12	-2.1E-09
Statistics							
Min	-2.1E-09	-2.1E-09	936.3E-12	-3.6E-09	-4.4E-09	-589.6E-12	-2.1E-09
Max	3.2E-09	4.8E-09	1.7E-09	2.5E-09	3.2E-09	5.5E-09	2.5E-09
Average	20.7E-12	936.3E-12	1.4E-09	-1.0E-09	-1.0E-09	2.6E-09	325.9E-12
Std Deviation	2.1E-09	2.3E-09	373.8E-12	2.0E-09	2.8E-09	2.4E-09	1.8E-09

Parameter : Input Low Leakage Current : IilADD(9)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

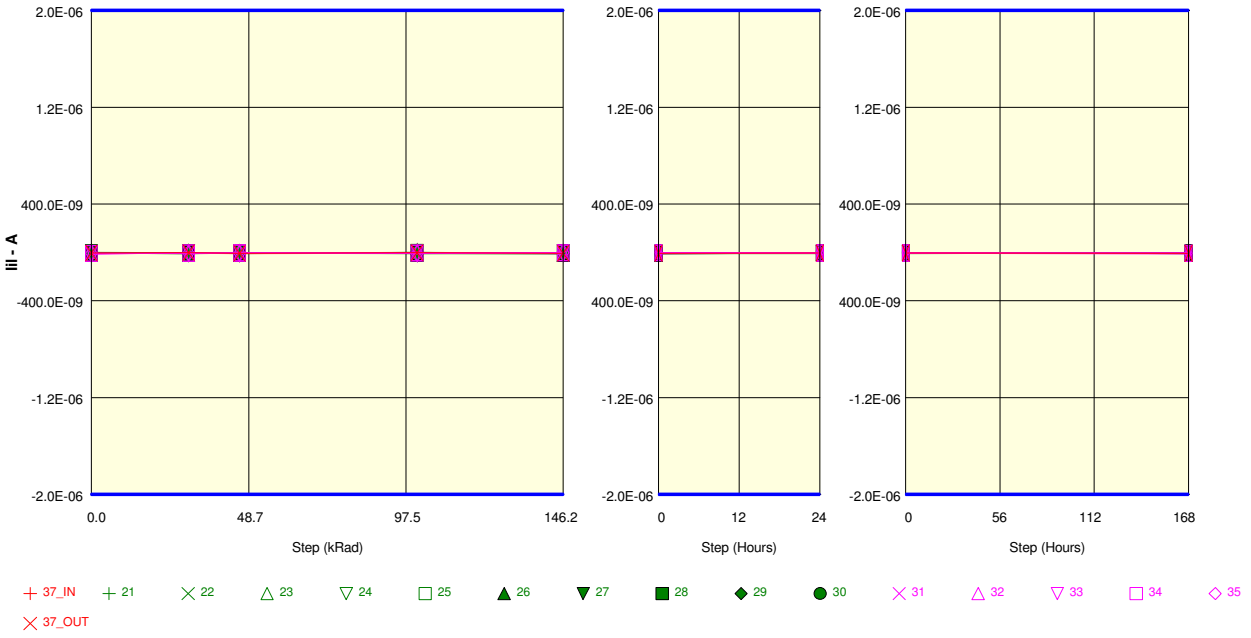
Measurements

IilADD(9)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-589.6E-12	-1.4E-09	-589.6E-12	-2.1E-09	1.7E-09	6.3E-09	936.3E-12
37_OUT_REF	173.3E-12	-589.6E-12	1.7E-09	-4.4E-09	-2.1E-09	-5.2E-09	4.0E-09
ON samples							
21	-2.1E-09	-589.6E-12	-2.1E-09	-2.1E-09	173.3E-12	173.3E-12	3.2E-09
22	-1.4E-09	173.3E-12	-1.4E-09	-589.6E-12	173.3E-12	173.3E-12	-2.1E-09
23	-1.4E-09	-589.6E-12	-2.9E-09	-1.4E-09	-1.4E-09	-2.9E-09	2.5E-09
24	-589.6E-12	3.2E-09	936.3E-12	3.2E-09	936.3E-12	3.2E-09	-2.1E-09
25	-5.2E-09	936.3E-12	2.5E-09	1.7E-09	-589.6E-12	-1.4E-09	-1.4E-09
26	-2.9E-09	-1.4E-09	-589.6E-12	173.3E-12	936.3E-12	-1.4E-09	1.7E-09
27	-3.6E-09	-2.9E-09	-2.9E-09	173.3E-12	-589.6E-12	936.3E-12	936.3E-12
28	3.2E-09	-2.9E-09	3.2E-09	173.3E-12	936.3E-12	-589.6E-12	173.3E-12
29	-1.4E-09	2.5E-09	-7.5E-09	-3.6E-09	-5.9E-09	-5.9E-09	-1.4E-09
30	-3.6E-09	4.0E-09	-2.9E-09	-3.6E-09	1.7E-09	-1.4E-09	2.5E-09
Statistics							
Min	-5.2E-09	-2.9E-09	-7.5E-09	-3.6E-09	-5.9E-09	-5.9E-09	-2.1E-09
Max	3.2E-09	4.0E-09	3.2E-09	3.2E-09	1.7E-09	3.2E-09	3.2E-09
Average	-1.9E-09	249.6E-12	-1.4E-09	-589.6E-12	-360.7E-12	-894.8E-12	402.2E-12
Std Deviation	2.2E-09	2.3E-09	2.9E-09	2.1E-09	2.0E-09	2.3E-09	1.9E-09

Measurements

IilADD(9)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-589.6E-12	-1.4E-09	-589.6E-12	-2.1E-09	1.7E-09	6.3E-09	936.3E-12
37_OUT_REF	173.3E-12	-589.6E-12	1.7E-09	-4.4E-09	-2.1E-09	-5.2E-09	4.0E-09
OFF samples							
31	-1.4E-09	-4.4E-09	-4.4E-09	-3.6E-09	-1.4E-09	936.3E-12	3.2E-09
32	1.7E-09	1.7E-09	-1.4E-09	936.3E-12	-2.1E-09	1.7E-09	-1.4E-09
33	173.3E-12	6.3E-09	-1.4E-09	1.7E-09	-5.9E-09	-1.4E-09	-1.4E-09
34	173.3E-12	-2.1E-09	-3.6E-09	1.7E-09	173.3E-12	-2.1E-09	936.3E-12
35	-4.4E-09	-4.4E-09	173.3E-12	1.7E-09	1.7E-09	-2.1E-09	3.2E-09
Statistics							
Min	-4.4E-09	-4.4E-09	-4.4E-09	-3.6E-09	-5.9E-09	-2.1E-09	-1.4E-09
Max	1.7E-09	6.3E-09	173.3E-12	1.7E-09	1.7E-09	1.7E-09	3.2E-09
Average	-742.2E-12	-589.6E-12	-2.1E-09	478.5E-12	-1.5E-09	-589.6E-12	936.3E-12
Std Deviation	2.1E-09	4.1E-09	1.7E-09	2.1E-09	2.6E-09	1.6E-09	2.0E-09

Parameter : Input Low Leakage Current : IilBANK(0)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



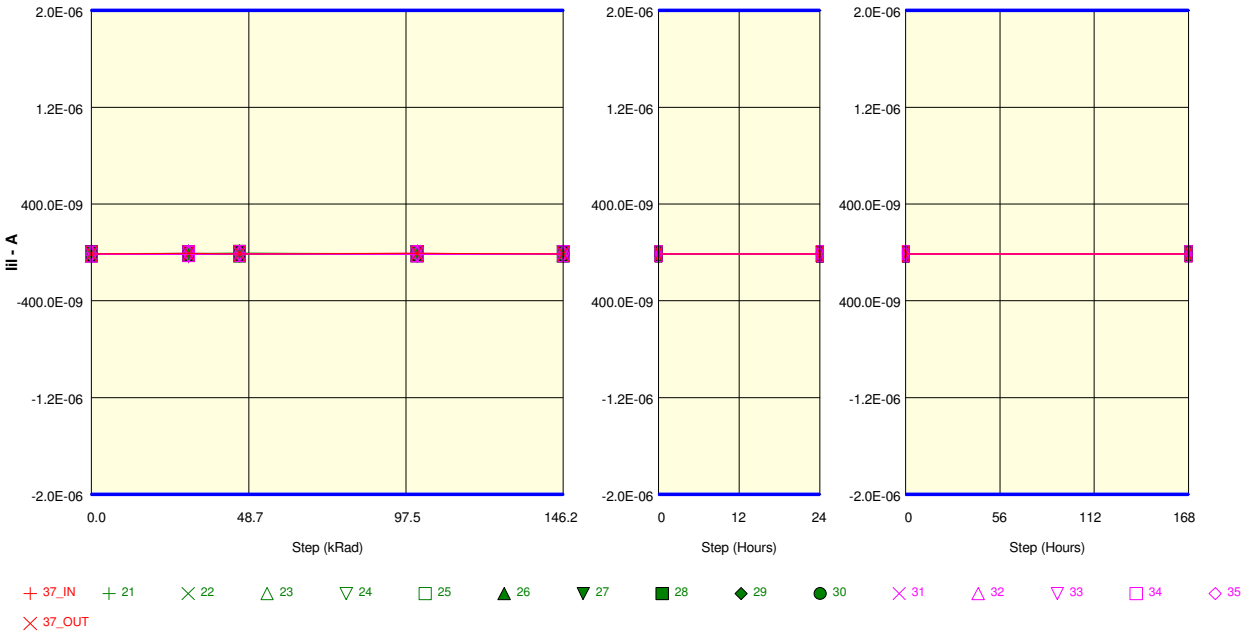
Measurements

IilBANK(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-7.5E-09	-8.2E-09	-5.9E-09	-2.9E-09	-6.7E-09	-2.1E-09
37_OUT_REF	-4.4E-09	-2.9E-09	-5.9E-09	-1.4E-09	-6.7E-09	-5.2E-09	-5.9E-09
ON samples							
21	-5.2E-09	-5.2E-09	-5.2E-09	-2.1E-09	-2.9E-09	-5.2E-09	-7.5E-09
22	-5.9E-09	-8.2E-09	-4.4E-09	-9.0E-09	-10.5E-09	-5.2E-09	-5.9E-09
23	-5.9E-09	-9.7E-09	-5.9E-09	-8.2E-09	-3.6E-09	-2.9E-09	-9.0E-09
24	-5.2E-09	-4.4E-09	-7.5E-09	-589.6E-12	-5.2E-09	-6.7E-09	-4.4E-09
25	-6.7E-09	-5.2E-09	-8.2E-09	-2.1E-09	-6.7E-09	-2.1E-09	-3.6E-09
26	936.3E-12	-2.1E-09	-5.2E-09	1.7E-09	-9.7E-09	-9.0E-09	-5.2E-09
27	-4.4E-09	-4.4E-09	-5.2E-09	-6.7E-09	-2.1E-09	-5.2E-09	-3.6E-09
28	-6.7E-09	-6.7E-09	-7.5E-09	-7.5E-09	-7.5E-09	-5.2E-09	-4.4E-09
29	-5.9E-09	-5.9E-09	-6.7E-09	-2.1E-09	-6.7E-09	-4.4E-09	-5.9E-09
30	-6.7E-09	-9.0E-09	-2.1E-09	-5.9E-09	-5.2E-09	-2.1E-09	-8.2E-09
Statistics							
Min	-6.7E-09	-9.7E-09	-8.2E-09	-9.0E-09	-10.5E-09	-9.0E-09	-9.0E-09
Max	936.3E-12	-2.1E-09	-2.1E-09	1.7E-09	-2.1E-09	-2.1E-09	-3.6E-09
Average	-5.2E-09	-6.1E-09	-5.8E-09	-4.3E-09	-6.0E-09	-4.8E-09	-5.8E-09
Std Deviation	2.2E-09	2.2E-09	1.7E-09	3.5E-09	2.6E-09	2.0E-09	1.8E-09

Measurements

IilBANK(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-7.5E-09	-8.2E-09	-5.9E-09	-2.9E-09	-6.7E-09	-2.1E-09
37_OUT_REF	-4.4E-09	-2.9E-09	-5.9E-09	-1.4E-09	-6.7E-09	-5.2E-09	-5.9E-09
OFF samples							
31	-10.5E-09	-5.2E-09	-3.6E-09	-4.4E-09	-9.0E-09	-7.5E-09	-2.1E-09
32	-4.4E-09	-8.2E-09	-6.7E-09	-2.9E-09	-2.1E-09	-5.9E-09	-6.7E-09
33	-10.5E-09	-3.6E-09	-7.5E-09	-6.7E-09	-9.7E-09	-6.7E-09	-11.3E-09
34	-9.7E-09	-3.6E-09	-2.9E-09	-4.4E-09	-2.1E-09	-2.9E-09	-5.9E-09
35	-7.5E-09	-4.4E-09	-6.7E-09	-6.7E-09	-2.9E-09	-2.9E-09	-6.7E-09
Statistics							
Min	-10.5E-09	-8.2E-09	-7.5E-09	-6.7E-09	-9.7E-09	-7.5E-09	-11.3E-09
Max	-4.4E-09	-3.6E-09	-2.9E-09	-2.9E-09	-2.1E-09	-2.9E-09	-2.1E-09
Average	-8.5E-09	-5.0E-09	-5.5E-09	-5.0E-09	-5.2E-09	-5.2E-09	-6.5E-09
Std Deviation	2.3E-09	1.7E-09	1.8E-09	1.5E-09	3.4E-09	1.9E-09	2.9E-09

Parameter : Input Low Leakage Current : IilBANK(1)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



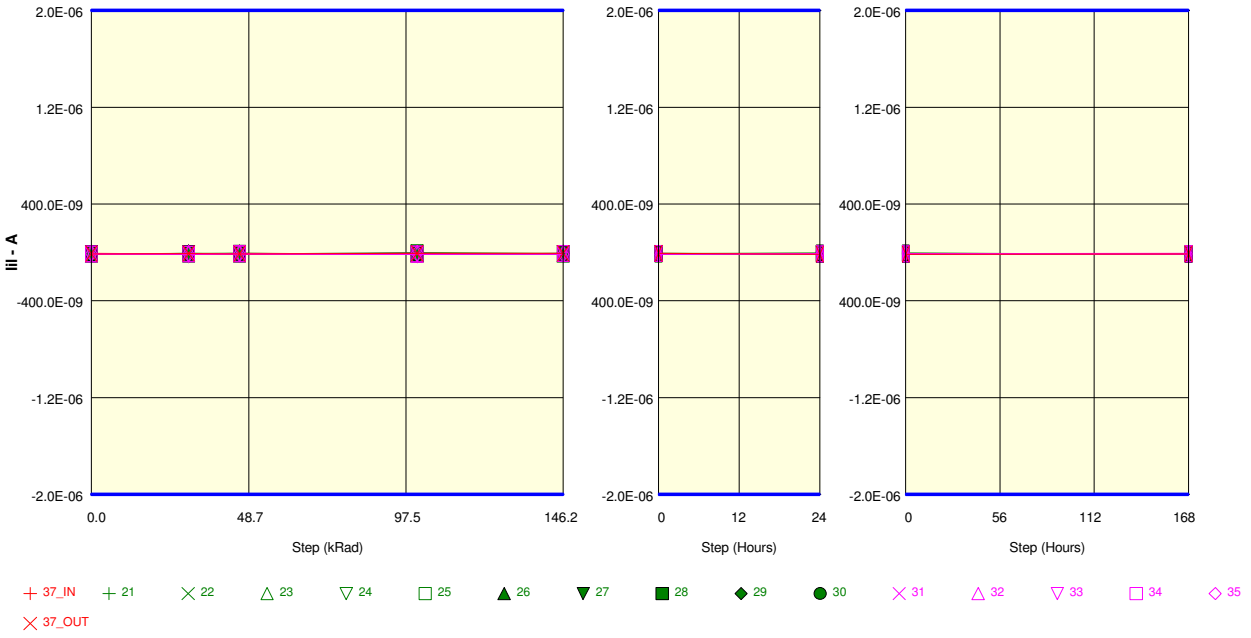
Measurements

IilBANK(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.7E-09	-15.1E-09	-9.7E-09	-7.5E-09	-14.3E-09	-15.1E-09	-11.3E-09
37_OUT_REF	-11.3E-09	-7.5E-09	-10.5E-09	-5.9E-09	-12.0E-09	-11.3E-09	-11.3E-09
ON samples							
21	-9.0E-09	-5.9E-09	-5.9E-09	-9.7E-09	-11.3E-09	-13.6E-09	-13.6E-09
22	-11.3E-09	-11.3E-09	-11.3E-09	-12.8E-09	-12.0E-09	-11.3E-09	-13.6E-09
23	-12.0E-09	-8.2E-09	-12.0E-09	-12.8E-09	-11.3E-09	-14.3E-09	-8.2E-09
24	-10.5E-09	-14.3E-09	-8.2E-09	-12.0E-09	-10.5E-09	-11.3E-09	-9.7E-09
25	-14.3E-09	-9.7E-09	-12.8E-09	-9.7E-09	-11.3E-09	-12.0E-09	-8.2E-09
26	-11.3E-09	-9.0E-09	-7.5E-09	-9.0E-09	-9.0E-09	-15.1E-09	-12.0E-09
27	-15.1E-09	-9.7E-09	-6.7E-09	-12.0E-09	-12.0E-09	-13.6E-09	-9.7E-09
28	-9.0E-09	-9.0E-09	-11.3E-09	-9.0E-09	-13.6E-09	-13.6E-09	-12.0E-09
29	-12.8E-09	-11.3E-09	-8.2E-09	-14.3E-09	-8.2E-09	-10.5E-09	-12.0E-09
30	-10.5E-09	-12.0E-09	-11.3E-09	-9.0E-09	-12.0E-09	-9.7E-09	-9.0E-09
Statistics							
Min	-15.1E-09	-14.3E-09	-12.8E-09	-14.3E-09	-13.6E-09	-15.1E-09	-13.6E-09
Max	-9.0E-09	-5.9E-09	-5.9E-09	-9.0E-09	-8.2E-09	-9.7E-09	-8.2E-09
Average	-11.6E-09	-10.1E-09	-9.5E-09	-11.0E-09	-11.1E-09	-12.5E-09	-10.8E-09
Std Deviation	1.9E-09	2.2E-09	2.3E-09	1.9E-09	1.5E-09	1.7E-09	2.0E-09

Measurements

IilBANK(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.7E-09	-15.1E-09	-9.7E-09	-7.5E-09	-14.3E-09	-15.1E-09	-11.3E-09
37_OUT_REF	-11.3E-09	-7.5E-09	-10.5E-09	-5.9E-09	-12.0E-09	-11.3E-09	-11.3E-09
OFF samples							
31	-15.1E-09	-10.5E-09	-10.5E-09	-7.5E-09	-12.0E-09	-11.3E-09	-9.7E-09
32	-15.1E-09	-12.0E-09	-12.0E-09	-10.5E-09	-11.3E-09	-14.3E-09	-13.6E-09
33	-13.6E-09	-17.4E-09	-8.2E-09	-10.5E-09	-9.0E-09	-12.0E-09	-12.0E-09
34	-12.8E-09	-9.7E-09	-9.0E-09	-14.3E-09	-11.3E-09	-9.0E-09	-10.5E-09
35	-11.3E-09	-5.9E-09	-9.7E-09	-11.3E-09	-9.0E-09	-12.8E-09	-13.6E-09
Statistics							
Min	-15.1E-09	-17.4E-09	-12.0E-09	-14.3E-09	-12.0E-09	-14.3E-09	-13.6E-09
Max	-11.3E-09	-5.9E-09	-8.2E-09	-7.5E-09	-9.0E-09	-9.0E-09	-9.7E-09
Average	-13.6E-09	-11.1E-09	-9.9E-09	-10.8E-09	-10.5E-09	-11.9E-09	-11.9E-09
Std Deviation	1.4E-09	3.7E-09	1.3E-09	2.2E-09	1.3E-09	1.8E-09	1.6E-09

Parameter : Input Low Leakage Current : IilBANK(2)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilBANK(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-7.5E-09	-12.0E-09	-6.7E-09	-12.8E-09	-9.7E-09	-14.3E-09	-10.5E-09
37_OUT_REF	-10.5E-09	-9.7E-09	-10.5E-09	-5.9E-09	-5.9E-09	-15.1E-09	-11.3E-09
ON samples							
21	-10.5E-09	-8.2E-09	-10.5E-09	-13.6E-09	-7.5E-09	-8.2E-09	-11.3E-09
22	-8.2E-09	-12.0E-09	-12.0E-09	-7.5E-09	-7.5E-09	-12.8E-09	-12.0E-09
23	-14.3E-09	-7.5E-09	-12.0E-09	-7.5E-09	-10.5E-09	-15.1E-09	-9.7E-09
24	-10.5E-09	-12.0E-09	-11.3E-09	-2.9E-09	-8.2E-09	-9.0E-09	-11.3E-09
25	-9.7E-09	-15.8E-09	-15.8E-09	-10.5E-09	-15.1E-09	-9.7E-09	-8.2E-09
26	-12.8E-09	-7.5E-09	-5.9E-09	-13.6E-09	-11.3E-09	-16.6E-09	-12.8E-09
27	-9.7E-09	-13.6E-09	-8.2E-09	-14.3E-09	-9.0E-09	-12.0E-09	-12.8E-09
28	-9.0E-09	-9.7E-09	-7.5E-09	-11.3E-09	-9.0E-09	-5.2E-09	-17.4E-09
29	-10.5E-09	-14.3E-09	-10.5E-09	-9.0E-09	-8.2E-09	-12.0E-09	-9.7E-09
30	-8.2E-09	-9.7E-09	-10.5E-09	-11.3E-09	-8.2E-09	-5.9E-09	-12.8E-09
Statistics							
Min	-14.3E-09	-15.8E-09	-15.8E-09	-14.3E-09	-15.1E-09	-16.6E-09	-17.4E-09
Max	-8.2E-09	-7.5E-09	-5.9E-09	-2.9E-09	-7.5E-09	-5.2E-09	-8.2E-09
Average	-10.4E-09	-11.0E-09	-10.4E-09	-10.1E-09	-9.4E-09	-10.7E-09	-11.8E-09
Std Deviation	1.8E-09	2.8E-09	2.6E-09	3.3E-09	2.2E-09	3.5E-09	2.4E-09

Measurements

IilBANK(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-7.5E-09	-12.0E-09	-6.7E-09	-12.8E-09	-9.7E-09	-14.3E-09	-10.5E-09
37_OUT_REF	-10.5E-09	-9.7E-09	-10.5E-09	-5.9E-09	-5.9E-09	-15.1E-09	-11.3E-09
OFF samples							
31	-14.3E-09	-12.0E-09	-14.3E-09	-9.7E-09	-12.0E-09	-9.0E-09	-7.5E-09
32	-10.5E-09	-8.2E-09	-9.7E-09	-15.8E-09	-8.2E-09	-12.8E-09	-8.2E-09
33	-11.3E-09	-13.6E-09	-10.5E-09	-13.6E-09	-9.0E-09	-12.8E-09	-9.0E-09
34	-13.6E-09	-14.3E-09	-13.6E-09	-12.0E-09	-9.7E-09	-11.3E-09	-15.1E-09
35	-9.0E-09	-12.8E-09	-8.2E-09	-7.5E-09	-14.3E-09	-8.2E-09	-11.3E-09
Statistics							
Min	-14.3E-09	-14.3E-09	-14.3E-09	-15.8E-09	-14.3E-09	-12.8E-09	-15.1E-09
Max	-9.0E-09	-8.2E-09	-8.2E-09	-7.5E-09	-8.2E-09	-8.2E-09	-7.5E-09
Average	-11.7E-09	-12.2E-09	-11.3E-09	-11.7E-09	-10.7E-09	-10.8E-09	-10.2E-09
Std Deviation	2.0E-09	2.1E-09	2.3E-09	2.9E-09	2.2E-09	1.9E-09	2.8E-09

Parameter : Input Low Leakage Current : IilCK_
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

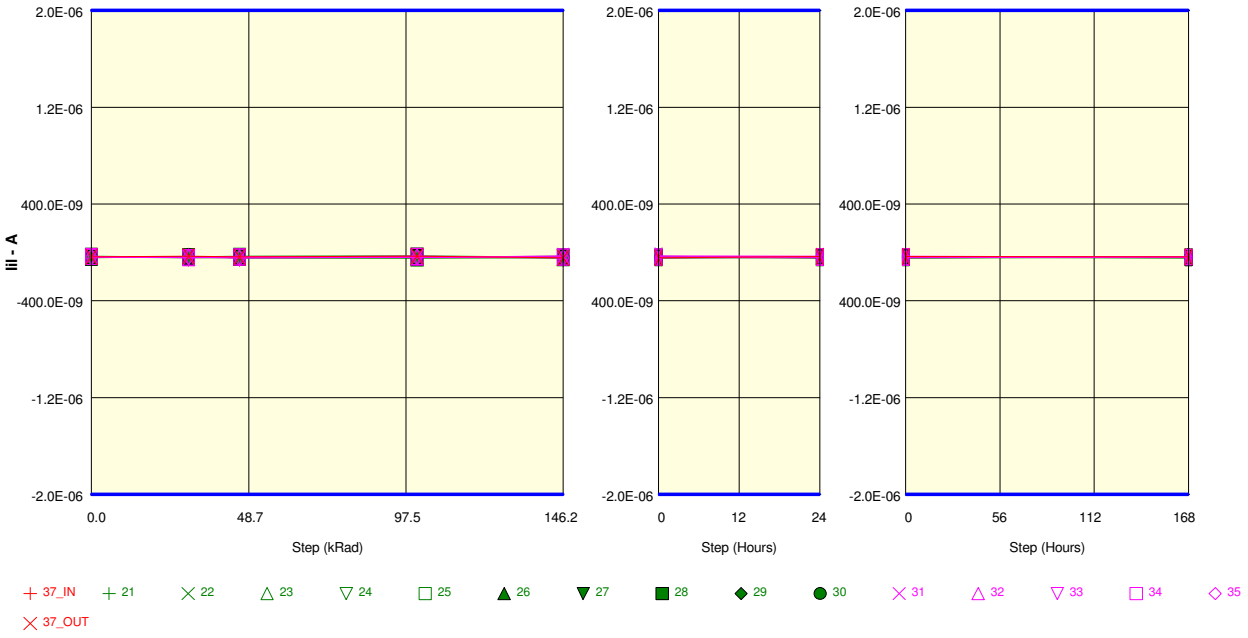
Measurements

IilCK_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-36.6E-09	-40.3E-09	-36.6E-09	-36.6E-09	-47.6E-09	-48.8E-09	-45.2E-09
37_OUT_REF	-39.1E-09	-37.8E-09	-35.4E-09	-46.4E-09	-41.5E-09	-45.2E-09	-42.7E-09
ON samples							
21	-42.7E-09	-41.5E-09	-36.6E-09	-34.2E-09	-41.5E-09	-39.1E-09	-36.6E-09
22	-30.5E-09	-45.2E-09	-37.8E-09	-40.3E-09	-39.1E-09	-47.6E-09	-42.7E-09
23	-40.3E-09	-41.5E-09	-36.6E-09	-45.2E-09	-45.2E-09	-40.3E-09	-37.8E-09
24	-39.1E-09	-42.7E-09	-30.5E-09	-42.7E-09	-42.7E-09	-35.4E-09	-39.1E-09
25	-42.7E-09	-47.6E-09	-35.4E-09	-41.5E-09	-36.6E-09	-33.0E-09	-34.2E-09
26	-43.9E-09	-39.1E-09	-37.8E-09	-48.8E-09	-34.2E-09	-40.3E-09	-40.3E-09
27	-35.4E-09	-43.9E-09	-37.8E-09	-42.7E-09	-40.3E-09	-39.1E-09	-31.7E-09
28	-40.3E-09	-45.2E-09	-34.2E-09	-33.0E-09	-34.2E-09	-41.5E-09	-45.2E-09
29	-39.1E-09	-43.9E-09	-31.7E-09	-33.0E-09	-39.1E-09	-42.7E-09	-42.7E-09
30	-35.4E-09	-47.6E-09	-41.5E-09	-37.8E-09	-37.8E-09	-37.8E-09	-42.7E-09
Statistics							
Min	-43.9E-09	-47.6E-09	-41.5E-09	-48.8E-09	-45.2E-09	-47.6E-09	-45.2E-09
Max	-30.5E-09	-39.1E-09	-30.5E-09	-33.0E-09	-34.2E-09	-33.0E-09	-31.7E-09
Average	-38.9E-09	-43.8E-09	-36.0E-09	-39.9E-09	-39.1E-09	-39.7E-09	-39.3E-09
Std Deviation	3.9E-09	2.6E-09	3.1E-09	5.1E-09	3.4E-09	3.8E-09	4.0E-09

Measurements

IilCK_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-36.6E-09	-40.3E-09	-36.6E-09	-36.6E-09	-47.6E-09	-48.8E-09	-45.2E-09
37_OUT_REF	-39.1E-09	-37.8E-09	-35.4E-09	-46.4E-09	-41.5E-09	-45.2E-09	-42.7E-09
OFF samples							
31	-39.1E-09	-33.0E-09	-41.5E-09	-41.5E-09	-51.3E-09	-37.8E-09	-37.8E-09
32	-40.3E-09	-41.5E-09	-34.2E-09	-37.8E-09	-42.7E-09	-37.8E-09	-36.6E-09
33	-42.7E-09	-33.0E-09	-45.2E-09	-33.0E-09	-37.8E-09	-46.4E-09	-41.5E-09
34	-36.6E-09	-35.4E-09	-39.1E-09	-43.9E-09	-36.6E-09	-42.7E-09	-33.0E-09
35	-34.2E-09	-43.9E-09	-40.3E-09	-36.6E-09	-45.2E-09	-42.7E-09	-40.3E-09
Statistics							
Min	-42.7E-09	-43.9E-09	-45.2E-09	-43.9E-09	-51.3E-09	-46.4E-09	-41.5E-09
Max	-34.2E-09	-33.0E-09	-34.2E-09	-33.0E-09	-36.6E-09	-37.8E-09	-33.0E-09
Average	-38.6E-09	-37.4E-09	-40.0E-09	-38.6E-09	-42.7E-09	-41.5E-09	-37.8E-09
Std Deviation	2.9E-09	4.5E-09	3.6E-09	3.8E-09	5.3E-09	3.3E-09	3.0E-09

Parameter : Input Low Leakage Current : IilCK
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



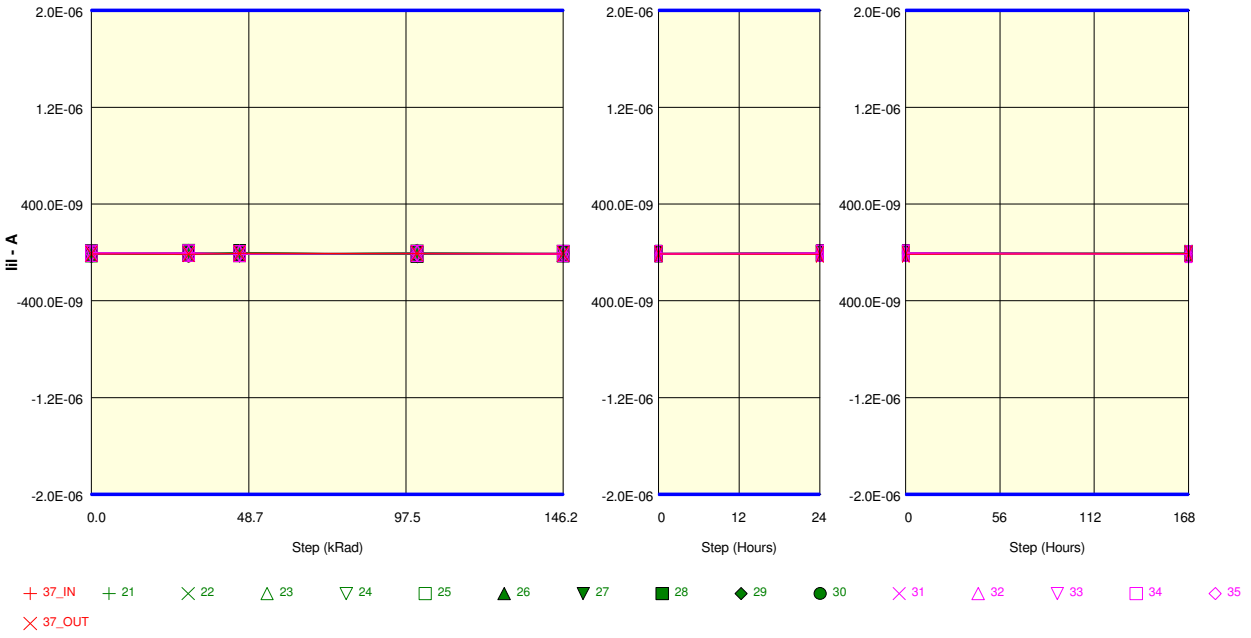
Measurements

IilCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-37.8E-09	-39.1E-09	-40.3E-09	-36.6E-09	-43.9E-09	-36.6E-09	-41.5E-09
37_OUT_REF	-36.6E-09	-30.5E-09	-36.6E-09	-31.7E-09	-46.4E-09	-34.2E-09	-35.4E-09
ON samples							
21	-37.8E-09	-41.5E-09	-46.4E-09	-42.7E-09	-35.4E-09	-40.3E-09	-41.5E-09
22	-33.0E-09	-33.0E-09	-39.1E-09	-39.1E-09	-30.5E-09	-43.9E-09	-35.4E-09
23	-35.4E-09	-36.6E-09	-42.7E-09	-47.6E-09	-46.4E-09	-40.3E-09	-35.4E-09
24	-39.1E-09	-35.4E-09	-31.7E-09	-28.1E-09	-39.1E-09	-42.7E-09	-35.4E-09
25	-42.7E-09	-34.2E-09	-43.9E-09	-40.3E-09	-36.6E-09	-46.4E-09	-39.1E-09
26	-40.3E-09	-40.3E-09	-40.3E-09	-41.5E-09	-41.5E-09	-43.9E-09	-40.3E-09
27	-37.8E-09	-43.9E-09	-41.5E-09	-33.0E-09	-42.7E-09	-40.3E-09	-46.4E-09
28	-31.7E-09	-39.1E-09	-35.4E-09	-40.3E-09	-40.3E-09	-35.4E-09	-45.2E-09
29	-36.6E-09	-40.3E-09	-40.3E-09	-41.5E-09	-41.5E-09	-37.8E-09	-43.9E-09
30	-41.5E-09	-33.0E-09	-40.3E-09	-39.1E-09	-42.7E-09	-39.1E-09	-33.0E-09
Statistics							
Min	-42.7E-09	-43.9E-09	-46.4E-09	-47.6E-09	-46.4E-09	-46.4E-09	-46.4E-09
Max	-31.7E-09	-33.0E-09	-31.7E-09	-28.1E-09	-30.5E-09	-35.4E-09	-33.0E-09
Average	-37.6E-09	-37.7E-09	-40.2E-09	-39.3E-09	-39.7E-09	-41.0E-09	-39.6E-09
Std Deviation	3.4E-09	3.6E-09	4.0E-09	5.1E-09	4.3E-09	3.1E-09	4.4E-09

Measurements

IilCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-37.8E-09	-39.1E-09	-40.3E-09	-36.6E-09	-43.9E-09	-36.6E-09	-41.5E-09
37_OUT_REF	-36.6E-09	-30.5E-09	-36.6E-09	-31.7E-09	-46.4E-09	-34.2E-09	-35.4E-09
OFF samples							
31	-33.0E-09	-40.3E-09	-34.2E-09	-40.3E-09	-29.3E-09	-31.7E-09	-39.1E-09
32	-34.2E-09	-41.5E-09	-41.5E-09	-40.3E-09	-40.3E-09	-43.9E-09	-33.0E-09
33	-41.5E-09	-41.5E-09	-35.4E-09	-31.7E-09	-39.1E-09	-36.6E-09	-40.3E-09
34	-34.2E-09	-45.2E-09	-39.1E-09	-34.2E-09	-36.6E-09	-34.2E-09	-37.8E-09
35	-37.8E-09	-37.8E-09	-48.8E-09	-39.1E-09	-46.4E-09	-39.1E-09	-40.3E-09
Statistics							
Min	-41.5E-09	-45.2E-09	-48.8E-09	-40.3E-09	-46.4E-09	-43.9E-09	-40.3E-09
Max	-33.0E-09	-37.8E-09	-34.2E-09	-31.7E-09	-29.3E-09	-31.7E-09	-33.0E-09
Average	-36.1E-09	-41.3E-09	-39.8E-09	-37.1E-09	-38.3E-09	-37.1E-09	-38.1E-09
Std Deviation	3.1E-09	2.4E-09	5.2E-09	3.5E-09	5.5E-09	4.2E-09	2.7E-09

Parameter : Input Low Leakage Current : IilCKE
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



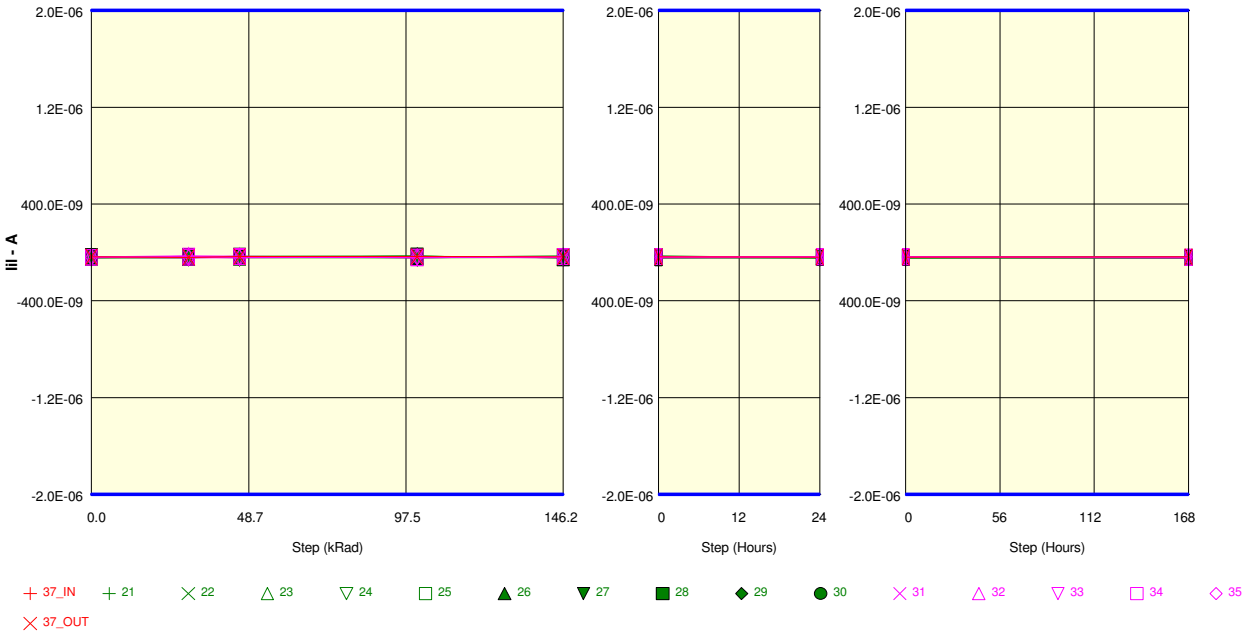
Measurements

IilCKE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-18.3E-09	-14.6E-09	-8.5E-09	-11.0E-09	-2.4E-09	-9.8E-09
37_OUT_REF	-12.2E-09	-13.4E-09	-6.1E-09	-9.8E-09	-11.0E-09	-15.9E-09	-9.8E-09
ON samples							
21	-12.2E-09	-8.5E-09	-15.9E-09	-14.6E-09	-8.5E-09	-3.7E-09	-6.1E-09
22	-8.5E-09	-11.0E-09	0.0E+00	-14.6E-09	-13.4E-09	-13.4E-09	-3.7E-09
23	-7.3E-09	-4.9E-09	-8.5E-09	-9.8E-09	-8.5E-09	-9.8E-09	-9.8E-09
24	-12.2E-09	0.0E+00	-12.2E-09	-3.7E-09	-6.1E-09	-1.2E-09	-15.9E-09
25	-14.6E-09	-6.1E-09	-8.5E-09	-14.6E-09	-9.8E-09	-7.3E-09	-8.5E-09
26	-3.7E-09	-9.8E-09	-12.2E-09	-3.7E-09	-9.8E-09	-7.3E-09	-9.8E-09
27	-4.9E-09	-6.1E-09	-8.5E-09	-17.1E-09	-12.2E-09	-4.9E-09	-8.5E-09
28	-4.9E-09	-9.8E-09	-1.2E-09	-15.9E-09	-13.4E-09	-4.9E-09	-12.2E-09
29	-13.4E-09	-7.3E-09	-9.8E-09	-6.1E-09	-11.0E-09	-9.8E-09	-6.1E-09
30	-15.9E-09	-15.9E-09	-11.0E-09	-4.9E-09	-7.3E-09	-4.9E-09	-6.1E-09
Statistics							
Min	-15.9E-09	-15.9E-09	-15.9E-09	-17.1E-09	-13.4E-09	-13.4E-09	-15.9E-09
Max	-3.7E-09	0.0E+00	0.0E+00	-3.7E-09	-6.1E-09	-1.2E-09	-3.7E-09
Average	-9.8E-09	-7.9E-09	-8.8E-09	-10.5E-09	-10.0E-09	-6.7E-09	-8.7E-09
Std Deviation	4.2E-09	4.0E-09	4.6E-09	5.2E-09	2.4E-09	3.4E-09	3.3E-09

Measurements

IilCKE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-18.3E-09	-14.6E-09	-8.5E-09	-11.0E-09	-2.4E-09	-9.8E-09
37_OUT_REF	-12.2E-09	-13.4E-09	-6.1E-09	-9.8E-09	-11.0E-09	-15.9E-09	-9.8E-09
OFF samples							
31	-2.4E-09	-6.1E-09	-11.0E-09	-9.8E-09	-17.1E-09	-4.9E-09	-9.8E-09
32	-7.3E-09	-7.3E-09	-7.3E-09	-6.1E-09	-7.3E-09	-7.3E-09	-7.3E-09
33	-13.4E-09	-4.9E-09	-9.8E-09	-9.8E-09	-7.3E-09	-3.7E-09	-8.5E-09
34	-6.1E-09	-4.9E-09	-11.0E-09	-6.1E-09	-9.8E-09	-6.1E-09	-18.3E-09
35	-6.1E-09	-12.2E-09	-8.5E-09	-8.5E-09	-14.6E-09	-14.6E-09	-8.5E-09
Statistics							
Min	-13.4E-09	-12.2E-09	-11.0E-09	-9.8E-09	-17.1E-09	-14.6E-09	-18.3E-09
Max	-2.4E-09	-4.9E-09	-7.3E-09	-6.1E-09	-7.3E-09	-3.7E-09	-7.3E-09
Average	-7.1E-09	-7.1E-09	-9.5E-09	-8.1E-09	-11.2E-09	-7.3E-09	-10.5E-09
Std Deviation	3.6E-09	2.7E-09	1.4E-09	1.7E-09	4.0E-09	3.9E-09	4.0E-09

Parameter : Input Low Leakage Current : IilDM
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



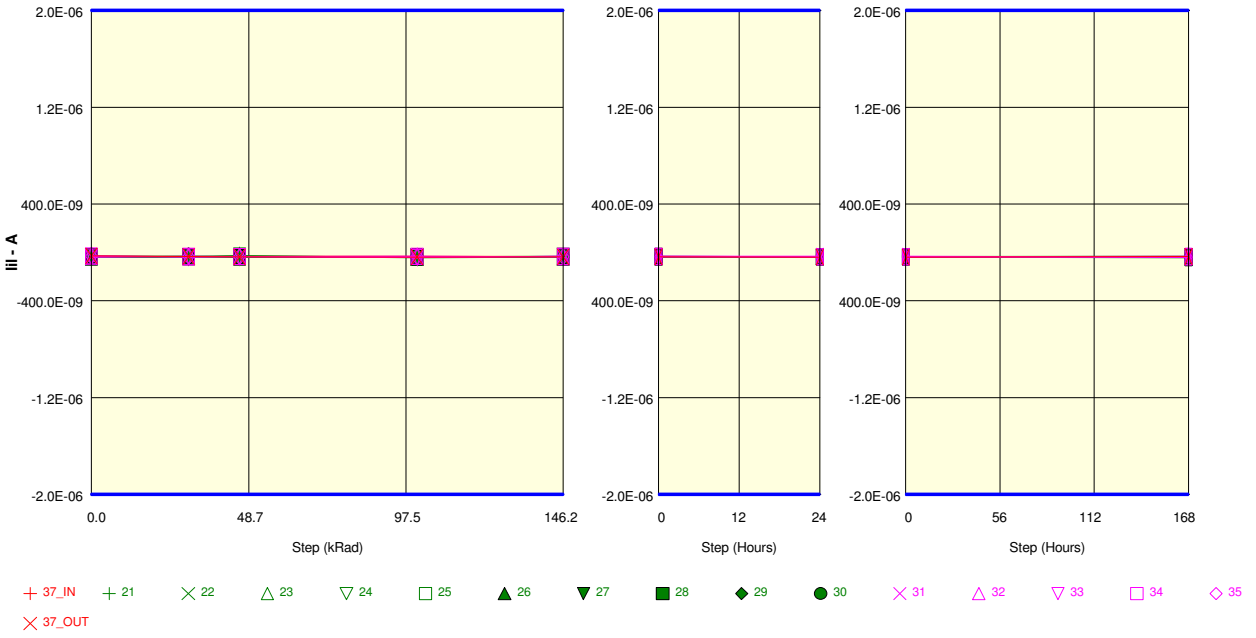
Measurements

IilDM	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-37.8E-09	-36.6E-09	-41.5E-09	-34.2E-09	-37.8E-09	-35.4E-09	-40.3E-09
37_OUT_REF	-36.6E-09	-40.3E-09	-34.2E-09	-34.2E-09	-35.4E-09	-37.8E-09	-36.6E-09
ON samples							
21	-35.4E-09	-34.2E-09	-33.0E-09	-37.8E-09	-28.1E-09	-43.9E-09	-33.0E-09
22	-45.2E-09	-40.3E-09	-36.6E-09	-36.6E-09	-33.0E-09	-39.1E-09	-39.1E-09
23	-42.7E-09	-42.7E-09	-39.1E-09	-41.5E-09	-37.8E-09	-41.5E-09	-43.9E-09
24	-45.2E-09	-35.4E-09	-36.6E-09	-46.4E-09	-41.5E-09	-42.7E-09	-47.6E-09
25	-34.2E-09	-36.6E-09	-39.1E-09	-31.7E-09	-43.9E-09	-40.3E-09	-40.3E-09
26	-34.2E-09	-40.3E-09	-37.8E-09	-30.5E-09	-42.7E-09	-41.5E-09	-36.6E-09
27	-36.6E-09	-39.1E-09	-46.4E-09	-42.7E-09	-33.0E-09	-40.3E-09	-47.6E-09
28	-39.1E-09	-39.1E-09	-31.7E-09	-30.5E-09	-45.2E-09	-41.5E-09	-40.3E-09
29	-40.3E-09	-45.2E-09	-33.0E-09	-31.7E-09	-40.3E-09	-47.6E-09	-40.3E-09
30	-40.3E-09	-36.6E-09	-41.5E-09	-35.4E-09	-46.4E-09	-35.4E-09	-39.1E-09
Statistics							
Min	-45.2E-09	-45.2E-09	-46.4E-09	-46.4E-09	-46.4E-09	-47.6E-09	-47.6E-09
Max	-34.2E-09	-34.2E-09	-31.7E-09	-30.5E-09	-28.1E-09	-35.4E-09	-33.0E-09
Average	-39.3E-09	-38.9E-09	-37.5E-09	-36.5E-09	-39.2E-09	-41.4E-09	-40.8E-09
Std Deviation	4.0E-09	3.2E-09	4.2E-09	5.3E-09	5.8E-09	3.0E-09	4.3E-09

Measurements

IilDM	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-37.8E-09	-36.6E-09	-41.5E-09	-34.2E-09	-37.8E-09	-35.4E-09	-40.3E-09
37_OUT_REF	-36.6E-09	-40.3E-09	-34.2E-09	-34.2E-09	-35.4E-09	-37.8E-09	-36.6E-09
OFF samples							
31	-36.6E-09	-40.3E-09	-37.8E-09	-40.3E-09	-36.6E-09	-40.3E-09	-43.9E-09
32	-35.4E-09	-29.3E-09	-31.7E-09	-45.2E-09	-33.0E-09	-37.8E-09	-43.9E-09
33	-43.9E-09	-31.7E-09	-40.3E-09	-39.1E-09	-42.7E-09	-41.5E-09	-41.5E-09
34	-41.5E-09	-41.5E-09	-33.0E-09	-43.9E-09	-34.2E-09	-34.2E-09	-37.8E-09
35	-40.3E-09	-43.9E-09	-42.7E-09	-35.4E-09	-40.3E-09	-40.3E-09	-35.4E-09
Statistics							
Min	-43.9E-09	-43.9E-09	-42.7E-09	-45.2E-09	-42.7E-09	-41.5E-09	-43.9E-09
Max	-35.4E-09	-29.3E-09	-31.7E-09	-35.4E-09	-33.0E-09	-34.2E-09	-35.4E-09
Average	-39.6E-09	-37.4E-09	-37.1E-09	-40.8E-09	-37.4E-09	-38.8E-09	-40.5E-09
Std Deviation	3.1E-09	5.8E-09	4.2E-09	3.5E-09	3.7E-09	2.6E-09	3.4E-09

Parameter : Input Low Leakage Current : IilDQ(0)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



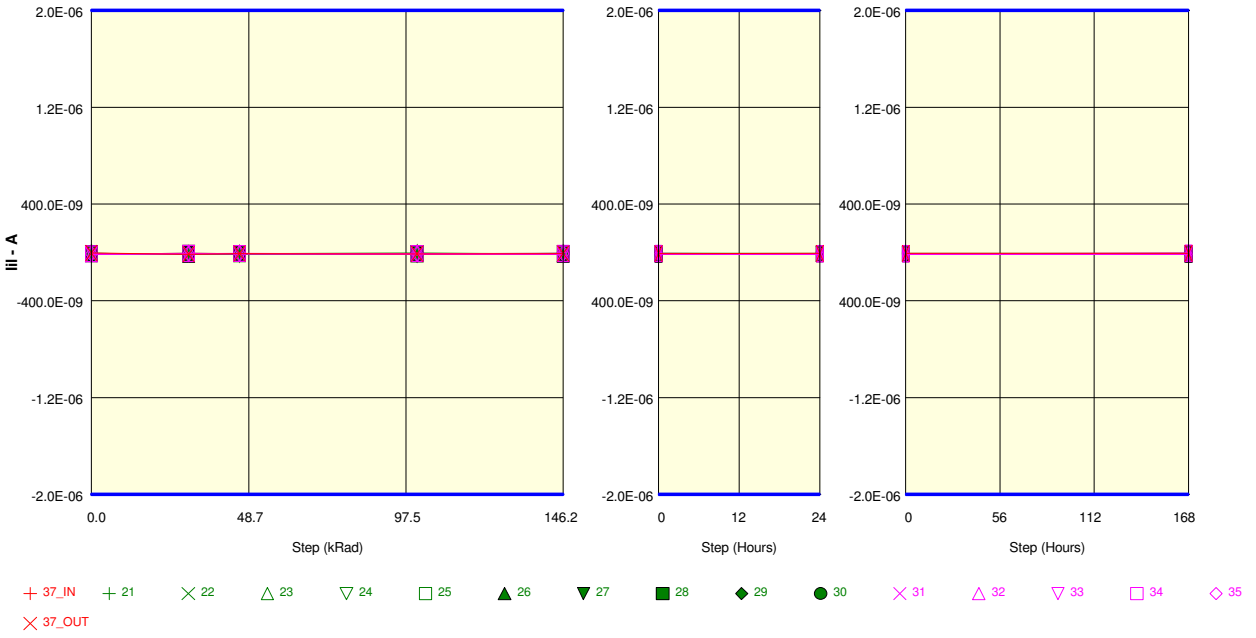
Measurements

IilDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-33.0E-09	-36.6E-09	-31.7E-09	-30.5E-09	-34.2E-09	-36.6E-09	-37.8E-09
37_OUT_REF	-29.3E-09	-34.2E-09	-36.6E-09	-39.1E-09	-35.4E-09	-37.8E-09	-34.2E-09
ON samples							
21	-39.1E-09	-35.4E-09	-34.2E-09	-36.6E-09	-37.8E-09	-34.2E-09	-40.3E-09
22	-37.8E-09	-30.5E-09	-35.4E-09	-35.4E-09	-35.4E-09	-39.1E-09	-35.4E-09
23	-31.7E-09	-33.0E-09	-30.5E-09	-42.7E-09	-39.1E-09	-34.2E-09	-40.3E-09
24	-36.6E-09	-36.6E-09	-37.8E-09	-41.5E-09	-36.6E-09	-35.4E-09	-35.4E-09
25	-35.4E-09	-34.2E-09	-29.3E-09	-37.8E-09	-35.4E-09	-41.5E-09	-35.4E-09
26	-36.6E-09	-33.0E-09	-29.3E-09	-39.1E-09	-36.6E-09	-37.8E-09	-36.6E-09
27	-39.1E-09	-35.4E-09	-36.6E-09	-36.6E-09	-31.7E-09	-35.4E-09	-34.2E-09
28	-39.1E-09	-36.6E-09	-41.5E-09	-37.8E-09	-37.8E-09	-39.1E-09	-45.2E-09
29	-35.4E-09	-34.2E-09	-33.0E-09	-37.8E-09	-39.1E-09	-37.8E-09	-35.4E-09
30	-30.5E-09	-31.7E-09	-36.6E-09	-33.0E-09	-34.2E-09	-34.2E-09	-30.5E-09
Statistics							
Min	-39.1E-09	-36.6E-09	-41.5E-09	-42.7E-09	-39.1E-09	-41.5E-09	-45.2E-09
Max	-30.5E-09	-30.5E-09	-29.3E-09	-33.0E-09	-31.7E-09	-34.2E-09	-30.5E-09
Average	-36.1E-09	-34.1E-09	-34.4E-09	-37.8E-09	-36.4E-09	-36.9E-09	-36.9E-09
Std Deviation	2.8E-09	1.9E-09	3.8E-09	2.7E-09	2.2E-09	2.4E-09	3.9E-09

Measurements

IilDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-33.0E-09	-36.6E-09	-31.7E-09	-30.5E-09	-34.2E-09	-36.6E-09	-37.8E-09
37_OUT_REF	-29.3E-09	-34.2E-09	-36.6E-09	-39.1E-09	-35.4E-09	-37.8E-09	-34.2E-09
OFF samples							
31	-35.4E-09	-35.4E-09	-34.2E-09	-41.5E-09	-31.7E-09	-31.7E-09	-37.8E-09
32	-31.7E-09	-36.6E-09	-33.0E-09	-33.0E-09	-34.2E-09	-35.4E-09	-35.4E-09
33	-39.1E-09	-30.5E-09	-33.0E-09	-40.3E-09	-31.7E-09	-35.4E-09	-31.7E-09
34	-29.3E-09	-36.6E-09	-33.0E-09	-31.7E-09	-36.6E-09	-36.6E-09	-36.6E-09
35	-31.7E-09	-34.2E-09	-35.4E-09	-35.4E-09	-35.4E-09	-35.4E-09	-37.8E-09
Statistics							
Min	-39.1E-09	-36.6E-09	-35.4E-09	-41.5E-09	-36.6E-09	-36.6E-09	-37.8E-09
Max	-29.3E-09	-30.5E-09	-33.0E-09	-31.7E-09	-31.7E-09	-31.7E-09	-31.7E-09
Average	-33.4E-09	-34.7E-09	-33.7E-09	-36.4E-09	-33.9E-09	-34.9E-09	-35.9E-09
Std Deviation	3.4E-09	2.3E-09	976.5E-12	3.9E-09	2.0E-09	1.7E-09	2.3E-09

Parameter : Input Low Leakage Current : IilDQ(1)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-7.3E-09	-8.5E-09	-9.8E-09	-12.2E-09	-14.6E-09	-8.5E-09
37_OUT_REF	-4.9E-09	-13.4E-09	-9.8E-09	-12.2E-09	-8.5E-09	-6.1E-09	-7.3E-09
ON samples							
21	-7.3E-09	-15.9E-09	-13.4E-09	-9.8E-09	-14.6E-09	-12.2E-09	-7.3E-09
22	-14.6E-09	-13.4E-09	-14.6E-09	-11.0E-09	-12.2E-09	-12.2E-09	-12.2E-09
23	-8.5E-09	-13.4E-09	-12.2E-09	-13.4E-09	-11.0E-09	-12.2E-09	-8.5E-09
24	-11.0E-09	-11.0E-09	-13.4E-09	-13.4E-09	-11.0E-09	-12.2E-09	-11.0E-09
25	-11.0E-09	-12.2E-09	-11.0E-09	-12.2E-09	-12.2E-09	-12.2E-09	-15.9E-09
26	-7.3E-09	-11.0E-09	-8.5E-09	-4.9E-09	-11.0E-09	-9.8E-09	-12.2E-09
27	-11.0E-09	-7.3E-09	-9.8E-09	-11.0E-09	-9.8E-09	-11.0E-09	-9.8E-09
28	-11.0E-09	-15.9E-09	-9.8E-09	-8.5E-09	-17.1E-09	-12.2E-09	-17.1E-09
29	-11.0E-09	-8.5E-09	-9.8E-09	-17.1E-09	-7.3E-09	-8.5E-09	-9.8E-09
30	-6.1E-09	-13.4E-09	-11.0E-09	-9.8E-09	-7.3E-09	-6.1E-09	-6.1E-09
Statistics							
Min	-14.6E-09	-15.9E-09	-14.6E-09	-17.1E-09	-17.1E-09	-12.2E-09	-17.1E-09
Max	-6.1E-09	-7.3E-09	-8.5E-09	-4.9E-09	-7.3E-09	-6.1E-09	-6.1E-09
Average	-9.9E-09	-12.2E-09	-11.4E-09	-11.1E-09	-11.4E-09	-10.9E-09	-11.0E-09
Std Deviation	2.4E-09	2.7E-09	1.9E-09	3.1E-09	2.8E-09	2.0E-09	3.3E-09

Measurements

IilDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-7.3E-09	-8.5E-09	-9.8E-09	-12.2E-09	-14.6E-09	-8.5E-09
37_OUT_REF	-4.9E-09	-13.4E-09	-9.8E-09	-12.2E-09	-8.5E-09	-6.1E-09	-7.3E-09
OFF samples							
31	-15.9E-09	-9.8E-09	-11.0E-09	-13.4E-09	-13.4E-09	-12.2E-09	-13.4E-09
32	-11.0E-09	-11.0E-09	-8.5E-09	-11.0E-09	-12.2E-09	-13.4E-09	-11.0E-09
33	-12.2E-09	-8.5E-09	-9.8E-09	-12.2E-09	-13.4E-09	-9.8E-09	-11.0E-09
34	-11.0E-09	-7.3E-09	-9.8E-09	-9.8E-09	-7.3E-09	-11.0E-09	-3.7E-09
35	-11.0E-09	-8.5E-09	-6.1E-09	-12.2E-09	-9.8E-09	-13.4E-09	-13.4E-09
Statistics							
Min	-15.9E-09	-11.0E-09	-11.0E-09	-13.4E-09	-13.4E-09	-13.4E-09	-13.4E-09
Max	-11.0E-09	-7.3E-09	-6.1E-09	-9.8E-09	-7.3E-09	-9.8E-09	-3.7E-09
Average	-12.2E-09	-9.0E-09	-9.0E-09	-11.7E-09	-11.2E-09	-12.0E-09	-10.5E-09
Std Deviation	1.9E-09	1.2E-09	1.7E-09	1.2E-09	2.4E-09	1.4E-09	3.6E-09

Parameter : Input Low Leakage Current : IilDQ(2)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

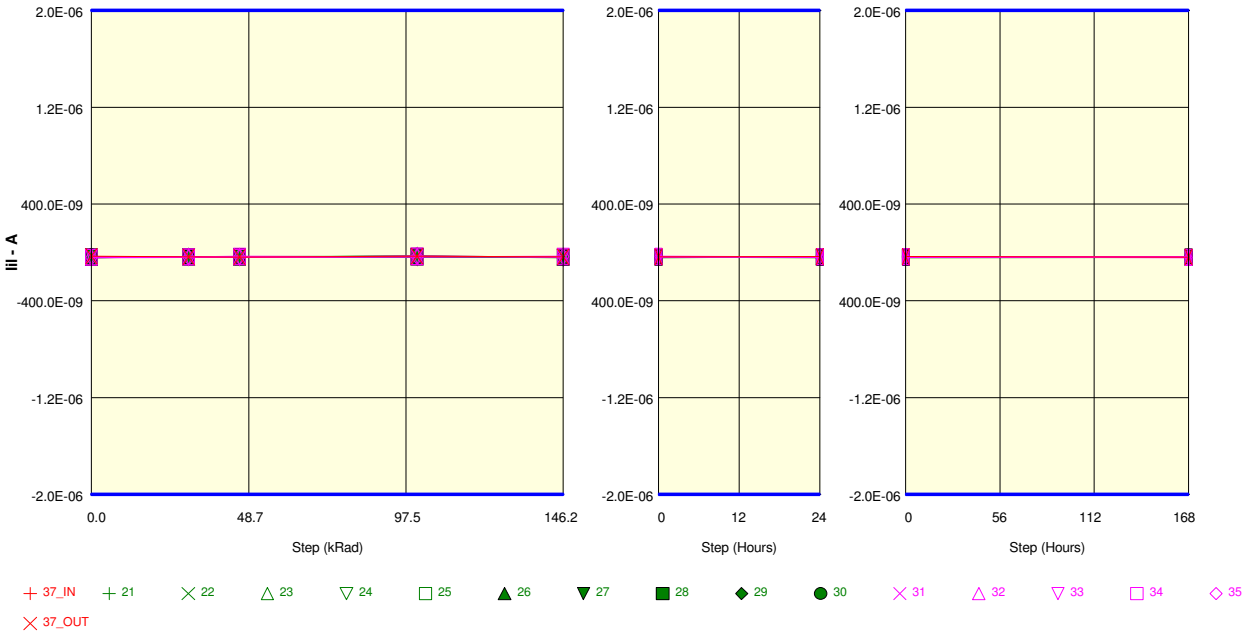
Measurements

IilDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-22.0E-09	-25.6E-09	-19.5E-09	-26.9E-09	-30.5E-09	-26.9E-09	-25.6E-09
37_OUT_REF	-22.0E-09	-24.4E-09	-20.8E-09	-26.9E-09	-28.1E-09	-23.2E-09	-29.3E-09
ON samples							
21	-31.7E-09	-29.3E-09	-30.5E-09	-26.9E-09	-31.7E-09	-25.6E-09	-28.1E-09
22	-28.1E-09	-26.9E-09	-26.9E-09	-25.6E-09	-31.7E-09	-31.7E-09	-25.6E-09
23	-30.5E-09	-28.1E-09	-30.5E-09	-26.9E-09	-35.4E-09	-28.1E-09	-31.7E-09
24	-33.0E-09	-25.6E-09	-26.9E-09	-28.1E-09	-29.3E-09	-24.4E-09	-25.6E-09
25	-26.9E-09	-24.4E-09	-23.2E-09	-25.6E-09	-31.7E-09	-31.7E-09	-30.5E-09
26	-33.0E-09	-26.9E-09	-25.6E-09	-28.1E-09	-35.4E-09	-33.0E-09	-30.5E-09
27	-31.7E-09	-29.3E-09	-24.4E-09	-25.6E-09	-26.9E-09	-26.9E-09	-31.7E-09
28	-28.1E-09	-29.3E-09	-26.9E-09	-25.6E-09	-30.5E-09	-24.4E-09	-31.7E-09
29	-28.1E-09	-24.4E-09	-26.9E-09	-28.1E-09	-28.1E-09	-29.3E-09	-28.1E-09
30	-29.3E-09	-26.9E-09	-20.8E-09	-24.4E-09	-28.1E-09	-30.5E-09	-29.3E-09
Statistics							
Min	-33.0E-09	-29.3E-09	-30.5E-09	-28.1E-09	-35.4E-09	-33.0E-09	-31.7E-09
Max	-26.9E-09	-24.4E-09	-20.8E-09	-24.4E-09	-26.9E-09	-24.4E-09	-25.6E-09
Average	-30.0E-09	-27.1E-09	-26.2E-09	-26.5E-09	-30.9E-09	-28.6E-09	-29.3E-09
Std Deviation	2.1E-09	1.8E-09	2.8E-09	1.2E-09	2.8E-09	3.0E-09	2.3E-09

Measurements

IilDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-22.0E-09	-25.6E-09	-19.5E-09	-26.9E-09	-30.5E-09	-26.9E-09	-25.6E-09
37_OUT_REF	-22.0E-09	-24.4E-09	-20.8E-09	-26.9E-09	-28.1E-09	-23.2E-09	-29.3E-09
OFF samples							
31	-26.9E-09	-25.6E-09	-24.4E-09	-30.5E-09	-28.1E-09	-28.1E-09	-30.5E-09
32	-29.3E-09	-26.9E-09	-25.6E-09	-30.5E-09	-26.9E-09	-33.0E-09	-28.1E-09
33	-31.7E-09	-25.6E-09	-28.1E-09	-26.9E-09	-29.3E-09	-25.6E-09	-30.5E-09
34	-30.5E-09	-29.3E-09	-25.6E-09	-23.2E-09	-29.3E-09	-25.6E-09	-30.5E-09
35	-31.7E-09	-29.3E-09	-31.7E-09	-25.6E-09	-30.5E-09	-26.9E-09	-29.3E-09
Statistics							
Min	-31.7E-09	-29.3E-09	-31.7E-09	-30.5E-09	-30.5E-09	-33.0E-09	-30.5E-09
Max	-26.9E-09	-25.6E-09	-24.4E-09	-23.2E-09	-26.9E-09	-25.6E-09	-28.1E-09
Average	-30.0E-09	-27.3E-09	-27.1E-09	-27.3E-09	-28.8E-09	-27.8E-09	-29.8E-09
Std Deviation	1.8E-09	1.7E-09	2.6E-09	2.8E-09	1.2E-09	2.7E-09	976.8E-12

Parameter : Input Low Leakage Current : IilDQ(3)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IilDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-40.3E-09	-36.6E-09	-39.1E-09	-39.1E-09	-34.2E-09	-36.6E-09	-37.8E-09
37_OUT_REF	-31.7E-09	-36.6E-09	-37.8E-09	-31.7E-09	-36.6E-09	-34.2E-09	-37.8E-09
ON samples							
21	-36.6E-09	-36.6E-09	-36.6E-09	-35.4E-09	-36.6E-09	-37.8E-09	-40.3E-09
22	-33.0E-09	-33.0E-09	-36.6E-09	-34.2E-09	-35.4E-09	-40.3E-09	-40.3E-09
23	-37.8E-09	-37.8E-09	-37.8E-09	-29.3E-09	-39.1E-09	-41.5E-09	-40.3E-09
24	-40.3E-09	-35.4E-09	-33.0E-09	-40.3E-09	-37.8E-09	-42.7E-09	-40.3E-09
25	-42.7E-09	-33.0E-09	-36.6E-09	-31.7E-09	-37.8E-09	-39.1E-09	-35.4E-09
26	-43.9E-09	-36.6E-09	-37.8E-09	-37.8E-09	-36.6E-09	-41.5E-09	-40.3E-09
27	-35.4E-09	-37.8E-09	-36.6E-09	-34.2E-09	-42.7E-09	-36.6E-09	-40.3E-09
28	-40.3E-09	-39.1E-09	-37.8E-09	-36.6E-09	-41.5E-09	-41.5E-09	-39.1E-09
29	-39.1E-09	-36.6E-09	-37.8E-09	-35.4E-09	-36.6E-09	-36.6E-09	-35.4E-09
30	-34.2E-09	-40.3E-09	-33.0E-09	-30.5E-09	-40.3E-09	-37.8E-09	-35.4E-09
Statistics							
Min	-43.9E-09	-40.3E-09	-37.8E-09	-40.3E-09	-42.7E-09	-42.7E-09	-40.3E-09
Max	-33.0E-09	-33.0E-09	-33.0E-09	-29.3E-09	-35.4E-09	-36.6E-09	-35.4E-09
Average	-38.3E-09	-36.6E-09	-36.4E-09	-34.5E-09	-38.5E-09	-39.6E-09	-38.7E-09
Std Deviation	3.4E-09	2.3E-09	1.8E-09	3.2E-09	2.3E-09	2.1E-09	2.2E-09

Measurements

IilDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-40.3E-09	-36.6E-09	-39.1E-09	-39.1E-09	-34.2E-09	-36.6E-09	-37.8E-09
37_OUT_REF	-31.7E-09	-36.6E-09	-37.8E-09	-31.7E-09	-36.6E-09	-34.2E-09	-37.8E-09
OFF samples							
31	-35.4E-09	-36.6E-09	-40.3E-09	-35.4E-09	-34.2E-09	-40.3E-09	-37.8E-09
32	-37.8E-09	-37.8E-09	-37.8E-09	-34.2E-09	-37.8E-09	-34.2E-09	-33.0E-09
33	-39.1E-09	-37.8E-09	-40.3E-09	-29.3E-09	-37.8E-09	-36.6E-09	-37.8E-09
34	-40.3E-09	-35.4E-09	-31.7E-09	-35.4E-09	-31.7E-09	-36.6E-09	-42.7E-09
35	-43.9E-09	-41.5E-09	-36.6E-09	-35.4E-09	-33.0E-09	-36.6E-09	-41.5E-09
Statistics							
Min	-43.9E-09	-41.5E-09	-40.3E-09	-35.4E-09	-37.8E-09	-40.3E-09	-42.7E-09
Max	-35.4E-09	-35.4E-09	-31.7E-09	-29.3E-09	-31.7E-09	-34.2E-09	-33.0E-09
Average	-39.3E-09	-37.8E-09	-37.4E-09	-33.9E-09	-34.9E-09	-36.9E-09	-38.6E-09
Std Deviation	2.8E-09	2.0E-09	3.1E-09	2.4E-09	2.5E-09	2.0E-09	3.4E-09

Parameter : Input Low Leakage Current : IilDQ(4)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

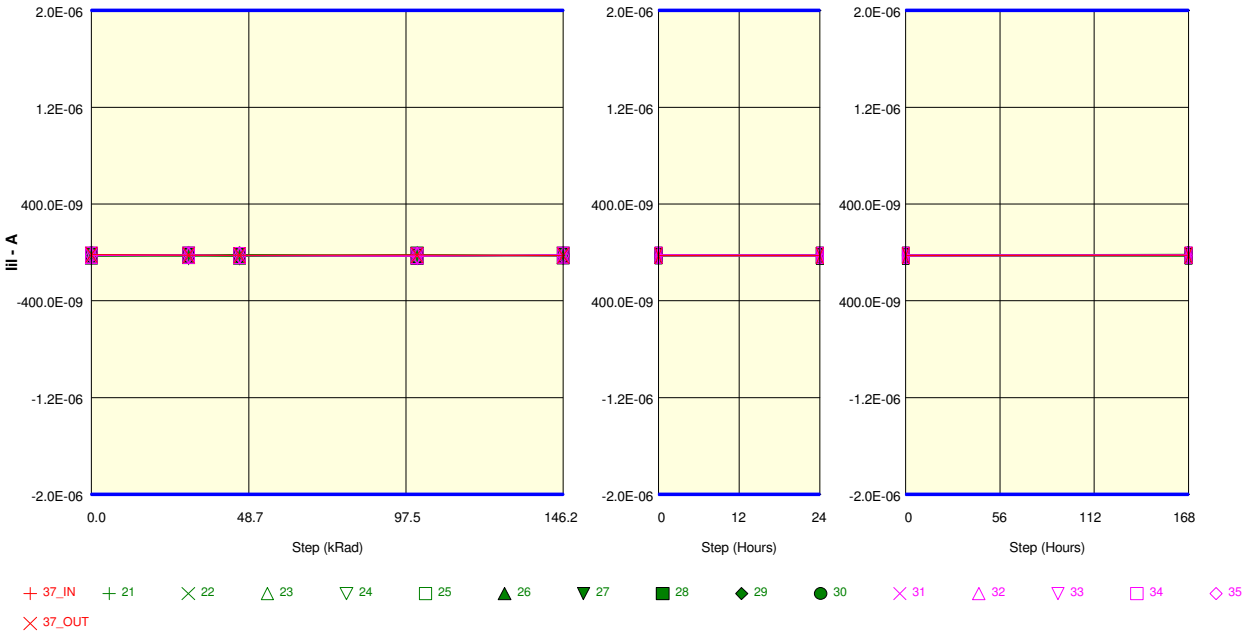
Measurements

IilDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-33.0E-09	-29.3E-09	-25.6E-09	-31.7E-09	-24.4E-09	-28.1E-09	-29.3E-09
37_OUT_REF	-29.3E-09	-29.3E-09	-35.4E-09	-26.9E-09	-28.1E-09	-30.5E-09	-29.3E-09
ON samples							
21	-30.5E-09	-31.7E-09	-29.3E-09	-33.0E-09	-26.9E-09	-31.7E-09	-30.5E-09
22	-28.1E-09	-26.9E-09	-31.7E-09	-33.0E-09	-29.3E-09	-31.7E-09	-34.2E-09
23	-31.7E-09	-31.7E-09	-30.5E-09	-29.3E-09	-33.0E-09	-35.4E-09	-31.7E-09
24	-30.5E-09	-29.3E-09	-30.5E-09	-26.9E-09	-31.7E-09	-36.6E-09	-30.5E-09
25	-35.4E-09	-31.7E-09	-30.5E-09	-30.5E-09	-28.1E-09	-35.4E-09	-36.6E-09
26	-29.3E-09	-29.3E-09	-34.2E-09	-33.0E-09	-28.1E-09	-30.5E-09	-26.9E-09
27	-33.0E-09	-31.7E-09	-31.7E-09	-34.2E-09	-30.5E-09	-37.8E-09	-35.4E-09
28	-35.4E-09	-28.1E-09	-36.6E-09	-33.0E-09	-30.5E-09	-39.1E-09	-31.7E-09
29	-31.7E-09	-26.9E-09	-29.3E-09	-29.3E-09	-33.0E-09	-31.7E-09	-34.2E-09
30	-26.9E-09	-29.3E-09	-30.5E-09	-30.5E-09	-28.1E-09	-33.0E-09	-31.7E-09
Statistics							
Min	-35.4E-09	-31.7E-09	-36.6E-09	-34.2E-09	-33.0E-09	-39.1E-09	-36.6E-09
Max	-26.9E-09	-26.9E-09	-29.3E-09	-26.9E-09	-26.9E-09	-30.5E-09	-26.9E-09
Average	-31.2E-09	-29.7E-09	-31.5E-09	-31.3E-09	-29.9E-09	-34.3E-09	-32.3E-09
Std Deviation	2.7E-09	1.9E-09	2.2E-09	2.2E-09	2.1E-09	2.8E-09	2.7E-09

Measurements

IilDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-33.0E-09	-29.3E-09	-25.6E-09	-31.7E-09	-24.4E-09	-28.1E-09	-29.3E-09
37_OUT_REF	-29.3E-09	-29.3E-09	-35.4E-09	-26.9E-09	-28.1E-09	-30.5E-09	-29.3E-09
OFF samples							
31	-33.0E-09	-31.7E-09	-30.5E-09	-25.6E-09	-33.0E-09	-29.3E-09	-35.4E-09
32	-30.5E-09	-29.3E-09	-34.2E-09	-35.4E-09	-30.5E-09	-31.7E-09	-28.1E-09
33	-31.7E-09	-29.3E-09	-29.3E-09	-30.5E-09	-35.4E-09	-31.7E-09	-30.5E-09
34	-30.5E-09	-33.0E-09	-25.6E-09	-34.2E-09	-34.2E-09	-26.9E-09	-30.5E-09
35	-30.5E-09	-33.0E-09	-31.7E-09	-31.7E-09	-28.1E-09	-31.7E-09	-33.0E-09
Statistics							
Min	-33.0E-09	-33.0E-09	-34.2E-09	-35.4E-09	-35.4E-09	-31.7E-09	-35.4E-09
Max	-30.5E-09	-29.3E-09	-25.6E-09	-25.6E-09	-28.1E-09	-26.9E-09	-28.1E-09
Average	-31.3E-09	-31.3E-09	-30.3E-09	-31.5E-09	-32.2E-09	-30.3E-09	-31.5E-09
Std Deviation	976.4E-12	1.7E-09	2.8E-09	3.4E-09	2.6E-09	2.0E-09	2.5E-09

Parameter : Input Low Leakage Current : IilDQ(5)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



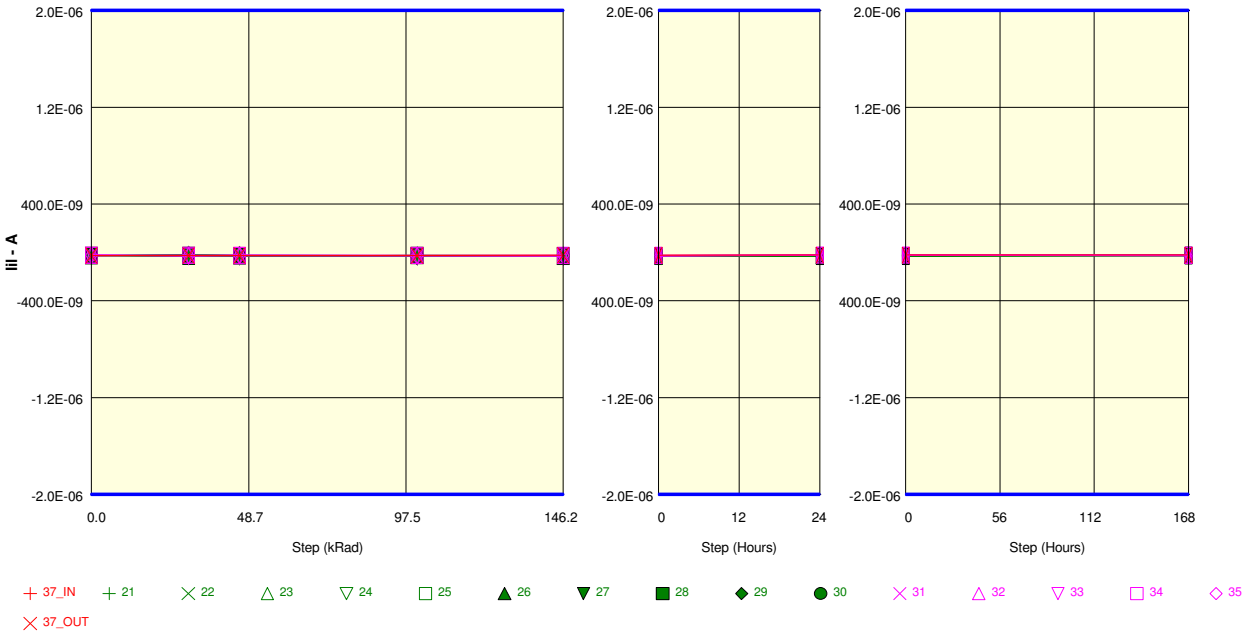
Measurements

IilDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-23.2E-09	-22.0E-09	-23.2E-09	-25.6E-09	-23.2E-09	-18.3E-09	-26.9E-09
37_OUT_REF	-18.3E-09	-24.4E-09	-23.2E-09	-22.0E-09	-25.6E-09	-26.9E-09	-24.4E-09
ON samples							
21	-25.6E-09	-28.1E-09	-18.3E-09	-30.5E-09	-25.6E-09	-26.9E-09	-26.9E-09
22	-26.9E-09	-24.4E-09	-23.2E-09	-25.6E-09	-24.4E-09	-24.4E-09	-20.8E-09
23	-29.3E-09	-23.2E-09	-23.2E-09	-23.2E-09	-26.9E-09	-26.9E-09	-26.9E-09
24	-30.5E-09	-29.3E-09	-25.6E-09	-24.4E-09	-23.2E-09	-29.3E-09	-26.9E-09
25	-24.4E-09	-24.4E-09	-28.1E-09	-28.1E-09	-23.2E-09	-24.4E-09	-26.9E-09
26	-23.2E-09	-25.6E-09	-29.3E-09	-30.5E-09	-24.4E-09	-20.8E-09	-29.3E-09
27	-26.9E-09	-28.1E-09	-31.7E-09	-25.6E-09	-28.1E-09	-24.4E-09	-23.2E-09
28	-28.1E-09	-23.2E-09	-25.6E-09	-22.0E-09	-29.3E-09	-31.7E-09	-28.1E-09
29	-26.9E-09	-25.6E-09	-29.3E-09	-22.0E-09	-28.1E-09	-25.6E-09	-28.1E-09
30	-19.5E-09	-24.4E-09	-22.0E-09	-28.1E-09	-24.4E-09	-20.8E-09	-17.1E-09
Statistics							
Min	-30.5E-09	-29.3E-09	-31.7E-09	-30.5E-09	-29.3E-09	-31.7E-09	-29.3E-09
Max	-19.5E-09	-23.2E-09	-18.3E-09	-22.0E-09	-23.2E-09	-20.8E-09	-17.1E-09
Average	-26.1E-09	-25.6E-09	-25.6E-09	-26.0E-09	-25.8E-09	-25.5E-09	-25.4E-09
Std Deviation	3.0E-09	2.0E-09	3.9E-09	3.0E-09	2.1E-09	3.3E-09	3.7E-09

Measurements

IilDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-23.2E-09	-22.0E-09	-23.2E-09	-25.6E-09	-23.2E-09	-18.3E-09	-26.9E-09
37_OUT_REF	-18.3E-09	-24.4E-09	-23.2E-09	-22.0E-09	-25.6E-09	-26.9E-09	-24.4E-09
OFF samples							
31	-25.6E-09	-24.4E-09	-25.6E-09	-25.6E-09	-24.4E-09	-22.0E-09	-23.2E-09
32	-25.6E-09	-23.2E-09	-25.6E-09	-26.9E-09	-24.4E-09	-24.4E-09	-24.4E-09
33	-23.2E-09	-24.4E-09	-25.6E-09	-31.7E-09	-24.4E-09	-24.4E-09	-23.2E-09
34	-20.8E-09	-24.4E-09	-26.9E-09	-29.3E-09	-22.0E-09	-25.6E-09	-22.0E-09
35	-26.9E-09	-26.9E-09	-26.9E-09	-25.6E-09	-29.3E-09	-30.5E-09	-25.6E-09
Statistics							
Min	-26.9E-09	-26.9E-09	-26.9E-09	-31.7E-09	-29.3E-09	-30.5E-09	-25.6E-09
Max	-20.8E-09	-23.2E-09	-25.6E-09	-25.6E-09	-22.0E-09	-22.0E-09	-22.0E-09
Average	-24.4E-09	-24.7E-09	-26.1E-09	-27.8E-09	-24.9E-09	-25.4E-09	-23.7E-09
Std Deviation	2.2E-09	1.2E-09	597.7E-12	2.4E-09	2.4E-09	2.8E-09	1.2E-09

Parameter : Input Low Leakage Current : IilDQ(6)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



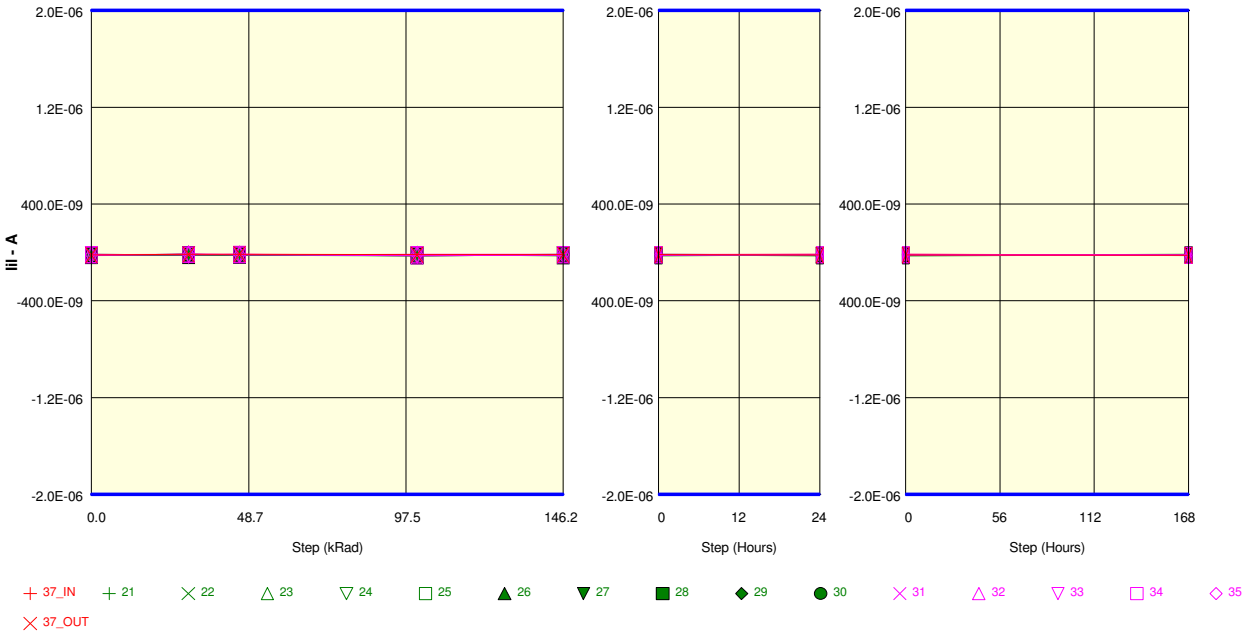
Measurements

IilDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-24.4E-09	-25.6E-09	-23.2E-09	-24.4E-09	-23.2E-09	-20.8E-09
37_OUT_REF	-26.9E-09	-26.9E-09	-26.9E-09	-25.6E-09	-24.4E-09	-22.0E-09	-22.0E-09
ON samples							
21	-25.6E-09	-26.9E-09	-28.1E-09	-31.7E-09	-33.0E-09	-25.6E-09	-24.4E-09
22	-25.6E-09	-30.5E-09	-28.1E-09	-26.9E-09	-30.5E-09	-25.6E-09	-25.6E-09
23	-23.2E-09	-30.5E-09	-26.9E-09	-26.9E-09	-30.5E-09	-28.1E-09	-26.9E-09
24	-24.4E-09	-28.1E-09	-30.5E-09	-29.3E-09	-30.5E-09	-26.9E-09	-25.6E-09
25	-29.3E-09	-25.6E-09	-30.5E-09	-24.4E-09	-26.9E-09	-28.1E-09	-22.0E-09
26	-26.9E-09	-19.5E-09	-24.4E-09	-25.6E-09	-33.0E-09	-28.1E-09	-28.1E-09
27	-25.6E-09	-24.4E-09	-30.5E-09	-34.2E-09	-31.7E-09	-25.6E-09	-23.2E-09
28	-26.9E-09	-31.7E-09	-26.9E-09	-26.9E-09	-31.7E-09	-33.0E-09	-26.9E-09
29	-25.6E-09	-22.0E-09	-25.6E-09	-30.5E-09	-26.9E-09	-24.4E-09	-29.3E-09
30	-26.9E-09	-22.0E-09	-24.4E-09	-26.9E-09	-25.6E-09	-25.6E-09	-23.2E-09
Statistics							
Min	-29.3E-09	-31.7E-09	-30.5E-09	-34.2E-09	-33.0E-09	-33.0E-09	-29.3E-09
Max	-23.2E-09	-19.5E-09	-24.4E-09	-24.4E-09	-25.6E-09	-24.4E-09	-22.0E-09
Average	-26.0E-09	-26.1E-09	-27.6E-09	-28.3E-09	-30.0E-09	-27.1E-09	-25.5E-09
Std Deviation	1.5E-09	3.9E-09	2.3E-09	2.9E-09	2.5E-09	2.3E-09	2.2E-09

Measurements

IilDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-24.4E-09	-25.6E-09	-23.2E-09	-24.4E-09	-23.2E-09	-20.8E-09
37_OUT_REF	-26.9E-09	-26.9E-09	-26.9E-09	-25.6E-09	-24.4E-09	-22.0E-09	-22.0E-09
OFF samples							
31	-28.1E-09	-26.9E-09	-20.8E-09	-25.6E-09	-29.3E-09	-24.4E-09	-24.4E-09
32	-26.9E-09	-23.2E-09	-28.1E-09	-25.6E-09	-25.6E-09	-22.0E-09	-26.9E-09
33	-20.8E-09	-30.5E-09	-25.6E-09	-29.3E-09	-31.7E-09	-24.4E-09	-24.4E-09
34	-22.0E-09	-24.4E-09	-23.2E-09	-24.4E-09	-24.4E-09	-20.8E-09	-22.0E-09
35	-24.4E-09	-28.1E-09	-26.9E-09	-29.3E-09	-25.6E-09	-23.2E-09	-28.1E-09
Statistics							
Min	-28.1E-09	-30.5E-09	-28.1E-09	-29.3E-09	-31.7E-09	-24.4E-09	-28.1E-09
Max	-20.8E-09	-23.2E-09	-20.8E-09	-24.4E-09	-24.4E-09	-20.8E-09	-22.0E-09
Average	-24.4E-09	-26.6E-09	-24.9E-09	-26.9E-09	-27.3E-09	-22.9E-09	-25.1E-09
Std Deviation	2.8E-09	2.6E-09	2.6E-09	2.0E-09	2.7E-09	1.4E-09	2.1E-09

Parameter : Input Low Leakage Current : IilDQ(7)
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



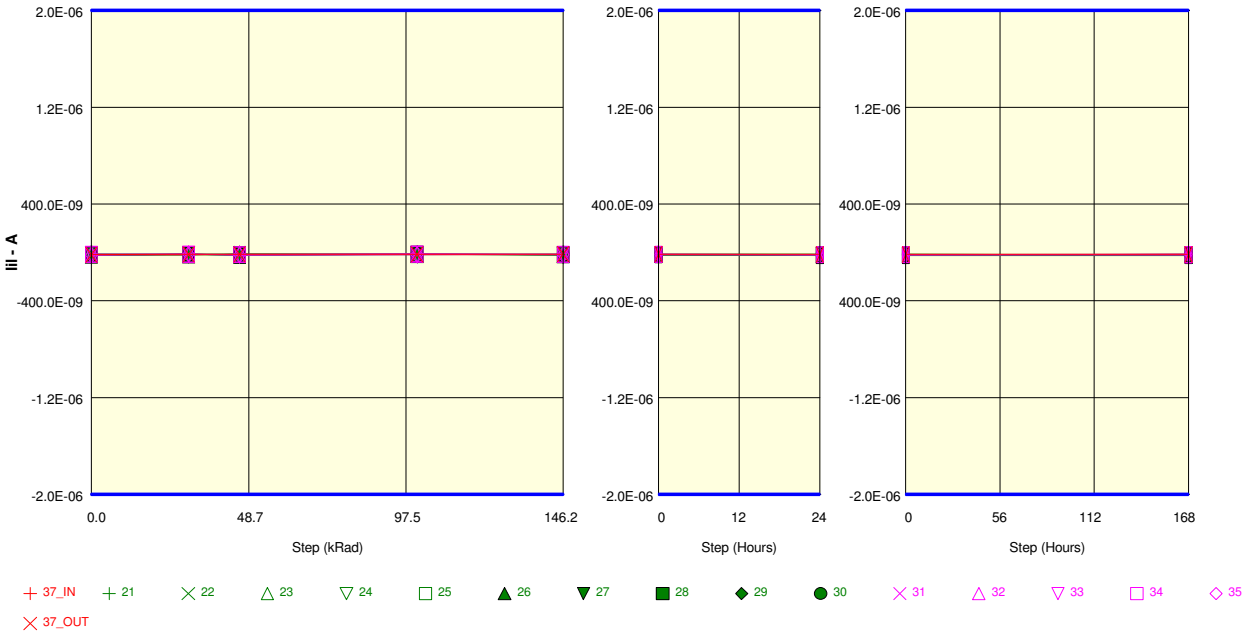
Measurements

IilDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-23.2E-09	-19.5E-09	-22.0E-09	-19.5E-09	-19.5E-09	-15.9E-09	-22.0E-09
37_OUT_REF	-20.8E-09	-15.9E-09	-14.6E-09	-18.3E-09	-18.3E-09	-22.0E-09	-23.2E-09
ON samples							
21	-22.0E-09	-18.3E-09	-22.0E-09	-23.2E-09	-24.4E-09	-19.5E-09	-18.3E-09
22	-15.9E-09	-22.0E-09	-19.5E-09	-28.1E-09	-20.8E-09	-19.5E-09	-19.5E-09
23	-25.6E-09	-24.4E-09	-23.2E-09	-25.6E-09	-24.4E-09	-24.4E-09	-18.3E-09
24	-24.4E-09	-19.5E-09	-18.3E-09	-19.5E-09	-18.3E-09	-25.6E-09	-23.2E-09
25	-23.2E-09	-20.8E-09	-18.3E-09	-22.0E-09	-19.5E-09	-24.4E-09	-17.1E-09
26	-20.8E-09	-26.9E-09	-19.5E-09	-19.5E-09	-28.1E-09	-22.0E-09	-23.2E-09
27	-24.4E-09	-20.8E-09	-19.5E-09	-20.8E-09	-20.8E-09	-22.0E-09	-25.6E-09
28	-25.6E-09	-17.1E-09	-23.2E-09	-29.3E-09	-20.8E-09	-28.1E-09	-22.0E-09
29	-20.8E-09	-14.6E-09	-20.8E-09	-20.8E-09	-19.5E-09	-19.5E-09	-22.0E-09
30	-22.0E-09	-17.1E-09	-22.0E-09	-23.2E-09	-17.1E-09	-22.0E-09	-19.5E-09
Statistics							
Min	-25.6E-09	-26.9E-09	-23.2E-09	-29.3E-09	-28.1E-09	-28.1E-09	-25.6E-09
Max	-15.9E-09	-14.6E-09	-18.3E-09	-19.5E-09	-17.1E-09	-19.5E-09	-17.1E-09
Average	-22.5E-09	-20.1E-09	-20.6E-09	-23.2E-09	-21.4E-09	-22.7E-09	-20.9E-09
Std Deviation	2.8E-09	3.5E-09	1.8E-09	3.3E-09	3.1E-09	2.7E-09	2.6E-09

Measurements

IilDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-23.2E-09	-19.5E-09	-22.0E-09	-19.5E-09	-19.5E-09	-15.9E-09	-22.0E-09
37_OUT_REF	-20.8E-09	-15.9E-09	-14.6E-09	-18.3E-09	-18.3E-09	-22.0E-09	-23.2E-09
OFF samples							
31	-24.4E-09	-17.1E-09	-18.3E-09	-23.2E-09	-23.2E-09	-19.5E-09	-25.6E-09
32	-18.3E-09	-13.4E-09	-17.1E-09	-28.1E-09	-20.8E-09	-22.0E-09	-24.4E-09
33	-17.1E-09	-22.0E-09	-14.6E-09	-20.8E-09	-19.5E-09	-19.5E-09	-22.0E-09
34	-20.8E-09	-19.5E-09	-22.0E-09	-17.1E-09	-15.9E-09	-18.3E-09	-23.2E-09
35	-22.0E-09	-14.6E-09	-19.5E-09	-18.3E-09	-19.5E-09	-17.1E-09	-23.2E-09
Statistics							
Min	-24.4E-09	-22.0E-09	-22.0E-09	-28.1E-09	-23.2E-09	-22.0E-09	-25.6E-09
Max	-17.1E-09	-13.4E-09	-14.6E-09	-17.1E-09	-15.9E-09	-17.1E-09	-22.0E-09
Average	-20.5E-09	-17.3E-09	-18.3E-09	-21.5E-09	-19.8E-09	-19.3E-09	-23.7E-09
Std Deviation	2.6E-09	3.1E-09	2.4E-09	3.9E-09	2.4E-09	1.6E-09	1.2E-09

Parameter : Input Low Leakage Current : IilDQS_
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



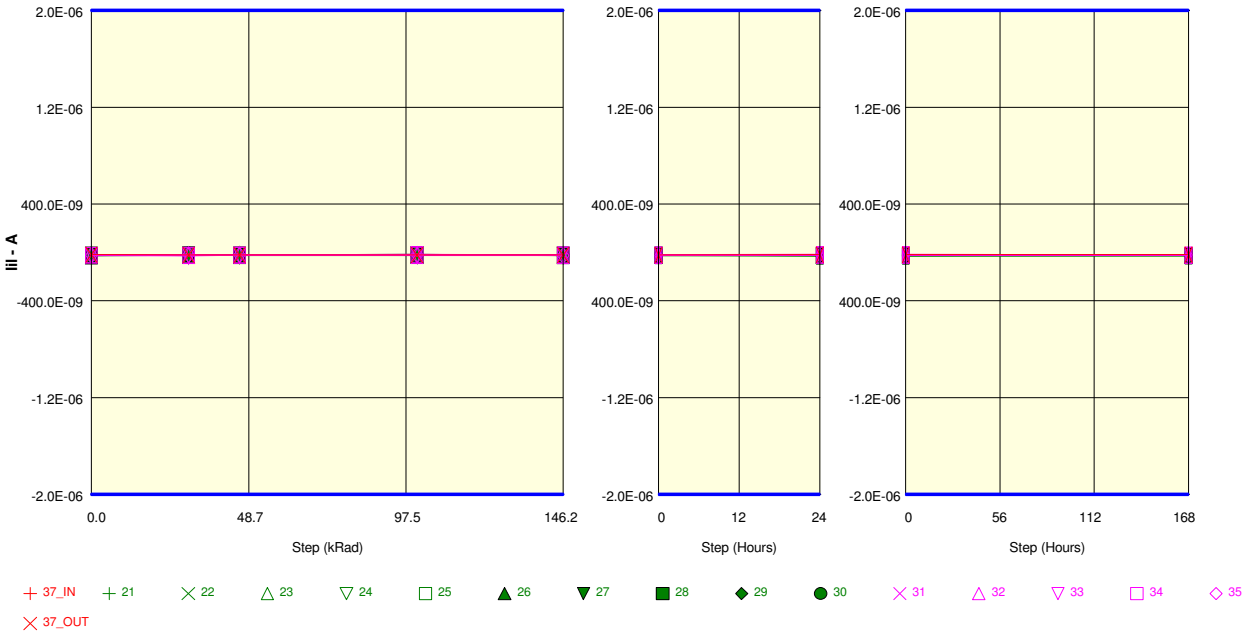
Measurements

IilDQS_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-20.8E-09	-15.9E-09	-19.5E-09	-18.3E-09	-20.8E-09	-19.5E-09
37_OUT_REF	-18.3E-09	-17.1E-09	-15.9E-09	-15.9E-09	-14.6E-09	-17.1E-09	-15.9E-09
ON samples							
21	-24.4E-09	-14.6E-09	-20.8E-09	-17.1E-09	-15.9E-09	-14.6E-09	-20.8E-09
22	-18.3E-09	-18.3E-09	-12.2E-09	-15.9E-09	-19.5E-09	-23.2E-09	-15.9E-09
23	-20.8E-09	-17.1E-09	-20.8E-09	-19.5E-09	-19.5E-09	-19.5E-09	-22.0E-09
24	-20.8E-09	-15.9E-09	-19.5E-09	-17.1E-09	-22.0E-09	-18.3E-09	-19.5E-09
25	-18.3E-09	-17.1E-09	-17.1E-09	-14.6E-09	-19.5E-09	-20.8E-09	-20.8E-09
26	-20.8E-09	-22.0E-09	-17.1E-09	-15.9E-09	-17.1E-09	-19.5E-09	-18.3E-09
27	-23.2E-09	-17.1E-09	-18.3E-09	-17.1E-09	-22.0E-09	-24.4E-09	-18.3E-09
28	-19.5E-09	-17.1E-09	-23.2E-09	-13.4E-09	-18.3E-09	-25.6E-09	-26.9E-09
29	-12.2E-09	-15.9E-09	-20.8E-09	-12.2E-09	-20.8E-09	-18.3E-09	-13.4E-09
30	-13.4E-09	-17.1E-09	-22.0E-09	-19.5E-09	-14.6E-09	-17.1E-09	-19.5E-09
Statistics							
Min	-24.4E-09	-22.0E-09	-23.2E-09	-19.5E-09	-22.0E-09	-25.6E-09	-26.9E-09
Max	-12.2E-09	-14.6E-09	-12.2E-09	-12.2E-09	-14.6E-09	-14.6E-09	-13.4E-09
Average	-19.2E-09	-17.2E-09	-19.2E-09	-16.2E-09	-18.9E-09	-20.1E-09	-19.5E-09
Std Deviation	3.7E-09	1.8E-09	3.0E-09	2.3E-09	2.3E-09	3.2E-09	3.4E-09

Measurements

IilDQS_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-20.8E-09	-15.9E-09	-19.5E-09	-18.3E-09	-20.8E-09	-19.5E-09
37_OUT_REF	-18.3E-09	-17.1E-09	-15.9E-09	-15.9E-09	-14.6E-09	-17.1E-09	-15.9E-09
OFF samples							
31	-17.1E-09	-17.1E-09	-22.0E-09	-19.5E-09	-15.9E-09	-19.5E-09	-19.5E-09
32	-19.5E-09	-18.3E-09	-13.4E-09	-15.9E-09	-19.5E-09	-19.5E-09	-20.8E-09
33	-18.3E-09	-14.6E-09	-18.3E-09	-15.9E-09	-18.3E-09	-18.3E-09	-17.1E-09
34	-14.6E-09	-14.6E-09	-19.5E-09	-11.0E-09	-14.6E-09	-18.3E-09	-19.5E-09
35	-23.2E-09	-13.4E-09	-22.0E-09	-18.3E-09	-19.5E-09	-20.8E-09	-15.9E-09
Statistics							
Min	-23.2E-09	-18.3E-09	-22.0E-09	-19.5E-09	-19.5E-09	-20.8E-09	-20.8E-09
Max	-14.6E-09	-13.4E-09	-13.4E-09	-11.0E-09	-14.6E-09	-18.3E-09	-15.9E-09
Average	-18.6E-09	-15.6E-09	-19.0E-09	-16.1E-09	-17.6E-09	-19.3E-09	-18.6E-09
Std Deviation	2.8E-09	1.8E-09	3.1E-09	2.9E-09	2.0E-09	913.3E-12	1.8E-09

Parameter : Input Low Leakage Current : IilDQS
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



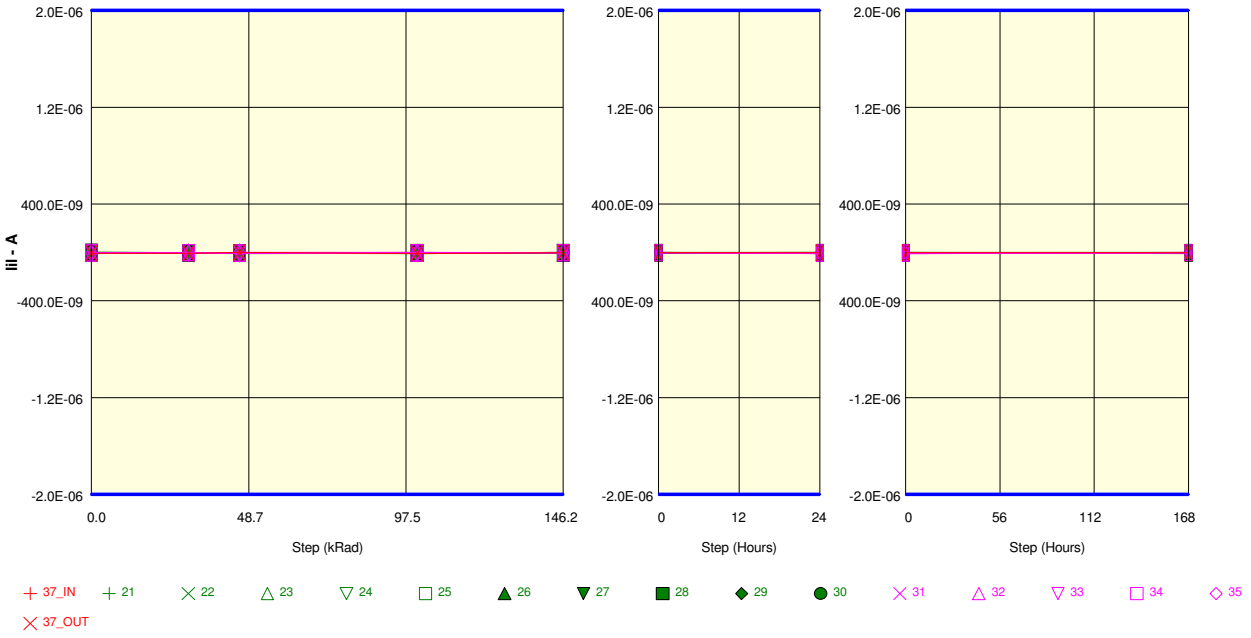
Measurements

IilDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-22.0E-09	-24.4E-09	-19.5E-09	-23.2E-09	-18.3E-09	-24.4E-09
37_OUT_REF	-19.5E-09	-20.8E-09	-22.0E-09	-22.0E-09	-20.8E-09	-19.5E-09	-18.3E-09
ON samples							
21	-24.4E-09	-25.6E-09	-24.4E-09	-19.5E-09	-19.5E-09	-25.6E-09	-23.2E-09
22	-25.6E-09	-20.8E-09	-20.8E-09	-22.0E-09	-19.5E-09	-22.0E-09	-22.0E-09
23	-19.5E-09	-22.0E-09	-18.3E-09	-22.0E-09	-19.5E-09	-26.9E-09	-22.0E-09
24	-19.5E-09	-24.4E-09	-26.9E-09	-25.6E-09	-19.5E-09	-24.4E-09	-25.6E-09
25	-26.9E-09	-19.5E-09	-22.0E-09	-22.0E-09	-22.0E-09	-29.3E-09	-26.9E-09
26	-28.1E-09	-23.2E-09	-25.6E-09	-22.0E-09	-25.6E-09	-25.6E-09	-24.4E-09
27	-26.9E-09	-23.2E-09	-22.0E-09	-17.1E-09	-26.9E-09	-29.3E-09	-29.3E-09
28	-26.9E-09	-24.4E-09	-23.2E-09	-24.4E-09	-26.9E-09	-29.3E-09	-29.3E-09
29	-23.2E-09	-26.9E-09	-22.0E-09	-23.2E-09	-25.6E-09	-25.6E-09	-24.4E-09
30	-23.2E-09	-19.5E-09	-23.2E-09	-18.3E-09	-25.6E-09	-23.2E-09	-22.0E-09
Statistics							
Min	-28.1E-09	-26.9E-09	-26.9E-09	-25.6E-09	-26.9E-09	-29.3E-09	-29.3E-09
Max	-19.5E-09	-19.5E-09	-18.3E-09	-17.1E-09	-19.5E-09	-22.0E-09	-22.0E-09
Average	-24.4E-09	-22.9E-09	-22.8E-09	-21.6E-09	-23.1E-09	-26.1E-09	-24.9E-09
Std Deviation	2.9E-09	2.4E-09	2.3E-09	2.5E-09	3.2E-09	2.5E-09	2.7E-09

Measurements

IilDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-22.0E-09	-24.4E-09	-19.5E-09	-23.2E-09	-18.3E-09	-24.4E-09
37_OUT_REF	-19.5E-09	-20.8E-09	-22.0E-09	-22.0E-09	-20.8E-09	-19.5E-09	-18.3E-09
OFF samples							
31	-23.2E-09	-19.5E-09	-20.8E-09	-22.0E-09	-20.8E-09	-23.2E-09	-23.2E-09
32	-22.0E-09	-25.6E-09	-23.2E-09	-25.6E-09	-25.6E-09	-23.2E-09	-23.2E-09
33	-25.6E-09	-28.1E-09	-23.2E-09	-20.8E-09	-19.5E-09	-17.1E-09	-22.0E-09
34	-22.0E-09	-20.8E-09	-22.0E-09	-17.1E-09	-20.8E-09	-20.8E-09	-23.2E-09
35	-24.4E-09	-19.5E-09	-22.0E-09	-20.8E-09	-25.6E-09	-22.0E-09	-22.0E-09
Statistics							
Min	-25.6E-09	-28.1E-09	-23.2E-09	-25.6E-09	-25.6E-09	-23.2E-09	-23.2E-09
Max	-22.0E-09	-19.5E-09	-20.8E-09	-17.1E-09	-19.5E-09	-17.1E-09	-22.0E-09
Average	-23.4E-09	-22.7E-09	-22.2E-09	-21.2E-09	-22.5E-09	-21.2E-09	-22.7E-09
Std Deviation	1.4E-09	3.5E-09	913.3E-12	2.7E-09	2.6E-09	2.3E-09	597.7E-12

Parameter : Input Low Leakage Current : IilODT
Test conditions : Vin=0V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



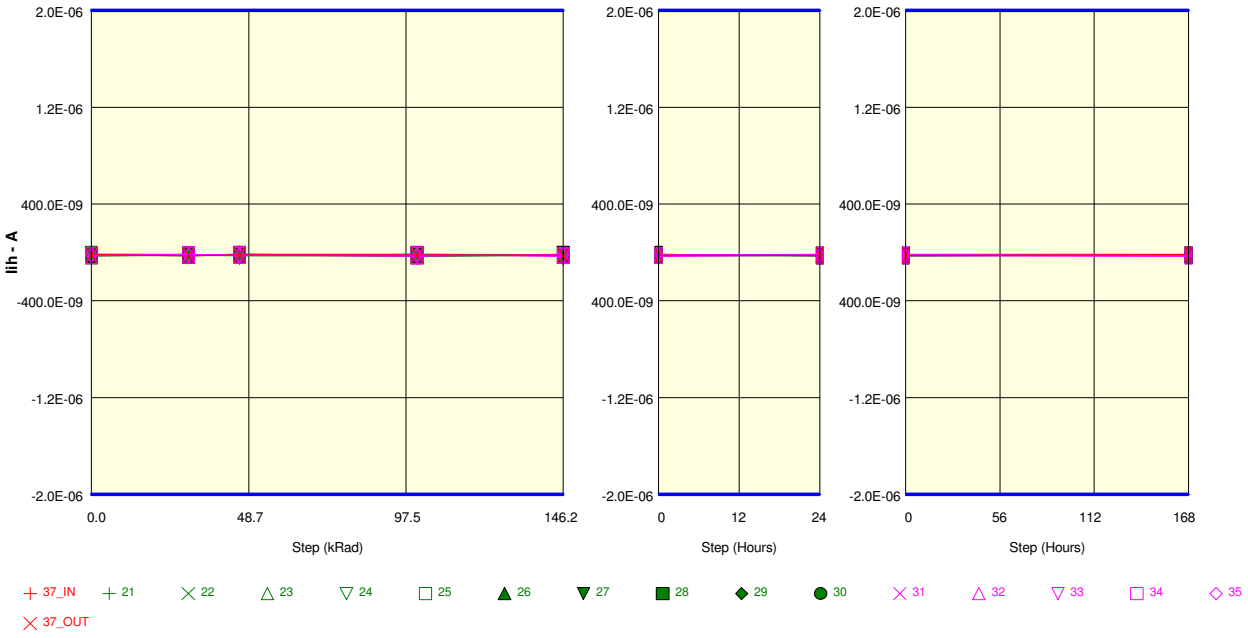
Measurements

IilODT	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-4.4E-09	-2.1E-09	-4.4E-09	-5.2E-09	-5.9E-09	-1.4E-09
37_OUT_REF	-5.9E-09	-5.9E-09	-589.6E-12	-8.2E-09	-2.1E-09	-2.1E-09	-2.1E-09
ON samples							
21	-4.4E-09	-6.7E-09	-1.4E-09	-1.4E-09	-1.4E-09	173.3E-12	-8.2E-09
22	-2.1E-09	-5.2E-09	-2.9E-09	-5.9E-09	1.7E-09	-5.9E-09	-2.9E-09
23	-4.4E-09	-4.4E-09	-7.5E-09	-6.7E-09	-5.2E-09	-3.6E-09	-4.4E-09
24	-4.4E-09	-4.4E-09	-4.4E-09	936.3E-12	-5.9E-09	-1.4E-09	-3.6E-09
25	-2.9E-09	-6.7E-09	-2.1E-09	-2.9E-09	-1.4E-09	-1.4E-09	-6.7E-09
26	-5.2E-09	-2.9E-09	-1.4E-09	-4.4E-09	-7.5E-09	-3.6E-09	-3.6E-09
27	-2.9E-09	-2.9E-09	-5.2E-09	-4.4E-09	936.3E-12	173.3E-12	936.3E-12
28	4.0E-09	-2.1E-09	-6.7E-09	-8.2E-09	-5.2E-09	-3.6E-09	-4.4E-09
29	-5.2E-09	-6.7E-09	-4.4E-09	-1.4E-09	-7.5E-09	-4.4E-09	-4.4E-09
30	-5.2E-09	-6.7E-09	-8.2E-09	-7.5E-09	-4.4E-09	-2.1E-09	-4.4E-09
Statistics							
Min	-5.2E-09	-6.7E-09	-8.2E-09	-8.2E-09	-7.5E-09	-5.9E-09	-8.2E-09
Max	4.0E-09	-2.1E-09	-1.4E-09	936.3E-12	1.7E-09	173.3E-12	936.3E-12
Average	-3.3E-09	-4.9E-09	-4.4E-09	-4.2E-09	-3.6E-09	-2.6E-09	-4.2E-09
Std Deviation	2.6E-09	1.7E-09	2.4E-09	2.8E-09	3.2E-09	1.9E-09	2.3E-09

Measurements

IilODT	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-4.4E-09	-2.1E-09	-4.4E-09	-5.2E-09	-5.9E-09	-1.4E-09
37_OUT_REF	-5.9E-09	-5.9E-09	-589.6E-12	-8.2E-09	-2.1E-09	-2.1E-09	-2.1E-09
OFF samples							
31	-3.6E-09	-5.2E-09	-4.4E-09	-1.4E-09	-1.4E-09	-6.7E-09	173.3E-12
32	-5.2E-09	-1.4E-09	-6.7E-09	-6.7E-09	173.3E-12	-9.0E-09	-2.1E-09
33	-1.4E-09	-1.4E-09	-3.6E-09	-5.2E-09	-2.1E-09	-8.2E-09	-3.6E-09
34	-3.6E-09	-2.1E-09	-3.6E-09	-2.1E-09	-4.4E-09	-2.1E-09	-1.4E-09
35	-6.7E-09	-4.4E-09	173.3E-12	-589.6E-12	-2.1E-09	-4.4E-09	-3.6E-09
Statistics							
Min	-6.7E-09	-5.2E-09	-6.7E-09	-6.7E-09	-4.4E-09	-9.0E-09	-3.6E-09
Max	-1.4E-09	-1.4E-09	173.3E-12	-589.6E-12	173.3E-12	-2.1E-09	173.3E-12
Average	-4.1E-09	-2.9E-09	-3.6E-09	-3.2E-09	-2.0E-09	-6.1E-09	-2.1E-09
Std Deviation	1.8E-09	1.6E-09	2.2E-09	2.3E-09	1.5E-09	2.5E-09	1.4E-09

Parameter : Input High Leakage Current : Iih_CAS
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

Iih_CAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-26.9E-09	-20.8E-09	-23.2E-09	-29.3E-09	-19.5E-09	-22.0E-09	-23.2E-09
37_OUT_REF	-19.5E-09	-29.3E-09	-22.0E-09	-20.8E-09	-24.4E-09	-26.9E-09	-18.3E-09
ON samples							
21	-24.4E-09	-20.8E-09	-15.9E-09	-33.0E-09	-23.2E-09	-23.2E-09	-18.3E-09
22	-25.6E-09	-25.6E-09	-17.1E-09	-15.9E-09	-20.8E-09	-14.6E-09	-15.9E-09
23	-14.6E-09	-18.3E-09	-19.5E-09	-26.9E-09	-20.8E-09	-19.5E-09	-23.2E-09
24	-29.3E-09	-24.4E-09	-28.1E-09	-29.3E-09	-23.2E-09	-22.0E-09	-19.5E-09
25	-14.6E-09	-17.1E-09	-24.4E-09	-24.4E-09	-19.5E-09	-29.3E-09	-20.8E-09
26	-20.8E-09	-23.2E-09	-15.9E-09	-24.4E-09	-22.0E-09	-18.3E-09	-19.5E-09
27	-20.8E-09	-20.8E-09	-25.6E-09	-17.1E-09	-19.5E-09	-24.4E-09	-24.4E-09
28	-29.3E-09	-23.2E-09	-14.6E-09	-24.4E-09	-13.4E-09	-28.1E-09	-24.4E-09
29	-24.4E-09	-24.4E-09	-23.2E-09	-26.9E-09	-22.0E-09	-23.2E-09	-18.3E-09
30	-24.4E-09	-28.1E-09	-24.4E-09	-20.8E-09	-28.1E-09	-28.1E-09	-18.3E-09
Statistics							
Min	-29.3E-09	-28.1E-09	-28.1E-09	-33.0E-09	-28.1E-09	-29.3E-09	-24.4E-09
Max	-14.6E-09	-17.1E-09	-14.6E-09	-15.9E-09	-13.4E-09	-14.6E-09	-15.9E-09
Average	-22.8E-09	-22.6E-09	-20.9E-09	-24.3E-09	-21.2E-09	-23.1E-09	-20.3E-09
Std Deviation	4.9E-09	3.2E-09	4.6E-09	5.0E-09	3.5E-09	4.5E-09	2.7E-09

Measurements

Iih_CAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-26.9E-09	-20.8E-09	-23.2E-09	-29.3E-09	-19.5E-09	-22.0E-09	-23.2E-09
37_OUT_REF	-19.5E-09	-29.3E-09	-22.0E-09	-20.8E-09	-24.4E-09	-26.9E-09	-18.3E-09
OFF samples							
31	-24.4E-09	-24.4E-09	-20.8E-09	-24.4E-09	-25.6E-09	-20.8E-09	-26.9E-09
32	-26.9E-09	-23.2E-09	-23.2E-09	-30.5E-09	-15.9E-09	-28.1E-09	-31.7E-09
33	-29.3E-09	-17.1E-09	-26.9E-09	-13.4E-09	-34.2E-09	-23.2E-09	-30.5E-09
34	-25.6E-09	-20.8E-09	-15.9E-09	-26.9E-09	-25.6E-09	-20.8E-09	-22.0E-09
35	-18.3E-09	-22.0E-09	-23.2E-09	-28.1E-09	-19.5E-09	-22.0E-09	-23.2E-09
Statistics							
Min	-29.3E-09	-24.4E-09	-26.9E-09	-30.5E-09	-34.2E-09	-28.1E-09	-31.7E-09
Max	-18.3E-09	-17.1E-09	-15.9E-09	-13.4E-09	-15.9E-09	-20.8E-09	-22.0E-09
Average	-24.9E-09	-21.5E-09	-22.0E-09	-24.7E-09	-24.2E-09	-22.9E-09	-26.9E-09
Std Deviation	3.7E-09	2.5E-09	3.6E-09	6.0E-09	6.2E-09	2.7E-09	3.9E-09

Parameter : Input High Leakage Current : Iih_CS
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iih_CS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-7.3E-09	-9.8E-09	-11.0E-09	-7.3E-09	-15.9E-09	-7.3E-09
37_OUT_REF	-7.3E-09	-9.8E-09	-8.5E-09	-8.5E-09	-7.3E-09	-9.8E-09	-11.0E-09
ON samples							
21	-6.1E-09	-12.2E-09	-4.9E-09	-8.5E-09	-8.5E-09	-13.4E-09	-7.3E-09
22	-7.3E-09	-2.4E-09	-7.3E-09	-13.4E-09	-6.1E-09	-9.8E-09	-9.8E-09
23	-14.6E-09	-6.1E-09	-8.5E-09	-7.3E-09	-13.4E-09	-7.3E-09	-9.8E-09
24	-13.4E-09	-4.9E-09	-15.9E-09	-9.8E-09	-6.1E-09	-4.9E-09	-11.0E-09
25	-9.8E-09	-15.9E-09	-6.1E-09	-11.0E-09	-8.5E-09	-8.5E-09	-9.8E-09
26	-12.2E-09	-12.2E-09	-6.1E-09	-13.4E-09	-7.3E-09	-9.8E-09	-8.5E-09
27	-9.8E-09	-12.2E-09	-6.1E-09	-11.0E-09	-13.4E-09	-13.4E-09	-4.9E-09
28	-7.3E-09	-7.3E-09	-11.0E-09	-11.0E-09	-12.2E-09	-11.0E-09	-9.8E-09
29	-12.2E-09	-9.8E-09	-4.9E-09	-8.5E-09	-13.4E-09	-6.1E-09	-11.0E-09
30	-11.0E-09	-4.9E-09	-11.0E-09	-8.5E-09	-4.9E-09	-8.5E-09	-9.8E-09
Statistics							
Min	-14.6E-09	-15.9E-09	-15.9E-09	-13.4E-09	-13.4E-09	-13.4E-09	-11.0E-09
Max	-6.1E-09	-2.4E-09	-4.9E-09	-7.3E-09	-4.9E-09	-4.9E-09	-4.9E-09
Average	-10.4E-09	-8.8E-09	-8.2E-09	-10.3E-09	-9.4E-09	-9.3E-09	-9.2E-09
Std Deviation	2.7E-09	4.1E-09	3.3E-09	2.0E-09	3.2E-09	2.7E-09	1.7E-09

Measurements

Iih_CS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-7.3E-09	-9.8E-09	-11.0E-09	-7.3E-09	-15.9E-09	-7.3E-09
37_OUT_REF	-7.3E-09	-9.8E-09	-8.5E-09	-8.5E-09	-7.3E-09	-9.8E-09	-11.0E-09
OFF samples							
31	-6.1E-09	-7.3E-09	-15.9E-09	-8.5E-09	-9.8E-09	-8.5E-09	-12.2E-09
32	-12.2E-09	-8.5E-09	-13.4E-09	-8.5E-09	-14.6E-09	-9.8E-09	-12.2E-09
33	-7.3E-09	-8.5E-09	-6.1E-09	-12.2E-09	-11.0E-09	-3.7E-09	-14.6E-09
34	-4.9E-09	-8.5E-09	-7.3E-09	-11.0E-09	-7.3E-09	-8.5E-09	-8.5E-09
35	-12.2E-09	-11.0E-09	-6.1E-09	-11.0E-09	-14.6E-09	-12.2E-09	-6.1E-09
Statistics							
Min	-12.2E-09	-11.0E-09	-15.9E-09	-12.2E-09	-14.6E-09	-12.2E-09	-14.6E-09
Max	-4.9E-09	-7.3E-09	-6.1E-09	-8.5E-09	-7.3E-09	-3.7E-09	-6.1E-09
Average	-8.5E-09	-8.8E-09	-9.8E-09	-10.3E-09	-11.5E-09	-8.5E-09	-10.7E-09
Std Deviation	3.1E-09	1.2E-09	4.1E-09	1.5E-09	2.8E-09	2.8E-09	3.0E-09

Parameter : Input High Leakage Current : Iih_RAS
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iih_RAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.3E-09	-13.4E-09	-8.5E-09	-17.1E-09	-23.2E-09	-18.3E-09	-19.5E-09
37_OUT_REF	-14.6E-09	-9.8E-09	-17.1E-09	-17.1E-09	-19.5E-09	-22.0E-09	-14.6E-09
ON samples							
21	-12.2E-09	-17.1E-09	-13.4E-09	-11.0E-09	-17.1E-09	-13.4E-09	-19.5E-09
22	-17.1E-09	-18.3E-09	-18.3E-09	-18.3E-09	-22.0E-09	-12.2E-09	-17.1E-09
23	-20.8E-09	-24.4E-09	-14.6E-09	-18.3E-09	-13.4E-09	-9.8E-09	-19.5E-09
24	-19.5E-09	-13.4E-09	-20.8E-09	-14.6E-09	-17.1E-09	-15.9E-09	-14.6E-09
25	-14.6E-09	-18.3E-09	-14.6E-09	-15.9E-09	-15.9E-09	-15.9E-09	-19.5E-09
26	-9.8E-09	-14.6E-09	-14.6E-09	-15.9E-09	-12.2E-09	-17.1E-09	-13.4E-09
27	-20.8E-09	-17.1E-09	-13.4E-09	-15.9E-09	-15.9E-09	-12.2E-09	-17.1E-09
28	-7.3E-09	-17.1E-09	-25.6E-09	-24.4E-09	-17.1E-09	-14.6E-09	-20.8E-09
29	-15.9E-09	-13.4E-09	-20.8E-09	-19.5E-09	-12.2E-09	-12.2E-09	-22.0E-09
30	-12.2E-09	-9.8E-09	-14.6E-09	-15.9E-09	-14.6E-09	-19.5E-09	-22.0E-09
Statistics							
Min	-20.8E-09	-24.4E-09	-25.6E-09	-24.4E-09	-22.0E-09	-19.5E-09	-22.0E-09
Max	-7.3E-09	-9.8E-09	-13.4E-09	-11.0E-09	-12.2E-09	-9.8E-09	-13.4E-09
Average	-15.0E-09	-16.4E-09	-17.1E-09	-17.0E-09	-15.7E-09	-14.3E-09	-18.6E-09
Std Deviation	4.4E-09	3.7E-09	3.9E-09	3.3E-09	2.8E-09	2.7E-09	2.8E-09

Measurements

Iih_RAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.3E-09	-13.4E-09	-8.5E-09	-17.1E-09	-23.2E-09	-18.3E-09	-19.5E-09
37_OUT_REF	-14.6E-09	-9.8E-09	-17.1E-09	-17.1E-09	-19.5E-09	-22.0E-09	-14.6E-09
OFF samples							
31	-22.0E-09	-20.8E-09	-17.1E-09	-14.6E-09	-15.9E-09	-23.2E-09	-17.1E-09
32	-15.9E-09	-14.6E-09	-14.6E-09	-18.3E-09	-17.1E-09	-17.1E-09	-22.0E-09
33	-12.2E-09	-20.8E-09	-9.8E-09	-12.2E-09	-12.2E-09	-18.3E-09	-17.1E-09
34	-14.6E-09	-26.9E-09	-8.5E-09	-9.8E-09	-15.9E-09	-13.4E-09	-17.1E-09
35	-14.6E-09	-14.6E-09	-18.3E-09	-15.9E-09	-17.1E-09	-13.4E-09	-20.8E-09
Statistics							
Min	-22.0E-09	-26.9E-09	-18.3E-09	-18.3E-09	-17.1E-09	-23.2E-09	-22.0E-09
Max	-12.2E-09	-14.6E-09	-8.5E-09	-9.8E-09	-12.2E-09	-13.4E-09	-17.1E-09
Average	-15.9E-09	-19.5E-09	-13.7E-09	-14.2E-09	-15.6E-09	-17.1E-09	-18.8E-09
Std Deviation	3.3E-09	4.6E-09	3.9E-09	3.0E-09	1.8E-09	3.6E-09	2.1E-09

Parameter : Input High Leakage Current : Iih_RESET
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iih_RESET	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-1.4E-09	-5.2E-09	-3.6E-09	2.5E-09	-2.1E-09	173.3E-12	-4.4E-09
37_OUT_REF	-2.1E-09	-2.9E-09	-2.1E-09	-1.4E-09	936.3E-12	936.3E-12	-2.9E-09
ON samples							
21	-589.6E-12	173.3E-12	1.7E-09	-589.6E-12	-1.4E-09	-4.4E-09	2.5E-09
22	-2.1E-09	936.3E-12	-5.9E-09	4.0E-09	-2.9E-09	-2.9E-09	-3.6E-09
23	-589.6E-12	-5.9E-09	-1.4E-09	-3.6E-09	-1.4E-09	-2.1E-09	-5.2E-09
24	936.3E-12	173.3E-12	-2.1E-09	-3.6E-09	-5.9E-09	-1.4E-09	-1.4E-09
25	-1.4E-09	173.3E-12	-3.6E-09	2.5E-09	-1.4E-09	-2.9E-09	-3.6E-09
26	1.7E-09	-2.9E-09	-2.1E-09	-5.2E-09	-1.4E-09	-3.6E-09	-3.6E-09
27	-589.6E-12	-589.6E-12	2.5E-09	1.7E-09	-4.4E-09	-589.6E-12	-4.4E-09
28	2.5E-09	-589.6E-12	-2.1E-09	2.5E-09	-2.1E-09	-1.4E-09	-589.6E-12
29	-2.1E-09	-1.4E-09	-3.6E-09	-4.4E-09	936.3E-12	-4.4E-09	-1.4E-09
30	4.8E-09	-589.6E-12	-589.6E-12	-4.4E-09	-589.6E-12	1.7E-09	-2.1E-09
Statistics							
Min	-2.1E-09	-5.9E-09	-5.9E-09	-5.2E-09	-5.9E-09	-4.4E-09	-5.2E-09
Max	4.8E-09	936.3E-12	2.5E-09	4.0E-09	936.3E-12	1.7E-09	2.5E-09
Average	249.6E-12	-1.0E-09	-1.7E-09	-1.1E-09	-2.0E-09	-2.2E-09	-2.3E-09
Std Deviation	2.1E-09	1.9E-09	2.4E-09	3.3E-09	1.9E-09	1.8E-09	2.1E-09

Measurements

Iih_RESET	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-1.4E-09	-5.2E-09	-3.6E-09	2.5E-09	-2.1E-09	173.3E-12	-4.4E-09
37_OUT_REF	-2.1E-09	-2.9E-09	-2.1E-09	-1.4E-09	936.3E-12	936.3E-12	-2.9E-09
OFF samples							
31	936.3E-12	936.3E-12	-3.6E-09	-1.4E-09	-589.6E-12	-3.6E-09	-2.9E-09
32	-3.6E-09	936.3E-12	1.7E-09	-589.6E-12	-589.6E-12	173.3E-12	-2.9E-09
33	-1.4E-09	-589.6E-12	-589.6E-12	173.3E-12	-3.6E-09	-589.6E-12	-2.1E-09
34	-5.9E-09	173.3E-12	936.3E-12	-3.6E-09	-2.1E-09	-2.9E-09	1.7E-09
35	-589.6E-12	-5.9E-09	-2.1E-09	-589.6E-12	-589.6E-12	-3.6E-09	173.3E-12
Statistics							
Min	-5.9E-09	-5.9E-09	-3.6E-09	-3.6E-09	-3.6E-09	-3.6E-09	-2.9E-09
Max	936.3E-12	936.3E-12	1.7E-09	173.3E-12	-589.6E-12	173.3E-12	1.7E-09
Average	-2.1E-09	-894.8E-12	-742.2E-12	-1.2E-09	-1.5E-09	-2.1E-09	-1.2E-09
Std Deviation	2.4E-09	2.6E-09	2.0E-09	1.3E-09	1.2E-09	1.6E-09	1.8E-09

Parameter : Input High Leakage Current : Iih_WE
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

Iih_WE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-13.4E-09	-9.8E-09	-11.0E-09	-13.4E-09	-6.1E-09	-9.8E-09
37_OUT_REF	-13.4E-09	-17.1E-09	-9.8E-09	-17.1E-09	-13.4E-09	-11.0E-09	-9.8E-09
ON samples							
21	-8.5E-09	-15.9E-09	-12.2E-09	-9.8E-09	-6.1E-09	-12.2E-09	-11.0E-09
22	-12.2E-09	-9.8E-09	-11.0E-09	-12.2E-09	-15.9E-09	-8.5E-09	-12.2E-09
23	-13.4E-09	-15.9E-09	-14.6E-09	-3.7E-09	-13.4E-09	-9.8E-09	-11.0E-09
24	-9.8E-09	-11.0E-09	-8.5E-09	-15.9E-09	-11.0E-09	-9.8E-09	-12.2E-09
25	-13.4E-09	-11.0E-09	-11.0E-09	-12.2E-09	-12.2E-09	-11.0E-09	-15.9E-09
26	-15.9E-09	-12.2E-09	-14.6E-09	-7.3E-09	-12.2E-09	-8.5E-09	-9.8E-09
27	-8.5E-09	-11.0E-09	-18.3E-09	-15.9E-09	-12.2E-09	-17.1E-09	-12.2E-09
28	-12.2E-09	-6.1E-09	-11.0E-09	-8.5E-09	-12.2E-09	-14.6E-09	-17.1E-09
29	-12.2E-09	-6.1E-09	-7.3E-09	-13.4E-09	-9.8E-09	-7.3E-09	-14.6E-09
30	-9.8E-09	-7.3E-09	-11.0E-09	-18.3E-09	-13.4E-09	-8.5E-09	-14.6E-09
Statistics							
Min	-15.9E-09	-15.9E-09	-18.3E-09	-18.3E-09	-15.9E-09	-17.1E-09	-17.1E-09
Max	-8.5E-09	-6.1E-09	-7.3E-09	-3.7E-09	-6.1E-09	-7.3E-09	-9.8E-09
Average	-11.6E-09	-10.6E-09	-12.0E-09	-11.7E-09	-11.8E-09	-10.7E-09	-13.1E-09
Std Deviation	2.3E-09	3.3E-09	3.0E-09	4.2E-09	2.4E-09	2.9E-09	2.3E-09

Measurements

Iih_WE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-13.4E-09	-9.8E-09	-11.0E-09	-13.4E-09	-6.1E-09	-9.8E-09
37_OUT_REF	-13.4E-09	-17.1E-09	-9.8E-09	-17.1E-09	-13.4E-09	-11.0E-09	-9.8E-09
OFF samples							
31	-8.5E-09	-11.0E-09	-8.5E-09	-8.5E-09	-13.4E-09	-11.0E-09	-12.2E-09
32	-11.0E-09	-11.0E-09	-15.9E-09	-6.1E-09	-8.5E-09	-11.0E-09	-15.9E-09
33	-15.9E-09	-11.0E-09	-14.6E-09	-17.1E-09	-14.6E-09	-13.4E-09	-9.8E-09
34	-9.8E-09	-11.0E-09	-12.2E-09	-13.4E-09	-13.4E-09	-11.0E-09	-6.1E-09
35	-13.4E-09	-9.8E-09	-17.1E-09	-17.1E-09	-15.9E-09	-7.3E-09	-9.8E-09
Statistics							
Min	-15.9E-09	-11.0E-09	-17.1E-09	-17.1E-09	-15.9E-09	-13.4E-09	-15.9E-09
Max	-8.5E-09	-9.8E-09	-8.5E-09	-6.1E-09	-8.5E-09	-7.3E-09	-6.1E-09
Average	-11.7E-09	-10.7E-09	-13.7E-09	-12.5E-09	-13.2E-09	-10.7E-09	-10.7E-09
Std Deviation	2.6E-09	488.2E-12	3.0E-09	4.5E-09	2.5E-09	2.0E-09	3.2E-09

Parameter : Input High Leakage Current : IihADD(0)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihADD(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	173.3E-12	-1.4E-09	-1.4E-09	-2.1E-09	-4.4E-09	2.5E-09	-5.2E-09
37_OUT_REF	1.7E-09	-2.9E-09	-4.4E-09	-1.4E-09	-2.9E-09	3.2E-09	-4.4E-09
ON samples							
21	-6.7E-09	173.3E-12	936.3E-12	-589.6E-12	-5.9E-09	-8.2E-09	1.7E-09
22	-4.4E-09	-2.9E-09	-1.4E-09	-2.9E-09	-2.1E-09	3.2E-09	1.7E-09
23	173.3E-12	173.3E-12	-5.2E-09	-2.9E-09	-3.6E-09	-1.4E-09	-2.9E-09
24	-2.9E-09	936.3E-12	-589.6E-12	-589.6E-12	-589.6E-12	-1.4E-09	-2.9E-09
25	-1.4E-09	-589.6E-12	-2.1E-09	-2.1E-09	-589.6E-12	936.3E-12	-3.6E-09
26	173.3E-12	173.3E-12	-1.4E-09	-5.9E-09	-4.4E-09	-2.9E-09	-4.4E-09
27	1.7E-09	-1.4E-09	-2.1E-09	-4.4E-09	-2.9E-09	-589.6E-12	-589.6E-12
28	-589.6E-12	-2.1E-09	-2.9E-09	-3.6E-09	-4.4E-09	173.3E-12	-5.2E-09
29	-4.4E-09	1.7E-09	-2.1E-09	-589.6E-12	-589.6E-12	-2.1E-09	-2.9E-09
30	-3.6E-09	-589.6E-12	-2.9E-09	-2.9E-09	173.3E-12	2.5E-09	-4.4E-09
Statistics							
Min	-6.7E-09	-2.9E-09	-5.2E-09	-5.9E-09	-5.9E-09	-8.2E-09	-5.2E-09
Max	1.7E-09	1.7E-09	936.3E-12	-589.6E-12	173.3E-12	3.2E-09	1.7E-09
Average	-2.2E-09	-437.0E-12	-2.0E-09	-2.6E-09	-2.5E-09	-971.1E-12	-2.3E-09
Std Deviation	2.5E-09	1.3E-09	1.5E-09	1.7E-09	2.0E-09	3.0E-09	2.3E-09

Measurements

IihADD(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	173.3E-12	-1.4E-09	-1.4E-09	-2.1E-09	-4.4E-09	2.5E-09	-5.2E-09
37_OUT_REF	1.7E-09	-2.9E-09	-4.4E-09	-1.4E-09	-2.9E-09	3.2E-09	-4.4E-09
OFF samples							
31	173.3E-12	1.7E-09	-589.6E-12	-2.9E-09	-1.4E-09	-589.6E-12	-6.7E-09
32	-589.6E-12	-5.2E-09	4.0E-09	-8.2E-09	-589.6E-12	1.7E-09	-2.9E-09
33	-589.6E-12	-1.4E-09	173.3E-12	173.3E-12	-589.6E-12	3.2E-09	-3.6E-09
34	-1.4E-09	173.3E-12	-2.9E-09	-4.4E-09	3.2E-09	-7.5E-09	-3.6E-09
35	-5.2E-09	-4.4E-09	-1.4E-09	-3.6E-09	-589.6E-12	-1.4E-09	-2.1E-09
Statistics							
Min	-5.2E-09	-5.2E-09	-2.9E-09	-8.2E-09	-1.4E-09	-7.5E-09	-6.7E-09
Max	173.3E-12	1.7E-09	4.0E-09	173.3E-12	3.2E-09	3.2E-09	-2.1E-09
Average	-1.5E-09	-1.8E-09	-131.8E-12	-3.8E-09	20.8E-12	-894.8E-12	-3.8E-09
Std Deviation	1.9E-09	2.6E-09	2.3E-09	2.7E-09	1.6E-09	3.7E-09	1.6E-09

Parameter : Input High Leakage Current : IihADD(1)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihADD(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-5.2E-09	-4.4E-09	-7.5E-09	-3.6E-09	-4.4E-09	-6.7E-09
37_OUT_REF	-3.6E-09	-2.1E-09	-3.6E-09	-1.4E-09	-5.9E-09	-5.9E-09	-6.7E-09
ON samples							
21	-6.7E-09	-4.4E-09	-589.6E-12	-2.9E-09	-8.2E-09	-5.2E-09	-8.2E-09
22	-6.7E-09	-2.1E-09	-9.0E-09	-8.2E-09	-8.2E-09	-6.7E-09	-7.5E-09
23	-2.1E-09	-5.2E-09	-5.9E-09	-3.6E-09	-3.6E-09	-5.2E-09	-3.6E-09
24	-3.6E-09	-4.4E-09	-2.9E-09	-5.2E-09	-4.4E-09	-3.6E-09	-5.9E-09
25	-9.7E-09	-5.2E-09	-5.2E-09	-7.5E-09	-8.2E-09	-9.0E-09	-6.7E-09
26	-5.9E-09	-7.5E-09	-2.9E-09	-5.9E-09	-1.4E-09	-5.9E-09	-7.5E-09
27	-3.6E-09	-2.9E-09	-6.7E-09	-6.7E-09	-7.5E-09	-2.1E-09	-7.5E-09
28	-2.9E-09	-5.9E-09	-9.7E-09	-8.2E-09	-6.7E-09	-5.2E-09	-3.6E-09
29	-7.5E-09	-9.0E-09	-2.1E-09	-5.9E-09	-7.5E-09	-4.4E-09	-6.7E-09
30	-4.4E-09	-4.4E-09	-8.2E-09	173.3E-12	-2.9E-09	-6.7E-09	-4.4E-09
Statistics							
Min	-9.7E-09	-9.0E-09	-9.7E-09	-8.2E-09	-8.2E-09	-9.0E-09	-8.2E-09
Max	-2.1E-09	-2.1E-09	-589.6E-12	173.3E-12	-1.4E-09	-2.1E-09	-3.6E-09
Average	-5.3E-09	-5.1E-09	-5.3E-09	-5.4E-09	-5.9E-09	-5.4E-09	-6.2E-09
Std Deviation	2.3E-09	1.9E-09	3.0E-09	2.5E-09	2.4E-09	1.8E-09	1.6E-09

Measurements

IihADD(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-5.2E-09	-4.4E-09	-7.5E-09	-3.6E-09	-4.4E-09	-6.7E-09
37_OUT_REF	-3.6E-09	-2.1E-09	-3.6E-09	-1.4E-09	-5.9E-09	-5.9E-09	-6.7E-09
OFF samples							
31	-3.6E-09	-3.6E-09	-2.9E-09	-6.7E-09	-6.7E-09	-7.5E-09	-5.9E-09
32	-5.9E-09	-8.2E-09	-5.9E-09	-7.5E-09	-6.7E-09	-2.9E-09	-6.7E-09
33	-4.4E-09	-5.2E-09	-5.9E-09	-3.6E-09	-9.0E-09	-1.4E-09	-3.6E-09
34	-9.0E-09	-2.9E-09	-1.4E-09	-7.5E-09	-6.7E-09	-5.2E-09	-5.2E-09
35	-3.6E-09	-2.9E-09	-1.4E-09	-1.4E-09	-1.4E-09	173.3E-12	-4.4E-09
Statistics							
Min	-9.0E-09	-8.2E-09	-5.9E-09	-7.5E-09	-9.0E-09	-7.5E-09	-6.7E-09
Max	-3.6E-09	-2.9E-09	-1.4E-09	-1.4E-09	-1.4E-09	173.3E-12	-3.6E-09
Average	-5.3E-09	-4.6E-09	-3.5E-09	-5.3E-09	-6.1E-09	-3.3E-09	-5.2E-09
Std Deviation	2.0E-09	2.0E-09	2.1E-09	2.4E-09	2.5E-09	2.7E-09	1.1E-09

Parameter : Input High Leakage Current : IihADD(10)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihADD(10)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-5.2E-09	-3.6E-09	-1.4E-09	-9.7E-09	-4.4E-09	-3.6E-09
37_OUT_REF	-6.7E-09	-2.1E-09	-3.6E-09	-9.7E-09	-6.7E-09	173.3E-12	-2.1E-09
ON samples							
21	-5.9E-09	-3.6E-09	-4.4E-09	-5.9E-09	-6.7E-09	-589.6E-12	-1.4E-09
22	-9.0E-09	-12.8E-09	-2.9E-09	-8.2E-09	-9.7E-09	-5.9E-09	-3.6E-09
23	-4.4E-09	-4.4E-09	-7.5E-09	-12.0E-09	-5.9E-09	-5.9E-09	-5.2E-09
24	-5.9E-09	-7.5E-09	-1.4E-09	-9.7E-09	-9.0E-09	-3.6E-09	-5.9E-09
25	-6.7E-09	-6.7E-09	-11.3E-09	-7.5E-09	-9.7E-09	-5.2E-09	-3.6E-09
26	-9.7E-09	-5.9E-09	-8.2E-09	-5.2E-09	-8.2E-09	-2.9E-09	-9.0E-09
27	-5.2E-09	-5.9E-09	-9.0E-09	-5.2E-09	-5.9E-09	-7.5E-09	-7.5E-09
28	-5.2E-09	-5.9E-09	-7.5E-09	-7.5E-09	-3.6E-09	-5.9E-09	-9.0E-09
29	-6.7E-09	-7.5E-09	-7.5E-09	-5.2E-09	-6.7E-09	-5.9E-09	-5.2E-09
30	-8.2E-09	-11.3E-09	-9.7E-09	-4.4E-09	-7.5E-09	-10.5E-09	-9.7E-09
Statistics							
Min	-9.7E-09	-12.8E-09	-11.3E-09	-12.0E-09	-9.7E-09	-10.5E-09	-9.7E-09
Max	-4.4E-09	-3.6E-09	-1.4E-09	-4.4E-09	-3.6E-09	-589.6E-12	-1.4E-09
Average	-6.7E-09	-7.2E-09	-6.9E-09	-7.1E-09	-7.3E-09	-5.4E-09	-6.0E-09
Std Deviation	1.7E-09	2.7E-09	3.0E-09	2.3E-09	1.8E-09	2.5E-09	2.6E-09

Measurements

IihADD(10)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.9E-09	-5.2E-09	-3.6E-09	-1.4E-09	-9.7E-09	-4.4E-09	-3.6E-09
37_OUT_REF	-6.7E-09	-2.1E-09	-3.6E-09	-9.7E-09	-6.7E-09	173.3E-12	-2.1E-09
OFF samples							
31	-5.9E-09	-8.2E-09	-2.9E-09	-3.6E-09	-5.2E-09	-2.1E-09	-2.9E-09
32	-8.2E-09	-9.7E-09	-8.2E-09	-4.4E-09	-3.6E-09	-3.6E-09	-6.7E-09
33	-7.5E-09	-5.9E-09	-5.2E-09	-4.4E-09	-5.9E-09	-4.4E-09	-8.2E-09
34	-5.9E-09	-6.7E-09	-12.0E-09	-9.0E-09	-4.4E-09	-10.5E-09	-8.2E-09
35	-5.9E-09	-5.9E-09	-4.4E-09	-5.2E-09	-8.2E-09	-589.6E-12	-5.9E-09
Statistics							
Min	-8.2E-09	-9.7E-09	-12.0E-09	-9.0E-09	-8.2E-09	-10.5E-09	-8.2E-09
Max	-5.9E-09	-5.9E-09	-2.9E-09	-3.6E-09	-3.6E-09	-589.6E-12	-2.9E-09
Average	-6.7E-09	-7.3E-09	-6.5E-09	-5.3E-09	-5.5E-09	-4.3E-09	-6.4E-09
Std Deviation	965.0E-12	1.5E-09	3.3E-09	1.9E-09	1.6E-09	3.4E-09	2.0E-09

Parameter : Input High Leakage Current : IihADD(11)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

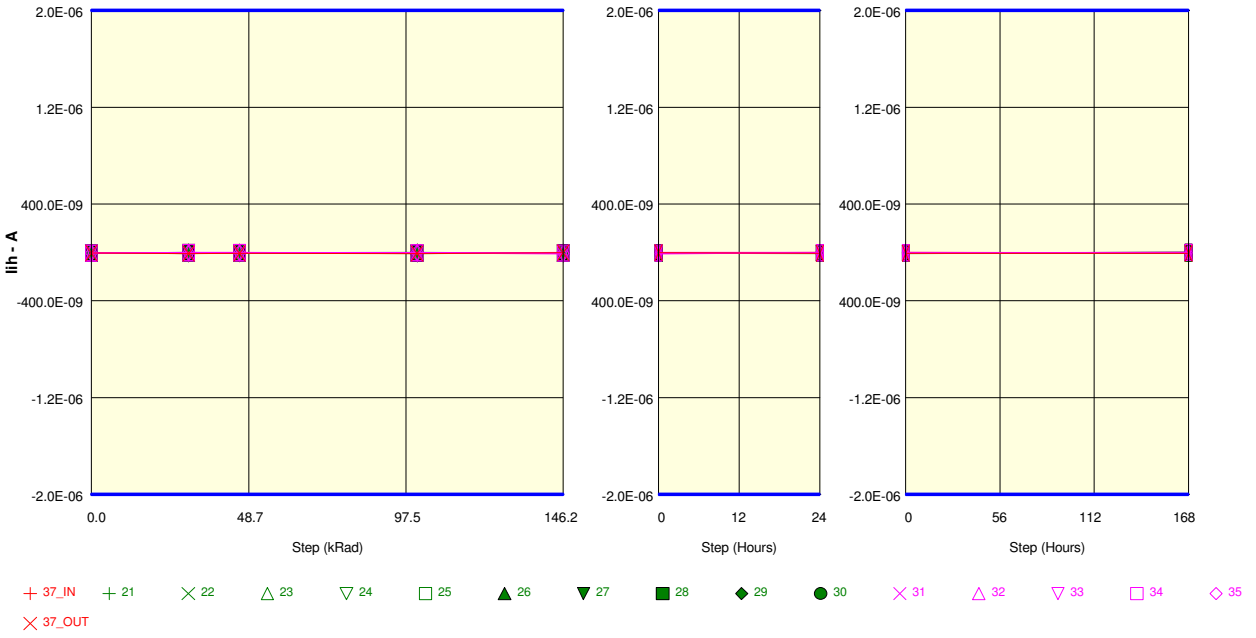
Measurements

IihADD(11)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-589.6E-12	936.3E-12	-1.4E-09	-2.1E-09	-5.2E-09	-1.4E-09
37_OUT_REF	-5.2E-09	936.3E-12	-2.9E-09	-2.1E-09	173.3E-12	-2.1E-09	173.3E-12
ON samples							
21	-2.9E-09	-5.9E-09	-3.6E-09	-3.6E-09	-589.6E-12	-589.6E-12	-2.9E-09
22	-3.6E-09	173.3E-12	-2.9E-09	-7.5E-09	-2.9E-09	173.3E-12	-2.9E-09
23	-5.2E-09	-589.6E-12	1.7E-09	-6.7E-09	-2.1E-09	173.3E-12	-2.9E-09
24	-4.4E-09	-4.4E-09	-5.2E-09	-2.1E-09	-2.9E-09	-589.6E-12	-589.6E-12
25	-2.1E-09	173.3E-12	-2.9E-09	173.3E-12	-5.2E-09	1.7E-09	-4.4E-09
26	2.5E-09	936.3E-12	173.3E-12	-3.6E-09	2.5E-09	1.7E-09	-5.2E-09
27	-589.6E-12	936.3E-12	-589.6E-12	-589.6E-12	-2.1E-09	-4.4E-09	-3.6E-09
28	-2.9E-09	-5.9E-09	173.3E-12	-2.9E-09	-589.6E-12	173.3E-12	173.3E-12
29	-589.6E-12	-1.4E-09	-4.4E-09	-5.9E-09	-589.6E-12	936.3E-12	-2.9E-09
30	-2.1E-09	2.5E-09	-589.6E-12	-1.4E-09	-1.4E-09	936.3E-12	-589.6E-12
Statistics							
Min	-5.2E-09	-5.9E-09	-5.2E-09	-7.5E-09	-5.2E-09	-4.4E-09	-5.2E-09
Max	2.5E-09	2.5E-09	1.7E-09	173.3E-12	2.5E-09	1.7E-09	173.3E-12
Average	-2.2E-09	-1.4E-09	-1.8E-09	-3.4E-09	-1.6E-09	20.7E-12	-2.6E-09
Std Deviation	2.1E-09	2.9E-09	2.2E-09	2.5E-09	1.9E-09	1.7E-09	1.6E-09

Measurements

IihADD(11)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-589.6E-12	936.3E-12	-1.4E-09	-2.1E-09	-5.2E-09	-1.4E-09
37_OUT_REF	-5.2E-09	936.3E-12	-2.9E-09	-2.1E-09	173.3E-12	-2.1E-09	173.3E-12
OFF samples							
31	-4.4E-09	-3.6E-09	-589.6E-12	-2.9E-09	-2.9E-09	-3.6E-09	-1.4E-09
32	-2.9E-09	-2.9E-09	173.3E-12	-1.4E-09	936.3E-12	-589.6E-12	-2.9E-09
33	-589.6E-12	-2.9E-09	-3.6E-09	-1.4E-09	-7.5E-09	-1.4E-09	-1.4E-09
34	-5.9E-09	-1.4E-09	173.3E-12	-589.6E-12	-5.2E-09	-589.6E-12	-1.4E-09
35	-6.7E-09	173.3E-12	-3.6E-09	-2.9E-09	-2.9E-09	-2.9E-09	936.3E-12
Statistics							
Min	-6.7E-09	-3.6E-09	-3.6E-09	-2.9E-09	-7.5E-09	-3.6E-09	-2.9E-09
Max	-589.6E-12	173.3E-12	173.3E-12	-589.6E-12	936.3E-12	-589.6E-12	936.3E-12
Average	-4.1E-09	-2.1E-09	-1.5E-09	-1.8E-09	-3.5E-09	-1.8E-09	-1.2E-09
Std Deviation	2.2E-09	1.4E-09	1.8E-09	915.5E-12	2.8E-09	1.2E-09	1.2E-09

Parameter : Input High Leakage Current : IihADD(12)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



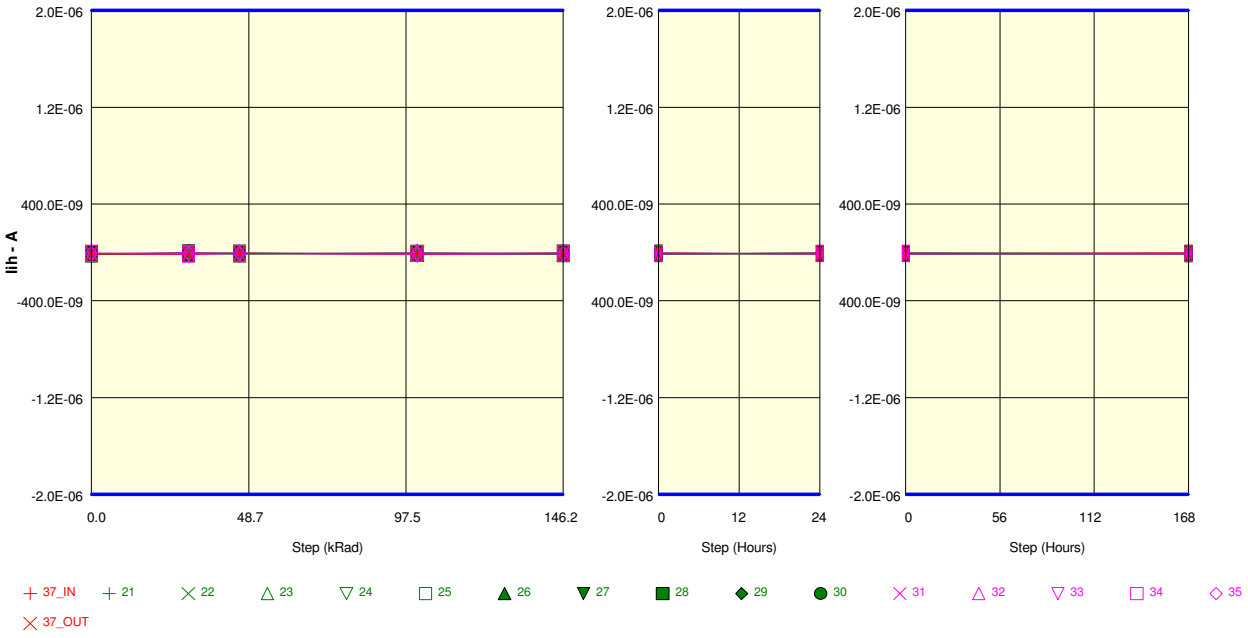
Measurements

IihADD(12)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-4.4E-09	-6.7E-09	-6.7E-09	-5.9E-09	-4.4E-09	936.3E-12	-2.9E-09
37_OUT_REF	-4.4E-09	-8.2E-09	-6.7E-09	-9.0E-09	-2.9E-09	-5.9E-09	-6.7E-09
ON samples							
21	-4.4E-09	-5.2E-09	-5.2E-09	-1.4E-09	-3.6E-09	-2.1E-09	-3.6E-09
22	-6.7E-09	-5.2E-09	-6.7E-09	-6.7E-09	-2.9E-09	-4.4E-09	-3.6E-09
23	-5.9E-09	-1.4E-09	-1.4E-09	173.3E-12	-5.2E-09	-4.4E-09	-2.9E-09
24	-4.4E-09	-589.6E-12	-4.4E-09	-4.4E-09	-7.5E-09	-8.2E-09	-1.4E-09
25	-5.9E-09	-6.7E-09	-4.4E-09	-2.9E-09	-2.9E-09	-4.4E-09	-6.7E-09
26	-2.9E-09	-2.9E-09	-3.6E-09	-4.4E-09	-5.2E-09	-4.4E-09	-2.9E-09
27	-4.4E-09	-8.2E-09	-3.6E-09	-8.2E-09	-3.6E-09	-7.5E-09	2.5E-09
28	-6.7E-09	-4.4E-09	-2.9E-09	-6.7E-09	-3.6E-09	-2.1E-09	-1.4E-09
29	-4.4E-09	-5.9E-09	-5.2E-09	-2.9E-09	-3.6E-09	-2.9E-09	-1.4E-09
30	-4.4E-09	-2.9E-09	-7.5E-09	-7.5E-09	-4.4E-09	-5.9E-09	-5.9E-09
Statistics							
Min	-6.7E-09	-8.2E-09	-7.5E-09	-8.2E-09	-7.5E-09	-8.2E-09	-6.7E-09
Max	-2.9E-09	-589.6E-12	-1.4E-09	173.3E-12	-2.9E-09	-2.1E-09	2.5E-09
Average	-5.0E-09	-4.3E-09	-4.5E-09	-4.5E-09	-4.3E-09	-4.6E-09	-2.7E-09
Std Deviation	1.2E-09	2.3E-09	1.7E-09	2.6E-09	1.3E-09	2.0E-09	2.5E-09

Measurements

IihADD(12)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-4.4E-09	-6.7E-09	-6.7E-09	-5.9E-09	-4.4E-09	936.3E-12	-2.9E-09
37_OUT_REF	-4.4E-09	-8.2E-09	-6.7E-09	-9.0E-09	-2.9E-09	-5.9E-09	-6.7E-09
OFF samples							
31	-2.9E-09	-9.0E-09	-1.4E-09	-6.7E-09	936.3E-12	173.3E-12	-3.6E-09
32	-2.9E-09	-4.4E-09	-5.2E-09	-5.2E-09	-5.2E-09	-1.4E-09	-589.6E-12
33	-3.6E-09	936.3E-12	-589.6E-12	-5.2E-09	-12.0E-09	-2.1E-09	-589.6E-12
34	-7.5E-09	-1.4E-09	-2.9E-09	-2.1E-09	-4.4E-09	-3.6E-09	173.3E-12
35	-4.4E-09	-2.9E-09	-2.1E-09	-1.4E-09	-5.9E-09	-3.6E-09	-2.1E-09
Statistics							
Min	-7.5E-09	-9.0E-09	-5.2E-09	-6.7E-09	-12.0E-09	-3.6E-09	-3.6E-09
Max	-2.9E-09	936.3E-12	-589.6E-12	-1.4E-09	936.3E-12	173.3E-12	173.3E-12
Average	-4.3E-09	-3.3E-09	-2.4E-09	-4.1E-09	-5.3E-09	-2.1E-09	-1.4E-09
Std Deviation	1.7E-09	3.3E-09	1.6E-09	2.0E-09	4.1E-09	1.4E-09	1.4E-09

Parameter : Input High Leakage Current : IihADD(13)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



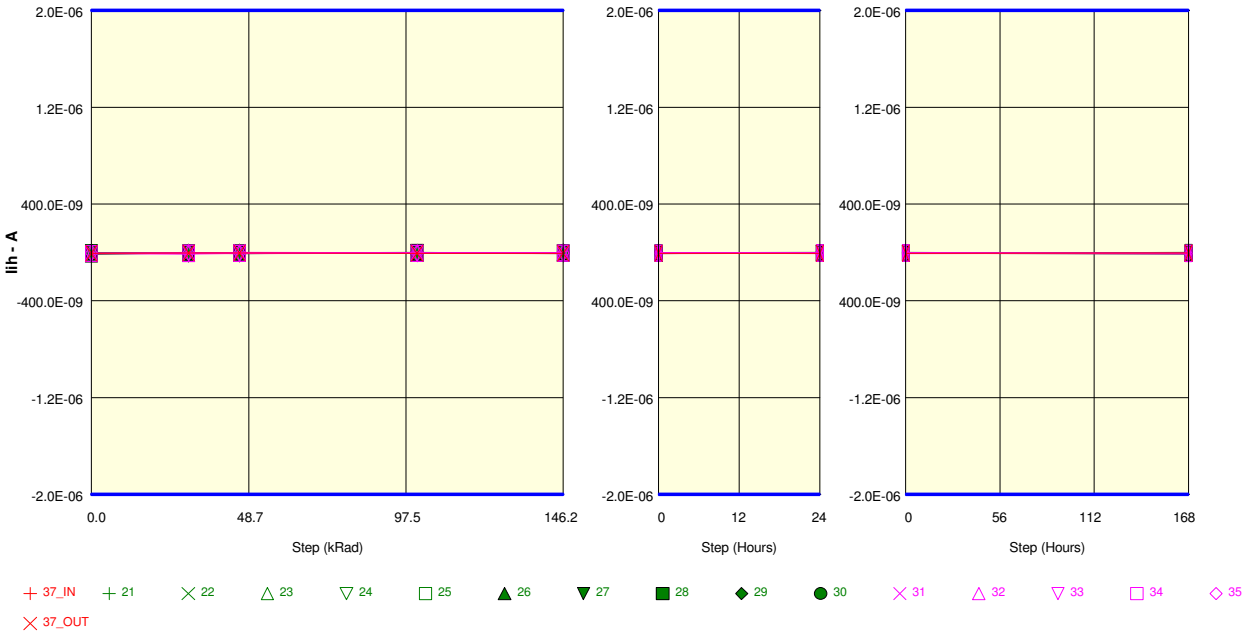
Measurements

IihADD(13)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-10.5E-09	-9.0E-09	-6.7E-09	-9.7E-09	-6.7E-09	-8.2E-09	-9.7E-09
37_OUT_REF	-10.5E-09	-11.3E-09	-7.5E-09	-12.0E-09	-6.7E-09	-9.7E-09	-5.2E-09
ON samples							
21	-8.2E-09	-9.0E-09	-7.5E-09	-10.5E-09	-8.2E-09	-6.7E-09	-5.9E-09
22	-12.0E-09	-10.5E-09	-6.7E-09	-8.2E-09	-8.2E-09	-9.0E-09	-8.2E-09
23	-7.5E-09	-9.7E-09	-9.0E-09	-3.6E-09	-10.5E-09	-5.2E-09	-9.0E-09
24	-11.3E-09	-7.5E-09	-5.9E-09	-8.2E-09	-4.4E-09	-12.8E-09	-6.7E-09
25	-15.1E-09	-4.4E-09	-6.7E-09	-8.2E-09	-11.3E-09	-9.7E-09	-7.5E-09
26	-12.0E-09	-8.2E-09	-12.8E-09	-5.2E-09	-9.7E-09	-6.7E-09	-12.0E-09
27	-9.7E-09	-6.7E-09	-7.5E-09	-11.3E-09	-7.5E-09	-10.5E-09	-9.0E-09
28	-11.3E-09	-5.9E-09	-9.7E-09	-6.7E-09	-9.7E-09	-8.2E-09	-10.5E-09
29	-9.7E-09	-5.2E-09	-9.0E-09	-10.5E-09	-12.8E-09	-5.2E-09	-9.0E-09
30	-11.3E-09	-4.4E-09	-10.5E-09	-7.5E-09	-10.5E-09	-9.0E-09	-9.0E-09
Statistics							
Min	-15.1E-09	-10.5E-09	-12.8E-09	-11.3E-09	-12.8E-09	-12.8E-09	-12.0E-09
Max	-7.5E-09	-4.4E-09	-5.9E-09	-3.6E-09	-4.4E-09	-5.2E-09	-5.9E-09
Average	-10.8E-09	-7.2E-09	-8.5E-09	-8.0E-09	-9.3E-09	-8.3E-09	-8.7E-09
Std Deviation	2.1E-09	2.1E-09	2.0E-09	2.3E-09	2.2E-09	2.3E-09	1.7E-09

Measurements

IihADD(13)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-10.5E-09	-9.0E-09	-6.7E-09	-9.7E-09	-6.7E-09	-8.2E-09	-9.7E-09
37_OUT_REF	-10.5E-09	-11.3E-09	-7.5E-09	-12.0E-09	-6.7E-09	-9.7E-09	-5.2E-09
OFF samples							
31	-7.5E-09	-4.4E-09	-7.5E-09	-13.6E-09	-9.7E-09	-9.7E-09	-5.9E-09
32	-9.7E-09	-12.8E-09	-6.7E-09	-6.7E-09	-3.6E-09	-11.3E-09	-9.7E-09
33	-7.5E-09	-8.2E-09	-6.7E-09	-10.5E-09	-7.5E-09	-6.7E-09	-7.5E-09
34	-7.5E-09	-13.6E-09	-9.0E-09	-5.9E-09	-9.7E-09	-6.7E-09	-10.5E-09
35	-9.0E-09	-7.5E-09	-8.2E-09	-8.2E-09	-9.7E-09	-9.0E-09	-7.5E-09
Statistics							
Min	-9.7E-09	-13.6E-09	-9.0E-09	-13.6E-09	-9.7E-09	-11.3E-09	-10.5E-09
Max	-7.5E-09	-4.4E-09	-6.7E-09	-5.9E-09	-3.6E-09	-6.7E-09	-5.9E-09
Average	-8.2E-09	-9.3E-09	-7.6E-09	-9.0E-09	-8.1E-09	-8.7E-09	-8.2E-09
Std Deviation	965.0E-12	3.4E-09	889.7E-12	2.8E-09	2.4E-09	1.8E-09	1.7E-09

Parameter : Input High Leakage Current : IihADD(14)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



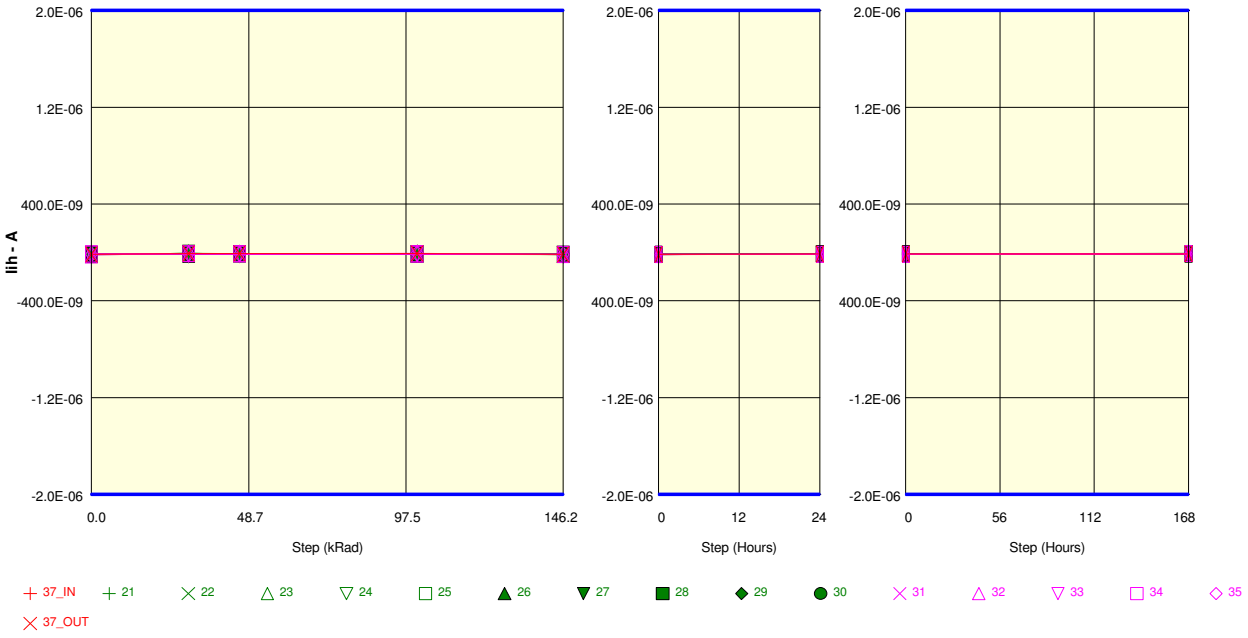
Measurements

IihADD(14)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.0E-09	173.3E-12	-7.5E-09	-3.6E-09	-2.1E-09	-7.5E-09	-2.9E-09
37_OUT_REF	-6.7E-09	-4.4E-09	-3.6E-09	-6.7E-09	-6.7E-09	-5.9E-09	-4.4E-09
ON samples							
21	-5.2E-09	-9.0E-09	-4.4E-09	-5.9E-09	-2.9E-09	-5.9E-09	-6.7E-09
22	-5.9E-09	-7.5E-09	-6.7E-09	-7.5E-09	-2.9E-09	-6.7E-09	-9.7E-09
23	-8.2E-09	-4.4E-09	-9.0E-09	-5.2E-09	-2.9E-09	-589.6E-12	-9.0E-09
24	-1.4E-09	-5.9E-09	-7.5E-09	-1.4E-09	-5.2E-09	-6.7E-09	-589.6E-12
25	-6.7E-09	-5.2E-09	-3.6E-09	-4.4E-09	-8.2E-09	-2.1E-09	-3.6E-09
26	-13.6E-09	-5.2E-09	-2.9E-09	-5.9E-09	-2.9E-09	-5.9E-09	-5.9E-09
27	-5.2E-09	-5.9E-09	-5.2E-09	173.3E-12	-7.5E-09	-7.5E-09	-8.2E-09
28	-10.5E-09	-3.6E-09	-6.7E-09	-1.4E-09	-4.4E-09	-5.2E-09	-4.4E-09
29	-5.9E-09	-2.9E-09	-8.2E-09	-2.1E-09	-2.9E-09	-1.4E-09	-8.2E-09
30	-2.1E-09	-4.4E-09	-7.5E-09	-6.7E-09	-1.4E-09	-5.9E-09	-12.0E-09
Statistics							
Min	-13.6E-09	-9.0E-09	-9.0E-09	-7.5E-09	-8.2E-09	-7.5E-09	-12.0E-09
Max	-1.4E-09	-2.9E-09	-2.9E-09	173.3E-12	-1.4E-09	-589.6E-12	-589.6E-12
Average	-6.5E-09	-5.4E-09	-6.2E-09	-4.0E-09	-4.1E-09	-4.8E-09	-6.8E-09
Std Deviation	3.4E-09	1.7E-09	1.9E-09	2.5E-09	2.1E-09	2.3E-09	3.2E-09

Measurements

IihADD(14)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.0E-09	173.3E-12	-7.5E-09	-3.6E-09	-2.1E-09	-7.5E-09	-2.9E-09
37_OUT_REF	-6.7E-09	-4.4E-09	-3.6E-09	-6.7E-09	-6.7E-09	-5.9E-09	-4.4E-09
OFF samples							
31	-7.5E-09	-9.0E-09	1.7E-09	-1.4E-09	-4.4E-09	-8.2E-09	-5.9E-09
32	-8.2E-09	-8.2E-09	-8.2E-09	-5.9E-09	-2.1E-09	-4.4E-09	-7.5E-09
33	-9.0E-09	-5.2E-09	-5.9E-09	-5.9E-09	-4.4E-09	-2.9E-09	-5.2E-09
34	-9.0E-09	-10.5E-09	-6.7E-09	-5.9E-09	-9.0E-09	-5.9E-09	-10.5E-09
35	-5.2E-09	-2.9E-09	-4.4E-09	-5.2E-09	-5.2E-09	-5.2E-09	-9.0E-09
Statistics							
Min	-9.0E-09	-10.5E-09	-8.2E-09	-5.9E-09	-9.0E-09	-8.2E-09	-10.5E-09
Max	-5.2E-09	-2.9E-09	1.7E-09	-1.4E-09	-2.1E-09	-2.9E-09	-5.2E-09
Average	-7.8E-09	-7.2E-09	-4.7E-09	-4.9E-09	-5.0E-09	-5.3E-09	-7.6E-09
Std Deviation	1.4E-09	2.8E-09	3.4E-09	1.8E-09	2.2E-09	1.8E-09	2.0E-09

Parameter : Input High Leakage Current : IihADD(15)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IihADD(15)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-14.3E-09	-9.0E-09	-12.0E-09	-12.0E-09	-18.9E-09	-10.5E-09	-11.3E-09
37_OUT_REF	-15.8E-09	-9.7E-09	-8.2E-09	-9.7E-09	-16.6E-09	-12.8E-09	-12.0E-09
ON samples							
21	-16.6E-09	-10.5E-09	-13.6E-09	-10.5E-09	-18.9E-09	-11.3E-09	-9.7E-09
22	-14.3E-09	-14.3E-09	-12.0E-09	-12.0E-09	-17.4E-09	-12.0E-09	-9.0E-09
23	-14.3E-09	-6.7E-09	-11.3E-09	-10.5E-09	-13.6E-09	-8.2E-09	-12.8E-09
24	-18.1E-09	-15.8E-09	-14.3E-09	-11.3E-09	-16.6E-09	-10.5E-09	-13.6E-09
25	-14.3E-09	-7.5E-09	-11.3E-09	-15.1E-09	-13.6E-09	-9.7E-09	-12.8E-09
26	-18.9E-09	-15.8E-09	-14.3E-09	-12.8E-09	-17.4E-09	-12.8E-09	-11.3E-09
27	-17.4E-09	-7.5E-09	-9.7E-09	-10.5E-09	-15.1E-09	-11.3E-09	-12.8E-09
28	-14.3E-09	-10.5E-09	-9.7E-09	-15.1E-09	-15.8E-09	-12.0E-09	-12.8E-09
29	-15.8E-09	-12.8E-09	-12.8E-09	-11.3E-09	-16.6E-09	-15.8E-09	-10.5E-09
30	-13.6E-09	-11.3E-09	-12.8E-09	-15.1E-09	-19.7E-09	-12.0E-09	-5.9E-09
Statistics							
Min	-18.9E-09	-15.8E-09	-14.3E-09	-15.1E-09	-19.7E-09	-15.8E-09	-13.6E-09
Max	-13.6E-09	-6.7E-09	-9.7E-09	-10.5E-09	-13.6E-09	-8.2E-09	-5.9E-09
Average	-15.8E-09	-11.3E-09	-12.2E-09	-12.4E-09	-16.5E-09	-11.6E-09	-11.1E-09
Std Deviation	1.8E-09	3.2E-09	1.6E-09	1.9E-09	1.9E-09	1.9E-09	2.3E-09

Measurements

IihADD(15)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-14.3E-09	-9.0E-09	-12.0E-09	-12.0E-09	-18.9E-09	-10.5E-09	-11.3E-09
37_OUT_REF	-15.8E-09	-9.7E-09	-8.2E-09	-9.7E-09	-16.6E-09	-12.8E-09	-12.0E-09
OFF samples							
31	-18.9E-09	-9.7E-09	-14.3E-09	-12.8E-09	-16.6E-09	-16.6E-09	-12.0E-09
32	-20.4E-09	-9.7E-09	-12.8E-09	-12.8E-09	-18.1E-09	-13.6E-09	-12.0E-09
33	-12.0E-09	-11.3E-09	-13.6E-09	-10.5E-09	-16.6E-09	-13.6E-09	-12.0E-09
34	-12.8E-09	-12.0E-09	-8.2E-09	-13.6E-09	-14.3E-09	-17.4E-09	-9.0E-09
35	-17.4E-09	-12.8E-09	-10.5E-09	-5.9E-09	-18.9E-09	-13.6E-09	-10.5E-09
Statistics							
Min	-20.4E-09	-12.8E-09	-14.3E-09	-13.6E-09	-18.9E-09	-17.4E-09	-12.0E-09
Max	-12.0E-09	-9.7E-09	-8.2E-09	-5.9E-09	-14.3E-09	-13.6E-09	-9.0E-09
Average	-16.3E-09	-11.1E-09	-11.9E-09	-11.1E-09	-16.9E-09	-14.9E-09	-11.1E-09
Std Deviation	3.3E-09	1.2E-09	2.2E-09	2.8E-09	1.6E-09	1.7E-09	1.2E-09

Parameter : Input High Leakage Current : IihADD(2)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

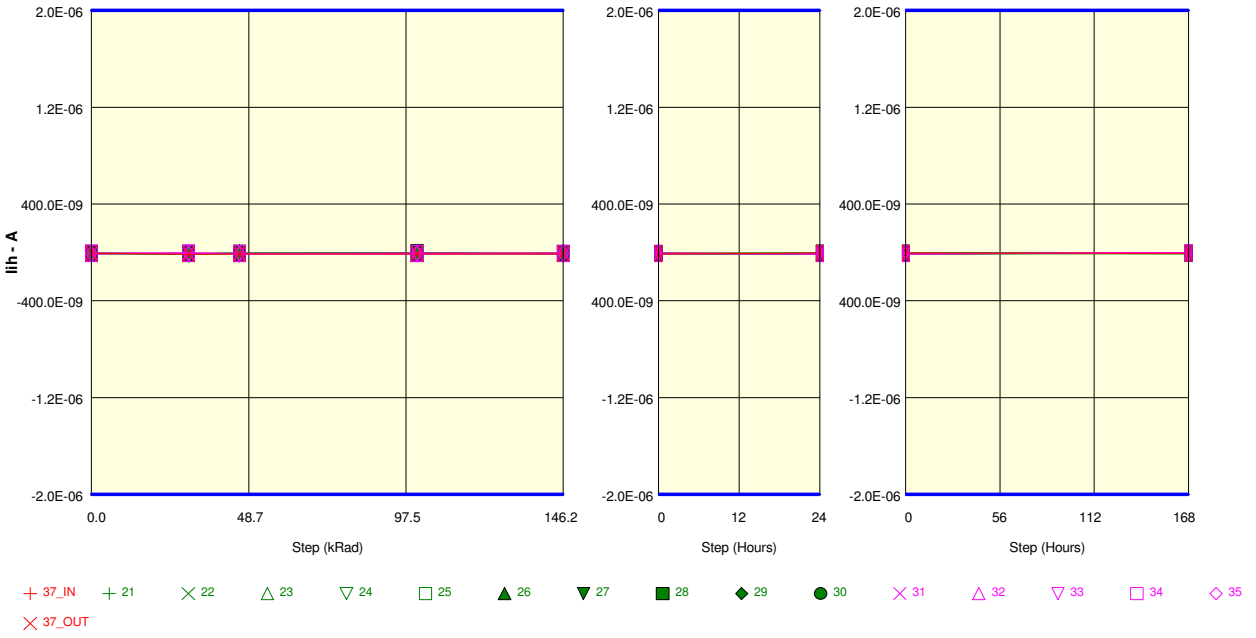
Measurements

IihADD(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-4.4E-09	-6.7E-09	-6.7E-09	-5.2E-09	-8.2E-09	-5.2E-09
37_OUT_REF	-5.2E-09	-2.1E-09	-8.2E-09	-5.2E-09	-2.1E-09	-5.9E-09	-10.5E-09
ON samples							
21	-5.9E-09	-5.9E-09	-3.6E-09	-4.4E-09	-1.4E-09	-8.2E-09	-8.2E-09
22	-9.7E-09	-3.6E-09	-4.4E-09	-6.7E-09	-7.5E-09	-9.0E-09	-9.7E-09
23	-6.7E-09	-2.9E-09	-6.7E-09	-4.4E-09	-6.7E-09	-2.9E-09	-2.1E-09
24	-3.6E-09	-5.2E-09	-7.5E-09	-2.1E-09	-9.0E-09	-6.7E-09	-5.9E-09
25	-9.7E-09	-589.6E-12	-5.2E-09	-5.2E-09	-6.7E-09	-6.7E-09	-8.2E-09
26	-5.2E-09	-1.4E-09	-5.9E-09	-8.2E-09	-5.9E-09	-4.4E-09	-6.7E-09
27	-5.2E-09	-5.2E-09	-9.7E-09	-4.4E-09	-2.9E-09	-9.0E-09	-5.2E-09
28	-8.2E-09	-5.9E-09	-5.9E-09	-5.9E-09	-7.5E-09	-11.3E-09	-5.2E-09
29	-5.9E-09	-4.4E-09	-6.7E-09	-7.5E-09	-5.9E-09	-4.4E-09	-6.7E-09
30	-2.1E-09	-4.4E-09	-2.9E-09	-4.4E-09	-6.7E-09	-8.2E-09	-5.9E-09
Statistics							
Min	-9.7E-09	-5.9E-09	-9.7E-09	-8.2E-09	-9.0E-09	-11.3E-09	-9.7E-09
Max	-2.1E-09	-589.6E-12	-2.9E-09	-2.1E-09	-1.4E-09	-2.9E-09	-2.1E-09
Average	-6.2E-09	-3.9E-09	-5.9E-09	-5.3E-09	-6.0E-09	-7.1E-09	-6.4E-09
Std Deviation	2.3E-09	1.7E-09	1.9E-09	1.7E-09	2.1E-09	2.4E-09	2.0E-09

Measurements

IihADD(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-4.4E-09	-6.7E-09	-6.7E-09	-5.2E-09	-8.2E-09	-5.2E-09
37_OUT_REF	-5.2E-09	-2.1E-09	-8.2E-09	-5.2E-09	-2.1E-09	-5.9E-09	-10.5E-09
OFF samples							
31	-10.5E-09	-5.2E-09	-2.9E-09	-7.5E-09	-4.4E-09	-5.2E-09	-8.2E-09
32	-4.4E-09	-12.0E-09	-3.6E-09	-6.7E-09	-4.4E-09	-3.6E-09	-8.2E-09
33	-6.7E-09	-12.0E-09	-5.9E-09	-8.2E-09	-3.6E-09	-5.9E-09	-8.2E-09
34	-8.2E-09	-5.9E-09	-2.9E-09	-6.7E-09	-4.4E-09	-7.5E-09	-589.6E-12
35	-9.7E-09	-2.9E-09	-1.4E-09	-5.9E-09	-9.7E-09	-2.9E-09	-7.5E-09
Statistics							
Min	-10.5E-09	-12.0E-09	-5.9E-09	-8.2E-09	-9.7E-09	-7.5E-09	-8.2E-09
Max	-4.4E-09	-2.9E-09	-1.4E-09	-5.9E-09	-3.6E-09	-2.9E-09	-589.6E-12
Average	-7.9E-09	-7.6E-09	-3.3E-09	-7.0E-09	-5.3E-09	-5.0E-09	-6.5E-09
Std Deviation	2.2E-09	3.8E-09	1.5E-09	778.1E-12	2.2E-09	1.6E-09	3.0E-09

Parameter : Input High Leakage Current : IihADD(3)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



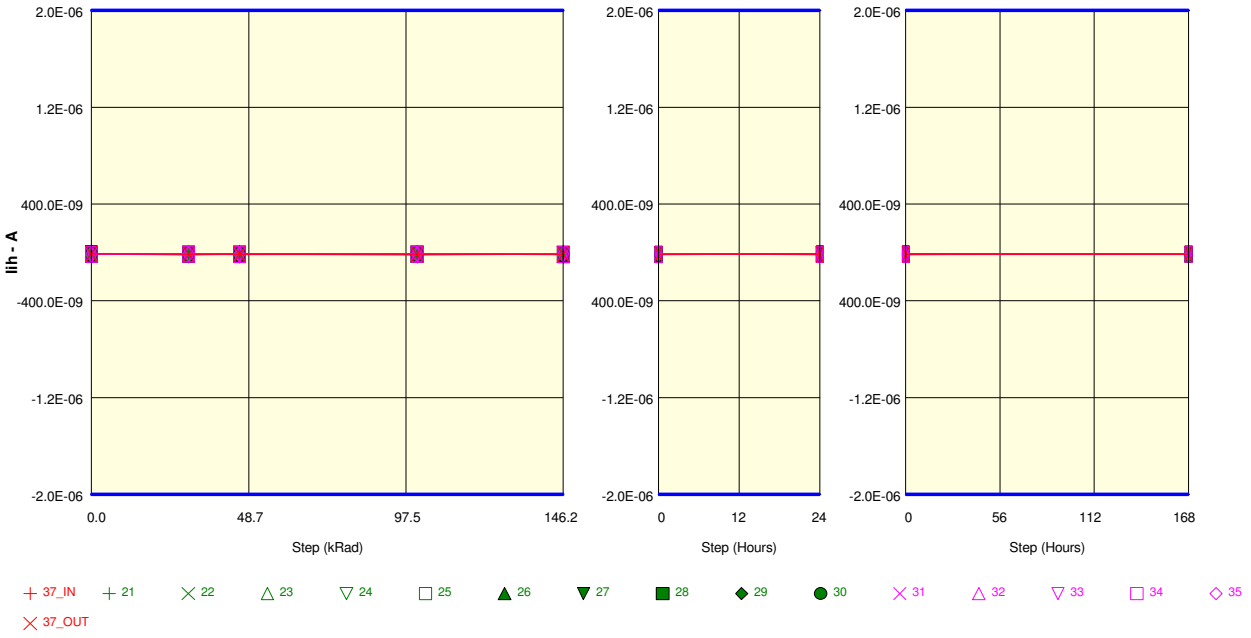
Measurements

IihADD(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-11.3E-09	-9.0E-09	-7.5E-09	-4.4E-09	-9.0E-09	-5.2E-09
37_OUT_REF	-7.5E-09	-15.1E-09	-12.0E-09	-11.3E-09	-10.5E-09	-5.2E-09	-7.5E-09
ON samples							
21	-6.7E-09	-9.0E-09	-11.3E-09	-8.2E-09	-10.5E-09	-10.5E-09	-5.2E-09
22	-9.0E-09	-8.2E-09	-6.7E-09	-10.5E-09	-8.2E-09	-11.3E-09	-5.9E-09
23	-9.7E-09	-11.3E-09	-5.9E-09	-6.7E-09	-9.0E-09	-9.0E-09	-2.1E-09
24	-8.2E-09	-12.0E-09	-8.2E-09	-1.4E-09	-10.5E-09	-9.7E-09	-4.4E-09
25	-7.5E-09	-6.7E-09	-6.7E-09	-7.5E-09	-9.0E-09	-7.5E-09	-8.2E-09
26	-5.2E-09	-8.2E-09	-6.7E-09	-9.0E-09	-6.7E-09	-5.2E-09	-6.7E-09
27	-9.0E-09	-7.5E-09	-5.9E-09	-4.4E-09	-5.9E-09	-12.0E-09	-4.4E-09
28	-7.5E-09	-8.2E-09	-6.7E-09	-6.7E-09	-8.2E-09	-5.2E-09	-4.4E-09
29	-5.9E-09	-8.2E-09	-5.2E-09	-7.5E-09	-6.7E-09	-7.5E-09	-2.1E-09
30	-8.2E-09	-11.3E-09	-8.2E-09	-9.7E-09	-5.9E-09	-8.2E-09	-11.3E-09
Statistics							
Min	-9.7E-09	-12.0E-09	-11.3E-09	-10.5E-09	-10.5E-09	-12.0E-09	-11.3E-09
Max	-5.2E-09	-6.7E-09	-5.2E-09	-1.4E-09	-5.9E-09	-5.2E-09	-2.1E-09
Average	-7.7E-09	-9.1E-09	-7.2E-09	-7.2E-09	-8.1E-09	-8.6E-09	-5.5E-09
Std Deviation	1.4E-09	1.7E-09	1.6E-09	2.5E-09	1.6E-09	2.2E-09	2.6E-09

Measurements

IihADD(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-11.3E-09	-9.0E-09	-7.5E-09	-4.4E-09	-9.0E-09	-5.2E-09
37_OUT_REF	-7.5E-09	-15.1E-09	-12.0E-09	-11.3E-09	-10.5E-09	-5.2E-09	-7.5E-09
OFF samples							
31	-8.2E-09	-7.5E-09	-6.7E-09	-8.2E-09	-6.7E-09	-10.5E-09	-2.9E-09
32	-11.3E-09	-7.5E-09	-9.0E-09	-5.2E-09	-6.7E-09	-9.0E-09	-3.6E-09
33	-9.7E-09	-5.2E-09	-9.7E-09	-9.0E-09	-6.7E-09	-9.7E-09	-6.7E-09
34	-5.2E-09	-7.5E-09	-10.5E-09	-10.5E-09	-11.3E-09	-11.3E-09	-1.4E-09
35	-7.5E-09	-4.4E-09	-9.7E-09	-9.0E-09	-7.5E-09	-9.0E-09	-4.4E-09
Statistics							
Min	-11.3E-09	-7.5E-09	-10.5E-09	-10.5E-09	-11.3E-09	-11.3E-09	-6.7E-09
Max	-5.2E-09	-4.4E-09	-6.7E-09	-5.2E-09	-6.7E-09	-9.0E-09	-1.4E-09
Average	-8.4E-09	-6.4E-09	-9.1E-09	-8.4E-09	-7.8E-09	-9.9E-09	-3.8E-09
Std Deviation	2.1E-09	1.3E-09	1.3E-09	1.8E-09	1.8E-09	889.8E-12	1.8E-09

Parameter : Input High Leakage Current : IihADD(4)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



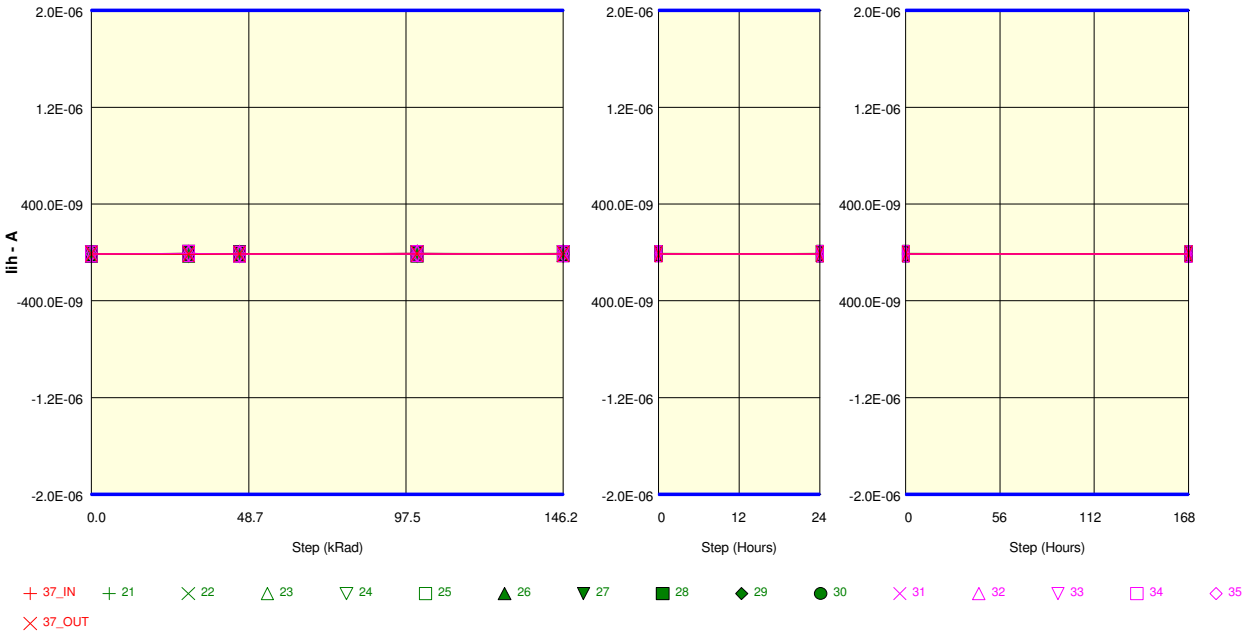
Measurements

IihADD(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-15.8E-09	-18.1E-09	-17.4E-09	-17.4E-09	-15.8E-09	-16.6E-09	-15.1E-09
37_OUT_REF	-12.0E-09	-15.8E-09	-15.1E-09	-17.4E-09	-15.1E-09	-17.4E-09	-13.6E-09
ON samples							
21	-16.6E-09	-16.6E-09	-13.6E-09	-20.4E-09	-16.6E-09	-13.6E-09	-15.1E-09
22	-17.4E-09	-15.8E-09	-17.4E-09	-15.8E-09	-14.3E-09	-19.7E-09	-12.8E-09
23	-17.4E-09	-12.0E-09	-12.0E-09	-15.8E-09	-18.1E-09	-16.6E-09	-13.6E-09
24	-14.3E-09	-13.6E-09	-12.8E-09	-12.0E-09	-14.3E-09	-13.6E-09	-15.1E-09
25	-15.1E-09	-13.6E-09	-15.8E-09	-15.8E-09	-18.9E-09	-14.3E-09	-15.8E-09
26	-15.8E-09	-15.1E-09	-15.1E-09	-11.3E-09	-16.6E-09	-14.3E-09	-13.6E-09
27	-15.8E-09	-14.3E-09	-13.6E-09	-17.4E-09	-16.6E-09	-14.3E-09	-14.3E-09
28	-12.8E-09	-16.6E-09	-16.6E-09	-14.3E-09	-14.3E-09	-11.3E-09	-15.1E-09
29	-15.8E-09	-18.1E-09	-18.1E-09	-18.9E-09	-15.1E-09	-17.4E-09	-15.8E-09
30	-15.8E-09	-15.8E-09	-15.8E-09	-14.3E-09	-15.8E-09	-16.6E-09	-15.1E-09
Statistics							
Min	-17.4E-09	-18.1E-09	-18.1E-09	-20.4E-09	-18.9E-09	-19.7E-09	-15.8E-09
Max	-12.8E-09	-12.0E-09	-12.0E-09	-11.3E-09	-14.3E-09	-11.3E-09	-12.8E-09
Average	-15.7E-09	-15.2E-09	-15.1E-09	-15.6E-09	-16.1E-09	-15.2E-09	-14.6E-09
Std Deviation	1.3E-09	1.7E-09	1.9E-09	2.7E-09	1.5E-09	2.3E-09	976.7E-12

Measurements

IihADD(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-15.8E-09	-18.1E-09	-17.4E-09	-17.4E-09	-15.8E-09	-16.6E-09	-15.1E-09
37_OUT_REF	-12.0E-09	-15.8E-09	-15.1E-09	-17.4E-09	-15.1E-09	-17.4E-09	-13.6E-09
OFF samples							
31	-15.8E-09	-20.4E-09	-15.1E-09	-14.3E-09	-15.1E-09	-18.1E-09	-15.8E-09
32	-14.3E-09	-15.1E-09	-19.7E-09	-15.8E-09	-18.9E-09	-15.8E-09	-15.1E-09
33	-15.1E-09	-12.8E-09	-13.6E-09	-15.1E-09	-15.8E-09	-18.1E-09	-18.9E-09
34	-15.8E-09	-14.3E-09	-17.4E-09	-12.0E-09	-15.8E-09	-15.1E-09	-13.6E-09
35	-15.8E-09	-12.0E-09	-17.4E-09	-14.3E-09	-12.0E-09	-18.9E-09	-12.8E-09
Statistics							
Min	-15.8E-09	-20.4E-09	-19.7E-09	-15.8E-09	-18.9E-09	-18.9E-09	-18.9E-09
Max	-14.3E-09	-12.0E-09	-13.6E-09	-12.0E-09	-12.0E-09	-15.1E-09	-12.8E-09
Average	-15.4E-09	-14.9E-09	-16.6E-09	-14.3E-09	-15.5E-09	-17.2E-09	-15.2E-09
Std Deviation	610.1E-12	3.0E-09	2.1E-09	1.3E-09	2.2E-09	1.5E-09	2.1E-09

Parameter : Input High Leakage Current : IihADD(5)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



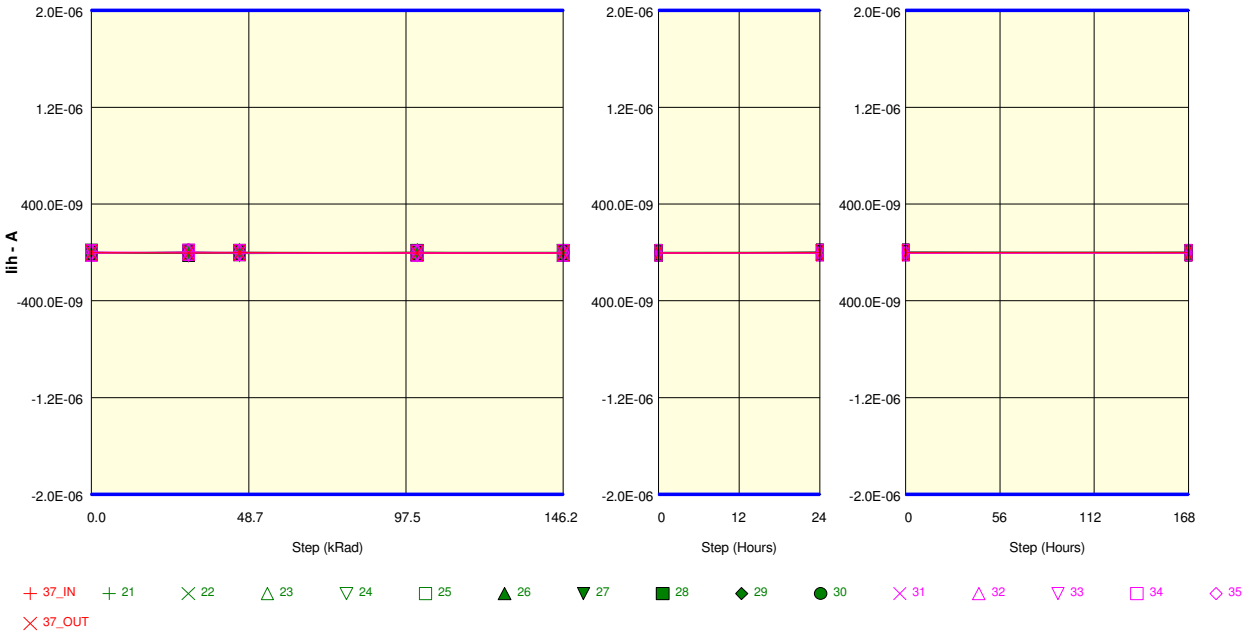
Measurements

IihADD(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.0E-09	-7.5E-09	-13.6E-09	-5.9E-09	-13.6E-09	-8.2E-09	-11.3E-09
37_OUT_REF	-11.3E-09	-13.6E-09	-12.8E-09	-10.5E-09	-12.8E-09	-12.0E-09	-10.5E-09
ON samples							
21	-11.3E-09	-9.0E-09	-13.6E-09	-12.8E-09	-9.0E-09	-14.3E-09	-12.8E-09
22	-12.0E-09	-11.3E-09	-12.0E-09	-7.5E-09	-9.0E-09	-8.2E-09	-10.5E-09
23	-12.0E-09	-14.3E-09	-14.3E-09	-9.0E-09	-9.7E-09	-9.7E-09	-13.6E-09
24	-13.6E-09	-15.1E-09	-9.0E-09	-8.2E-09	-10.5E-09	-12.8E-09	-12.0E-09
25	-15.1E-09	-12.8E-09	-8.2E-09	-10.5E-09	-8.2E-09	-13.6E-09	-13.6E-09
26	-14.3E-09	-11.3E-09	-11.3E-09	-12.8E-09	-6.7E-09	-11.3E-09	-9.7E-09
27	-12.8E-09	-7.5E-09	-14.3E-09	-13.6E-09	-14.3E-09	-6.7E-09	-14.3E-09
28	-13.6E-09	-11.3E-09	-11.3E-09	-11.3E-09	-10.5E-09	-9.7E-09	-12.0E-09
29	-9.0E-09	-12.0E-09	-15.1E-09	-11.3E-09	-10.5E-09	-15.1E-09	-12.0E-09
30	-9.0E-09	-11.3E-09	-12.8E-09	-11.3E-09	-12.0E-09	-11.3E-09	-10.5E-09
Statistics							
Min	-15.1E-09	-15.1E-09	-15.1E-09	-13.6E-09	-14.3E-09	-15.1E-09	-14.3E-09
Max	-9.0E-09	-7.5E-09	-8.2E-09	-7.5E-09	-6.7E-09	-6.7E-09	-9.7E-09
Average	-12.3E-09	-11.6E-09	-12.2E-09	-10.8E-09	-10.1E-09	-11.3E-09	-12.1E-09
Std Deviation	2.0E-09	2.1E-09	2.2E-09	1.9E-09	2.0E-09	2.6E-09	1.4E-09

Measurements

IihADD(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.0E-09	-7.5E-09	-13.6E-09	-5.9E-09	-13.6E-09	-8.2E-09	-11.3E-09
37_OUT_REF	-11.3E-09	-13.6E-09	-12.8E-09	-10.5E-09	-12.8E-09	-12.0E-09	-10.5E-09
OFF samples							
31	-9.7E-09	-11.3E-09	-11.3E-09	-15.1E-09	-9.7E-09	-10.5E-09	-12.8E-09
32	-13.6E-09	-10.5E-09	-12.8E-09	-5.9E-09	-10.5E-09	-14.3E-09	-15.8E-09
33	-14.3E-09	-7.5E-09	-14.3E-09	-12.0E-09	-13.6E-09	-10.5E-09	-12.0E-09
34	-12.0E-09	-9.7E-09	-14.3E-09	-8.2E-09	-10.5E-09	-10.5E-09	-12.0E-09
35	-9.7E-09	-9.7E-09	-10.5E-09	-11.3E-09	-9.0E-09	-12.0E-09	-12.8E-09
Statistics							
Min	-14.3E-09	-11.3E-09	-14.3E-09	-15.1E-09	-13.6E-09	-14.3E-09	-15.8E-09
Max	-9.7E-09	-7.5E-09	-10.5E-09	-5.9E-09	-9.0E-09	-10.5E-09	-12.0E-09
Average	-11.9E-09	-9.7E-09	-12.6E-09	-10.5E-09	-10.7E-09	-11.6E-09	-13.1E-09
Std Deviation	1.9E-09	1.3E-09	1.6E-09	3.2E-09	1.6E-09	1.5E-09	1.4E-09

Parameter : Input High Leakage Current : IihADD(6)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



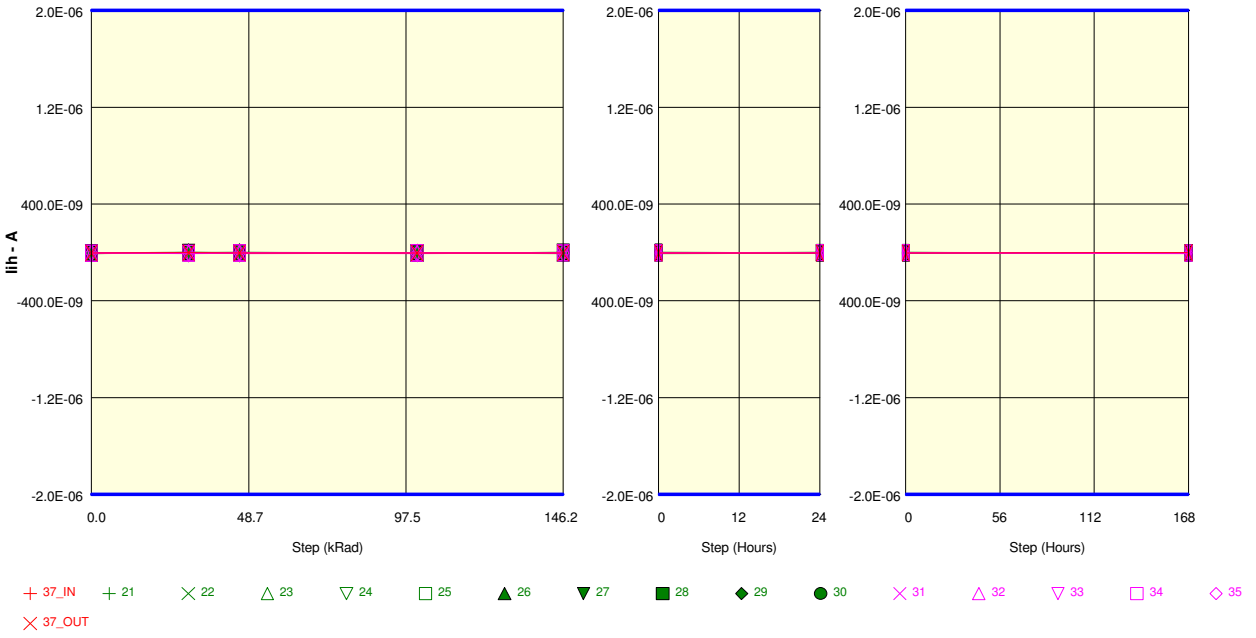
Measurements

IihADD(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.1E-09	936.3E-12	-2.1E-09	173.3E-12	-4.4E-09	-5.2E-09	-589.6E-12
37_OUT_REF	-1.4E-09	-5.2E-09	-2.1E-09	-3.6E-09	-4.4E-09	-2.9E-09	-2.1E-09
ON samples							
21	173.3E-12	-3.6E-09	-9.0E-09	-4.4E-09	-3.6E-09	-589.6E-12	173.3E-12
22	173.3E-12	-5.2E-09	-5.2E-09	-1.4E-09	-1.4E-09	1.7E-09	-589.6E-12
23	-1.4E-09	-5.9E-09	-589.6E-12	173.3E-12	-5.2E-09	936.3E-12	-589.6E-12
24	-589.6E-12	-2.1E-09	-3.6E-09	173.3E-12	-589.6E-12	-589.6E-12	-2.1E-09
25	-2.9E-09	-589.6E-12	173.3E-12	-5.2E-09	-2.1E-09	-2.1E-09	-1.4E-09
26	-1.4E-09	-1.4E-09	936.3E-12	-2.9E-09	-5.2E-09	173.3E-12	-4.4E-09
27	936.3E-12	-5.9E-09	-2.9E-09	-2.1E-09	-1.4E-09	1.7E-09	-2.9E-09
28	936.3E-12	-8.2E-09	-1.4E-09	-2.9E-09	-4.4E-09	936.3E-12	-1.4E-09
29	-2.1E-09	-3.6E-09	-2.1E-09	-589.6E-12	936.3E-12	936.3E-12	-589.6E-12
30	-2.1E-09	2.5E-09	-2.9E-09	-3.6E-09	-2.1E-09	-4.4E-09	173.3E-12
Statistics							
Min	-2.9E-09	-8.2E-09	-9.0E-09	-5.2E-09	-5.2E-09	-4.4E-09	-4.4E-09
Max	936.3E-12	2.5E-09	936.3E-12	173.3E-12	936.3E-12	1.7E-09	173.3E-12
Average	-818.5E-12	-3.4E-09	-2.6E-09	-2.3E-09	-2.5E-09	-131.8E-12	-1.4E-09
Std Deviation	1.3E-09	3.0E-09	2.7E-09	1.8E-09	1.9E-09	1.8E-09	1.4E-09

Measurements

IihADD(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-2.1E-09	936.3E-12	-2.1E-09	173.3E-12	-4.4E-09	-5.2E-09	-589.6E-12
37_OUT_REF	-1.4E-09	-5.2E-09	-2.1E-09	-3.6E-09	-4.4E-09	-2.9E-09	-2.1E-09
OFF samples							
31	-1.4E-09	173.3E-12	-5.2E-09	-7.5E-09	-2.1E-09	-3.6E-09	-2.1E-09
32	-589.6E-12	-589.6E-12	-2.1E-09	-2.1E-09	-5.9E-09	-3.6E-09	-4.4E-09
33	-2.1E-09	-5.2E-09	-5.2E-09	-4.4E-09	-2.1E-09	936.3E-12	-3.6E-09
34	-6.7E-09	2.5E-09	936.3E-12	-6.7E-09	-2.9E-09	-589.6E-12	936.3E-12
35	3.2E-09	-1.4E-09	1.7E-09	-2.1E-09	-1.4E-09	-5.2E-09	-1.4E-09
Statistics							
Min	-6.7E-09	-5.2E-09	-5.2E-09	-7.5E-09	-5.9E-09	-5.2E-09	-4.4E-09
Max	3.2E-09	2.5E-09	1.7E-09	-2.1E-09	-1.4E-09	936.3E-12	936.3E-12
Average	-1.5E-09	-894.8E-12	-2.0E-09	-4.6E-09	-2.9E-09	-2.4E-09	-2.1E-09
Std Deviation	3.2E-09	2.5E-09	2.9E-09	2.2E-09	1.6E-09	2.2E-09	1.9E-09

Parameter : Input High Leakage Current : IihADD(7)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



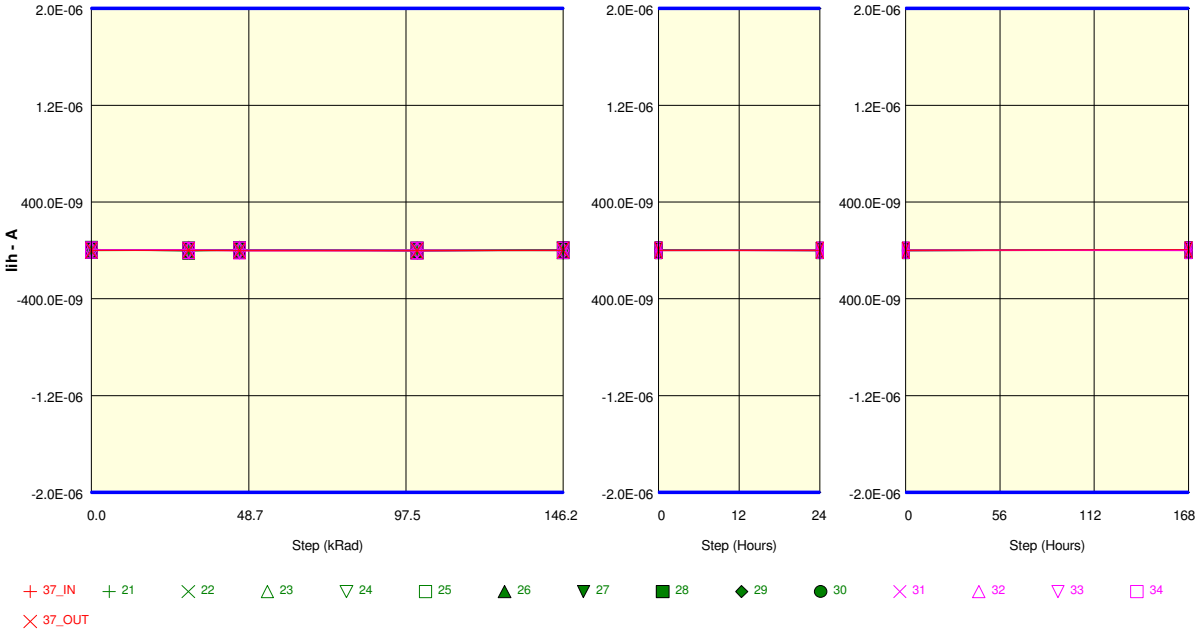
Measurements

IihADD(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-4.4E-09	-3.6E-09	-3.6E-09	-3.6E-09	-4.4E-09	-4.4E-09	-3.6E-09
37_OUT_REF	-3.6E-09	-2.1E-09	-5.2E-09	-4.4E-09	-4.4E-09	-3.6E-09	-2.9E-09
ON samples							
21	-4.4E-09	-3.6E-09	-3.6E-09	-1.4E-09	-1.4E-09	-589.6E-12	-6.7E-09
22	-8.2E-09	-4.4E-09	-4.4E-09	-5.9E-09	-3.6E-09	-5.2E-09	-2.1E-09
23	-2.9E-09	-2.1E-09	-2.1E-09	-3.6E-09	-9.7E-09	-5.9E-09	-5.2E-09
24	-6.7E-09	-5.2E-09	-6.7E-09	-2.9E-09	-3.6E-09	173.3E-12	-5.2E-09
25	-4.4E-09	-3.6E-09	-5.2E-09	-3.6E-09	-1.4E-09	-3.6E-09	-3.6E-09
26	-1.4E-09	-589.6E-12	-589.6E-12	-4.4E-09	-1.4E-09	-2.9E-09	-5.2E-09
27	-2.9E-09	-589.6E-12	-2.1E-09	-4.4E-09	1.7E-09	-2.9E-09	-3.6E-09
28	-6.7E-09	936.3E-12	-2.1E-09	-5.2E-09	-589.6E-12	-1.4E-09	-2.9E-09
29	-8.2E-09	-2.9E-09	-2.1E-09	-4.4E-09	-2.9E-09	-5.2E-09	-3.6E-09
30	-5.9E-09	-2.9E-09	173.3E-12	-2.1E-09	-5.2E-09	-5.9E-09	-4.4E-09
Statistics							
Min	-8.2E-09	-5.2E-09	-6.7E-09	-5.9E-09	-9.7E-09	-5.9E-09	-6.7E-09
Max	-1.4E-09	936.3E-12	173.3E-12	-1.4E-09	1.7E-09	173.3E-12	-2.1E-09
Average	-5.2E-09	-2.5E-09	-2.9E-09	-3.8E-09	-2.8E-09	-3.3E-09	-4.3E-09
Std Deviation	2.2E-09	1.8E-09	2.0E-09	1.3E-09	2.9E-09	2.1E-09	1.3E-09

Measurements

IihADD(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-4.4E-09	-3.6E-09	-3.6E-09	-3.6E-09	-4.4E-09	-4.4E-09	-3.6E-09
37_OUT_REF	-3.6E-09	-2.1E-09	-5.2E-09	-4.4E-09	-4.4E-09	-3.6E-09	-2.9E-09
OFF samples							
31	-2.9E-09	-3.6E-09	-2.1E-09	-2.9E-09	-4.4E-09	-4.4E-09	-8.2E-09
32	-4.4E-09	-2.9E-09	-8.2E-09	-6.7E-09	-4.4E-09	-2.1E-09	-3.6E-09
33	-4.4E-09	-6.7E-09	-5.2E-09	-2.9E-09	-5.9E-09	-2.9E-09	-4.4E-09
34	-6.7E-09	-6.7E-09	-1.4E-09	-1.4E-09	-1.4E-09	-1.4E-09	-4.4E-09
35	-3.6E-09	-8.2E-09	-5.9E-09	-8.2E-09	-4.4E-09	-3.6E-09	-2.9E-09
Statistics							
Min	-6.7E-09	-8.2E-09	-8.2E-09	-8.2E-09	-5.9E-09	-4.4E-09	-8.2E-09
Max	-2.9E-09	-2.9E-09	-1.4E-09	-1.4E-09	-1.4E-09	-1.4E-09	-2.9E-09
Average	-4.4E-09	-5.6E-09	-4.6E-09	-4.4E-09	-4.1E-09	-2.9E-09	-4.7E-09
Std Deviation	1.3E-09	2.0E-09	2.5E-09	2.6E-09	1.5E-09	1.1E-09	1.8E-09

Parameter : Input High Leakage Current : IihADD(8)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IihADD(8)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	936.3E-12	1.7E-09	4.0E-09	936.3E-12	3.2E-09	1.7E-09	2.5E-09
37_OUT_REF	-589.6E-12	-589.6E-12	-1.4E-09	-2.9E-09	1.7E-09	1.7E-09	4.8E-09
ON samples							
21	4.8E-09	936.3E-12	-1.4E-09	-2.9E-09	-589.6E-12	-1.4E-09	936.3E-12
22	2.5E-09	173.3E-12	173.3E-12	-1.4E-09	936.3E-12	936.3E-12	2.5E-09
23	-589.6E-12	2.5E-09	4.8E-09	-2.1E-09	936.3E-12	3.2E-09	3.2E-09
24	7.8E-09	936.3E-12	4.0E-09	2.5E-09	173.3E-12	936.3E-12	936.3E-12
25	8.6E-09	-2.1E-09	936.3E-12	173.3E-12	4.8E-09	-2.1E-09	2.5E-09
26	4.8E-09	-3.6E-09	-589.6E-12	-1.4E-09	-2.9E-09	-589.6E-12	936.3E-12
27	2.5E-09	2.5E-09	4.8E-09	173.3E-12	173.3E-12	173.3E-12	3.2E-09
28	936.3E-12	-1.4E-09	3.2E-09	-2.9E-09	3.2E-09	-589.6E-12	3.2E-09
29	2.5E-09	2.5E-09	2.5E-09	-1.4E-09	173.3E-12	-1.4E-09	3.2E-09
30	-1.4E-09	-589.6E-12	1.7E-09	173.3E-12	-589.6E-12	936.3E-12	1.7E-09
Statistics							
Min	-1.4E-09	-3.6E-09	-1.4E-09	-2.9E-09	-2.9E-09	-2.1E-09	936.3E-12
Max	8.6E-09	2.5E-09	4.8E-09	2.5E-09	4.8E-09	3.2E-09	3.2E-09
Average	3.2E-09	173.4E-12	2.0E-09	-894.8E-12	631.1E-12	20.8E-12	2.2E-09
Std Deviation	3.1E-09	2.0E-09	2.1E-09	1.6E-09	2.0E-09	1.5E-09	968.1E-12

Measurements

IihADD(8)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	936.3E-12	1.7E-09	4.0E-09	936.3E-12	3.2E-09	1.7E-09	2.5E-09
37_OUT_REF	-589.6E-12	-589.6E-12	-1.4E-09	-2.9E-09	1.7E-09	1.7E-09	4.8E-09
OFF samples							
31	2.5E-09	4.8E-09	-589.6E-12	3.2E-09	936.3E-12	173.3E-12	173.3E-12
32	3.2E-09	173.3E-12	-3.6E-09	-4.4E-09	-589.6E-12	1.7E-09	-2.9E-09
33	1.7E-09	-1.4E-09	1.7E-09	1.7E-09	1.7E-09	-2.9E-09	936.3E-12
34	4.0E-09	936.3E-12	2.5E-09	-2.9E-09	-589.6E-12	3.2E-09	3.2E-09
35	1.7E-09	173.3E-12	173.3E-12	173.3E-12	-2.9E-09	-1.4E-09	2.5E-09
Statistics							
Min	1.7E-09	-1.4E-09	-3.6E-09	-4.4E-09	-2.9E-09	-2.9E-09	-2.9E-09
Max	4.0E-09	4.8E-09	2.5E-09	3.2E-09	1.7E-09	3.2E-09	3.2E-09
Average	2.6E-09	936.3E-12	20.7E-12	-437.0E-12	-284.4E-12	173.3E-12	783.7E-12
Std Deviation	889.7E-12	2.0E-09	2.1E-09	2.8E-09	1.6E-09	2.2E-09	2.1E-09

Parameter : Input High Leakage Current : IihADD(9)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihADD(9)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	4.0E-09	-589.6E-12	936.3E-12	-1.4E-09	-589.6E-12	173.3E-12	936.3E-12
37_OUT_REF	-1.4E-09	-2.9E-09	-589.6E-12	173.3E-12	-589.6E-12	-1.4E-09	-2.1E-09
ON samples							
21	-589.6E-12	-589.6E-12	4.0E-09	-3.6E-09	-589.6E-12	-2.1E-09	-2.1E-09
22	-589.6E-12	2.5E-09	-2.1E-09	-1.4E-09	173.3E-12	1.7E-09	-6.7E-09
23	2.5E-09	-589.6E-12	-1.4E-09	-1.4E-09	-589.6E-12	1.7E-09	-2.9E-09
24	1.7E-09	173.3E-12	-2.1E-09	-589.6E-12	3.2E-09	-2.1E-09	936.3E-12
25	173.3E-12	-589.6E-12	2.5E-09	-2.9E-09	-1.4E-09	-589.6E-12	3.2E-09
26	936.3E-12	-589.6E-12	-1.4E-09	-589.6E-12	936.3E-12	1.7E-09	-2.9E-09
27	173.3E-12	173.3E-12	173.3E-12	-2.1E-09	-2.1E-09	936.3E-12	-1.4E-09
28	936.3E-12	3.2E-09	2.5E-09	936.3E-12	-1.4E-09	2.5E-09	173.3E-12
29	-4.4E-09	3.2E-09	4.8E-09	-1.4E-09	173.3E-12	-1.4E-09	936.3E-12
30	-3.6E-09	4.0E-09	2.5E-09	1.7E-09	173.3E-12	173.3E-12	-5.2E-09
Statistics							
Min	-4.4E-09	-589.6E-12	-2.1E-09	-3.6E-09	-2.1E-09	-2.1E-09	-6.7E-09
Max	2.5E-09	4.0E-09	4.8E-09	1.7E-09	3.2E-09	2.5E-09	3.2E-09
Average	-284.4E-12	1.1E-09	936.3E-12	-1.1E-09	-131.8E-12	249.6E-12	-1.6E-09
Std Deviation	2.1E-09	1.8E-09	2.5E-09	1.5E-09	1.4E-09	1.6E-09	2.9E-09

Measurements

IihADD(9)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	4.0E-09	-589.6E-12	936.3E-12	-1.4E-09	-589.6E-12	173.3E-12	936.3E-12
37_OUT_REF	-1.4E-09	-2.9E-09	-589.6E-12	173.3E-12	-589.6E-12	-1.4E-09	-2.1E-09
OFF samples							
31	-1.4E-09	936.3E-12	-1.4E-09	-589.6E-12	-2.9E-09	-2.9E-09	173.3E-12
32	4.0E-09	173.3E-12	936.3E-12	-589.6E-12	173.3E-12	-3.6E-09	-4.4E-09
33	-589.6E-12	-589.6E-12	1.7E-09	1.7E-09	-2.1E-09	2.5E-09	1.7E-09
34	173.3E-12	-2.1E-09	-589.6E-12	-589.6E-12	3.2E-09	3.2E-09	2.5E-09
35	-589.6E-12	-2.9E-09	-589.6E-12	936.3E-12	936.3E-12	1.7E-09	173.3E-12
Statistics							
Min	-1.4E-09	-2.9E-09	-1.4E-09	-589.6E-12	-2.9E-09	-3.6E-09	-4.4E-09
Max	4.0E-09	936.3E-12	1.7E-09	1.7E-09	3.2E-09	3.2E-09	2.5E-09
Average	325.9E-12	-894.8E-12	20.8E-12	173.3E-12	-131.8E-12	173.3E-12	20.8E-12
Std Deviation	1.9E-09	1.4E-09	1.1E-09	965.0E-12	2.2E-09	2.9E-09	2.4E-09

Parameter : Input High Leakage Current : IihBANK(0)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

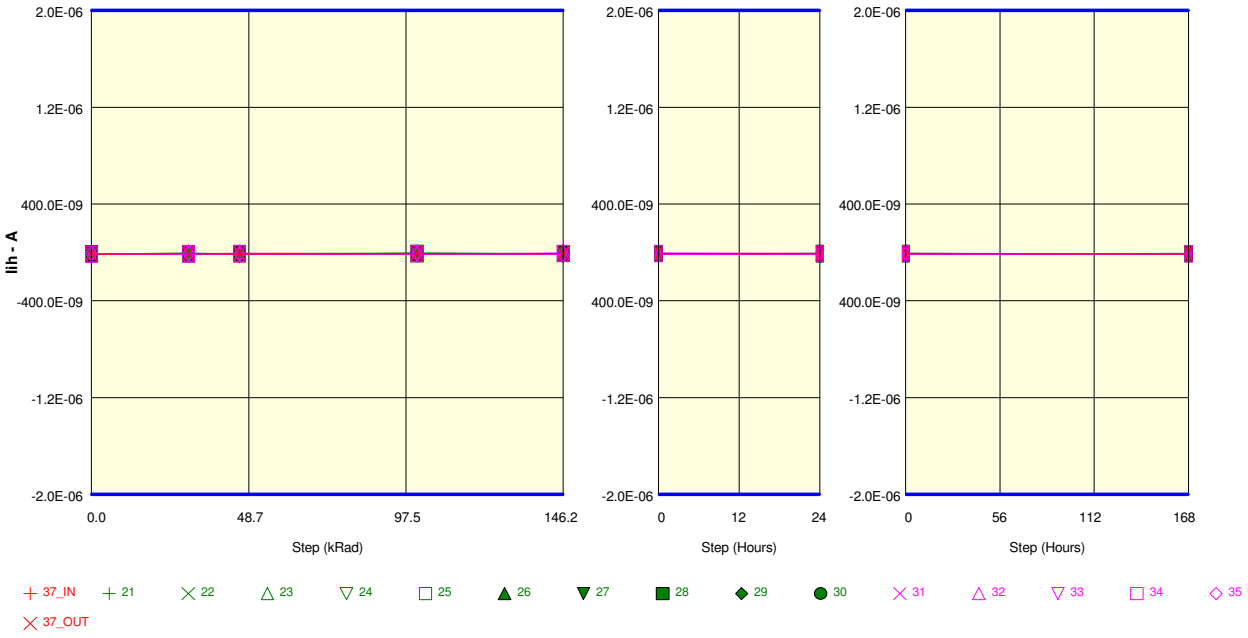
Measurements

IihBANK(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-1.4E-09	-5.9E-09	-2.9E-09	-6.7E-09	-8.2E-09	-7.5E-09
37_OUT_REF	-2.1E-09	-4.4E-09	-2.9E-09	-5.2E-09	-2.9E-09	-5.2E-09	-5.2E-09
ON samples							
21	-9.0E-09	-8.2E-09	-5.2E-09	-9.7E-09	-1.4E-09	-5.2E-09	-5.2E-09
22	-6.7E-09	-6.7E-09	-589.6E-12	-3.6E-09	-6.7E-09	-5.2E-09	-9.7E-09
23	-6.7E-09	-3.6E-09	-8.2E-09	-1.4E-09	-5.9E-09	-8.2E-09	-5.9E-09
24	-4.4E-09	-2.9E-09	-6.7E-09	173.3E-12	-2.1E-09	-1.4E-09	-2.9E-09
25	-6.7E-09	-4.4E-09	-5.2E-09	-8.2E-09	-4.4E-09	-7.5E-09	-5.2E-09
26	-7.5E-09	-3.6E-09	-2.9E-09	-6.7E-09	-1.4E-09	-5.2E-09	-1.4E-09
27	-6.7E-09	-5.9E-09	-8.2E-09	-5.9E-09	-4.4E-09	-5.9E-09	-5.2E-09
28	-8.2E-09	-5.9E-09	-9.7E-09	-9.0E-09	-5.2E-09	-5.2E-09	-9.0E-09
29	-7.5E-09	-5.9E-09	-2.9E-09	-6.7E-09	-6.7E-09	-2.1E-09	-5.2E-09
30	-3.6E-09	-5.9E-09	-9.7E-09	-589.6E-12	-5.9E-09	-3.6E-09	-4.4E-09
Statistics							
Min	-9.0E-09	-8.2E-09	-9.7E-09	-9.7E-09	-6.7E-09	-8.2E-09	-9.7E-09
Max	-3.6E-09	-2.9E-09	-589.6E-12	173.3E-12	-1.4E-09	-1.4E-09	-1.4E-09
Average	-6.7E-09	-5.3E-09	-5.9E-09	-5.2E-09	-4.4E-09	-4.9E-09	-5.4E-09
Std Deviation	1.5E-09	1.6E-09	3.0E-09	3.4E-09	2.0E-09	2.0E-09	2.4E-09

Measurements

IihBANK(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.2E-09	-1.4E-09	-5.9E-09	-2.9E-09	-6.7E-09	-8.2E-09	-7.5E-09
37_OUT_REF	-2.1E-09	-4.4E-09	-2.9E-09	-5.2E-09	-2.9E-09	-5.2E-09	-5.2E-09
OFF samples							
31	-7.5E-09	-5.9E-09	-4.4E-09	-5.9E-09	-2.1E-09	-5.9E-09	-6.7E-09
32	-7.5E-09	-6.7E-09	-7.5E-09	-5.9E-09	-6.7E-09	-2.9E-09	-5.9E-09
33	-9.0E-09	-4.4E-09	-5.2E-09	-6.7E-09	-8.2E-09	-9.0E-09	-6.7E-09
34	-4.4E-09	-2.1E-09	-5.9E-09	-11.3E-09	-6.7E-09	-9.0E-09	-4.4E-09
35	-5.9E-09	-8.2E-09	-9.7E-09	-3.6E-09	-3.6E-09	-4.4E-09	-4.4E-09
Statistics							
Min	-9.0E-09	-8.2E-09	-9.7E-09	-11.3E-09	-8.2E-09	-9.0E-09	-6.7E-09
Max	-4.4E-09	-2.1E-09	-4.4E-09	-3.6E-09	-2.1E-09	-2.9E-09	-4.4E-09
Average	-6.8E-09	-5.5E-09	-6.5E-09	-6.7E-09	-5.5E-09	-6.2E-09	-5.6E-09
Std Deviation	1.6E-09	2.1E-09	1.9E-09	2.5E-09	2.2E-09	2.4E-09	1.0E-09

Parameter : Input High Leakage Current : IihBANK(1)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



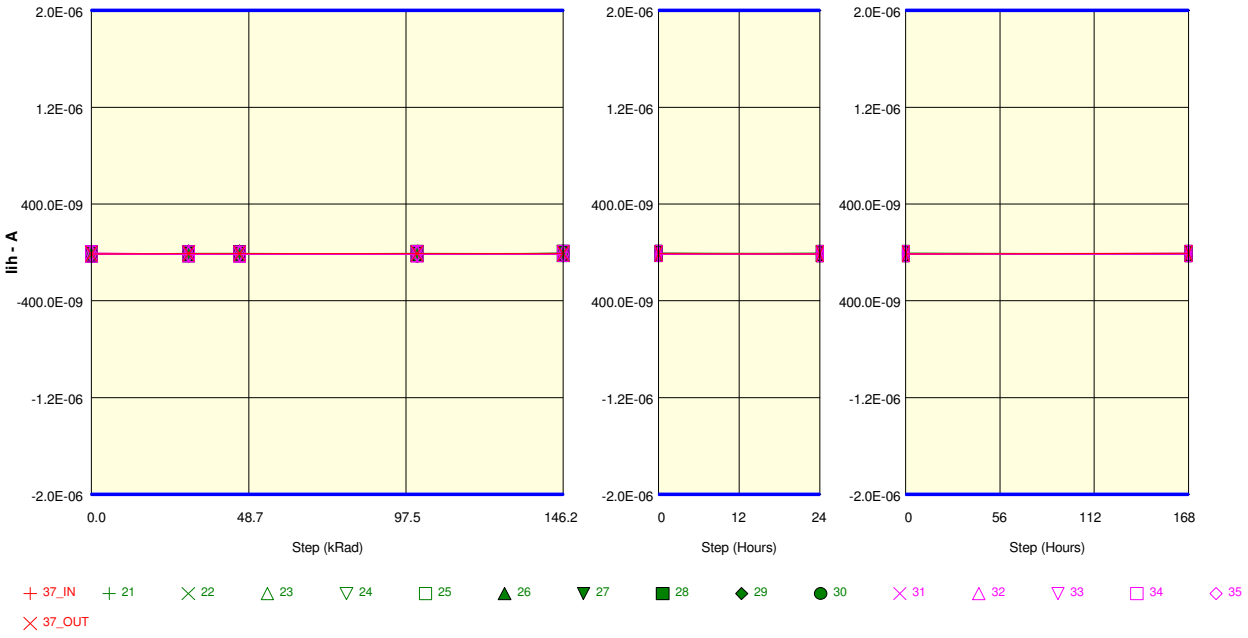
Measurements

IihBANK(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.8E-09	-8.2E-09	-7.5E-09	-8.2E-09	-12.0E-09	-12.0E-09	-10.5E-09
37_OUT_REF	-14.3E-09	-9.7E-09	-10.5E-09	-9.7E-09	-9.7E-09	-9.0E-09	-12.8E-09
ON samples							
21	-11.3E-09	-11.3E-09	-9.7E-09	-5.2E-09	-8.2E-09	-11.3E-09	-12.0E-09
22	-14.3E-09	-11.3E-09	-11.3E-09	-14.3E-09	-13.6E-09	-12.0E-09	-12.8E-09
23	-14.3E-09	-9.0E-09	-10.5E-09	-12.8E-09	-9.7E-09	-12.0E-09	-7.5E-09
24	-11.3E-09	-9.0E-09	-13.6E-09	-7.5E-09	-9.7E-09	-6.7E-09	-13.6E-09
25	-12.0E-09	-8.2E-09	-11.3E-09	-9.7E-09	-12.0E-09	-14.3E-09	-11.3E-09
26	-9.7E-09	-11.3E-09	-12.0E-09	-9.0E-09	-9.0E-09	-12.0E-09	-10.5E-09
27	-9.7E-09	-8.2E-09	-12.8E-09	-9.7E-09	-15.1E-09	-5.9E-09	-11.3E-09
28	-8.2E-09	-12.8E-09	-10.5E-09	-7.5E-09	-8.2E-09	-10.5E-09	-10.5E-09
29	-11.3E-09	-4.4E-09	-12.8E-09	-8.2E-09	-8.2E-09	-9.0E-09	-12.0E-09
30	-9.7E-09	-8.2E-09	-12.0E-09	-10.5E-09	-10.5E-09	-12.8E-09	-9.7E-09
Statistics							
Min	-14.3E-09	-12.8E-09	-13.6E-09	-14.3E-09	-15.1E-09	-14.3E-09	-13.6E-09
Max	-8.2E-09	-4.4E-09	-9.7E-09	-5.2E-09	-8.2E-09	-5.9E-09	-7.5E-09
Average	-11.2E-09	-9.4E-09	-11.7E-09	-9.4E-09	-10.4E-09	-10.7E-09	-11.1E-09
Std Deviation	1.9E-09	2.3E-09	1.1E-09	2.5E-09	2.3E-09	2.5E-09	1.6E-09

Measurements

IihBANK(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.8E-09	-8.2E-09	-7.5E-09	-8.2E-09	-12.0E-09	-12.0E-09	-10.5E-09
37_OUT_REF	-14.3E-09	-9.7E-09	-10.5E-09	-9.7E-09	-9.7E-09	-9.0E-09	-12.8E-09
OFF samples							
31	-11.3E-09	-12.8E-09	-12.0E-09	-9.7E-09	-11.3E-09	-13.6E-09	-12.0E-09
32	-13.6E-09	-8.2E-09	-10.5E-09	-12.0E-09	-5.2E-09	-7.5E-09	-9.0E-09
33	-11.3E-09	-9.0E-09	-7.5E-09	-8.2E-09	-10.5E-09	-12.8E-09	-9.7E-09
34	-15.8E-09	-13.6E-09	-10.5E-09	-12.0E-09	-6.7E-09	-9.0E-09	-12.8E-09
35	-10.5E-09	-7.5E-09	-12.0E-09	-11.3E-09	-17.4E-09	-12.0E-09	-9.7E-09
Statistics							
Min	-15.8E-09	-13.6E-09	-12.0E-09	-12.0E-09	-17.4E-09	-13.6E-09	-12.8E-09
Max	-10.5E-09	-7.5E-09	-7.5E-09	-8.2E-09	-5.2E-09	-7.5E-09	-9.0E-09
Average	-12.5E-09	-10.2E-09	-10.5E-09	-10.7E-09	-10.2E-09	-11.0E-09	-10.7E-09
Std Deviation	2.0E-09	2.5E-09	1.7E-09	1.5E-09	4.3E-09	2.3E-09	1.5E-09

Parameter : Input High Leakage Current : IihBANK(2)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IihBANK(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.7E-09	-11.3E-09	-10.5E-09	-8.2E-09	-10.5E-09	-12.8E-09	-8.2E-09
37_OUT_REF	-11.3E-09	-9.0E-09	-9.7E-09	-9.7E-09	-9.0E-09	-10.5E-09	-5.9E-09
ON samples							
21	-12.0E-09	-10.5E-09	-11.3E-09	-11.3E-09	-9.0E-09	-6.7E-09	-8.2E-09
22	-7.5E-09	-10.5E-09	-10.5E-09	-14.3E-09	-9.7E-09	-10.5E-09	-9.0E-09
23	-12.8E-09	-12.0E-09	-12.8E-09	-8.2E-09	-10.5E-09	-5.9E-09	-8.2E-09
24	-12.0E-09	-10.5E-09	-12.0E-09	-11.3E-09	-10.5E-09	-8.2E-09	-9.0E-09
25	-12.0E-09	-14.3E-09	-12.0E-09	-8.2E-09	-7.5E-09	-9.0E-09	-11.3E-09
26	-13.6E-09	-6.7E-09	-6.7E-09	-11.3E-09	-9.0E-09	-11.3E-09	-11.3E-09
27	-8.2E-09	-13.6E-09	-10.5E-09	-12.0E-09	-7.5E-09	-7.5E-09	-10.5E-09
28	-8.2E-09	-8.2E-09	-12.0E-09	-6.7E-09	-8.2E-09	-12.0E-09	-5.9E-09
29	-12.0E-09	-14.3E-09	-15.1E-09	-10.5E-09	-7.5E-09	-8.2E-09	-9.7E-09
30	-8.2E-09	-14.3E-09	-10.5E-09	-15.8E-09	-7.5E-09	-11.3E-09	-11.3E-09
Statistics							
Min	-13.6E-09	-14.3E-09	-15.1E-09	-15.8E-09	-10.5E-09	-12.0E-09	-11.3E-09
Max	-7.5E-09	-6.7E-09	-6.7E-09	-6.7E-09	-7.5E-09	-5.9E-09	-5.9E-09
Average	-10.7E-09	-11.5E-09	-11.3E-09	-11.0E-09	-8.7E-09	-9.1E-09	-9.4E-09
Std Deviation	2.2E-09	2.6E-09	2.0E-09	2.6E-09	1.2E-09	2.0E-09	1.6E-09

Measurements

IihBANK(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.7E-09	-11.3E-09	-10.5E-09	-8.2E-09	-10.5E-09	-12.8E-09	-8.2E-09
37_OUT_REF	-11.3E-09	-9.0E-09	-9.7E-09	-9.7E-09	-9.0E-09	-10.5E-09	-5.9E-09
OFF samples							
31	-15.1E-09	-11.3E-09	-9.0E-09	-9.0E-09	-10.5E-09	-10.5E-09	-11.3E-09
32	-5.2E-09	-10.5E-09	-8.2E-09	-10.5E-09	-8.2E-09	-11.3E-09	-10.5E-09
33	-9.7E-09	-12.0E-09	-11.3E-09	-9.7E-09	-9.7E-09	-8.2E-09	-7.5E-09
34	-15.8E-09	-12.8E-09	-15.8E-09	-13.6E-09	-6.7E-09	-10.5E-09	-10.5E-09
35	-9.0E-09	-16.6E-09	-9.7E-09	-9.0E-09	-14.3E-09	-9.0E-09	-5.9E-09
Statistics							
Min	-15.8E-09	-16.6E-09	-15.8E-09	-13.6E-09	-14.3E-09	-11.3E-09	-11.3E-09
Max	-5.2E-09	-10.5E-09	-8.2E-09	-9.0E-09	-6.7E-09	-8.2E-09	-5.9E-09
Average	-11.0E-09	-12.6E-09	-10.8E-09	-10.4E-09	-9.9E-09	-9.9E-09	-9.1E-09
Std Deviation	4.0E-09	2.1E-09	2.7E-09	1.7E-09	2.6E-09	1.1E-09	2.1E-09

Parameter : Input High Leakage Current : IihCK_
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

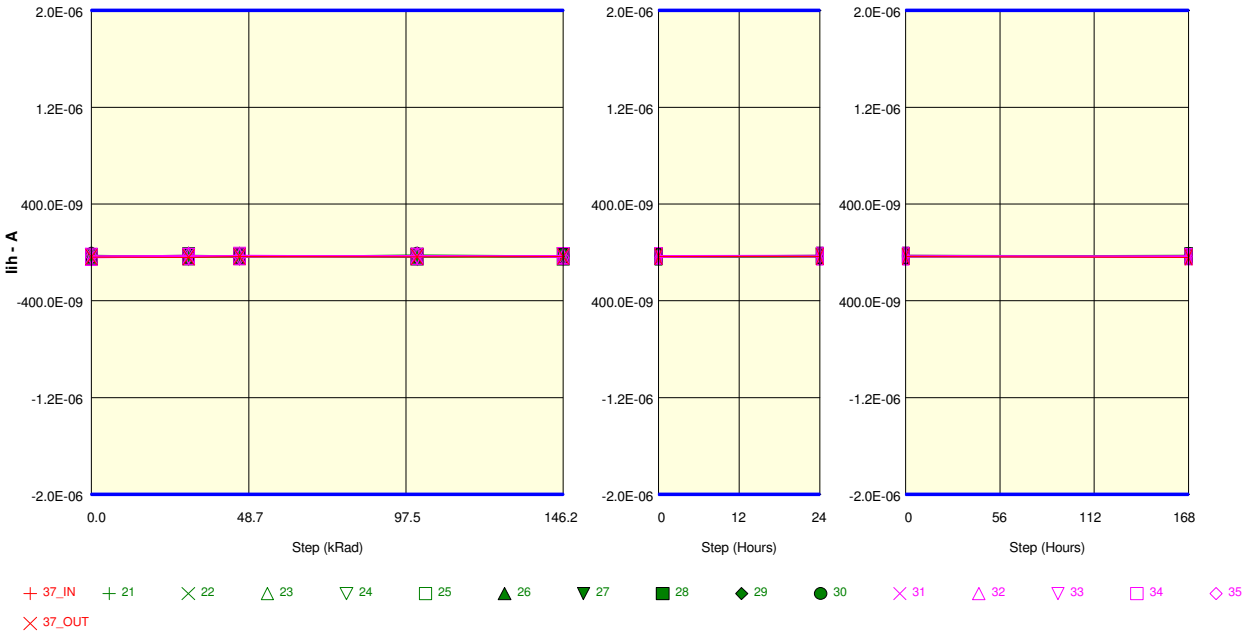
Measurements

IihCK_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-29.3E-09	-34.2E-09	-35.4E-09	-28.1E-09	-34.2E-09	-26.9E-09	-31.7E-09
37_OUT_REF	-35.4E-09	-28.1E-09	-23.2E-09	-29.3E-09	-28.1E-09	-34.2E-09	-33.0E-09
ON samples							
21	-26.9E-09	-29.3E-09	-34.2E-09	-35.4E-09	-28.1E-09	-30.5E-09	-34.2E-09
22	-28.1E-09	-35.4E-09	-36.6E-09	-30.5E-09	-30.5E-09	-29.3E-09	-22.0E-09
23	-30.5E-09	-34.2E-09	-26.9E-09	-30.5E-09	-28.1E-09	-24.4E-09	-28.1E-09
24	-31.7E-09	-34.2E-09	-23.2E-09	-33.0E-09	-34.2E-09	-31.7E-09	-35.4E-09
25	-36.6E-09	-34.2E-09	-28.1E-09	-26.9E-09	-34.2E-09	-30.5E-09	-26.9E-09
26	-24.4E-09	-22.0E-09	-25.6E-09	-30.5E-09	-39.1E-09	-29.3E-09	-34.2E-09
27	-33.0E-09	-33.0E-09	-29.3E-09	-28.1E-09	-34.2E-09	-29.3E-09	-28.1E-09
28	-33.0E-09	-35.4E-09	-39.1E-09	-26.9E-09	-24.4E-09	-35.4E-09	-33.0E-09
29	-36.6E-09	-28.1E-09	-29.3E-09	-28.1E-09	-35.4E-09	-31.7E-09	-37.8E-09
30	-33.0E-09	-23.2E-09	-28.1E-09	-33.0E-09	-41.5E-09	-35.4E-09	-23.2E-09
Statistics							
Min	-36.6E-09	-35.4E-09	-39.1E-09	-35.4E-09	-41.5E-09	-35.4E-09	-37.8E-09
Max	-24.4E-09	-22.0E-09	-23.2E-09	-26.9E-09	-24.4E-09	-24.4E-09	-22.0E-09
Average	-31.4E-09	-30.9E-09	-30.0E-09	-30.3E-09	-33.0E-09	-30.8E-09	-30.3E-09
Std Deviation	3.8E-09	4.8E-09	4.8E-09	2.7E-09	5.0E-09	3.0E-09	5.1E-09

Measurements

IihCK_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-29.3E-09	-34.2E-09	-35.4E-09	-28.1E-09	-34.2E-09	-26.9E-09	-31.7E-09
37_OUT_REF	-35.4E-09	-28.1E-09	-23.2E-09	-29.3E-09	-28.1E-09	-34.2E-09	-33.0E-09
OFF samples							
31	-28.1E-09	-25.6E-09	-25.6E-09	-29.3E-09	-36.6E-09	-34.2E-09	-34.2E-09
32	-20.8E-09	-29.3E-09	-31.7E-09	-28.1E-09	-34.2E-09	-39.1E-09	-25.6E-09
33	-39.1E-09	-30.5E-09	-23.2E-09	-26.9E-09	-31.7E-09	-29.3E-09	-29.3E-09
34	-28.1E-09	-30.5E-09	-28.1E-09	-28.1E-09	-29.3E-09	-40.3E-09	-22.0E-09
35	-31.7E-09	-30.5E-09	-30.5E-09	-31.7E-09	-33.0E-09	-35.4E-09	-25.6E-09
Statistics							
Min	-39.1E-09	-30.5E-09	-31.7E-09	-31.7E-09	-36.6E-09	-40.3E-09	-34.2E-09
Max	-20.8E-09	-25.6E-09	-23.2E-09	-26.9E-09	-29.3E-09	-29.3E-09	-22.0E-09
Average	-29.5E-09	-29.3E-09	-27.8E-09	-28.8E-09	-33.0E-09	-35.6E-09	-27.3E-09
Std Deviation	6.0E-09	1.9E-09	3.1E-09	1.7E-09	2.4E-09	3.9E-09	4.1E-09

Parameter : Input High Leakage Current : IihCK
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IihCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-36.6E-09	-36.6E-09	-39.1E-09	-35.4E-09	-39.1E-09	-34.2E-09	-37.8E-09
37_OUT_REF	-37.8E-09	-40.3E-09	-34.2E-09	-36.6E-09	-34.2E-09	-33.0E-09	-40.3E-09
ON samples							
21	-25.6E-09	-31.7E-09	-36.6E-09	-28.1E-09	-25.6E-09	-30.5E-09	-24.4E-09
22	-31.7E-09	-33.0E-09	-30.5E-09	-29.3E-09	-33.0E-09	-29.3E-09	-25.6E-09
23	-40.3E-09	-34.2E-09	-25.6E-09	-35.4E-09	-37.8E-09	-34.2E-09	-30.5E-09
24	-34.2E-09	-25.6E-09	-28.1E-09	-30.5E-09	-35.4E-09	-37.8E-09	-34.2E-09
25	-33.0E-09	-36.6E-09	-34.2E-09	-35.4E-09	-29.3E-09	-29.3E-09	-28.1E-09
26	-25.6E-09	-34.2E-09	-33.0E-09	-29.3E-09	-37.8E-09	-33.0E-09	-28.1E-09
27	-37.8E-09	-37.8E-09	-33.0E-09	-37.8E-09	-26.9E-09	-30.5E-09	-29.3E-09
28	-33.0E-09	-30.5E-09	-33.0E-09	-33.0E-09	-31.7E-09	-23.2E-09	-28.1E-09
29	-31.7E-09	-24.4E-09	-28.1E-09	-29.3E-09	-30.5E-09	-29.3E-09	-35.4E-09
30	-24.4E-09	-33.0E-09	-35.4E-09	-22.0E-09	-28.1E-09	-31.7E-09	-36.6E-09
Statistics							
Min	-40.3E-09	-37.8E-09	-36.6E-09	-37.8E-09	-37.8E-09	-37.8E-09	-36.6E-09
Max	-24.4E-09	-24.4E-09	-25.6E-09	-22.0E-09	-25.6E-09	-23.2E-09	-24.4E-09
Average	-31.7E-09	-32.1E-09	-31.7E-09	-31.0E-09	-31.6E-09	-30.9E-09	-30.0E-09
Std Deviation	5.0E-09	4.1E-09	3.4E-09	4.3E-09	4.1E-09	3.6E-09	3.9E-09

Measurements

IihCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-36.6E-09	-36.6E-09	-39.1E-09	-35.4E-09	-39.1E-09	-34.2E-09	-37.8E-09
37_OUT_REF	-37.8E-09	-40.3E-09	-34.2E-09	-36.6E-09	-34.2E-09	-33.0E-09	-40.3E-09
OFF samples							
31	-29.3E-09	-29.3E-09	-26.9E-09	-26.9E-09	-33.0E-09	-34.2E-09	-28.1E-09
32	-42.7E-09	-36.6E-09	-31.7E-09	-30.5E-09	-31.7E-09	-35.4E-09	-29.3E-09
33	-37.8E-09	-34.2E-09	-23.2E-09	-30.5E-09	-25.6E-09	-23.2E-09	-33.0E-09
34	-31.7E-09	-31.7E-09	-35.4E-09	-35.4E-09	-26.9E-09	-36.6E-09	-37.8E-09
35	-30.5E-09	-24.4E-09	-36.6E-09	-26.9E-09	-40.3E-09	-31.7E-09	-33.0E-09
Statistics							
Min	-42.7E-09	-36.6E-09	-36.6E-09	-35.4E-09	-40.3E-09	-36.6E-09	-37.8E-09
Max	-29.3E-09	-24.4E-09	-23.2E-09	-26.9E-09	-25.6E-09	-23.2E-09	-28.1E-09
Average	-34.4E-09	-31.3E-09	-30.8E-09	-30.0E-09	-31.5E-09	-32.2E-09	-32.2E-09
Std Deviation	5.1E-09	4.2E-09	5.1E-09	3.1E-09	5.2E-09	4.8E-09	3.4E-09

Parameter : Input High Leakage Current : IihCKE
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

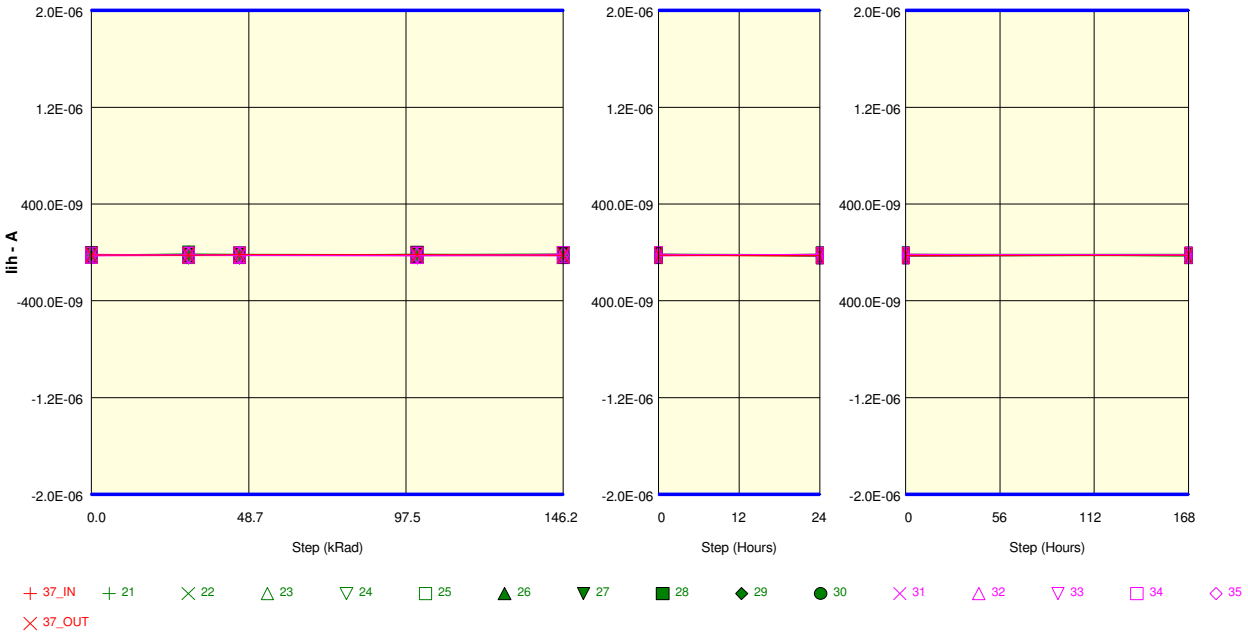
Measurements

IihCKE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-7.3E-09	-6.1E-09	-12.2E-09	-18.3E-09	-9.8E-09	-12.2E-09
37_OUT_REF	-9.8E-09	-8.5E-09	-11.0E-09	-17.1E-09	-15.9E-09	-13.4E-09	-11.0E-09
ON samples							
21	-6.1E-09	-14.6E-09	-6.1E-09	-11.0E-09	-14.6E-09	-11.0E-09	-12.2E-09
22	-7.3E-09	-14.6E-09	-12.2E-09	-11.0E-09	-20.8E-09	-14.6E-09	-13.4E-09
23	-18.3E-09	-20.8E-09	-3.7E-09	-19.5E-09	-15.9E-09	-13.4E-09	-6.1E-09
24	-9.8E-09	-7.3E-09	-17.1E-09	-15.9E-09	-18.3E-09	-15.9E-09	-6.1E-09
25	-9.8E-09	-12.2E-09	-8.5E-09	-6.1E-09	-8.5E-09	-13.4E-09	-7.3E-09
26	-12.2E-09	-7.3E-09	-2.4E-09	-4.9E-09	-15.9E-09	-7.3E-09	-7.3E-09
27	-17.1E-09	-11.0E-09	-18.3E-09	-18.3E-09	-13.4E-09	-11.0E-09	-14.6E-09
28	-17.1E-09	-14.6E-09	-13.4E-09	-12.2E-09	-11.0E-09	-12.2E-09	-6.1E-09
29	-11.0E-09	-14.6E-09	-12.2E-09	-14.6E-09	-14.6E-09	-13.4E-09	-15.9E-09
30	-15.9E-09	-17.1E-09	-11.0E-09	-14.6E-09	-15.9E-09	-17.1E-09	-12.2E-09
Statistics							
Min	-18.3E-09	-20.8E-09	-18.3E-09	-19.5E-09	-20.8E-09	-17.1E-09	-15.9E-09
Max	-6.1E-09	-7.3E-09	-2.4E-09	-4.9E-09	-8.5E-09	-7.3E-09	-6.1E-09
Average	-12.5E-09	-13.4E-09	-10.5E-09	-12.8E-09	-14.9E-09	-12.9E-09	-10.1E-09
Std Deviation	4.2E-09	3.9E-09	5.0E-09	4.5E-09	3.3E-09	2.6E-09	3.7E-09

Measurements

IihCKE	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-7.3E-09	-6.1E-09	-12.2E-09	-18.3E-09	-9.8E-09	-12.2E-09
37_OUT_REF	-9.8E-09	-8.5E-09	-11.0E-09	-17.1E-09	-15.9E-09	-13.4E-09	-11.0E-09
OFF samples							
31	-12.2E-09	-8.5E-09	-18.3E-09	-11.0E-09	-6.1E-09	-11.0E-09	-8.5E-09
32	-14.6E-09	-20.8E-09	-6.1E-09	-9.8E-09	-11.0E-09	-18.3E-09	-14.6E-09
33	-18.3E-09	-8.5E-09	-13.4E-09	-4.9E-09	-14.6E-09	-13.4E-09	-12.2E-09
34	-9.8E-09	-12.2E-09	-9.8E-09	-17.1E-09	-13.4E-09	-7.3E-09	-9.8E-09
35	-14.6E-09	-12.2E-09	-8.5E-09	-14.6E-09	-15.9E-09	-18.3E-09	-20.8E-09
Statistics							
Min	-18.3E-09	-20.8E-09	-18.3E-09	-17.1E-09	-15.9E-09	-18.3E-09	-20.8E-09
Max	-9.8E-09	-8.5E-09	-6.1E-09	-4.9E-09	-6.1E-09	-7.3E-09	-8.5E-09
Average	-13.9E-09	-12.5E-09	-11.2E-09	-11.5E-09	-12.2E-09	-13.7E-09	-13.2E-09
Std Deviation	2.8E-09	4.5E-09	4.3E-09	4.2E-09	3.5E-09	4.3E-09	4.3E-09

Parameter : Input High Leakage Current : IihDM
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IihDM	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-23.2E-09	-25.6E-09	-25.6E-09	-20.8E-09	-24.4E-09	-31.7E-09	-18.3E-09
37_OUT_REF	-20.8E-09	-23.2E-09	-18.3E-09	-19.5E-09	-23.2E-09	-25.6E-09	-24.4E-09
ON samples							
21	-26.9E-09	-19.5E-09	-19.5E-09	-22.0E-09	-19.5E-09	-23.2E-09	-20.8E-09
22	-24.4E-09	-18.3E-09	-25.6E-09	-22.0E-09	-23.2E-09	-17.1E-09	-28.1E-09
23	-22.0E-09	-26.9E-09	-20.8E-09	-18.3E-09	-17.1E-09	-28.1E-09	-25.6E-09
24	-19.5E-09	-20.8E-09	-20.8E-09	-15.9E-09	-17.1E-09	-18.3E-09	-28.1E-09
25	-22.0E-09	-11.0E-09	-17.1E-09	-19.5E-09	-15.9E-09	-18.3E-09	-23.2E-09
26	-22.0E-09	-15.9E-09	-20.8E-09	-23.2E-09	-23.2E-09	-26.9E-09	-20.8E-09
27	-22.0E-09	-23.2E-09	-25.6E-09	-13.4E-09	-23.2E-09	-29.3E-09	-23.2E-09
28	-19.5E-09	-20.8E-09	-25.6E-09	-19.5E-09	-25.6E-09	-23.2E-09	-25.6E-09
29	-25.6E-09	-19.5E-09	-24.4E-09	-26.9E-09	-25.6E-09	-17.1E-09	-17.1E-09
30	-22.0E-09	-23.2E-09	-22.0E-09	-20.8E-09	-23.2E-09	-26.9E-09	-20.8E-09
Statistics							
Min	-26.9E-09	-26.9E-09	-25.6E-09	-26.9E-09	-25.6E-09	-29.3E-09	-28.1E-09
Max	-19.5E-09	-11.0E-09	-17.1E-09	-13.4E-09	-15.9E-09	-17.1E-09	-17.1E-09
Average	-22.6E-09	-19.9E-09	-22.2E-09	-20.1E-09	-21.4E-09	-22.8E-09	-23.3E-09
Std Deviation	2.3E-09	4.1E-09	2.8E-09	3.6E-09	3.5E-09	4.6E-09	3.4E-09

Measurements

IihDM	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-23.2E-09	-25.6E-09	-25.6E-09	-20.8E-09	-24.4E-09	-31.7E-09	-18.3E-09
37_OUT_REF	-20.8E-09	-23.2E-09	-18.3E-09	-19.5E-09	-23.2E-09	-25.6E-09	-24.4E-09
OFF samples							
31	-26.9E-09	-23.2E-09	-25.6E-09	-25.6E-09	-28.1E-09	-23.2E-09	-19.5E-09
32	-15.9E-09	-22.0E-09	-23.2E-09	-26.9E-09	-20.8E-09	-18.3E-09	-18.3E-09
33	-28.1E-09	-25.6E-09	-26.9E-09	-23.2E-09	-15.9E-09	-23.2E-09	-22.0E-09
34	-23.2E-09	-22.0E-09	-18.3E-09	-24.4E-09	-17.1E-09	-28.1E-09	-24.4E-09
35	-25.6E-09	-23.2E-09	-25.6E-09	-29.3E-09	-23.2E-09	-14.6E-09	-24.4E-09
Statistics							
Min	-28.1E-09	-25.6E-09	-26.9E-09	-29.3E-09	-28.1E-09	-28.1E-09	-24.4E-09
Max	-15.9E-09	-22.0E-09	-18.3E-09	-23.2E-09	-15.9E-09	-14.6E-09	-18.3E-09
Average	-23.9E-09	-23.2E-09	-23.9E-09	-25.9E-09	-21.0E-09	-21.5E-09	-21.7E-09
Std Deviation	4.3E-09	1.3E-09	3.0E-09	2.1E-09	4.4E-09	4.6E-09	2.5E-09

Parameter : Input High Leakage Current : IihDQ(0)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

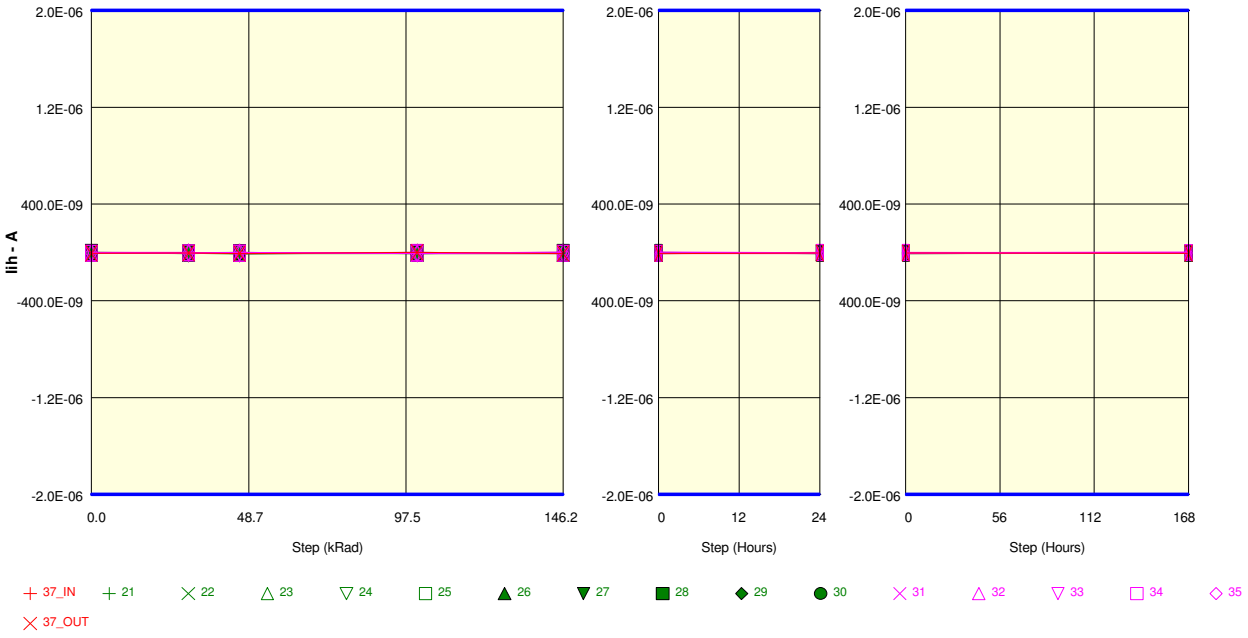
Measurements

IihDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-19.5E-09	-23.2E-09	-25.6E-09	-20.8E-09	-24.4E-09	-22.0E-09	-24.4E-09
37_OUT_REF	-19.5E-09	-25.6E-09	-24.4E-09	-29.3E-09	-24.4E-09	-18.3E-09	-18.3E-09
ON samples							
21	-22.0E-09	-24.4E-09	-22.0E-09	-25.6E-09	-20.8E-09	-23.2E-09	-25.6E-09
22	-23.2E-09	-23.2E-09	-18.3E-09	-19.5E-09	-13.4E-09	-19.5E-09	-22.0E-09
23	-22.0E-09	-25.6E-09	-23.2E-09	-23.2E-09	-25.6E-09	-28.1E-09	-22.0E-09
24	-15.9E-09	-22.0E-09	-20.8E-09	-20.8E-09	-14.6E-09	-17.1E-09	-18.3E-09
25	-24.4E-09	-24.4E-09	-24.4E-09	-29.3E-09	-23.2E-09	-20.8E-09	-22.0E-09
26	-19.5E-09	-24.4E-09	-24.4E-09	-26.9E-09	-24.4E-09	-22.0E-09	-20.8E-09
27	-22.0E-09	-25.6E-09	-19.5E-09	-24.4E-09	-22.0E-09	-20.8E-09	-23.2E-09
28	-24.4E-09	-24.4E-09	-24.4E-09	-24.4E-09	-20.8E-09	-20.8E-09	-25.6E-09
29	-18.3E-09	-28.1E-09	-23.2E-09	-24.4E-09	-24.4E-09	-24.4E-09	-20.8E-09
30	-26.9E-09	-25.6E-09	-26.9E-09	-24.4E-09	-23.2E-09	-25.6E-09	-22.0E-09
Statistics							
Min	-26.9E-09	-28.1E-09	-26.9E-09	-29.3E-09	-25.6E-09	-28.1E-09	-25.6E-09
Max	-15.9E-09	-22.0E-09	-18.3E-09	-19.5E-09	-13.4E-09	-17.1E-09	-18.3E-09
Average	-21.9E-09	-24.8E-09	-22.7E-09	-24.3E-09	-21.2E-09	-22.2E-09	-22.2E-09
Std Deviation	3.1E-09	1.5E-09	2.5E-09	2.6E-09	3.9E-09	3.0E-09	2.1E-09

Measurements

IihDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-19.5E-09	-23.2E-09	-25.6E-09	-20.8E-09	-24.4E-09	-22.0E-09	-24.4E-09
37_OUT_REF	-19.5E-09	-25.6E-09	-24.4E-09	-29.3E-09	-24.4E-09	-18.3E-09	-18.3E-09
OFF samples							
31	-24.4E-09	-19.5E-09	-23.2E-09	-22.0E-09	-22.0E-09	-19.5E-09	-18.3E-09
32	-25.6E-09	-22.0E-09	-26.9E-09	-22.0E-09	-15.9E-09	-18.3E-09	-17.1E-09
33	-24.4E-09	-26.9E-09	-19.5E-09	-24.4E-09	-22.0E-09	-24.4E-09	-23.2E-09
34	-25.6E-09	-29.3E-09	-24.4E-09	-22.0E-09	-19.5E-09	-22.0E-09	-22.0E-09
35	-23.2E-09	-22.0E-09	-26.9E-09	-19.5E-09	-23.2E-09	-23.2E-09	-23.2E-09
Statistics							
Min	-25.6E-09	-29.3E-09	-26.9E-09	-24.4E-09	-23.2E-09	-24.4E-09	-23.2E-09
Max	-23.2E-09	-19.5E-09	-19.5E-09	-19.5E-09	-15.9E-09	-18.3E-09	-17.1E-09
Average	-24.7E-09	-23.9E-09	-24.2E-09	-22.0E-09	-20.5E-09	-21.5E-09	-20.8E-09
Std Deviation	913.7E-12	3.6E-09	2.7E-09	1.5E-09	2.6E-09	2.3E-09	2.6E-09

Parameter : Input High Leakage Current : IihDQ(1)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



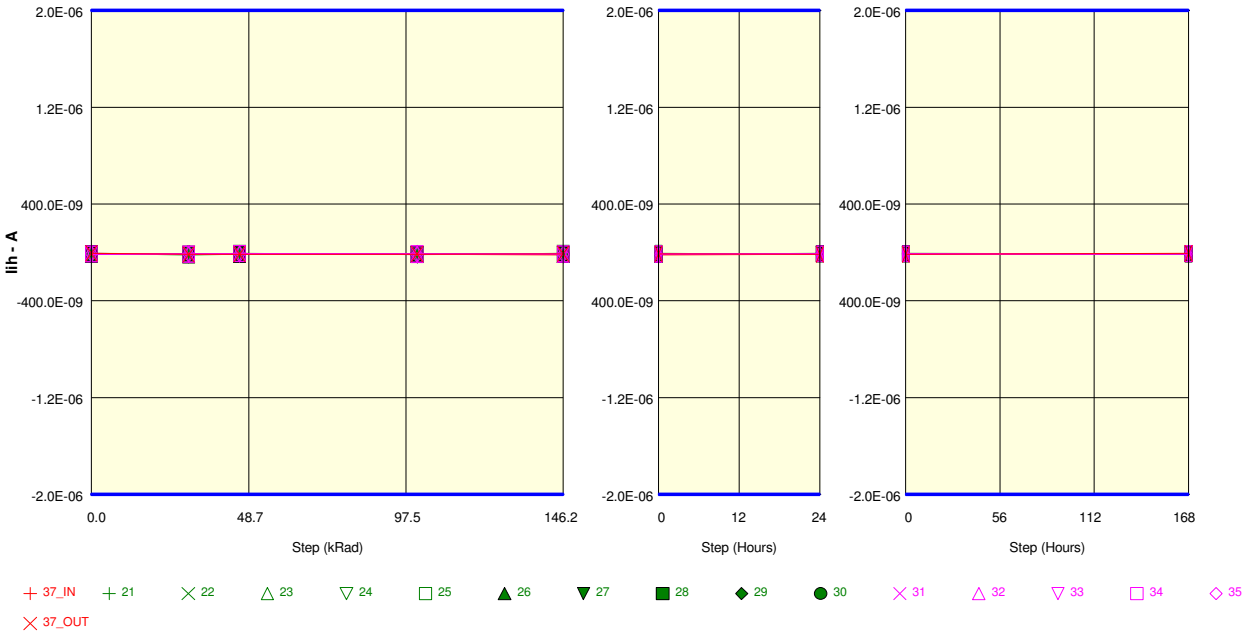
Measurements

IihDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-3.7E-09	-1.2E-09	-2.4E-09	-7.3E-09	-3.7E-09	-2.4E-09	-7.3E-09
37_OUT_REF	-6.1E-09	-3.7E-09	-8.5E-09	1.2E-09	-9.8E-09	-4.9E-09	-6.1E-09
ON samples							
21	-7.3E-09	-7.3E-09	-11.0E-09	-2.4E-09	-3.7E-09	-8.5E-09	-4.9E-09
22	-7.3E-09	-3.7E-09	-2.4E-09	-8.5E-09	-1.2E-09	-2.4E-09	-4.9E-09
23	-4.9E-09	-7.3E-09	-7.3E-09	-3.7E-09	-4.9E-09	-4.9E-09	-6.1E-09
24	-1.2E-09	-2.4E-09	-8.5E-09	-4.9E-09	-7.3E-09	-6.1E-09	-3.7E-09
25	-1.2E-09	-8.5E-09	-4.9E-09	-3.7E-09	0.0E+00	-6.1E-09	-6.1E-09
26	-3.7E-09	-3.7E-09	-9.8E-09	-8.5E-09	-8.5E-09	-1.2E-09	-6.1E-09
27	-4.9E-09	-8.5E-09	-1.2E-09	-1.2E-09	-1.2E-09	-2.4E-09	-4.9E-09
28	0.0E+00	-3.7E-09	-6.1E-09	-1.2E-09	-7.3E-09	-3.7E-09	-3.7E-09
29	0.0E+00	-2.4E-09	-6.1E-09	1.2E-09	-7.3E-09	-2.4E-09	-3.7E-09
30	-4.9E-09	-2.4E-09	1.2E-09	-9.8E-09	-1.2E-09	-9.8E-09	-6.1E-09
Statistics							
Min	-7.3E-09	-8.5E-09	-11.0E-09	-9.8E-09	-8.5E-09	-9.8E-09	-6.1E-09
Max	0.0E+00	-2.4E-09	1.2E-09	1.2E-09	0.0E+00	-1.2E-09	-3.7E-09
Average	-3.5E-09	-5.0E-09	-5.6E-09	-4.3E-09	-4.3E-09	-4.8E-09	-5.0E-09
Std Deviation	2.6E-09	2.5E-09	3.7E-09	3.5E-09	3.1E-09	2.7E-09	1.0E-09

Measurements

IihDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-3.7E-09	-1.2E-09	-2.4E-09	-7.3E-09	-3.7E-09	-2.4E-09	-7.3E-09
37_OUT_REF	-6.1E-09	-3.7E-09	-8.5E-09	1.2E-09	-9.8E-09	-4.9E-09	-6.1E-09
OFF samples							
31	-4.9E-09	-7.3E-09	-2.4E-09	-2.4E-09	-4.9E-09	-3.7E-09	-4.9E-09
32	0.0E+00	1.2E-09	-7.3E-09	-7.3E-09	2.4E-09	-1.2E-09	2.4E-09
33	-7.3E-09	-4.9E-09	-8.5E-09	-6.1E-09	-6.1E-09	-2.4E-09	-2.4E-09
34	-6.1E-09	-4.9E-09	-3.7E-09	0.0E+00	-6.1E-09	0.0E+00	-2.4E-09
35	-3.7E-09	-4.9E-09	0.0E+00	-9.8E-09	-8.5E-09	-8.5E-09	-4.9E-09
Statistics							
Min	-7.3E-09	-7.3E-09	-8.5E-09	-9.8E-09	-8.5E-09	-8.5E-09	-4.9E-09
Max	0.0E+00	1.2E-09	0.0E+00	0.0E+00	2.4E-09	0.0E+00	2.4E-09
Average	-4.4E-09	-4.2E-09	-4.4E-09	-5.1E-09	-4.6E-09	-3.2E-09	-2.4E-09
Std Deviation	2.5E-09	2.8E-09	3.1E-09	3.5E-09	3.7E-09	2.9E-09	2.7E-09

Parameter : Input High Leakage Current : IihDQ(2)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IihDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-8.5E-09	-14.6E-09	-17.1E-09	-14.6E-09	-20.8E-09	-13.4E-09	-9.8E-09
37_OUT_REF	-7.3E-09	-15.9E-09	-14.6E-09	-14.6E-09	-12.2E-09	-15.9E-09	-7.3E-09
ON samples							
21	-8.5E-09	-15.9E-09	-14.6E-09	-11.0E-09	-17.1E-09	-9.8E-09	-8.5E-09
22	-7.3E-09	-11.0E-09	-14.6E-09	-9.8E-09	-15.9E-09	-11.0E-09	-8.5E-09
23	-13.4E-09	-17.1E-09	-15.9E-09	-15.9E-09	-15.9E-09	-14.6E-09	-12.2E-09
24	-15.9E-09	-17.1E-09	-7.3E-09	-18.3E-09	-7.3E-09	-13.4E-09	-11.0E-09
25	-14.6E-09	-13.4E-09	-15.9E-09	-17.1E-09	-13.4E-09	-8.5E-09	-9.8E-09
26	-17.1E-09	-18.3E-09	-13.4E-09	-14.6E-09	-17.1E-09	-8.5E-09	-8.5E-09
27	-11.0E-09	-13.4E-09	-11.0E-09	-17.1E-09	-15.9E-09	-12.2E-09	-13.4E-09
28	-9.8E-09	-20.8E-09	-15.9E-09	-14.6E-09	-15.9E-09	-11.0E-09	-13.4E-09
29	-11.0E-09	-17.1E-09	-15.9E-09	-9.8E-09	-14.6E-09	-7.3E-09	-12.2E-09
30	-13.4E-09	-12.2E-09	-12.2E-09	-15.9E-09	-14.6E-09	-13.4E-09	-9.8E-09
Statistics							
Min	-17.1E-09	-20.8E-09	-15.9E-09	-18.3E-09	-17.1E-09	-14.6E-09	-13.4E-09
Max	-7.3E-09	-11.0E-09	-7.3E-09	-9.8E-09	-7.3E-09	-7.3E-09	-8.5E-09
Average	-12.2E-09	-15.6E-09	-13.7E-09	-14.4E-09	-14.8E-09	-11.0E-09	-10.7E-09
Std Deviation	3.0E-09	2.9E-09	2.7E-09	3.0E-09	2.7E-09	2.3E-09	1.9E-09

Measurements

IihDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-8.5E-09	-14.6E-09	-17.1E-09	-14.6E-09	-20.8E-09	-13.4E-09	-9.8E-09
37_OUT_REF	-7.3E-09	-15.9E-09	-14.6E-09	-14.6E-09	-12.2E-09	-15.9E-09	-7.3E-09
OFF samples							
31	-8.5E-09	-11.0E-09	-12.2E-09	-13.4E-09	-13.4E-09	-17.1E-09	-9.8E-09
32	-7.3E-09	-13.4E-09	-12.2E-09	-14.6E-09	-17.1E-09	-8.5E-09	-11.0E-09
33	-11.0E-09	-12.2E-09	-9.8E-09	-8.5E-09	-12.2E-09	-14.6E-09	-11.0E-09
34	-14.6E-09	-15.9E-09	-9.8E-09	-19.5E-09	-12.2E-09	-12.2E-09	-9.8E-09
35	-11.0E-09	-15.9E-09	-13.4E-09	-15.9E-09	-17.1E-09	-15.9E-09	-11.0E-09
Statistics							
Min	-14.6E-09	-15.9E-09	-13.4E-09	-19.5E-09	-17.1E-09	-17.1E-09	-11.0E-09
Max	-7.3E-09	-11.0E-09	-9.8E-09	-8.5E-09	-12.2E-09	-8.5E-09	-9.8E-09
Average	-10.5E-09	-13.7E-09	-11.5E-09	-14.4E-09	-14.4E-09	-13.7E-09	-10.5E-09
Std Deviation	2.5E-09	2.0E-09	1.5E-09	3.6E-09	2.2E-09	3.0E-09	597.9E-12

Parameter : Input High Leakage Current : IihDQ(3)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

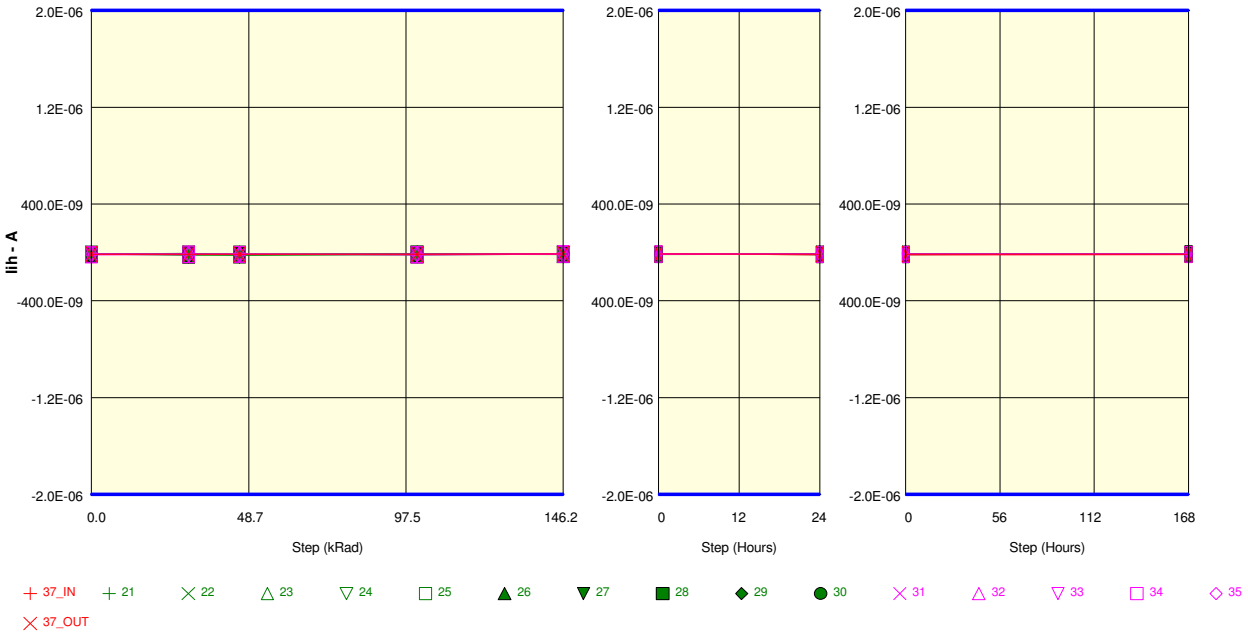
Measurements

IihDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.3E-09	-13.4E-09	-20.8E-09	-19.5E-09	-17.1E-09	-20.8E-09	-25.6E-09
37_OUT_REF	-24.4E-09	-22.0E-09	-17.1E-09	-19.5E-09	-17.1E-09	-20.8E-09	-17.1E-09
ON samples							
21	-17.1E-09	-17.1E-09	-15.9E-09	-18.3E-09	-18.3E-09	-19.5E-09	-23.2E-09
22	-17.1E-09	-20.8E-09	-15.9E-09	-22.0E-09	-15.9E-09	-17.1E-09	-18.3E-09
23	-24.4E-09	-23.2E-09	-25.6E-09	-20.8E-09	-24.4E-09	-23.2E-09	-22.0E-09
24	-15.9E-09	-12.2E-09	-19.5E-09	-13.4E-09	-15.9E-09	-18.3E-09	-18.3E-09
25	-14.6E-09	-19.5E-09	-13.4E-09	-14.6E-09	-19.5E-09	-18.3E-09	-20.8E-09
26	-25.6E-09	-19.5E-09	-23.2E-09	-18.3E-09	-20.8E-09	-22.0E-09	-17.1E-09
27	-19.5E-09	-14.6E-09	-17.1E-09	-20.8E-09	-20.8E-09	-23.2E-09	-15.9E-09
28	-18.3E-09	-15.9E-09	-20.8E-09	-23.2E-09	-20.8E-09	-23.2E-09	-26.9E-09
29	-19.5E-09	-12.2E-09	-14.6E-09	-19.5E-09	-15.9E-09	-14.6E-09	-20.8E-09
30	-23.2E-09	-19.5E-09	-17.1E-09	-17.1E-09	-15.9E-09	-17.1E-09	-18.3E-09
Statistics							
Min	-25.6E-09	-23.2E-09	-25.6E-09	-23.2E-09	-24.4E-09	-23.2E-09	-26.9E-09
Max	-14.6E-09	-12.2E-09	-13.4E-09	-13.4E-09	-15.9E-09	-14.6E-09	-15.9E-09
Average	-19.5E-09	-17.5E-09	-18.3E-09	-18.8E-09	-18.8E-09	-19.7E-09	-20.1E-09
Std Deviation	3.5E-09	3.5E-09	3.7E-09	2.9E-09	2.8E-09	2.9E-09	3.1E-09

Measurements

IihDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-18.3E-09	-13.4E-09	-20.8E-09	-19.5E-09	-17.1E-09	-20.8E-09	-25.6E-09
37_OUT_REF	-24.4E-09	-22.0E-09	-17.1E-09	-19.5E-09	-17.1E-09	-20.8E-09	-17.1E-09
OFF samples							
31	-22.0E-09	-13.4E-09	-17.1E-09	-17.1E-09	-18.3E-09	-24.4E-09	-19.5E-09
32	-14.6E-09	-12.2E-09	-14.6E-09	-15.9E-09	-19.5E-09	-18.3E-09	-24.4E-09
33	-19.5E-09	-19.5E-09	-14.6E-09	-20.8E-09	-18.3E-09	-22.0E-09	-20.8E-09
34	-19.5E-09	-17.1E-09	-20.8E-09	-17.1E-09	-24.4E-09	-23.2E-09	-25.6E-09
35	-18.3E-09	-14.6E-09	-25.6E-09	-20.8E-09	-18.3E-09	-20.8E-09	-20.8E-09
Statistics							
Min	-22.0E-09	-19.5E-09	-25.6E-09	-20.8E-09	-24.4E-09	-24.4E-09	-25.6E-09
Max	-14.6E-09	-12.2E-09	-14.6E-09	-15.9E-09	-18.3E-09	-18.3E-09	-19.5E-09
Average	-18.8E-09	-15.4E-09	-18.6E-09	-18.3E-09	-19.8E-09	-21.7E-09	-22.2E-09
Std Deviation	2.4E-09	2.6E-09	4.2E-09	2.0E-09	2.4E-09	2.1E-09	2.4E-09

Parameter : Input High Leakage Current : IihDQ(4)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IihDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-17.1E-09	-15.9E-09	-13.4E-09	-9.8E-09	-20.8E-09	-18.3E-09
37_OUT_REF	-14.6E-09	-15.9E-09	-15.9E-09	-17.1E-09	-12.2E-09	-13.4E-09	-17.1E-09
ON samples							
21	-12.2E-09	-17.1E-09	-22.0E-09	-13.4E-09	-15.9E-09	-11.0E-09	-13.4E-09
22	-11.0E-09	-7.3E-09	-14.6E-09	-13.4E-09	-12.2E-09	-9.8E-09	-12.2E-09
23	-13.4E-09	-17.1E-09	-13.4E-09	-18.3E-09	-14.6E-09	-12.2E-09	-14.6E-09
24	-17.1E-09	-12.2E-09	-18.3E-09	-12.2E-09	-17.1E-09	-13.4E-09	-8.5E-09
25	-15.9E-09	-18.3E-09	-12.2E-09	-12.2E-09	-14.6E-09	-18.3E-09	-15.9E-09
26	-14.6E-09	-20.8E-09	-18.3E-09	-17.1E-09	-18.3E-09	-14.6E-09	-14.6E-09
27	-13.4E-09	-19.5E-09	-18.3E-09	-17.1E-09	-13.4E-09	-14.6E-09	-13.4E-09
28	-14.6E-09	-20.8E-09	-20.8E-09	-22.0E-09	-15.9E-09	-18.3E-09	-12.2E-09
29	-12.2E-09	-17.1E-09	-18.3E-09	-12.2E-09	-11.0E-09	-11.0E-09	-11.0E-09
30	-15.9E-09	-19.5E-09	-20.8E-09	-17.1E-09	-12.2E-09	-12.2E-09	-11.0E-09
Statistics							
Min	-17.1E-09	-20.8E-09	-22.0E-09	-22.0E-09	-18.3E-09	-18.3E-09	-15.9E-09
Max	-11.0E-09	-7.3E-09	-12.2E-09	-12.2E-09	-11.0E-09	-9.8E-09	-8.5E-09
Average	-14.0E-09	-17.0E-09	-17.7E-09	-15.5E-09	-14.5E-09	-13.5E-09	-12.7E-09
Std Deviation	1.8E-09	4.0E-09	3.1E-09	3.1E-09	2.2E-09	2.8E-09	2.1E-09

Measurements

IihDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-17.1E-09	-15.9E-09	-13.4E-09	-9.8E-09	-20.8E-09	-18.3E-09
37_OUT_REF	-14.6E-09	-15.9E-09	-15.9E-09	-17.1E-09	-12.2E-09	-13.4E-09	-17.1E-09
OFF samples							
31	-13.4E-09	-17.1E-09	-15.9E-09	-15.9E-09	-14.6E-09	-15.9E-09	-14.6E-09
32	-17.1E-09	-18.3E-09	-17.1E-09	-20.8E-09	-13.4E-09	-19.5E-09	-19.5E-09
33	-17.1E-09	-11.0E-09	-17.1E-09	-14.6E-09	-9.8E-09	-17.1E-09	-15.9E-09
34	-20.8E-09	-18.3E-09	-14.6E-09	-19.5E-09	-17.1E-09	-14.6E-09	-14.6E-09
35	-12.2E-09	-13.4E-09	-17.1E-09	-14.6E-09	-15.9E-09	-11.0E-09	-11.0E-09
Statistics							
Min	-20.8E-09	-18.3E-09	-17.1E-09	-20.8E-09	-17.1E-09	-19.5E-09	-19.5E-09
Max	-12.2E-09	-11.0E-09	-14.6E-09	-14.6E-09	-9.8E-09	-11.0E-09	-11.0E-09
Average	-16.1E-09	-15.6E-09	-16.4E-09	-17.1E-09	-14.2E-09	-15.6E-09	-15.1E-09
Std Deviation	3.0E-09	2.9E-09	976.8E-12	2.6E-09	2.5E-09	2.8E-09	2.7E-09

Parameter : Input High Leakage Current : IihDQ(5)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-11.0E-09	-13.4E-09	-11.0E-09	-7.3E-09	-6.1E-09	-13.4E-09
37_OUT_REF	-8.5E-09	-7.3E-09	-12.2E-09	-12.2E-09	-12.2E-09	-3.7E-09	-4.9E-09
ON samples							
21	-13.4E-09	-8.5E-09	-7.3E-09	-13.4E-09	-13.4E-09	-11.0E-09	-8.5E-09
22	-13.4E-09	-13.4E-09	-14.6E-09	-12.2E-09	-13.4E-09	-14.6E-09	-9.8E-09
23	-9.8E-09	-12.2E-09	-9.8E-09	-8.5E-09	-9.8E-09	-9.8E-09	-9.8E-09
24	-8.5E-09	-7.3E-09	-14.6E-09	-9.8E-09	-8.5E-09	-11.0E-09	-7.3E-09
25	-11.0E-09	-8.5E-09	-9.8E-09	-6.1E-09	-9.8E-09	-8.5E-09	-8.5E-09
26	-6.1E-09	-11.0E-09	-14.6E-09	-9.8E-09	-13.4E-09	-12.2E-09	-8.5E-09
27	-9.8E-09	-11.0E-09	-9.8E-09	-13.4E-09	-13.4E-09	-13.4E-09	-12.2E-09
28	-9.8E-09	-13.4E-09	-7.3E-09	-11.0E-09	-7.3E-09	-13.4E-09	-11.0E-09
29	-14.6E-09	-7.3E-09	-9.8E-09	-8.5E-09	-11.0E-09	-12.2E-09	-12.2E-09
30	-12.2E-09	-15.9E-09	-13.4E-09	-9.8E-09	-9.8E-09	-9.8E-09	-12.2E-09
Statistics							
Min	-14.6E-09	-15.9E-09	-14.6E-09	-13.4E-09	-13.4E-09	-14.6E-09	-12.2E-09
Max	-6.1E-09	-7.3E-09	-7.3E-09	-6.1E-09	-7.3E-09	-8.5E-09	-7.3E-09
Average	-10.9E-09	-10.9E-09	-11.1E-09	-10.3E-09	-11.0E-09	-11.6E-09	-10.0E-09
Std Deviation	2.5E-09	2.8E-09	2.8E-09	2.2E-09	2.2E-09	1.8E-09	1.7E-09

Measurements

IihDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-12.2E-09	-11.0E-09	-13.4E-09	-11.0E-09	-7.3E-09	-6.1E-09	-13.4E-09
37_OUT_REF	-8.5E-09	-7.3E-09	-12.2E-09	-12.2E-09	-12.2E-09	-3.7E-09	-4.9E-09
OFF samples							
31	-8.5E-09	-12.2E-09	-4.9E-09	-7.3E-09	-8.5E-09	-12.2E-09	-12.2E-09
32	-14.6E-09	-8.5E-09	-4.9E-09	-11.0E-09	-13.4E-09	-8.5E-09	-8.5E-09
33	-12.2E-09	-8.5E-09	-14.6E-09	-14.6E-09	-9.8E-09	-11.0E-09	-7.3E-09
34	-14.6E-09	-11.0E-09	-15.9E-09	-13.4E-09	-14.6E-09	-14.6E-09	-7.3E-09
35	-7.3E-09	-9.8E-09	-8.5E-09	-6.1E-09	-8.5E-09	-4.9E-09	-9.8E-09
Statistics							
Min	-14.6E-09	-12.2E-09	-15.9E-09	-14.6E-09	-14.6E-09	-14.6E-09	-12.2E-09
Max	-7.3E-09	-8.5E-09	-4.9E-09	-6.1E-09	-8.5E-09	-4.9E-09	-7.3E-09
Average	-11.5E-09	-10.0E-09	-9.8E-09	-10.5E-09	-11.0E-09	-10.3E-09	-9.0E-09
Std Deviation	3.0E-09	1.4E-09	4.7E-09	3.3E-09	2.6E-09	3.3E-09	1.8E-09

Parameter : Input High Leakage Current : IihDQ(6)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-20.8E-09	-19.5E-09	-18.3E-09	-23.2E-09	-11.0E-09	-15.9E-09
37_OUT_REF	-13.4E-09	-19.5E-09	-22.0E-09	-22.0E-09	-18.3E-09	-15.9E-09	-17.1E-09
ON samples							
21	-19.5E-09	-11.0E-09	-23.2E-09	-17.1E-09	-23.2E-09	-18.3E-09	-18.3E-09
22	-18.3E-09	-13.4E-09	-12.2E-09	-15.9E-09	-23.2E-09	-14.6E-09	-12.2E-09
23	-19.5E-09	-25.6E-09	-14.6E-09	-22.0E-09	-19.5E-09	-18.3E-09	-18.3E-09
24	-14.6E-09	-15.9E-09	-22.0E-09	-19.5E-09	-18.3E-09	-17.1E-09	-9.8E-09
25	-13.4E-09	-12.2E-09	-12.2E-09	-17.1E-09	-19.5E-09	-14.6E-09	-13.4E-09
26	-13.4E-09	-18.3E-09	-14.6E-09	-19.5E-09	-18.3E-09	-15.9E-09	-19.5E-09
27	-19.5E-09	-13.4E-09	-17.1E-09	-18.3E-09	-15.9E-09	-12.2E-09	-8.5E-09
28	-19.5E-09	-18.3E-09	-14.6E-09	-15.9E-09	-18.3E-09	-15.9E-09	-18.3E-09
29	-17.1E-09	-15.9E-09	-18.3E-09	-20.8E-09	-19.5E-09	-13.4E-09	-18.3E-09
30	-20.8E-09	-18.3E-09	-19.5E-09	-23.2E-09	-17.1E-09	-13.4E-09	-15.9E-09
Statistics							
Min	-20.8E-09	-25.6E-09	-23.2E-09	-23.2E-09	-23.2E-09	-18.3E-09	-19.5E-09
Max	-13.4E-09	-11.0E-09	-12.2E-09	-15.9E-09	-15.9E-09	-12.2E-09	-8.5E-09
Average	-17.6E-09	-16.2E-09	-16.8E-09	-18.9E-09	-19.3E-09	-15.4E-09	-15.3E-09
Std Deviation	2.6E-09	4.0E-09	3.7E-09	2.4E-09	2.2E-09	2.0E-09	3.8E-09

Measurements

IihDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-20.8E-09	-19.5E-09	-18.3E-09	-23.2E-09	-11.0E-09	-15.9E-09
37_OUT_REF	-13.4E-09	-19.5E-09	-22.0E-09	-22.0E-09	-18.3E-09	-15.9E-09	-17.1E-09
OFF samples							
31	-13.4E-09	-15.9E-09	-12.2E-09	-19.5E-09	-18.3E-09	-19.5E-09	-9.8E-09
32	-20.8E-09	-22.0E-09	-19.5E-09	-22.0E-09	-11.0E-09	-12.2E-09	-13.4E-09
33	-15.9E-09	-14.6E-09	-20.8E-09	-17.1E-09	-23.2E-09	-14.6E-09	-12.2E-09
34	-12.2E-09	-23.2E-09	-20.8E-09	-13.4E-09	-19.5E-09	-11.0E-09	-19.5E-09
35	-19.5E-09	-20.8E-09	-22.0E-09	-14.6E-09	-11.0E-09	-15.9E-09	-9.8E-09
Statistics							
Min	-20.8E-09	-23.2E-09	-22.0E-09	-22.0E-09	-23.2E-09	-19.5E-09	-19.5E-09
Max	-12.2E-09	-14.6E-09	-12.2E-09	-13.4E-09	-11.0E-09	-11.0E-09	-9.8E-09
Average	-16.4E-09	-19.3E-09	-19.0E-09	-17.3E-09	-16.6E-09	-14.6E-09	-12.9E-09
Std Deviation	3.3E-09	3.4E-09	3.5E-09	3.1E-09	4.9E-09	3.0E-09	3.6E-09

Parameter : Input High Leakage Current : IihDQ(7)
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-15.9E-09	-14.6E-09	-14.6E-09	-13.4E-09	-11.0E-09	-11.0E-09
37_OUT_REF	-12.2E-09	-9.8E-09	-15.9E-09	-8.5E-09	-14.6E-09	-6.1E-09	-17.1E-09
ON samples							
21	-13.4E-09	-12.2E-09	-7.3E-09	-12.2E-09	-12.2E-09	-9.8E-09	-9.8E-09
22	-8.5E-09	-12.2E-09	-4.9E-09	-13.4E-09	-4.9E-09	-1.2E-09	-12.2E-09
23	-14.6E-09	-13.4E-09	-7.3E-09	-6.1E-09	-14.6E-09	-11.0E-09	-14.6E-09
24	-8.5E-09	-8.5E-09	-6.1E-09	-7.3E-09	-7.3E-09	-11.0E-09	-9.8E-09
25	-13.4E-09	-12.2E-09	-13.4E-09	-7.3E-09	-13.4E-09	-11.0E-09	-9.8E-09
26	-6.1E-09	-14.6E-09	-13.4E-09	-12.2E-09	-11.0E-09	-8.5E-09	-13.4E-09
27	-13.4E-09	-9.8E-09	-12.2E-09	-6.1E-09	-8.5E-09	-8.5E-09	-9.8E-09
28	-13.4E-09	-14.6E-09	-11.0E-09	-11.0E-09	-6.1E-09	-8.5E-09	-14.6E-09
29	-11.0E-09	-13.4E-09	-11.0E-09	-8.5E-09	-9.8E-09	-8.5E-09	-7.3E-09
30	-9.8E-09	-11.0E-09	-13.4E-09	-9.8E-09	-8.5E-09	-11.0E-09	-7.3E-09
Statistics							
Min	-14.6E-09	-14.6E-09	-13.4E-09	-13.4E-09	-14.6E-09	-11.0E-09	-14.6E-09
Max	-6.1E-09	-8.5E-09	-4.9E-09	-6.1E-09	-4.9E-09	-1.2E-09	-7.3E-09
Average	-11.2E-09	-12.2E-09	-10.0E-09	-9.4E-09	-9.6E-09	-8.9E-09	-10.9E-09
Std Deviation	2.7E-09	1.9E-09	3.1E-09	2.6E-09	3.0E-09	2.8E-09	2.6E-09

Measurements

IihDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-15.9E-09	-14.6E-09	-14.6E-09	-13.4E-09	-11.0E-09	-11.0E-09
37_OUT_REF	-12.2E-09	-9.8E-09	-15.9E-09	-8.5E-09	-14.6E-09	-6.1E-09	-17.1E-09
OFF samples							
31	-9.8E-09	-7.3E-09	-9.8E-09	-3.7E-09	-3.7E-09	-6.1E-09	-8.5E-09
32	-14.6E-09	-12.2E-09	-11.0E-09	-9.8E-09	-4.9E-09	-8.5E-09	-11.0E-09
33	-13.4E-09	-14.6E-09	-9.8E-09	-8.5E-09	-9.8E-09	-7.3E-09	-13.4E-09
34	-8.5E-09	-9.8E-09	-9.8E-09	-6.1E-09	-6.1E-09	-12.2E-09	-9.8E-09
35	-7.3E-09	-9.8E-09	-8.5E-09	-13.4E-09	-13.4E-09	-8.5E-09	-9.8E-09
Statistics							
Min	-14.6E-09	-14.6E-09	-11.0E-09	-13.4E-09	-13.4E-09	-12.2E-09	-13.4E-09
Max	-7.3E-09	-7.3E-09	-8.5E-09	-3.7E-09	-3.7E-09	-6.1E-09	-8.5E-09
Average	-10.7E-09	-10.7E-09	-9.8E-09	-8.3E-09	-7.6E-09	-8.5E-09	-10.5E-09
Std Deviation	2.8E-09	2.5E-09	771.9E-12	3.3E-09	3.6E-09	2.0E-09	1.7E-09

Parameter : Input High Leakage Current : IihDQS_
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

Measurements

IihDQS_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-15.9E-09	-14.6E-09	-11.0E-09	-15.9E-09	-15.9E-09	-14.6E-09	-11.0E-09
37_OUT_REF	-11.0E-09	-13.4E-09	-9.8E-09	-12.2E-09	-17.1E-09	-15.9E-09	-11.0E-09
ON samples							
21	-13.4E-09	-11.0E-09	-13.4E-09	-11.0E-09	-8.5E-09	-15.9E-09	-13.4E-09
22	-15.9E-09	-11.0E-09	-12.2E-09	-9.8E-09	-7.3E-09	-12.2E-09	-9.8E-09
23	-15.9E-09	-13.4E-09	-17.1E-09	-14.6E-09	-14.6E-09	-13.4E-09	-9.8E-09
24	-11.0E-09	-8.5E-09	-7.3E-09	-7.3E-09	-13.4E-09	-13.4E-09	-11.0E-09
25	-14.6E-09	-14.6E-09	-14.6E-09	-13.4E-09	-13.4E-09	-15.9E-09	-17.1E-09
26	-11.0E-09	-12.2E-09	-12.2E-09	-11.0E-09	-9.8E-09	-14.6E-09	-12.2E-09
27	-15.9E-09	-13.4E-09	-11.0E-09	-11.0E-09	-6.1E-09	-13.4E-09	-6.1E-09
28	-7.3E-09	-11.0E-09	-13.4E-09	-12.2E-09	-12.2E-09	-9.8E-09	-12.2E-09
29	-12.2E-09	-6.1E-09	-7.3E-09	-15.9E-09	-9.8E-09	-7.3E-09	-11.0E-09
30	-12.2E-09	-13.4E-09	-12.2E-09	-13.4E-09	-13.4E-09	-8.5E-09	-12.2E-09
Statistics							
Min	-15.9E-09	-14.6E-09	-17.1E-09	-15.9E-09	-14.6E-09	-15.9E-09	-17.1E-09
Max	-7.3E-09	-6.1E-09	-7.3E-09	-7.3E-09	-6.1E-09	-7.3E-09	-6.1E-09
Average	-12.9E-09	-11.5E-09	-12.1E-09	-12.0E-09	-10.9E-09	-12.5E-09	-11.5E-09
Std Deviation	2.6E-09	2.5E-09	2.9E-09	2.4E-09	2.8E-09	2.8E-09	2.7E-09

Measurements

IihDQS_	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-15.9E-09	-14.6E-09	-11.0E-09	-15.9E-09	-15.9E-09	-14.6E-09	-11.0E-09
37_OUT_REF	-11.0E-09	-13.4E-09	-9.8E-09	-12.2E-09	-17.1E-09	-15.9E-09	-11.0E-09
OFF samples							
31	-12.2E-09	-14.6E-09	-17.1E-09	-15.9E-09	-12.2E-09	-15.9E-09	-8.5E-09
32	-12.2E-09	-12.2E-09	-8.5E-09	-6.1E-09	-8.5E-09	-7.3E-09	-6.1E-09
33	-17.1E-09	-6.1E-09	-11.0E-09	-4.9E-09	-9.8E-09	-13.4E-09	-8.5E-09
34	-9.8E-09	-17.1E-09	-14.6E-09	-14.6E-09	-11.0E-09	-9.8E-09	-15.9E-09
35	-12.2E-09	-12.2E-09	-8.5E-09	-12.2E-09	-9.8E-09	-12.2E-09	-11.0E-09
Statistics							
Min	-17.1E-09	-17.1E-09	-17.1E-09	-15.9E-09	-12.2E-09	-15.9E-09	-15.9E-09
Max	-9.8E-09	-6.1E-09	-8.5E-09	-4.9E-09	-8.5E-09	-7.3E-09	-6.1E-09
Average	-12.7E-09	-12.5E-09	-12.0E-09	-10.7E-09	-10.3E-09	-11.7E-09	-10.0E-09
Std Deviation	2.4E-09	3.7E-09	3.4E-09	4.5E-09	1.2E-09	2.9E-09	3.3E-09

Parameter : Input High Leakage Current : IihDQS
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.

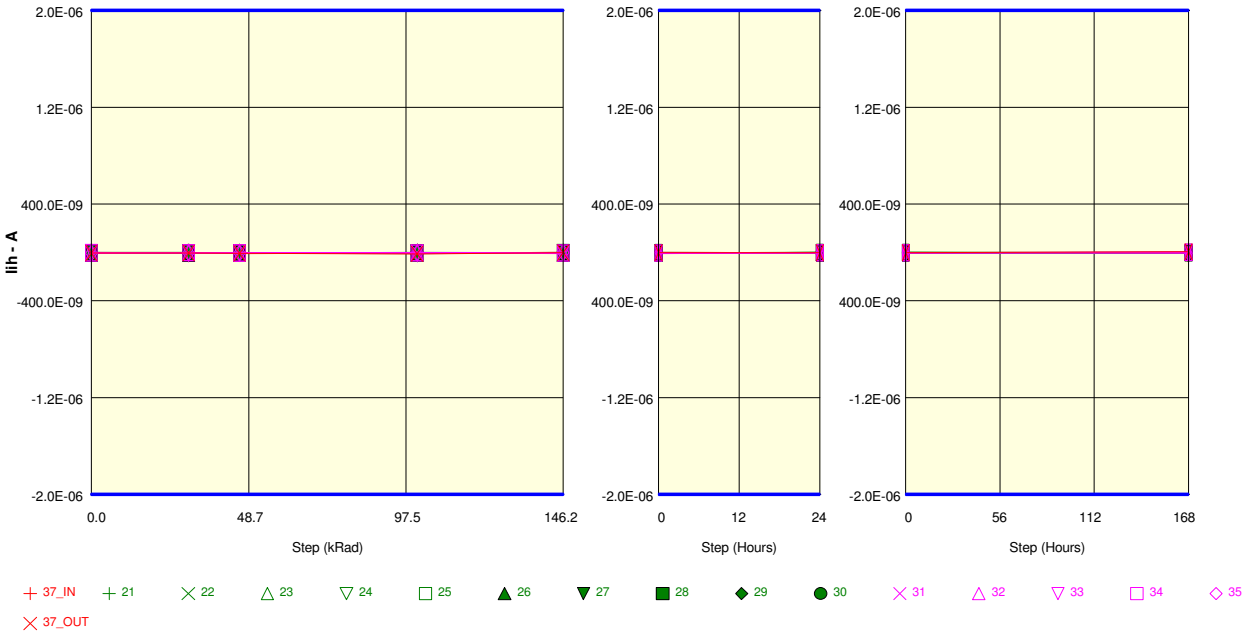
Measurements

IihDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-17.1E-09	-11.0E-09	-14.6E-09	-13.4E-09	-13.4E-09	-17.1E-09	-14.6E-09
37_OUT_REF	-17.1E-09	-14.6E-09	-14.6E-09	-13.4E-09	-14.6E-09	-13.4E-09	-13.4E-09
ON samples							
21	-14.6E-09	-11.0E-09	-15.9E-09	-15.9E-09	-8.5E-09	-11.0E-09	-19.5E-09
22	-12.2E-09	-11.0E-09	-18.3E-09	-7.3E-09	-7.3E-09	-7.3E-09	-12.2E-09
23	-17.1E-09	-11.0E-09	-13.4E-09	-18.3E-09	-13.4E-09	-9.8E-09	-8.5E-09
24	-7.3E-09	-13.4E-09	-8.5E-09	-6.1E-09	-13.4E-09	-9.8E-09	-13.4E-09
25	-19.5E-09	-13.4E-09	-13.4E-09	-11.0E-09	-9.8E-09	-12.2E-09	-15.9E-09
26	-11.0E-09	-7.3E-09	-8.5E-09	-6.1E-09	-13.4E-09	-11.0E-09	-13.4E-09
27	-18.3E-09	-14.6E-09	-11.0E-09	-14.6E-09	-9.8E-09	-9.8E-09	-17.1E-09
28	-13.4E-09	-13.4E-09	-13.4E-09	-13.4E-09	-13.4E-09	-11.0E-09	-13.4E-09
29	-9.8E-09	-14.6E-09	-9.8E-09	-15.9E-09	-12.2E-09	-11.0E-09	-9.8E-09
30	-14.6E-09	-13.4E-09	-13.4E-09	-17.1E-09	-12.2E-09	-14.6E-09	-13.4E-09
Statistics							
Min	-19.5E-09	-14.6E-09	-18.3E-09	-18.3E-09	-13.4E-09	-14.6E-09	-19.5E-09
Max	-7.3E-09	-7.3E-09	-8.5E-09	-6.1E-09	-7.3E-09	-7.3E-09	-8.5E-09
Average	-13.8E-09	-12.3E-09	-12.6E-09	-12.6E-09	-11.4E-09	-10.7E-09	-13.7E-09
Std Deviation	3.7E-09	2.1E-09	3.0E-09	4.4E-09	2.2E-09	1.8E-09	3.1E-09

Measurements

IihDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-17.1E-09	-11.0E-09	-14.6E-09	-13.4E-09	-13.4E-09	-17.1E-09	-14.6E-09
37_OUT_REF	-17.1E-09	-14.6E-09	-14.6E-09	-13.4E-09	-14.6E-09	-13.4E-09	-13.4E-09
OFF samples							
31	-17.1E-09	-13.4E-09	-13.4E-09	-11.0E-09	-9.8E-09	-13.4E-09	-8.5E-09
32	-17.1E-09	-14.6E-09	-11.0E-09	-15.9E-09	-12.2E-09	-14.6E-09	-9.8E-09
33	-15.9E-09	-13.4E-09	-9.8E-09	-8.5E-09	-12.2E-09	-15.9E-09	-9.8E-09
34	-12.2E-09	-8.5E-09	-13.4E-09	-11.0E-09	-13.4E-09	-13.4E-09	-17.1E-09
35	-8.5E-09	-13.4E-09	-15.9E-09	-15.9E-09	-11.0E-09	-13.4E-09	-17.1E-09
Statistics							
Min	-17.1E-09	-14.6E-09	-15.9E-09	-15.9E-09	-13.4E-09	-15.9E-09	-17.1E-09
Max	-8.5E-09	-8.5E-09	-9.8E-09	-8.5E-09	-9.8E-09	-13.4E-09	-8.5E-09
Average	-14.2E-09	-12.7E-09	-12.7E-09	-12.5E-09	-11.7E-09	-14.2E-09	-12.5E-09
Std Deviation	3.3E-09	2.1E-09	2.1E-09	2.9E-09	1.2E-09	976.4E-12	3.8E-09

Parameter : Input High Leakage Current : IihODT
Test conditions : Vin=1.35V
Unit : A
Spec Limit Min : -2.0E-06
Spec Limit Max : 2.0E-06
Spec limits are represented in bold lines on the graphic.



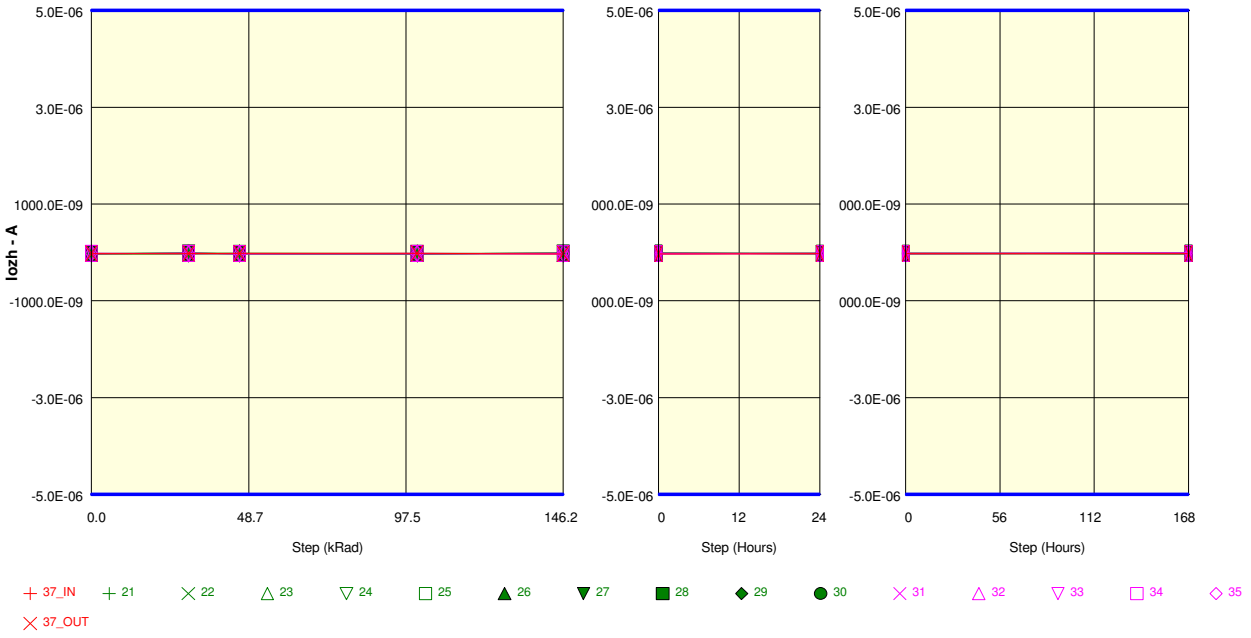
Measurements

IihODT	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-2.9E-09	-8.2E-09	-4.4E-09	-589.6E-12	-2.9E-09	-2.9E-09
37_OUT_REF	-5.2E-09	-3.6E-09	-5.9E-09	-12.0E-09	-1.4E-09	-2.1E-09	4.8E-09
ON samples							
21	-4.4E-09	-2.1E-09	-4.4E-09	-2.9E-09	-3.6E-09	-589.6E-12	-1.4E-09
22	-1.4E-09	-5.9E-09	-6.7E-09	-9.0E-09	-5.2E-09	-1.4E-09	-2.9E-09
23	-5.9E-09	-5.2E-09	-7.5E-09	-2.1E-09	-2.1E-09	-1.4E-09	-589.6E-12
24	-3.6E-09	-4.4E-09	-1.4E-09	-4.4E-09	936.3E-12	-2.9E-09	-3.6E-09
25	-2.9E-09	-3.6E-09	-5.9E-09	-5.2E-09	-4.4E-09	-589.6E-12	936.3E-12
26	-2.9E-09	-6.7E-09	-2.9E-09	-5.2E-09	-4.4E-09	-2.9E-09	-3.6E-09
27	-3.6E-09	-2.9E-09	-2.1E-09	-3.6E-09	-2.9E-09	173.3E-12	-5.2E-09
28	-5.9E-09	-2.1E-09	-2.1E-09	-4.4E-09	-3.6E-09	-3.6E-09	173.3E-12
29	-2.1E-09	-5.9E-09	-4.4E-09	-589.6E-12	-2.1E-09	-589.6E-12	-1.4E-09
30	936.3E-12	936.3E-12	-7.5E-09	-7.5E-09	-2.9E-09	-4.4E-09	-5.9E-09
Statistics							
Min	-5.9E-09	-6.7E-09	-7.5E-09	-9.0E-09	-5.2E-09	-4.4E-09	-5.9E-09
Max	936.3E-12	936.3E-12	-1.4E-09	-589.6E-12	936.3E-12	173.3E-12	936.3E-12
Average	-3.2E-09	-3.8E-09	-4.5E-09	-4.5E-09	-3.0E-09	-1.8E-09	-2.3E-09
Std Deviation	2.0E-09	2.2E-09	2.2E-09	2.3E-09	1.6E-09	1.5E-09	2.2E-09

Measurements

IihODT	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-5.9E-09	-2.9E-09	-8.2E-09	-4.4E-09	-589.6E-12	-2.9E-09	-2.9E-09
37_OUT_REF	-5.2E-09	-3.6E-09	-5.9E-09	-12.0E-09	-1.4E-09	-2.1E-09	4.8E-09
OFF samples							
31	-2.1E-09	-2.9E-09	-1.4E-09	-2.1E-09	-8.2E-09	-2.9E-09	936.3E-12
32	-4.4E-09	-2.9E-09	-6.7E-09	-1.4E-09	-3.6E-09	-1.4E-09	-589.6E-12
33	173.3E-12	-4.4E-09	-2.1E-09	-4.4E-09	-5.2E-09	-2.9E-09	2.5E-09
34	-4.4E-09	-2.1E-09	-4.4E-09	-5.2E-09	-3.6E-09	-4.4E-09	173.3E-12
35	-7.5E-09	-4.4E-09	-4.4E-09	-3.6E-09	-2.9E-09	-3.6E-09	-6.7E-09
Statistics							
Min	-7.5E-09	-4.4E-09	-6.7E-09	-5.2E-09	-8.2E-09	-4.4E-09	-6.7E-09
Max	173.3E-12	-2.1E-09	-1.4E-09	-1.4E-09	-2.9E-09	-1.4E-09	2.5E-09
Average	-3.6E-09	-3.3E-09	-3.8E-09	-3.3E-09	-4.7E-09	-3.0E-09	-742.2E-12
Std Deviation	2.6E-09	915.5E-12	1.9E-09	1.4E-09	1.9E-09	1.0E-09	3.1E-09

Parameter : Output high leakage Current : IozhDQ(0)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



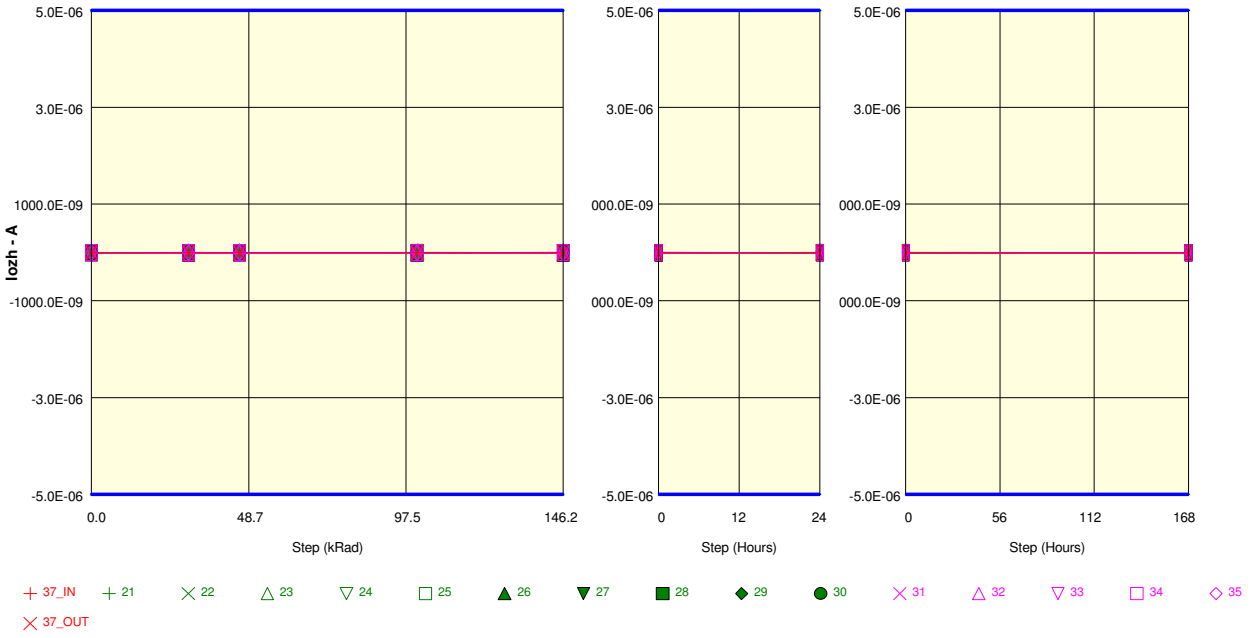
Measurements

IozhDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-20.8E-09	-25.6E-09	-22.0E-09	-23.2E-09	-24.4E-09	-20.8E-09
37_OUT_REF	-22.0E-09	-23.2E-09	-18.3E-09	-18.3E-09	-26.9E-09	-23.2E-09	-24.4E-09
ON samples							
21	-25.6E-09	-19.5E-09	-20.8E-09	-28.1E-09	-15.9E-09	-20.8E-09	-17.1E-09
22	-19.5E-09	-19.5E-09	-20.8E-09	-25.6E-09	-19.5E-09	-14.6E-09	-17.1E-09
23	-22.0E-09	-25.6E-09	-22.0E-09	-23.2E-09	-22.0E-09	-25.6E-09	-19.5E-09
24	-20.8E-09	-13.4E-09	-15.9E-09	-15.9E-09	-17.1E-09	-17.1E-09	-13.4E-09
25	-24.4E-09	-23.2E-09	-23.2E-09	-22.0E-09	-19.5E-09	-23.2E-09	-19.5E-09
26	-23.2E-09	-23.2E-09	-19.5E-09	-20.8E-09	-19.5E-09	-20.8E-09	-18.3E-09
27	-23.2E-09	-15.9E-09	-23.2E-09	-20.8E-09	-15.9E-09	-17.1E-09	-20.8E-09
28	-22.0E-09	-25.6E-09	-20.8E-09	-24.4E-09	-18.3E-09	-20.8E-09	-20.8E-09
29	-23.2E-09	-24.4E-09	-23.2E-09	-20.8E-09	-20.8E-09	-15.9E-09	-20.8E-09
30	-22.0E-09	-17.1E-09	-22.0E-09	-23.2E-09	-18.3E-09	-23.2E-09	-26.9E-09
Statistics							
Min	-25.6E-09	-25.6E-09	-23.2E-09	-28.1E-09	-22.0E-09	-25.6E-09	-26.9E-09
Max	-19.5E-09	-13.4E-09	-15.9E-09	-15.9E-09	-15.9E-09	-14.6E-09	-13.4E-09
Average	-22.6E-09	-20.8E-09	-21.1E-09	-22.5E-09	-18.7E-09	-19.9E-09	-19.4E-09
Std Deviation	1.7E-09	4.1E-09	2.1E-09	3.1E-09	1.9E-09	3.4E-09	3.3E-09

Measurements

IozhDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-20.8E-09	-25.6E-09	-22.0E-09	-23.2E-09	-24.4E-09	-20.8E-09
37_OUT_REF	-22.0E-09	-23.2E-09	-18.3E-09	-18.3E-09	-26.9E-09	-23.2E-09	-24.4E-09
OFF samples							
31	-22.0E-09	-19.5E-09	-22.0E-09	-20.8E-09	-18.3E-09	-24.4E-09	-14.6E-09
32	-20.8E-09	-15.9E-09	-22.0E-09	-22.0E-09	-18.3E-09	-15.9E-09	-13.4E-09
33	-24.4E-09	-18.3E-09	-23.2E-09	-22.0E-09	-26.9E-09	-20.8E-09	-20.8E-09
34	-15.9E-09	-20.8E-09	-20.8E-09	-19.5E-09	-25.6E-09	-22.0E-09	-18.3E-09
35	-17.1E-09	-20.8E-09	-22.0E-09	-23.2E-09	-23.2E-09	-19.5E-09	-19.5E-09
Statistics							
Min	-24.4E-09	-20.8E-09	-23.2E-09	-23.2E-09	-26.9E-09	-24.4E-09	-20.8E-09
Max	-15.9E-09	-15.9E-09	-20.8E-09	-19.5E-09	-18.3E-09	-15.9E-09	-13.4E-09
Average	-20.0E-09	-19.0E-09	-22.0E-09	-21.5E-09	-22.5E-09	-20.5E-09	-17.3E-09
Std Deviation	3.1E-09	1.8E-09	771.9E-12	1.2E-09	3.6E-09	2.8E-09	2.8E-09

Parameter : Output high leakage Current : IozhDQ(1)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



Measurements

IozhDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-8.5E-09	-1.2E-09	-7.3E-09	-2.4E-09	-4.9E-09	-6.1E-09	-4.9E-09
37_OUT_REF	-3.7E-09	-2.4E-09	-7.3E-09	-7.3E-09	-7.3E-09	-3.7E-09	-2.4E-09
ON samples							
21	-3.7E-09	-4.9E-09	-12.2E-09	-2.4E-09	-7.3E-09	-6.1E-09	-4.9E-09
22	-4.9E-09	-9.8E-09	-13.4E-09	-9.8E-09	-2.4E-09	-3.7E-09	-3.7E-09
23	-6.1E-09	-13.4E-09	-7.3E-09	-4.9E-09	-9.8E-09	-6.1E-09	-7.3E-09
24	-6.1E-09	-3.7E-09	-6.1E-09	-3.7E-09	-6.1E-09	-9.8E-09	-9.8E-09
25	-2.4E-09	-4.9E-09	-8.5E-09	-1.2E-09	-3.7E-09	-3.7E-09	-3.7E-09
26	-4.9E-09	-11.0E-09	-6.1E-09	-13.4E-09	-1.2E-09	-12.2E-09	-8.5E-09
27	-3.7E-09	-4.9E-09	-3.7E-09	-11.0E-09	-6.1E-09	-8.5E-09	-6.1E-09
28	-6.1E-09	-7.3E-09	-7.3E-09	-12.2E-09	-9.8E-09	-1.2E-09	-6.1E-09
29	-4.9E-09	-8.5E-09	-11.0E-09	-2.4E-09	-3.7E-09	-6.1E-09	-2.4E-09
30	-2.4E-09	-12.2E-09	-4.9E-09	-13.4E-09	-12.2E-09	-4.9E-09	-7.3E-09
Statistics							
Min	-6.1E-09	-13.4E-09	-13.4E-09	-13.4E-09	-12.2E-09	-12.2E-09	-9.8E-09
Max	-2.4E-09	-3.7E-09	-3.7E-09	-1.2E-09	-1.2E-09	-1.2E-09	-2.4E-09
Average	-4.5E-09	-8.1E-09	-8.1E-09	-7.4E-09	-6.2E-09	-6.2E-09	-6.0E-09
Std Deviation	1.3E-09	3.3E-09	3.0E-09	4.7E-09	3.4E-09	3.1E-09	2.2E-09

Measurements

IozhDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-8.5E-09	-1.2E-09	-7.3E-09	-2.4E-09	-4.9E-09	-6.1E-09	-4.9E-09
37_OUT_REF	-3.7E-09	-2.4E-09	-7.3E-09	-7.3E-09	-7.3E-09	-3.7E-09	-2.4E-09
OFF samples							
31	-4.9E-09	-8.5E-09	-8.5E-09	-9.8E-09	-7.3E-09	-2.4E-09	-4.9E-09
32	-3.7E-09	-3.7E-09	-7.3E-09	-3.7E-09	0.0E+00	-3.7E-09	-7.3E-09
33	-2.4E-09	-9.8E-09	-8.5E-09	-8.5E-09	-9.8E-09	-6.1E-09	-9.8E-09
34	-3.7E-09	-7.3E-09	-6.1E-09	-7.3E-09	-4.9E-09	-4.9E-09	-9.8E-09
35	-6.1E-09	-9.8E-09	-8.5E-09	-6.1E-09	-12.2E-09	-7.3E-09	-3.7E-09
Statistics							
Min	-6.1E-09	-9.8E-09	-8.5E-09	-9.8E-09	-12.2E-09	-7.3E-09	-9.8E-09
Max	-2.4E-09	-3.7E-09	-6.1E-09	-3.7E-09	0.0E+00	-2.4E-09	-3.7E-09
Average	-4.2E-09	-7.8E-09	-7.8E-09	-7.1E-09	-6.8E-09	-4.9E-09	-7.1E-09
Std Deviation	1.2E-09	2.3E-09	976.6E-12	2.1E-09	4.2E-09	1.7E-09	2.5E-09

Parameter : Output high leakage Current : IozhDQ(2)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.

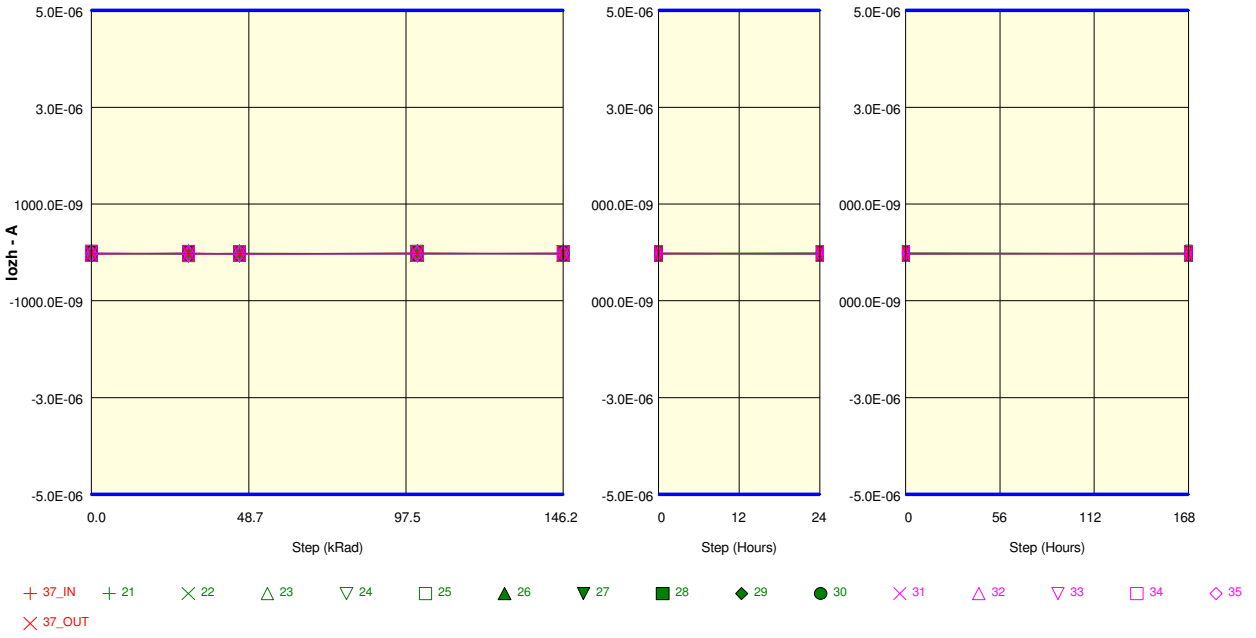
Measurements

IozhDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-12.2E-09	-9.8E-09	-8.5E-09	-15.9E-09	-9.8E-09	-12.2E-09
37_OUT_REF	-4.9E-09	-14.6E-09	-14.6E-09	-17.1E-09	-18.3E-09	-13.4E-09	-8.5E-09
ON samples							
21	-8.5E-09	-8.5E-09	-11.0E-09	-11.0E-09	-13.4E-09	-9.8E-09	-3.7E-09
22	-12.2E-09	-14.6E-09	-12.2E-09	-7.3E-09	-12.2E-09	-9.8E-09	-9.8E-09
23	-11.0E-09	-14.6E-09	-8.5E-09	-15.9E-09	-9.8E-09	-9.8E-09	-8.5E-09
24	-11.0E-09	-11.0E-09	-7.3E-09	-15.9E-09	-9.8E-09	-8.5E-09	-4.9E-09
25	-11.0E-09	-8.5E-09	-9.8E-09	-8.5E-09	-13.4E-09	-9.8E-09	-11.0E-09
26	-7.3E-09	-13.4E-09	-11.0E-09	-4.9E-09	-8.5E-09	-9.8E-09	-9.8E-09
27	-6.1E-09	-9.8E-09	-8.5E-09	-12.2E-09	-11.0E-09	-13.4E-09	-7.3E-09
28	-8.5E-09	-12.2E-09	-7.3E-09	-14.6E-09	-14.6E-09	-7.3E-09	-13.4E-09
29	-6.1E-09	-8.5E-09	-11.0E-09	-9.8E-09	-7.3E-09	-8.5E-09	-12.2E-09
30	-9.8E-09	-12.2E-09	-8.5E-09	-15.9E-09	-8.5E-09	-9.8E-09	-12.2E-09
Statistics							
Min	-12.2E-09	-14.6E-09	-12.2E-09	-15.9E-09	-14.6E-09	-13.4E-09	-13.4E-09
Max	-6.1E-09	-8.5E-09	-7.3E-09	-4.9E-09	-7.3E-09	-7.3E-09	-3.7E-09
Average	-9.2E-09	-11.4E-09	-9.5E-09	-11.6E-09	-10.9E-09	-9.6E-09	-9.3E-09
Std Deviation	2.1E-09	2.3E-09	1.6E-09	3.8E-09	2.3E-09	1.5E-09	3.0E-09

Measurements

IozhDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-12.2E-09	-9.8E-09	-8.5E-09	-15.9E-09	-9.8E-09	-12.2E-09
37_OUT_REF	-4.9E-09	-14.6E-09	-14.6E-09	-17.1E-09	-18.3E-09	-13.4E-09	-8.5E-09
OFF samples							
31	-9.8E-09	-9.8E-09	-6.1E-09	-11.0E-09	-13.4E-09	-8.5E-09	-4.9E-09
32	-11.0E-09	-14.6E-09	-9.8E-09	-8.5E-09	-7.3E-09	-11.0E-09	-9.8E-09
33	-12.2E-09	-7.3E-09	-9.8E-09	-13.4E-09	-17.1E-09	-15.9E-09	-11.0E-09
34	-12.2E-09	-6.1E-09	-7.3E-09	-7.3E-09	-11.0E-09	-3.7E-09	-7.3E-09
35	-9.8E-09	-9.8E-09	-9.8E-09	-9.8E-09	-11.0E-09	-12.2E-09	-12.2E-09
Statistics							
Min	-12.2E-09	-14.6E-09	-9.8E-09	-13.4E-09	-17.1E-09	-15.9E-09	-12.2E-09
Max	-9.8E-09	-6.1E-09	-6.1E-09	-7.3E-09	-7.3E-09	-3.7E-09	-4.9E-09
Average	-11.0E-09	-9.5E-09	-8.5E-09	-10.0E-09	-12.0E-09	-10.3E-09	-9.0E-09
Std Deviation	1.1E-09	2.9E-09	1.5E-09	2.1E-09	3.2E-09	4.1E-09	2.6E-09

Parameter : Output high leakage Current : IozhDQ(3)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



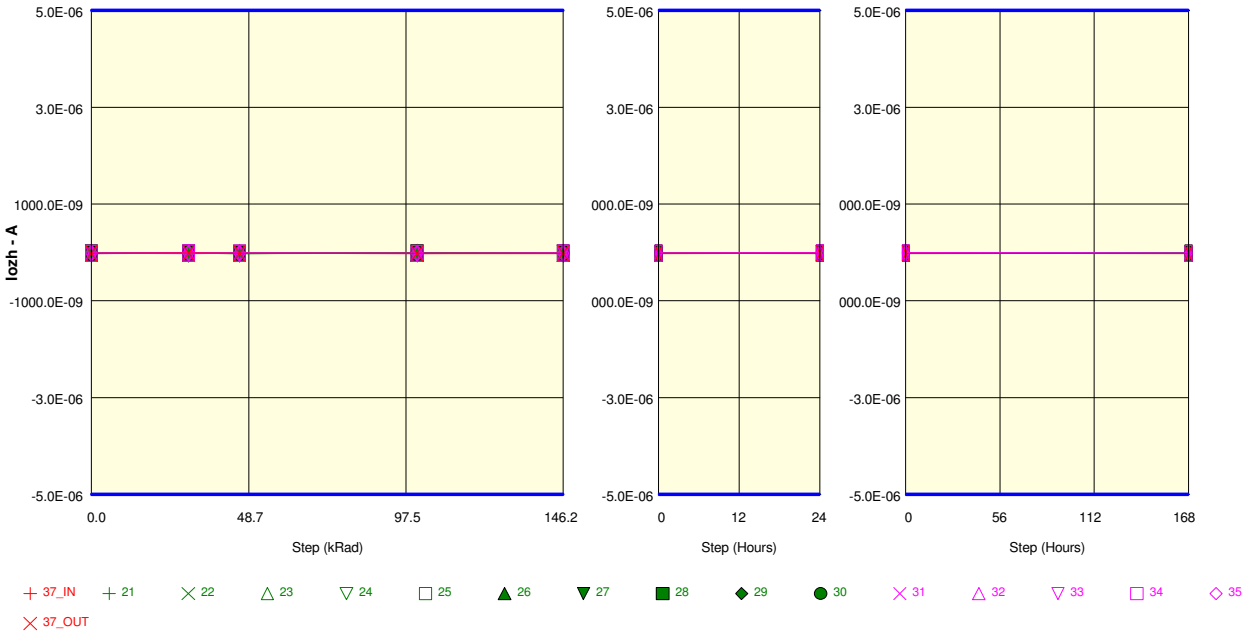
Measurements

IozhDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-22.0E-09	-19.5E-09	-25.6E-09	-23.2E-09	-15.9E-09	-24.4E-09	-25.6E-09
37_OUT_REF	-25.6E-09	-20.8E-09	-24.4E-09	-18.3E-09	-24.4E-09	-24.4E-09	-20.8E-09
ON samples							
21	-22.0E-09	-18.3E-09	-26.9E-09	-19.5E-09	-20.8E-09	-18.3E-09	-23.2E-09
22	-22.0E-09	-18.3E-09	-24.4E-09	-24.4E-09	-17.1E-09	-19.5E-09	-24.4E-09
23	-22.0E-09	-24.4E-09	-19.5E-09	-22.0E-09	-22.0E-09	-23.2E-09	-24.4E-09
24	-23.2E-09	-22.0E-09	-29.3E-09	-24.4E-09	-22.0E-09	-23.2E-09	-20.8E-09
25	-23.2E-09	-22.0E-09	-25.6E-09	-20.8E-09	-20.8E-09	-25.6E-09	-19.5E-09
26	-17.1E-09	-23.2E-09	-20.8E-09	-18.3E-09	-20.8E-09	-19.5E-09	-20.8E-09
27	-19.5E-09	-20.8E-09	-22.0E-09	-19.5E-09	-25.6E-09	-26.9E-09	-23.2E-09
28	-24.4E-09	-26.9E-09	-22.0E-09	-25.6E-09	-24.4E-09	-24.4E-09	-18.3E-09
29	-22.0E-09	-24.4E-09	-18.3E-09	-23.2E-09	-15.9E-09	-18.3E-09	-19.5E-09
30	-22.0E-09	-23.2E-09	-20.8E-09	-20.8E-09	-22.0E-09	-18.3E-09	-22.0E-09
Statistics							
Min	-24.4E-09	-26.9E-09	-29.3E-09	-25.6E-09	-25.6E-09	-26.9E-09	-24.4E-09
Max	-17.1E-09	-18.3E-09	-18.3E-09	-18.3E-09	-15.9E-09	-18.3E-09	-18.3E-09
Average	-21.7E-09	-22.3E-09	-22.9E-09	-21.9E-09	-21.1E-09	-21.7E-09	-21.6E-09
Std Deviation	2.0E-09	2.6E-09	3.3E-09	2.3E-09	2.8E-09	3.1E-09	2.0E-09

Measurements

IozhDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-22.0E-09	-19.5E-09	-25.6E-09	-23.2E-09	-15.9E-09	-24.4E-09	-25.6E-09
37_OUT_REF	-25.6E-09	-20.8E-09	-24.4E-09	-18.3E-09	-24.4E-09	-24.4E-09	-20.8E-09
OFF samples							
31	-19.5E-09	-24.4E-09	-24.4E-09	-18.3E-09	-22.0E-09	-18.3E-09	-20.8E-09
32	-18.3E-09	-22.0E-09	-23.2E-09	-19.5E-09	-17.1E-09	-22.0E-09	-23.2E-09
33	-22.0E-09	-25.6E-09	-28.1E-09	-23.2E-09	-22.0E-09	-24.4E-09	-24.4E-09
34	-19.5E-09	-19.5E-09	-20.8E-09	-20.8E-09	-23.2E-09	-25.6E-09	-24.4E-09
35	-26.9E-09	-15.9E-09	-20.8E-09	-22.0E-09	-19.5E-09	-22.0E-09	-19.5E-09
Statistics							
Min	-26.9E-09	-25.6E-09	-28.1E-09	-23.2E-09	-23.2E-09	-25.6E-09	-24.4E-09
Max	-18.3E-09	-15.9E-09	-20.8E-09	-18.3E-09	-17.1E-09	-18.3E-09	-19.5E-09
Average	-21.2E-09	-21.5E-09	-23.4E-09	-20.8E-09	-20.8E-09	-22.5E-09	-22.5E-09
Std Deviation	3.0E-09	3.5E-09	2.7E-09	1.7E-09	2.2E-09	2.5E-09	2.0E-09

Parameter : Output high leakage Current : IozhDQ(4)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



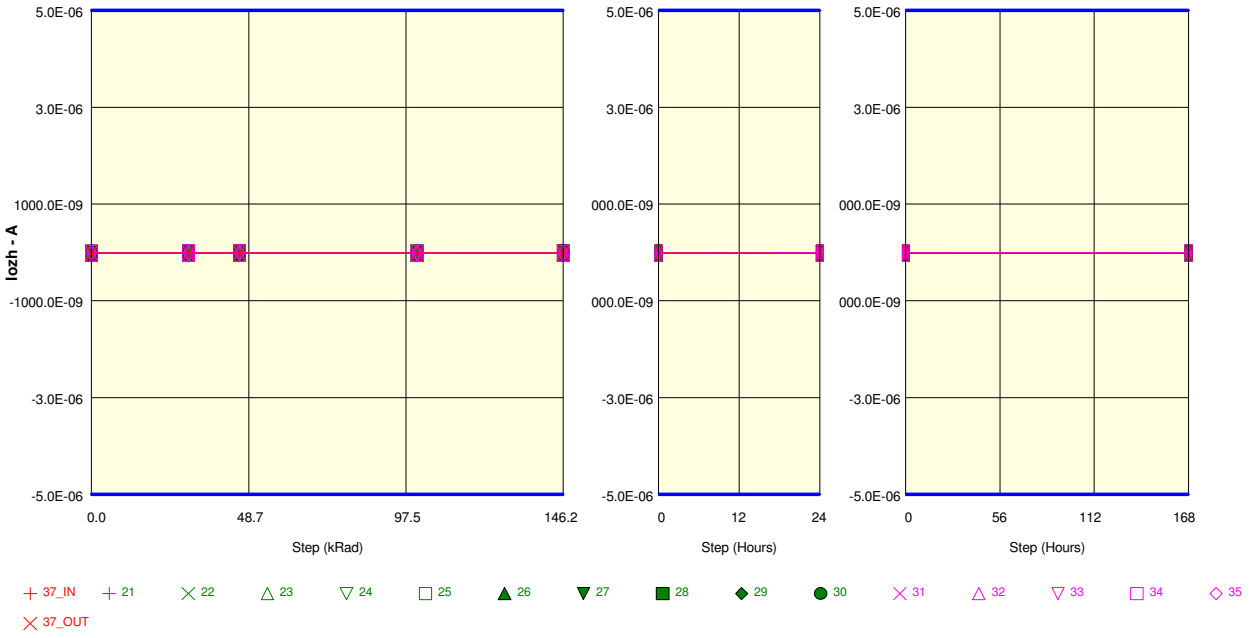
Measurements

IozhDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-19.5E-09	-17.1E-09	-17.1E-09	-22.0E-09	-20.8E-09	-18.3E-09	-18.3E-09
37_OUT_REF	-14.6E-09	-11.0E-09	-14.6E-09	-14.6E-09	-18.3E-09	-15.9E-09	-20.8E-09
ON samples							
21	-18.3E-09	-14.6E-09	-22.0E-09	-11.0E-09	-14.6E-09	-14.6E-09	-15.9E-09
22	-13.4E-09	-13.4E-09	-13.4E-09	-13.4E-09	-17.1E-09	-9.8E-09	-11.0E-09
23	-17.1E-09	-18.3E-09	-14.6E-09	-17.1E-09	-15.9E-09	-20.8E-09	-17.1E-09
24	-19.5E-09	-17.1E-09	-15.9E-09	-8.5E-09	-17.1E-09	-13.4E-09	-15.9E-09
25	-13.4E-09	-18.3E-09	-19.5E-09	-17.1E-09	-15.9E-09	-18.3E-09	-11.0E-09
26	-17.1E-09	-17.1E-09	-14.6E-09	-13.4E-09	-17.1E-09	-12.2E-09	-13.4E-09
27	-11.0E-09	-19.5E-09	-20.8E-09	-9.8E-09	-14.6E-09	-18.3E-09	-18.3E-09
28	-22.0E-09	-9.8E-09	-18.3E-09	-17.1E-09	-13.4E-09	-17.1E-09	-14.6E-09
29	-19.5E-09	-15.9E-09	-20.8E-09	-17.1E-09	-11.0E-09	-17.1E-09	-9.8E-09
30	-17.1E-09	-18.3E-09	-18.3E-09	-15.9E-09	-15.9E-09	-11.0E-09	-17.1E-09
Statistics							
Min	-22.0E-09	-19.5E-09	-22.0E-09	-17.1E-09	-17.1E-09	-20.8E-09	-18.3E-09
Max	-11.0E-09	-9.8E-09	-13.4E-09	-8.5E-09	-11.0E-09	-9.8E-09	-9.8E-09
Average	-16.8E-09	-16.2E-09	-17.8E-09	-14.0E-09	-15.3E-09	-15.3E-09	-14.4E-09
Std Deviation	3.2E-09	2.8E-09	2.8E-09	3.1E-09	1.8E-09	3.4E-09	2.8E-09

Measurements

IozhDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-19.5E-09	-17.1E-09	-17.1E-09	-22.0E-09	-20.8E-09	-18.3E-09	-18.3E-09
37_OUT_REF	-14.6E-09	-11.0E-09	-14.6E-09	-14.6E-09	-18.3E-09	-15.9E-09	-20.8E-09
OFF samples							
31	-17.1E-09	-20.8E-09	-17.1E-09	-18.3E-09	-14.6E-09	-17.1E-09	-15.9E-09
32	-22.0E-09	-19.5E-09	-14.6E-09	-15.9E-09	-15.9E-09	-13.4E-09	-15.9E-09
33	-17.1E-09	-12.2E-09	-13.4E-09	-14.6E-09	-17.1E-09	-13.4E-09	-17.1E-09
34	-15.9E-09	-13.4E-09	-18.3E-09	-20.8E-09	-13.4E-09	-13.4E-09	-17.1E-09
35	-13.4E-09	-12.2E-09	-18.3E-09	-15.9E-09	-15.9E-09	-12.2E-09	-17.1E-09
Statistics							
Min	-22.0E-09	-20.8E-09	-18.3E-09	-20.8E-09	-17.1E-09	-17.1E-09	-17.1E-09
Max	-13.4E-09	-12.2E-09	-13.4E-09	-14.6E-09	-13.4E-09	-12.2E-09	-15.9E-09
Average	-17.1E-09	-15.6E-09	-16.4E-09	-17.1E-09	-15.4E-09	-13.9E-09	-16.6E-09
Std Deviation	2.8E-09	3.7E-09	2.0E-09	2.2E-09	1.2E-09	1.7E-09	598.2E-12

Parameter : Output high leakage Current : IozhDQ(5)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



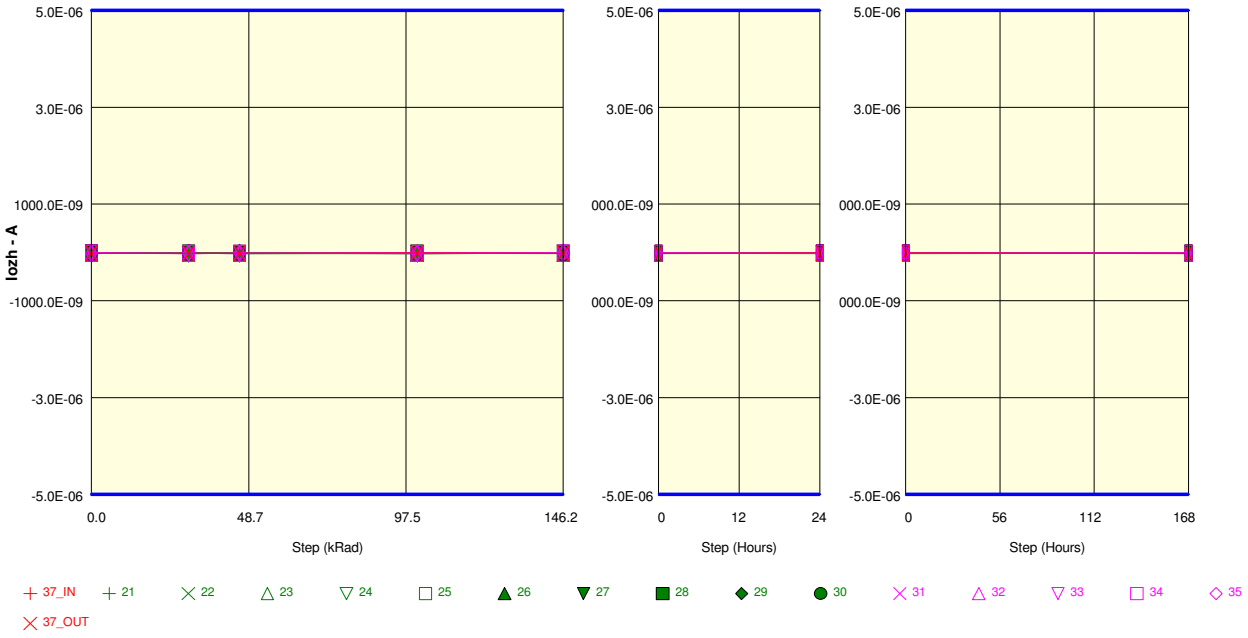
Measurements

IozhDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.8E-09	-13.4E-09	-9.8E-09	-14.6E-09	-7.3E-09	-13.4E-09	-7.3E-09
37_OUT_REF	-13.4E-09	-12.2E-09	-8.5E-09	-12.2E-09	-13.4E-09	-17.1E-09	-15.9E-09
ON samples							
21	-12.2E-09	-12.2E-09	-17.1E-09	-18.3E-09	-12.2E-09	-15.9E-09	-17.1E-09
22	-12.2E-09	-12.2E-09	-17.1E-09	-13.4E-09	-14.6E-09	-9.8E-09	-12.2E-09
23	-13.4E-09	-15.9E-09	-13.4E-09	-19.5E-09	-14.6E-09	-18.3E-09	-18.3E-09
24	-14.6E-09	-12.2E-09	-13.4E-09	-13.4E-09	-13.4E-09	-8.5E-09	-11.0E-09
25	-18.3E-09	-13.4E-09	-8.5E-09	-11.0E-09	-15.9E-09	-12.2E-09	-12.2E-09
26	-11.0E-09	-13.4E-09	-18.3E-09	-11.0E-09	-11.0E-09	-11.0E-09	-13.4E-09
27	-14.6E-09	-18.3E-09	-13.4E-09	-14.6E-09	-13.4E-09	-15.9E-09	-13.4E-09
28	-15.9E-09	-19.5E-09	-14.6E-09	-14.6E-09	-15.9E-09	-14.6E-09	-11.0E-09
29	-17.1E-09	-17.1E-09	-14.6E-09	-11.0E-09	-12.2E-09	-13.4E-09	-11.0E-09
30	-13.4E-09	-9.8E-09	-13.4E-09	-13.4E-09	-8.5E-09	-13.4E-09	-11.0E-09
Statistics							
Min	-18.3E-09	-19.5E-09	-18.3E-09	-19.5E-09	-15.9E-09	-18.3E-09	-18.3E-09
Max	-11.0E-09	-9.8E-09	-8.5E-09	-11.0E-09	-8.5E-09	-8.5E-09	-11.0E-09
Average	-14.3E-09	-14.4E-09	-14.4E-09	-14.0E-09	-13.2E-09	-13.3E-09	-13.1E-09
Std Deviation	2.2E-09	3.0E-09	2.6E-09	2.8E-09	2.2E-09	2.9E-09	2.5E-09

Measurements

IozhDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-9.8E-09	-13.4E-09	-9.8E-09	-14.6E-09	-7.3E-09	-13.4E-09	-7.3E-09
37_OUT_REF	-13.4E-09	-12.2E-09	-8.5E-09	-12.2E-09	-13.4E-09	-17.1E-09	-15.9E-09
OFF samples							
31	-12.2E-09	-19.5E-09	-8.5E-09	-15.9E-09	-15.9E-09	-17.1E-09	-9.8E-09
32	-13.4E-09	-17.1E-09	-19.5E-09	-11.0E-09	-13.4E-09	-18.3E-09	-14.6E-09
33	-14.6E-09	-13.4E-09	-13.4E-09	-14.6E-09	-17.1E-09	-12.2E-09	-8.5E-09
34	-14.6E-09	-9.8E-09	-19.5E-09	-15.9E-09	-17.1E-09	-14.6E-09	-13.4E-09
35	-11.0E-09	-11.0E-09	-12.2E-09	-13.4E-09	-17.1E-09	-13.4E-09	-14.6E-09
Statistics							
Min	-14.6E-09	-19.5E-09	-19.5E-09	-15.9E-09	-17.1E-09	-18.3E-09	-14.6E-09
Max	-11.0E-09	-9.8E-09	-8.5E-09	-11.0E-09	-13.4E-09	-12.2E-09	-8.5E-09
Average	-13.2E-09	-14.2E-09	-14.6E-09	-14.2E-09	-16.1E-09	-15.1E-09	-12.2E-09
Std Deviation	1.4E-09	3.7E-09	4.3E-09	1.8E-09	1.4E-09	2.3E-09	2.6E-09

Parameter : Output high leakage Current : IozhDQ(6)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



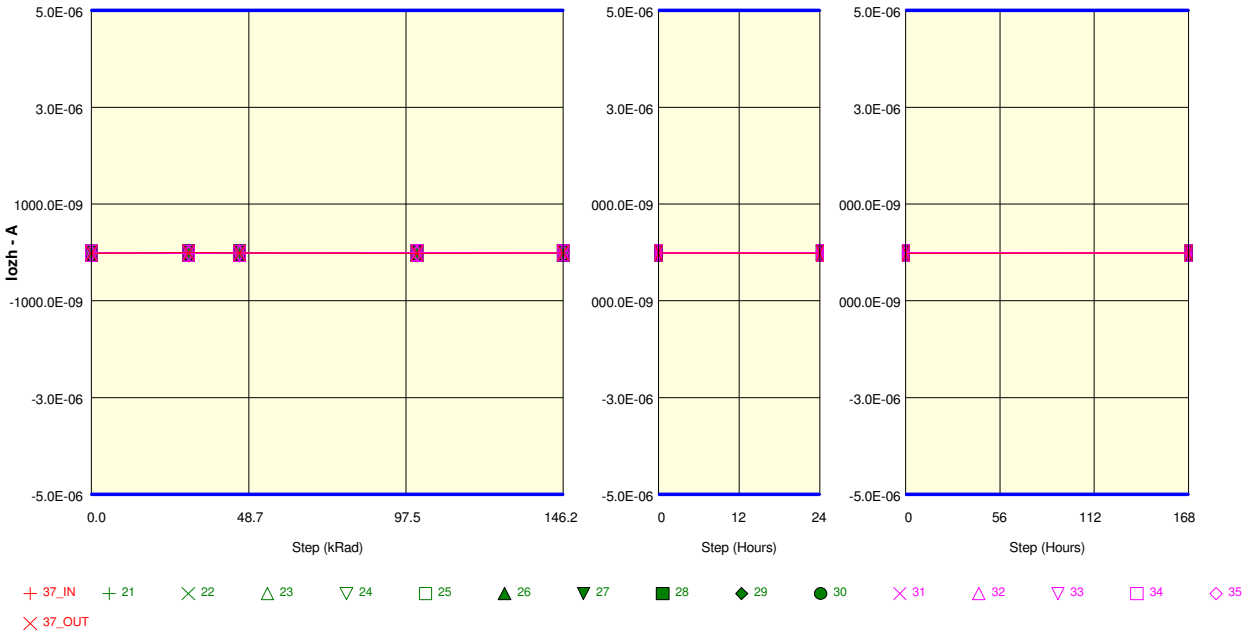
Measurements

IozhDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-13.4E-09	-17.1E-09	-17.1E-09	-18.3E-09	-12.2E-09	-20.8E-09
37_OUT_REF	-17.1E-09	-14.6E-09	-17.1E-09	-12.2E-09	-14.6E-09	-11.0E-09	-17.1E-09
ON samples							
21	-13.4E-09	-17.1E-09	-15.9E-09	-17.1E-09	-17.1E-09	-12.2E-09	-14.6E-09
22	-12.2E-09	-14.6E-09	-17.1E-09	-14.6E-09	-17.1E-09	-14.6E-09	-11.0E-09
23	-15.9E-09	-12.2E-09	-18.3E-09	-20.8E-09	-15.9E-09	-20.8E-09	-15.9E-09
24	-12.2E-09	-20.8E-09	-17.1E-09	-14.6E-09	-14.6E-09	-12.2E-09	-12.2E-09
25	-19.5E-09	-11.0E-09	-14.6E-09	-11.0E-09	-15.9E-09	-12.2E-09	-12.2E-09
26	-15.9E-09	-18.3E-09	-13.4E-09	-14.6E-09	-22.0E-09	-14.6E-09	-12.2E-09
27	-13.4E-09	-19.5E-09	-20.8E-09	-18.3E-09	-14.6E-09	-13.4E-09	-14.6E-09
28	-13.4E-09	-15.9E-09	-22.0E-09	-20.8E-09	-14.6E-09	-9.8E-09	-12.2E-09
29	-14.6E-09	-18.3E-09	-19.5E-09	-19.5E-09	-15.9E-09	-13.4E-09	-12.2E-09
30	-18.3E-09	-12.2E-09	-12.2E-09	-22.0E-09	-17.1E-09	-14.6E-09	-19.5E-09
Statistics							
Min	-19.5E-09	-20.8E-09	-22.0E-09	-22.0E-09	-22.0E-09	-20.8E-09	-19.5E-09
Max	-12.2E-09	-11.0E-09	-12.2E-09	-11.0E-09	-14.6E-09	-9.8E-09	-11.0E-09
Average	-14.9E-09	-16.0E-09	-17.1E-09	-17.3E-09	-16.5E-09	-13.8E-09	-13.7E-09
Std Deviation	2.4E-09	3.2E-09	3.0E-09	3.4E-09	2.1E-09	2.7E-09	2.4E-09

Measurements

IozhDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-13.4E-09	-13.4E-09	-17.1E-09	-17.1E-09	-18.3E-09	-12.2E-09	-20.8E-09
37_OUT_REF	-17.1E-09	-14.6E-09	-17.1E-09	-12.2E-09	-14.6E-09	-11.0E-09	-17.1E-09
OFF samples							
31	-18.3E-09	-23.2E-09	-14.6E-09	-12.2E-09	-17.1E-09	-18.3E-09	-18.3E-09
32	-11.0E-09	-19.5E-09	-22.0E-09	-13.4E-09	-19.5E-09	-17.1E-09	-8.5E-09
33	-12.2E-09	-20.8E-09	-15.9E-09	-22.0E-09	-13.4E-09	-19.5E-09	-15.9E-09
34	-19.5E-09	-19.5E-09	-18.3E-09	-17.1E-09	-15.9E-09	-12.2E-09	-13.4E-09
35	-14.6E-09	-15.9E-09	-17.1E-09	-9.8E-09	-13.4E-09	-17.1E-09	-15.9E-09
Statistics							
Min	-19.5E-09	-23.2E-09	-22.0E-09	-22.0E-09	-19.5E-09	-19.5E-09	-18.3E-09
Max	-11.0E-09	-15.9E-09	-14.6E-09	-9.8E-09	-13.4E-09	-12.2E-09	-8.5E-09
Average	-15.1E-09	-19.8E-09	-17.6E-09	-14.9E-09	-15.9E-09	-16.8E-09	-14.4E-09
Std Deviation	3.3E-09	2.4E-09	2.5E-09	4.3E-09	2.3E-09	2.5E-09	3.3E-09

Parameter : Output high leakage Current : IozhDQ(7)
Test conditions : Vout=1.35V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



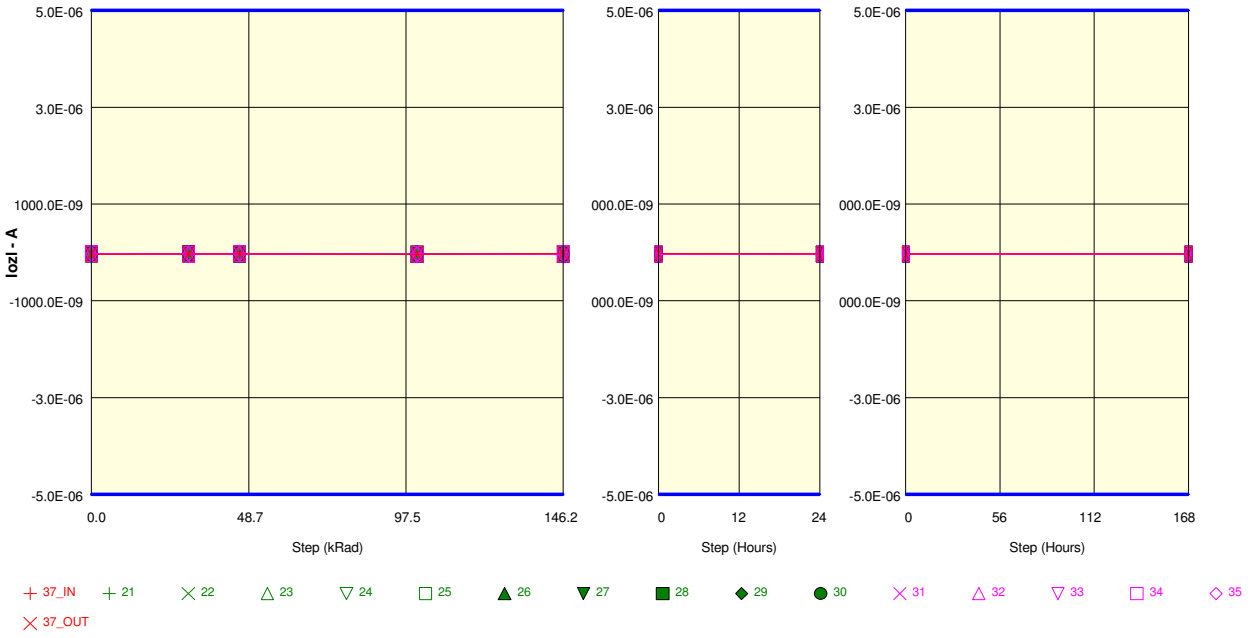
Measurements

IozhDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-13.4E-09	-12.2E-09	-12.2E-09	-7.3E-09	-15.9E-09	-14.6E-09
37_OUT_REF	-14.6E-09	-7.3E-09	-13.4E-09	-17.1E-09	-11.0E-09	-17.1E-09	-9.8E-09
ON samples							
21	-13.4E-09	-14.6E-09	-17.1E-09	-13.4E-09	-13.4E-09	-4.9E-09	-12.2E-09
22	-8.5E-09	-11.0E-09	-7.3E-09	-14.6E-09	-12.2E-09	-11.0E-09	-6.1E-09
23	-12.2E-09	-9.8E-09	-18.3E-09	-15.9E-09	-17.1E-09	-7.3E-09	-12.2E-09
24	-9.8E-09	-11.0E-09	-9.8E-09	-11.0E-09	-11.0E-09	-14.6E-09	-9.8E-09
25	-18.3E-09	-12.2E-09	-18.3E-09	-7.3E-09	-11.0E-09	-11.0E-09	-11.0E-09
26	-13.4E-09	-15.9E-09	-12.2E-09	-17.1E-09	-14.6E-09	-7.3E-09	-12.2E-09
27	-14.6E-09	-13.4E-09	-17.1E-09	-14.6E-09	-13.4E-09	-13.4E-09	-13.4E-09
28	-18.3E-09	-17.1E-09	-12.2E-09	-18.3E-09	-12.2E-09	-6.1E-09	-11.0E-09
29	-13.4E-09	-15.9E-09	-15.9E-09	-14.6E-09	-12.2E-09	-13.4E-09	-9.8E-09
30	-13.4E-09	-13.4E-09	-12.2E-09	-15.9E-09	-8.5E-09	-14.6E-09	-15.9E-09
Statistics							
Min	-18.3E-09	-17.1E-09	-18.3E-09	-18.3E-09	-17.1E-09	-14.6E-09	-15.9E-09
Max	-8.5E-09	-9.8E-09	-7.3E-09	-7.3E-09	-8.5E-09	-4.9E-09	-6.1E-09
Average	-13.5E-09	-13.4E-09	-14.0E-09	-14.3E-09	-12.6E-09	-10.4E-09	-11.4E-09
Std Deviation	3.0E-09	2.3E-09	3.6E-09	3.0E-09	2.2E-09	3.5E-09	2.4E-09

Measurements

IozhDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-13.4E-09	-12.2E-09	-12.2E-09	-7.3E-09	-15.9E-09	-14.6E-09
37_OUT_REF	-14.6E-09	-7.3E-09	-13.4E-09	-17.1E-09	-11.0E-09	-17.1E-09	-9.8E-09
OFF samples							
31	-13.4E-09	-12.2E-09	-15.9E-09	-9.8E-09	-15.9E-09	-14.6E-09	-6.1E-09
32	-15.9E-09	-8.5E-09	-14.6E-09	-17.1E-09	-13.4E-09	-12.2E-09	-15.9E-09
33	-13.4E-09	-14.6E-09	-15.9E-09	-11.0E-09	-14.6E-09	-7.3E-09	-11.0E-09
34	-17.1E-09	-18.3E-09	-17.1E-09	-7.3E-09	-6.1E-09	-12.2E-09	-11.0E-09
35	-14.6E-09	-12.2E-09	-13.4E-09	-8.5E-09	-11.0E-09	-9.8E-09	-14.6E-09
Statistics							
Min	-17.1E-09	-18.3E-09	-17.1E-09	-17.1E-09	-15.9E-09	-14.6E-09	-15.9E-09
Max	-13.4E-09	-8.5E-09	-13.4E-09	-7.3E-09	-6.1E-09	-7.3E-09	-6.1E-09
Average	-14.9E-09	-13.2E-09	-15.4E-09	-10.7E-09	-12.2E-09	-11.2E-09	-11.7E-09
Std Deviation	1.4E-09	3.2E-09	1.2E-09	3.4E-09	3.5E-09	2.5E-09	3.4E-09

Parameter : Output low leakage Current : IozIDQ(0)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



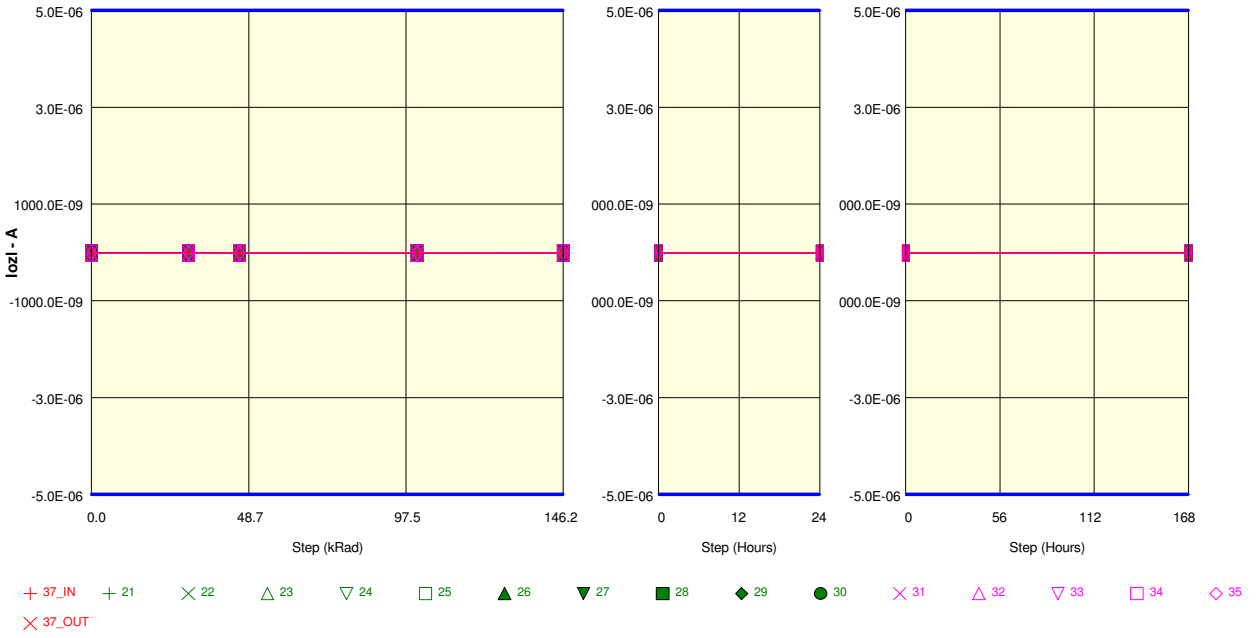
Measurements

IozIDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-28.1E-09	-34.2E-09	-28.1E-09	-29.3E-09	-26.9E-09	-33.0E-09
37_OUT_REF	-34.2E-09	-29.3E-09	-31.7E-09	-34.2E-09	-24.4E-09	-28.1E-09	-29.3E-09
ON samples							
21	-34.2E-09	-34.2E-09	-28.1E-09	-30.5E-09	-33.0E-09	-30.5E-09	-30.5E-09
22	-37.8E-09	-35.4E-09	-30.5E-09	-36.6E-09	-34.2E-09	-35.4E-09	-35.4E-09
23	-28.1E-09	-34.2E-09	-30.5E-09	-37.8E-09	-34.2E-09	-35.4E-09	-33.0E-09
24	-34.2E-09	-33.0E-09	-36.6E-09	-36.6E-09	-36.6E-09	-33.0E-09	-37.8E-09
25	-31.7E-09	-33.0E-09	-29.3E-09	-31.7E-09	-35.4E-09	-36.6E-09	-28.1E-09
26	-29.3E-09	-28.1E-09	-33.0E-09	-34.2E-09	-33.0E-09	-33.0E-09	-36.6E-09
27	-33.0E-09	-28.1E-09	-33.0E-09	-37.8E-09	-33.0E-09	-39.1E-09	-37.8E-09
28	-35.4E-09	-31.7E-09	-33.0E-09	-40.3E-09	-37.8E-09	-33.0E-09	-40.3E-09
29	-30.5E-09	-31.7E-09	-29.3E-09	-33.0E-09	-33.0E-09	-30.5E-09	-34.2E-09
30	-29.3E-09	-30.5E-09	-26.9E-09	-28.1E-09	-33.0E-09	-30.5E-09	-26.9E-09
Statistics							
Min	-37.8E-09	-35.4E-09	-36.6E-09	-40.3E-09	-37.8E-09	-39.1E-09	-40.3E-09
Max	-28.1E-09	-28.1E-09	-26.9E-09	-28.1E-09	-33.0E-09	-30.5E-09	-26.9E-09
Average	-32.3E-09	-32.0E-09	-31.0E-09	-34.7E-09	-34.3E-09	-33.7E-09	-34.1E-09
Std Deviation	3.0E-09	2.4E-09	2.7E-09	3.6E-09	1.7E-09	2.7E-09	4.2E-09

Measurements

IozIDQ(0)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-28.1E-09	-34.2E-09	-28.1E-09	-29.3E-09	-26.9E-09	-33.0E-09
37_OUT_REF	-34.2E-09	-29.3E-09	-31.7E-09	-34.2E-09	-24.4E-09	-28.1E-09	-29.3E-09
OFF samples							
31	-33.0E-09	-26.9E-09	-35.4E-09	-36.6E-09	-31.7E-09	-34.2E-09	-31.7E-09
32	-31.7E-09	-34.2E-09	-30.5E-09	-36.6E-09	-35.4E-09	-29.3E-09	-34.2E-09
33	-34.2E-09	-35.4E-09	-31.7E-09	-34.2E-09	-28.1E-09	-31.7E-09	-35.4E-09
34	-25.6E-09	-33.0E-09	-26.9E-09	-34.2E-09	-33.0E-09	-35.4E-09	-33.0E-09
35	-34.2E-09	-30.5E-09	-30.5E-09	-36.6E-09	-35.4E-09	-28.1E-09	-31.7E-09
Statistics							
Min	-34.2E-09	-35.4E-09	-35.4E-09	-36.6E-09	-35.4E-09	-35.4E-09	-35.4E-09
Max	-25.6E-09	-26.9E-09	-26.9E-09	-34.2E-09	-28.1E-09	-28.1E-09	-31.7E-09
Average	-31.7E-09	-32.0E-09	-31.0E-09	-35.6E-09	-32.7E-09	-31.7E-09	-33.2E-09
Std Deviation	3.2E-09	3.0E-09	2.7E-09	1.2E-09	2.7E-09	2.8E-09	1.4E-09

Parameter : Output low leakage Current : IozIDQ(1)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



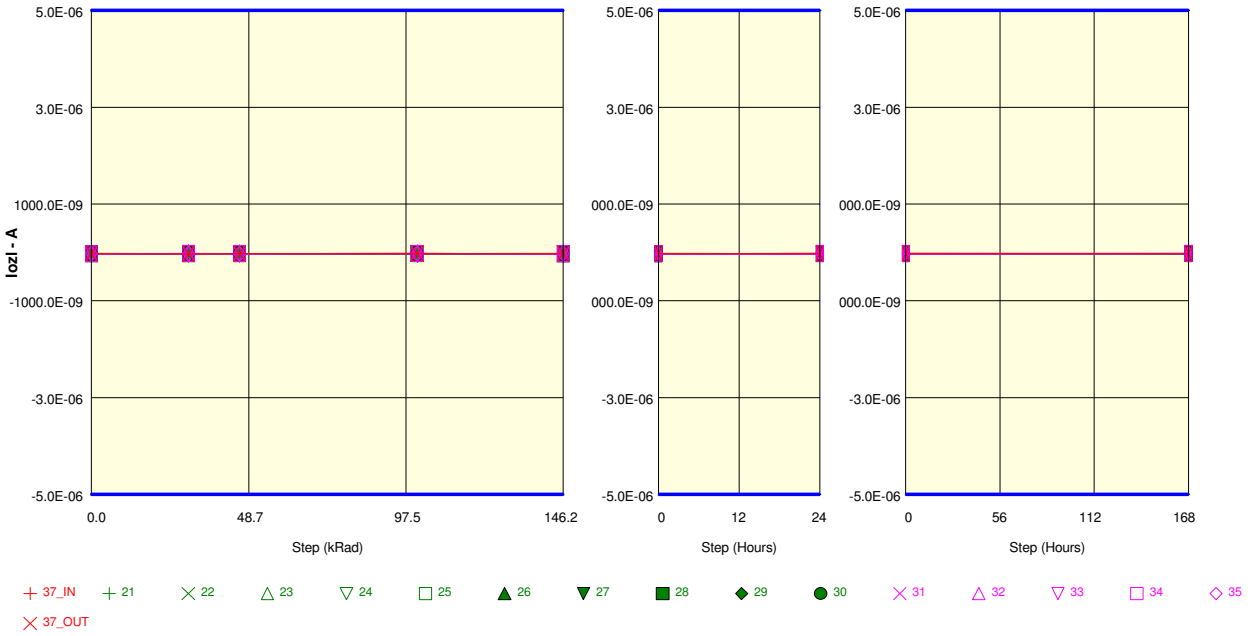
Measurements

IozIDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-8.5E-09	-11.0E-09	-11.0E-09	-13.4E-09	-8.5E-09	-13.4E-09
37_OUT_REF	-7.3E-09	-7.3E-09	-8.5E-09	-14.6E-09	-9.8E-09	-8.5E-09	-6.1E-09
ON samples							
21	-12.2E-09	-12.2E-09	-14.6E-09	-14.6E-09	-11.0E-09	-14.6E-09	-7.3E-09
22	-8.5E-09	-12.2E-09	-12.2E-09	-8.5E-09	-11.0E-09	-7.3E-09	-12.2E-09
23	-13.4E-09	-11.0E-09	-14.6E-09	-9.8E-09	-14.6E-09	-13.4E-09	-8.5E-09
24	-7.3E-09	-13.4E-09	-11.0E-09	-13.4E-09	-8.5E-09	-15.9E-09	-11.0E-09
25	-7.3E-09	-12.2E-09	-12.2E-09	-6.1E-09	-12.2E-09	-9.8E-09	-9.8E-09
26	-9.8E-09	-6.1E-09	-15.9E-09	-14.6E-09	-15.9E-09	-9.8E-09	-13.4E-09
27	-6.1E-09	-8.5E-09	-14.6E-09	-14.6E-09	-9.8E-09	-14.6E-09	-11.0E-09
28	-13.4E-09	-14.6E-09	-14.6E-09	-9.8E-09	-11.0E-09	-15.9E-09	-13.4E-09
29	-9.8E-09	-7.3E-09	-8.5E-09	-13.4E-09	-8.5E-09	-11.0E-09	-15.9E-09
30	-8.5E-09	-7.3E-09	-4.9E-09	-12.2E-09	-6.1E-09	-9.8E-09	-8.5E-09
Statistics							
Min	-13.4E-09	-14.6E-09	-15.9E-09	-14.6E-09	-15.9E-09	-15.9E-09	-15.9E-09
Max	-6.1E-09	-6.1E-09	-4.9E-09	-6.1E-09	-6.1E-09	-7.3E-09	-7.3E-09
Average	-9.6E-09	-10.5E-09	-12.3E-09	-11.7E-09	-10.9E-09	-12.2E-09	-11.1E-09
Std Deviation	2.5E-09	2.8E-09	3.3E-09	2.8E-09	2.8E-09	2.9E-09	2.5E-09

Measurements

IozIDQ(1)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-11.0E-09	-8.5E-09	-11.0E-09	-11.0E-09	-13.4E-09	-8.5E-09	-13.4E-09
37_OUT_REF	-7.3E-09	-7.3E-09	-8.5E-09	-14.6E-09	-9.8E-09	-8.5E-09	-6.1E-09
OFF samples							
31	-14.6E-09	-9.8E-09	-13.4E-09	-14.6E-09	-6.1E-09	-14.6E-09	-12.2E-09
32	-8.5E-09	-12.2E-09	-13.4E-09	-9.8E-09	-12.2E-09	-11.0E-09	-8.5E-09
33	-11.0E-09	-11.0E-09	-14.6E-09	-15.9E-09	-11.0E-09	-11.0E-09	-11.0E-09
34	-9.8E-09	-8.5E-09	-8.5E-09	-9.8E-09	-7.3E-09	-14.6E-09	-12.2E-09
35	-15.9E-09	-8.5E-09	-11.0E-09	-8.5E-09	-6.1E-09	-11.0E-09	-7.3E-09
Statistics							
Min	-15.9E-09	-12.2E-09	-14.6E-09	-15.9E-09	-12.2E-09	-14.6E-09	-12.2E-09
Max	-8.5E-09	-8.5E-09	-8.5E-09	-8.5E-09	-6.1E-09	-11.0E-09	-7.3E-09
Average	-12.0E-09	-10.0E-09	-12.2E-09	-11.7E-09	-8.5E-09	-12.5E-09	-10.3E-09
Std Deviation	2.8E-09	1.4E-09	2.2E-09	2.9E-09	2.6E-09	1.8E-09	2.0E-09

Parameter : Output low leakage Current : IozIDQ(2)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



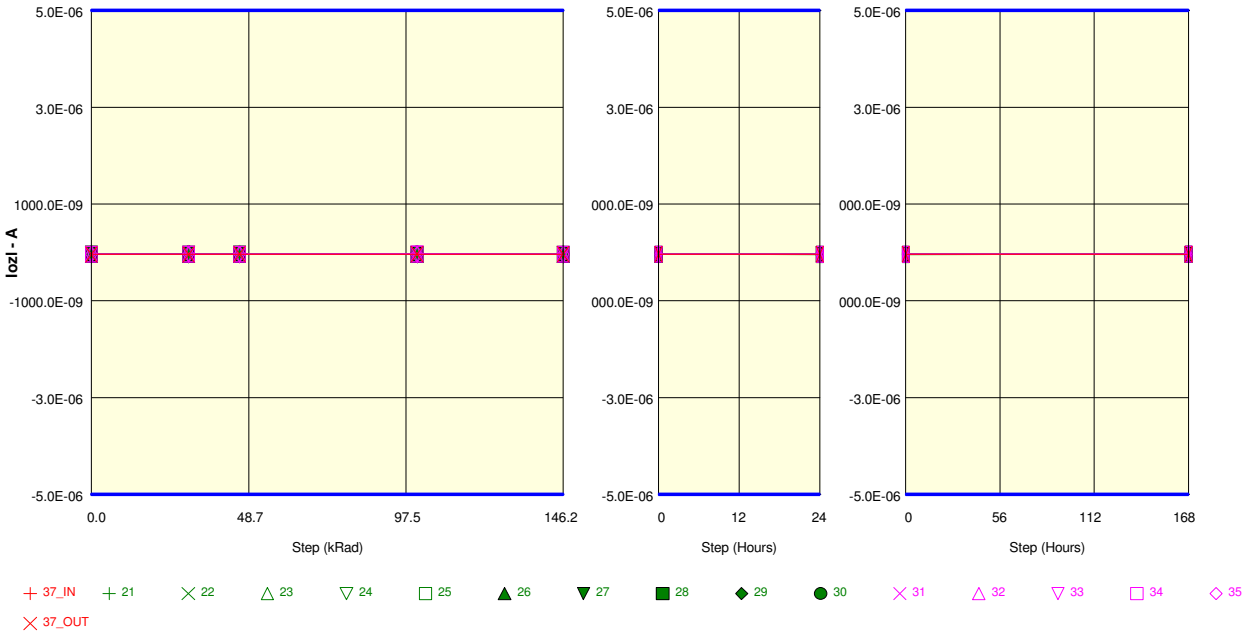
Measurements

IozIDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-26.9E-09	-25.6E-09	-24.4E-09	-18.3E-09	-26.9E-09	-18.3E-09	-25.6E-09
37_OUT_REF	-20.8E-09	-28.1E-09	-23.2E-09	-22.0E-09	-25.6E-09	-22.0E-09	-22.0E-09
ON samples							
21	-23.2E-09	-28.1E-09	-23.2E-09	-26.9E-09	-28.1E-09	-23.2E-09	-22.0E-09
22	-23.2E-09	-24.4E-09	-26.9E-09	-22.0E-09	-23.2E-09	-26.9E-09	-20.8E-09
23	-28.1E-09	-29.3E-09	-25.6E-09	-20.8E-09	-28.1E-09	-23.2E-09	-25.6E-09
24	-28.1E-09	-23.2E-09	-24.4E-09	-23.2E-09	-24.4E-09	-25.6E-09	-23.2E-09
25	-20.8E-09	-26.9E-09	-22.0E-09	-26.9E-09	-25.6E-09	-28.1E-09	-24.4E-09
26	-19.5E-09	-25.6E-09	-26.9E-09	-24.4E-09	-30.5E-09	-25.6E-09	-24.4E-09
27	-26.9E-09	-20.8E-09	-25.6E-09	-28.1E-09	-25.6E-09	-24.4E-09	-26.9E-09
28	-28.1E-09	-23.2E-09	-24.4E-09	-20.8E-09	-31.7E-09	-25.6E-09	-29.3E-09
29	-22.0E-09	-20.8E-09	-22.0E-09	-26.9E-09	-26.9E-09	-29.3E-09	-23.2E-09
30	-24.4E-09	-22.0E-09	-26.9E-09	-22.0E-09	-19.5E-09	-20.8E-09	-24.4E-09
Statistics							
Min	-28.1E-09	-29.3E-09	-26.9E-09	-28.1E-09	-31.7E-09	-29.3E-09	-29.3E-09
Max	-19.5E-09	-20.8E-09	-22.0E-09	-20.8E-09	-19.5E-09	-20.8E-09	-20.8E-09
Average	-24.4E-09	-24.4E-09	-24.8E-09	-24.2E-09	-26.4E-09	-25.3E-09	-24.4E-09
Std Deviation	3.0E-09	2.8E-09	1.8E-09	2.7E-09	3.4E-09	2.4E-09	2.3E-09

Measurements

IozIDQ(2)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-26.9E-09	-25.6E-09	-24.4E-09	-18.3E-09	-26.9E-09	-18.3E-09	-25.6E-09
37_OUT_REF	-20.8E-09	-28.1E-09	-23.2E-09	-22.0E-09	-25.6E-09	-22.0E-09	-22.0E-09
OFF samples							
31	-25.6E-09	-24.4E-09	-24.4E-09	-19.5E-09	-29.3E-09	-24.4E-09	-19.5E-09
32	-23.2E-09	-25.6E-09	-23.2E-09	-25.6E-09	-28.1E-09	-26.9E-09	-23.2E-09
33	-26.9E-09	-18.3E-09	-24.4E-09	-23.2E-09	-23.2E-09	-26.9E-09	-25.6E-09
34	-26.9E-09	-24.4E-09	-25.6E-09	-22.0E-09	-20.8E-09	-19.5E-09	-19.5E-09
35	-25.6E-09	-24.4E-09	-31.7E-09	-24.4E-09	-25.6E-09	-25.6E-09	-23.2E-09
Statistics							
Min	-26.9E-09	-25.6E-09	-31.7E-09	-25.6E-09	-29.3E-09	-26.9E-09	-25.6E-09
Max	-23.2E-09	-18.3E-09	-23.2E-09	-19.5E-09	-20.8E-09	-19.5E-09	-19.5E-09
Average	-25.6E-09	-23.4E-09	-25.9E-09	-22.9E-09	-25.4E-09	-24.7E-09	-22.2E-09
Std Deviation	1.3E-09	2.6E-09	3.0E-09	2.1E-09	3.1E-09	2.7E-09	2.4E-09

Parameter : Output low leakage Current : IozIDQ(3)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



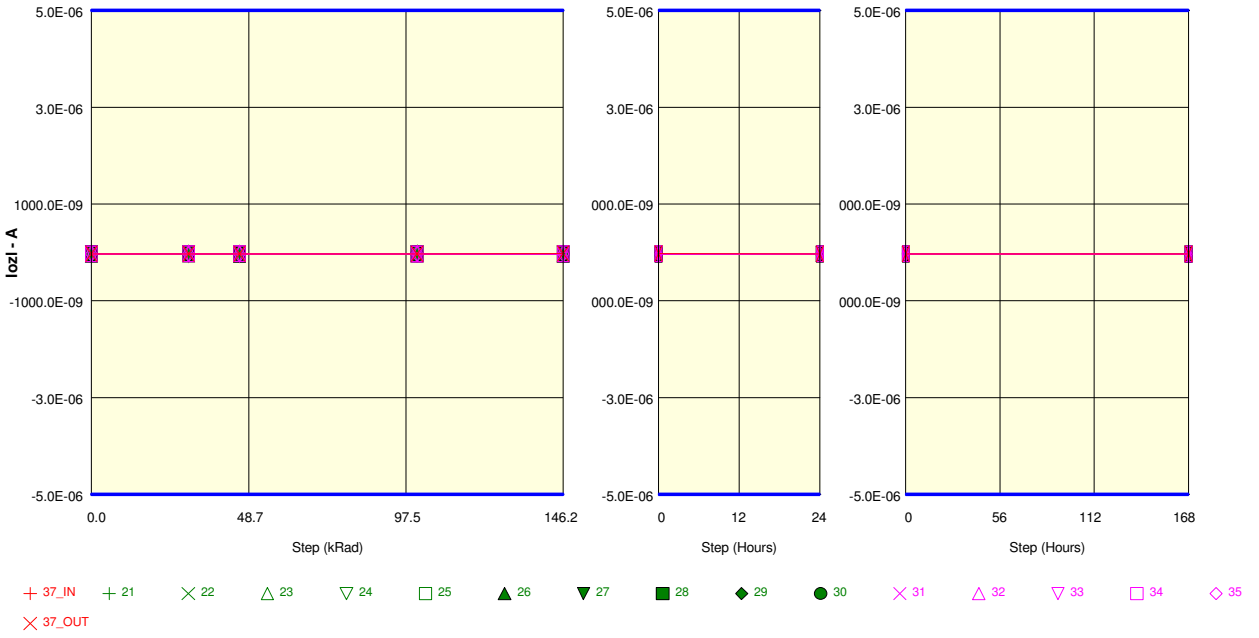
Measurements

IozIDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-37.8E-09	-35.4E-09	-34.2E-09	-30.5E-09	-35.4E-09	-39.1E-09	-36.6E-09
37_OUT_REF	-39.1E-09	-39.1E-09	-35.4E-09	-34.2E-09	-36.6E-09	-36.6E-09	-34.2E-09
ON samples							
21	-39.1E-09	-34.2E-09	-37.8E-09	-41.5E-09	-35.4E-09	-40.3E-09	-43.9E-09
22	-40.3E-09	-30.5E-09	-40.3E-09	-33.0E-09	-35.4E-09	-37.8E-09	-45.2E-09
23	-40.3E-09	-35.4E-09	-35.4E-09	-39.1E-09	-34.2E-09	-45.2E-09	-37.8E-09
24	-37.8E-09	-40.3E-09	-36.6E-09	-33.0E-09	-41.5E-09	-45.2E-09	-42.7E-09
25	-34.2E-09	-35.4E-09	-35.4E-09	-40.3E-09	-39.1E-09	-41.5E-09	-39.1E-09
26	-34.2E-09	-34.2E-09	-36.6E-09	-36.6E-09	-39.1E-09	-42.7E-09	-37.8E-09
27	-41.5E-09	-35.4E-09	-36.6E-09	-40.3E-09	-35.4E-09	-39.1E-09	-36.6E-09
28	-37.8E-09	-41.5E-09	-39.1E-09	-41.5E-09	-40.3E-09	-36.6E-09	-37.8E-09
29	-40.3E-09	-31.7E-09	-31.7E-09	-41.5E-09	-39.1E-09	-41.5E-09	-37.8E-09
30	-36.6E-09	-31.7E-09	-34.2E-09	-31.7E-09	-35.4E-09	-33.0E-09	-34.2E-09
Statistics							
Min	-41.5E-09	-41.5E-09	-40.3E-09	-41.5E-09	-41.5E-09	-45.2E-09	-45.2E-09
Max	-34.2E-09	-30.5E-09	-31.7E-09	-31.7E-09	-34.2E-09	-33.0E-09	-34.2E-09
Average	-38.2E-09	-35.0E-09	-36.4E-09	-37.8E-09	-37.5E-09	-40.3E-09	-39.3E-09
Std Deviation	2.4E-09	3.4E-09	2.3E-09	3.7E-09	2.4E-09	3.6E-09	3.3E-09

Measurements

IozIDQ(3)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-37.8E-09	-35.4E-09	-34.2E-09	-30.5E-09	-35.4E-09	-39.1E-09	-36.6E-09
37_OUT_REF	-39.1E-09	-39.1E-09	-35.4E-09	-34.2E-09	-36.6E-09	-36.6E-09	-34.2E-09
OFF samples							
31	-34.2E-09	-36.6E-09	-40.3E-09	-37.8E-09	-36.6E-09	-39.1E-09	-35.4E-09
32	-34.2E-09	-36.6E-09	-35.4E-09	-37.8E-09	-37.8E-09	-39.1E-09	-34.2E-09
33	-40.3E-09	-36.6E-09	-39.1E-09	-29.3E-09	-42.7E-09	-41.5E-09	-34.2E-09
34	-36.6E-09	-34.2E-09	-33.0E-09	-35.4E-09	-35.4E-09	-36.6E-09	-37.8E-09
35	-40.3E-09	-34.2E-09	-35.4E-09	-40.3E-09	-40.3E-09	-40.3E-09	-37.8E-09
Statistics							
Min	-40.3E-09	-36.6E-09	-40.3E-09	-40.3E-09	-42.7E-09	-41.5E-09	-37.8E-09
Max	-34.2E-09	-34.2E-09	-33.0E-09	-29.3E-09	-35.4E-09	-36.6E-09	-34.2E-09
Average	-37.1E-09	-35.6E-09	-36.6E-09	-36.1E-09	-38.6E-09	-39.3E-09	-35.9E-09
Std Deviation	2.7E-09	1.2E-09	2.7E-09	3.8E-09	2.6E-09	1.6E-09	1.7E-09

Parameter : Output low leakage Current : IozIDQ(4)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



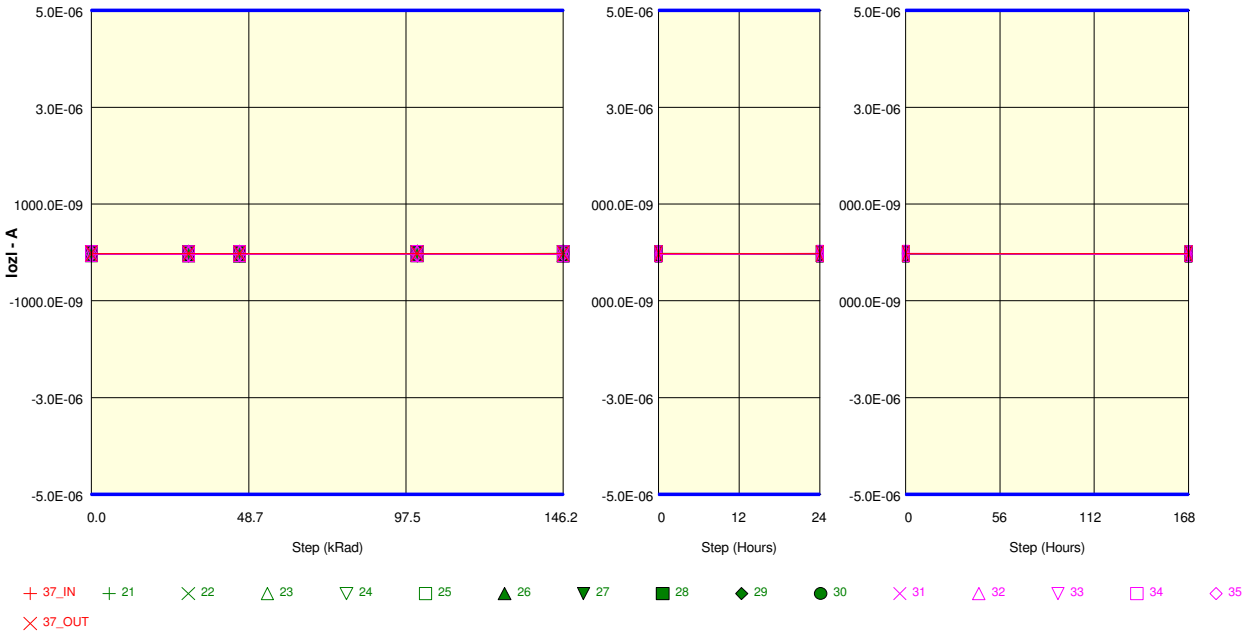
Measurements

IozIDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-25.6E-09	-28.1E-09	-30.5E-09	-29.3E-09	-33.0E-09	-25.6E-09
37_OUT_REF	-28.1E-09	-30.5E-09	-26.9E-09	-29.3E-09	-22.0E-09	-26.9E-09	-29.3E-09
ON samples							
21	-31.7E-09	-33.0E-09	-36.6E-09	-33.0E-09	-33.0E-09	-30.5E-09	-36.6E-09
22	-33.0E-09	-29.3E-09	-28.1E-09	-35.4E-09	-31.7E-09	-31.7E-09	-31.7E-09
23	-34.2E-09	-29.3E-09	-28.1E-09	-25.6E-09	-28.1E-09	-34.2E-09	-35.4E-09
24	-35.4E-09	-35.4E-09	-33.0E-09	-31.7E-09	-35.4E-09	-35.4E-09	-28.1E-09
25	-30.5E-09	-29.3E-09	-33.0E-09	-29.3E-09	-29.3E-09	-31.7E-09	-29.3E-09
26	-33.0E-09	-30.5E-09	-33.0E-09	-29.3E-09	-33.0E-09	-28.1E-09	-36.6E-09
27	-31.7E-09	-26.9E-09	-31.7E-09	-28.1E-09	-28.1E-09	-31.7E-09	-30.5E-09
28	-29.3E-09	-28.1E-09	-33.0E-09	-36.6E-09	-34.2E-09	-36.6E-09	-40.3E-09
29	-29.3E-09	-23.2E-09	-29.3E-09	-29.3E-09	-24.4E-09	-25.6E-09	-33.0E-09
30	-28.1E-09	-24.4E-09	-34.2E-09	-25.6E-09	-29.3E-09	-33.0E-09	-34.2E-09
Statistics							
Min	-35.4E-09	-35.4E-09	-36.6E-09	-36.6E-09	-35.4E-09	-36.6E-09	-40.3E-09
Max	-28.1E-09	-23.2E-09	-28.1E-09	-25.6E-09	-24.4E-09	-25.6E-09	-28.1E-09
Average	-31.6E-09	-28.9E-09	-32.0E-09	-30.4E-09	-30.6E-09	-31.9E-09	-33.6E-09
Std Deviation	2.2E-09	3.5E-09	2.6E-09	3.6E-09	3.2E-09	3.1E-09	3.6E-09

Measurements

IozIDQ(4)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-25.6E-09	-28.1E-09	-30.5E-09	-29.3E-09	-33.0E-09	-25.6E-09
37_OUT_REF	-28.1E-09	-30.5E-09	-26.9E-09	-29.3E-09	-22.0E-09	-26.9E-09	-29.3E-09
OFF samples							
31	-31.7E-09	-31.7E-09	-28.1E-09	-28.1E-09	-31.7E-09	-29.3E-09	-34.2E-09
32	-30.5E-09	-30.5E-09	-25.6E-09	-29.3E-09	-29.3E-09	-26.9E-09	-31.7E-09
33	-35.4E-09	-28.1E-09	-28.1E-09	-30.5E-09	-29.3E-09	-33.0E-09	-31.7E-09
34	-28.1E-09	-26.9E-09	-29.3E-09	-33.0E-09	-31.7E-09	-26.9E-09	-34.2E-09
35	-30.5E-09	-28.1E-09	-35.4E-09	-30.5E-09	-30.5E-09	-31.7E-09	-35.4E-09
Statistics							
Min	-35.4E-09	-31.7E-09	-35.4E-09	-33.0E-09	-31.7E-09	-33.0E-09	-35.4E-09
Max	-28.1E-09	-26.9E-09	-25.6E-09	-28.1E-09	-29.3E-09	-26.9E-09	-31.7E-09
Average	-31.3E-09	-29.1E-09	-29.3E-09	-30.3E-09	-30.5E-09	-29.5E-09	-33.4E-09
Std Deviation	2.4E-09	1.8E-09	3.3E-09	1.6E-09	1.1E-09	2.5E-09	1.5E-09

Parameter : Output low leakage Current : IozIDQ(5)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



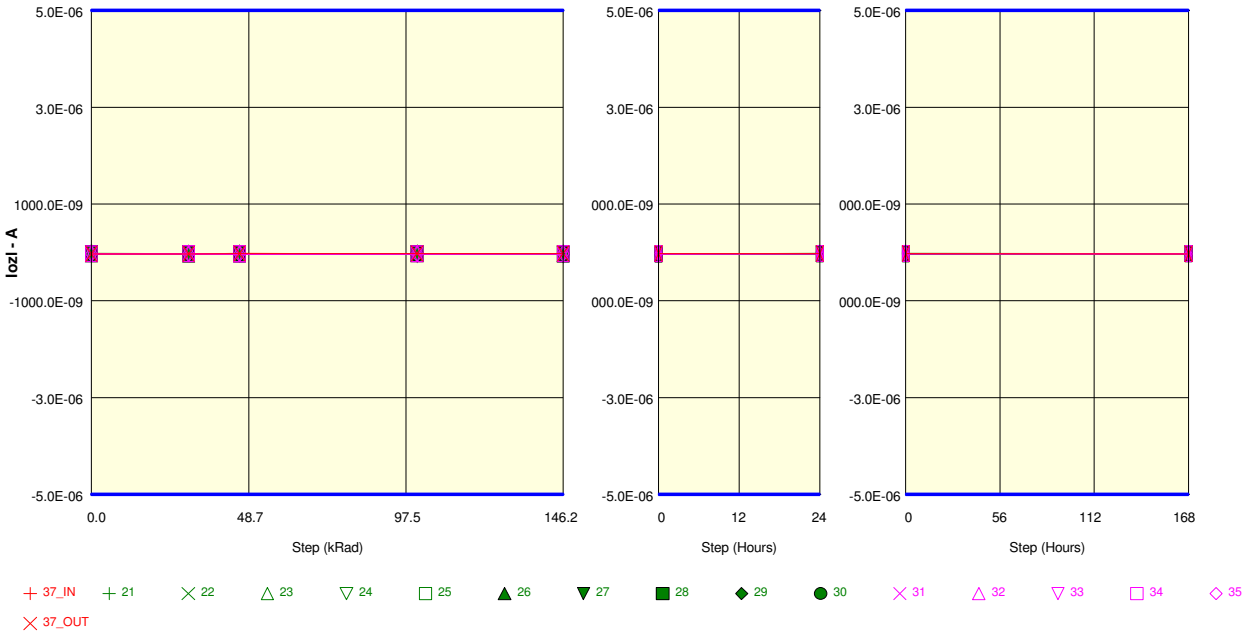
Measurements

IozIDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-22.0E-09	-24.4E-09	-24.4E-09	-22.0E-09	-26.9E-09	-25.6E-09	-23.2E-09
37_OUT_REF	-23.2E-09	-24.4E-09	-25.6E-09	-22.0E-09	-24.4E-09	-23.2E-09	-24.4E-09
ON samples							
21	-31.7E-09	-22.0E-09	-22.0E-09	-26.9E-09	-33.0E-09	-31.7E-09	-28.1E-09
22	-31.7E-09	-22.0E-09	-28.1E-09	-22.0E-09	-25.6E-09	-25.6E-09	-26.9E-09
23	-25.6E-09	-26.9E-09	-28.1E-09	-30.5E-09	-25.6E-09	-30.5E-09	-28.1E-09
24	-28.1E-09	-31.7E-09	-28.1E-09	-29.3E-09	-30.5E-09	-30.5E-09	-26.9E-09
25	-29.3E-09	-22.0E-09	-25.6E-09	-25.6E-09	-24.4E-09	-22.0E-09	-30.5E-09
26	-25.6E-09	-29.3E-09	-33.0E-09	-25.6E-09	-30.5E-09	-31.7E-09	-28.1E-09
27	-29.3E-09	-26.9E-09	-28.1E-09	-25.6E-09	-24.4E-09	-25.6E-09	-31.7E-09
28	-26.9E-09	-31.7E-09	-26.9E-09	-28.1E-09	-34.2E-09	-34.2E-09	-33.0E-09
29	-25.6E-09	-29.3E-09	-30.5E-09	-25.6E-09	-26.9E-09	-25.6E-09	-28.1E-09
30	-28.1E-09	-22.0E-09	-24.4E-09	-26.9E-09	-19.5E-09	-25.6E-09	-25.6E-09
Statistics							
Min	-31.7E-09	-31.7E-09	-33.0E-09	-30.5E-09	-34.2E-09	-34.2E-09	-33.0E-09
Max	-25.6E-09	-22.0E-09	-22.0E-09	-22.0E-09	-19.5E-09	-22.0E-09	-25.6E-09
Average	-28.2E-09	-26.4E-09	-27.5E-09	-26.6E-09	-27.5E-09	-28.3E-09	-28.7E-09
Std Deviation	2.2E-09	3.9E-09	2.9E-09	2.2E-09	4.3E-09	3.7E-09	2.2E-09

Measurements

IozIDQ(5)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-22.0E-09	-24.4E-09	-24.4E-09	-22.0E-09	-26.9E-09	-25.6E-09	-23.2E-09
37_OUT_REF	-23.2E-09	-24.4E-09	-25.6E-09	-22.0E-09	-24.4E-09	-23.2E-09	-24.4E-09
OFF samples							
31	-28.1E-09	-26.9E-09	-26.9E-09	-20.8E-09	-25.6E-09	-25.6E-09	-26.9E-09
32	-24.4E-09	-28.1E-09	-23.2E-09	-26.9E-09	-28.1E-09	-23.2E-09	-20.8E-09
33	-26.9E-09	-28.1E-09	-25.6E-09	-22.0E-09	-28.1E-09	-19.5E-09	-29.3E-09
34	-25.6E-09	-26.9E-09	-30.5E-09	-24.4E-09	-28.1E-09	-26.9E-09	-28.1E-09
35	-22.0E-09	-28.1E-09	-29.3E-09	-26.9E-09	-31.7E-09	-25.6E-09	-30.5E-09
Statistics							
Min	-28.1E-09	-28.1E-09	-30.5E-09	-26.9E-09	-31.7E-09	-26.9E-09	-30.5E-09
Max	-22.0E-09	-26.9E-09	-23.2E-09	-20.8E-09	-25.6E-09	-19.5E-09	-20.8E-09
Average	-25.4E-09	-27.6E-09	-27.1E-09	-24.2E-09	-28.3E-09	-24.2E-09	-27.1E-09
Std Deviation	2.1E-09	598.2E-12	2.6E-09	2.5E-09	2.0E-09	2.6E-09	3.4E-09

Parameter : Output low leakage Current : IozIDQ(6)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



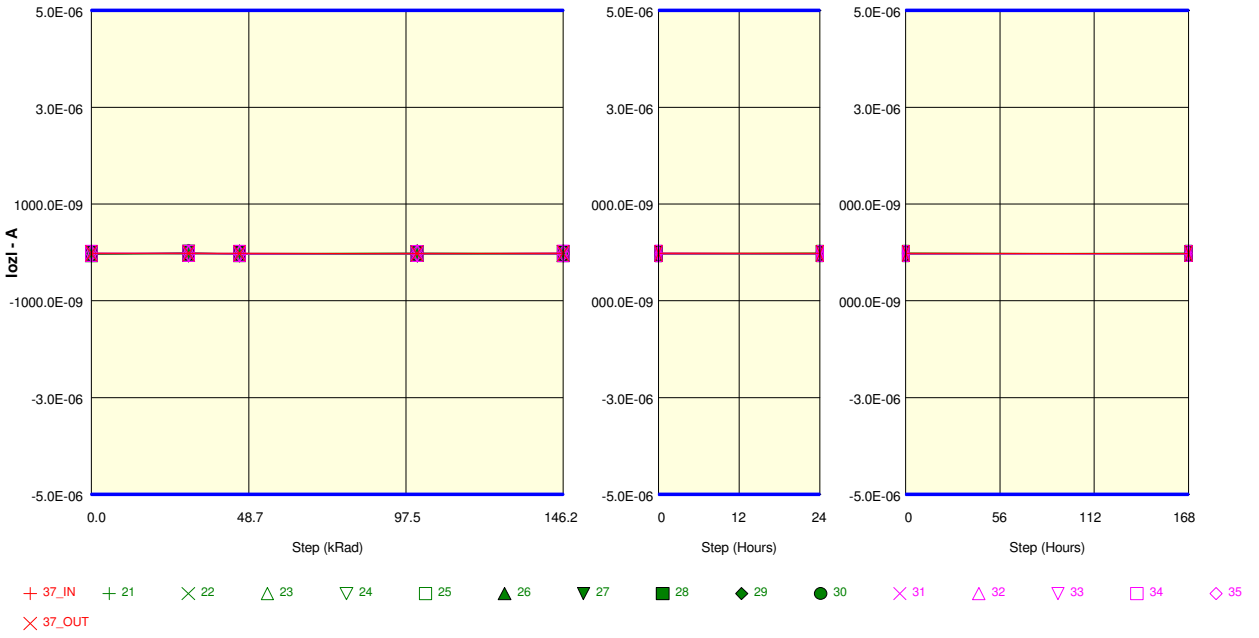
Measurements

IozIDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-28.1E-09	-19.5E-09	-29.3E-09	-23.2E-09	-22.0E-09	-20.8E-09
37_OUT_REF	-26.9E-09	-28.1E-09	-23.2E-09	-25.6E-09	-24.4E-09	-22.0E-09	-26.9E-09
ON samples							
21	-29.3E-09	-26.9E-09	-25.6E-09	-33.0E-09	-29.3E-09	-20.8E-09	-22.0E-09
22	-28.1E-09	-23.2E-09	-24.4E-09	-30.5E-09	-26.9E-09	-25.6E-09	-24.4E-09
23	-26.9E-09	-29.3E-09	-30.5E-09	-29.3E-09	-30.5E-09	-28.1E-09	-29.3E-09
24	-29.3E-09	-26.9E-09	-30.5E-09	-33.0E-09	-34.2E-09	-23.2E-09	-22.0E-09
25	-25.6E-09	-23.2E-09	-29.3E-09	-25.6E-09	-26.9E-09	-25.6E-09	-22.0E-09
26	-30.5E-09	-26.9E-09	-23.2E-09	-24.4E-09	-23.2E-09	-28.1E-09	-25.6E-09
27	-24.4E-09	-24.4E-09	-28.1E-09	-30.5E-09	-34.2E-09	-26.9E-09	-24.4E-09
28	-31.7E-09	-33.0E-09	-33.0E-09	-31.7E-09	-34.2E-09	-30.5E-09	-30.5E-09
29	-30.5E-09	-23.2E-09	-25.6E-09	-23.2E-09	-26.9E-09	-26.9E-09	-30.5E-09
30	-19.5E-09	-24.4E-09	-25.6E-09	-28.1E-09	-26.9E-09	-18.3E-09	-24.4E-09
Statistics							
Min	-31.7E-09	-33.0E-09	-33.0E-09	-33.0E-09	-34.2E-09	-30.5E-09	-30.5E-09
Max	-19.5E-09	-23.2E-09	-23.2E-09	-23.2E-09	-23.2E-09	-18.3E-09	-22.0E-09
Average	-27.6E-09	-26.1E-09	-27.6E-09	-28.9E-09	-29.3E-09	-25.4E-09	-25.5E-09
Std Deviation	3.5E-09	3.0E-09	3.0E-09	3.3E-09	3.7E-09	3.5E-09	3.3E-09

Measurements

IozIDQ(6)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-28.1E-09	-28.1E-09	-19.5E-09	-29.3E-09	-23.2E-09	-22.0E-09	-20.8E-09
37_OUT_REF	-26.9E-09	-28.1E-09	-23.2E-09	-25.6E-09	-24.4E-09	-22.0E-09	-26.9E-09
OFF samples							
31	-30.5E-09	-28.1E-09	-26.9E-09	-22.0E-09	-29.3E-09	-23.2E-09	-23.2E-09
32	-24.4E-09	-28.1E-09	-33.0E-09	-29.3E-09	-29.3E-09	-22.0E-09	-23.2E-09
33	-26.9E-09	-31.7E-09	-23.2E-09	-31.7E-09	-29.3E-09	-20.8E-09	-22.0E-09
34	-26.9E-09	-25.6E-09	-28.1E-09	-28.1E-09	-20.8E-09	-23.2E-09	-28.1E-09
35	-26.9E-09	-26.9E-09	-26.9E-09	-28.1E-09	-25.6E-09	-26.9E-09	-26.9E-09
Statistics							
Min	-30.5E-09	-31.7E-09	-33.0E-09	-31.7E-09	-29.3E-09	-26.9E-09	-28.1E-09
Max	-24.4E-09	-25.6E-09	-23.2E-09	-22.0E-09	-20.8E-09	-20.8E-09	-22.0E-09
Average	-27.1E-09	-28.1E-09	-27.6E-09	-27.8E-09	-26.9E-09	-23.2E-09	-24.7E-09
Std Deviation	2.0E-09	2.0E-09	3.1E-09	3.2E-09	3.4E-09	2.0E-09	2.4E-09

Parameter : Output low leakage Current : IozIDQ(7)
Test conditions : Vout=0V
Unit : A
Spec Limit Min : -5.0E-06
Spec Limit Max : 5.0E-06
Spec limits are represented in bold lines on the graphic.



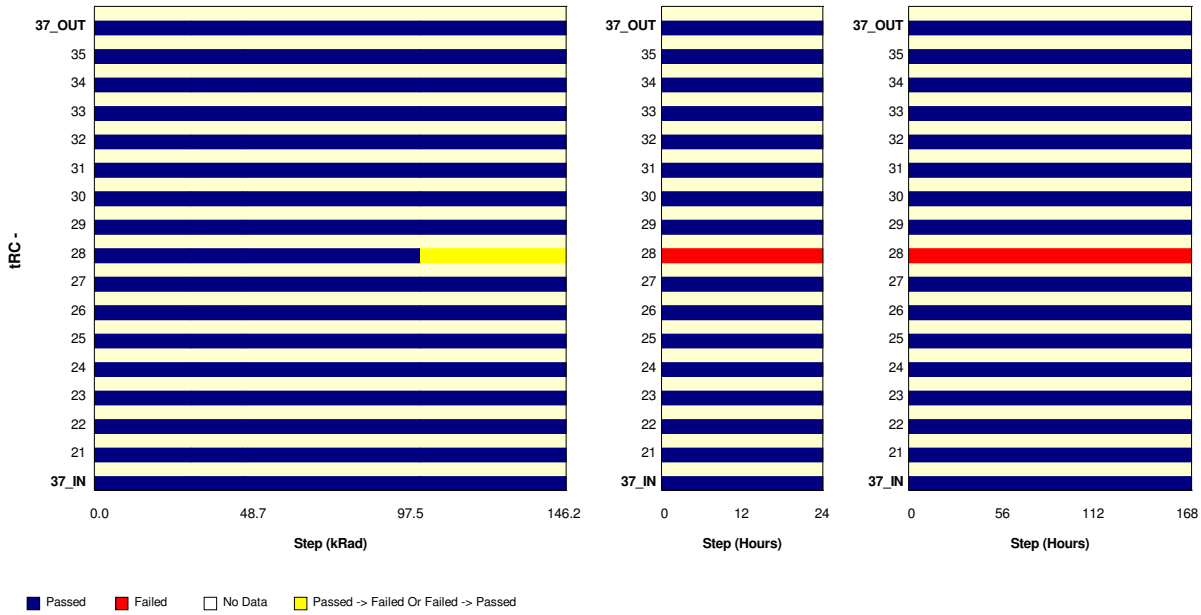
Measurements

IozIDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-19.5E-09	-22.0E-09	-17.1E-09	-15.9E-09	-18.3E-09	-23.2E-09
37_OUT_REF	-18.3E-09	-18.3E-09	-19.5E-09	-23.2E-09	-15.9E-09	-15.9E-09	-20.8E-09
ON samples							
21	-18.3E-09	-20.8E-09	-28.1E-09	-20.8E-09	-23.2E-09	-17.1E-09	-22.0E-09
22	-15.9E-09	-24.4E-09	-20.8E-09	-25.6E-09	-18.3E-09	-23.2E-09	-20.8E-09
23	-26.9E-09	-19.5E-09	-20.8E-09	-17.1E-09	-24.4E-09	-24.4E-09	-20.8E-09
24	-23.2E-09	-20.8E-09	-22.0E-09	-20.8E-09	-20.8E-09	-19.5E-09	-24.4E-09
25	-26.9E-09	-25.6E-09	-23.2E-09	-23.2E-09	-23.2E-09	-22.0E-09	-23.2E-09
26	-23.2E-09	-17.1E-09	-24.4E-09	-25.6E-09	-22.0E-09	-23.2E-09	-19.5E-09
27	-26.9E-09	-19.5E-09	-20.8E-09	-26.9E-09	-22.0E-09	-22.0E-09	-17.1E-09
28	-24.4E-09	-18.3E-09	-26.9E-09	-24.4E-09	-26.9E-09	-28.1E-09	-23.2E-09
29	-22.0E-09	-24.4E-09	-19.5E-09	-15.9E-09	-25.6E-09	-20.8E-09	-19.5E-09
30	-20.8E-09	-13.4E-09	-23.2E-09	-17.1E-09	-19.5E-09	-18.3E-09	-23.2E-09
Statistics							
Min	-26.9E-09	-25.6E-09	-28.1E-09	-26.9E-09	-26.9E-09	-28.1E-09	-24.4E-09
Max	-15.9E-09	-13.4E-09	-19.5E-09	-15.9E-09	-18.3E-09	-17.1E-09	-17.1E-09
Average	-22.8E-09	-20.4E-09	-22.9E-09	-21.7E-09	-22.6E-09	-21.9E-09	-21.4E-09
Std Deviation	3.5E-09	3.5E-09	2.7E-09	3.8E-09	2.5E-09	3.0E-09	2.1E-09

Measurements

IozIDQ(7)	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-20.8E-09	-19.5E-09	-22.0E-09	-17.1E-09	-15.9E-09	-18.3E-09	-23.2E-09
37_OUT_REF	-18.3E-09	-18.3E-09	-19.5E-09	-23.2E-09	-15.9E-09	-15.9E-09	-20.8E-09
OFF samples							
31	-19.5E-09	-19.5E-09	-20.8E-09	-20.8E-09	-15.9E-09	-20.8E-09	-20.8E-09
32	-20.8E-09	-19.5E-09	-22.0E-09	-20.8E-09	-26.9E-09	-20.8E-09	-22.0E-09
33	-20.8E-09	-24.4E-09	-22.0E-09	-25.6E-09	-14.6E-09	-22.0E-09	-20.8E-09
34	-19.5E-09	-18.3E-09	-18.3E-09	-24.4E-09	-17.1E-09	-20.8E-09	-20.8E-09
35	-19.5E-09	-25.6E-09	-28.1E-09	-19.5E-09	-20.8E-09	-23.2E-09	-22.0E-09
Statistics							
Min	-20.8E-09	-25.6E-09	-28.1E-09	-25.6E-09	-26.9E-09	-23.2E-09	-22.0E-09
Max	-19.5E-09	-18.3E-09	-18.3E-09	-19.5E-09	-14.6E-09	-20.8E-09	-20.8E-09
Average	-20.0E-09	-21.5E-09	-22.2E-09	-22.2E-09	-19.0E-09	-21.5E-09	-21.2E-09
Std Deviation	598.2E-12	2.9E-09	3.2E-09	2.4E-09	4.4E-09	976.5E-12	598.2E-12

Parameter : ACTIVATE to ACTIVATE or REFRESH command Period : tRC
Test conditions : go/no go
Unit :
No spec limit specified.



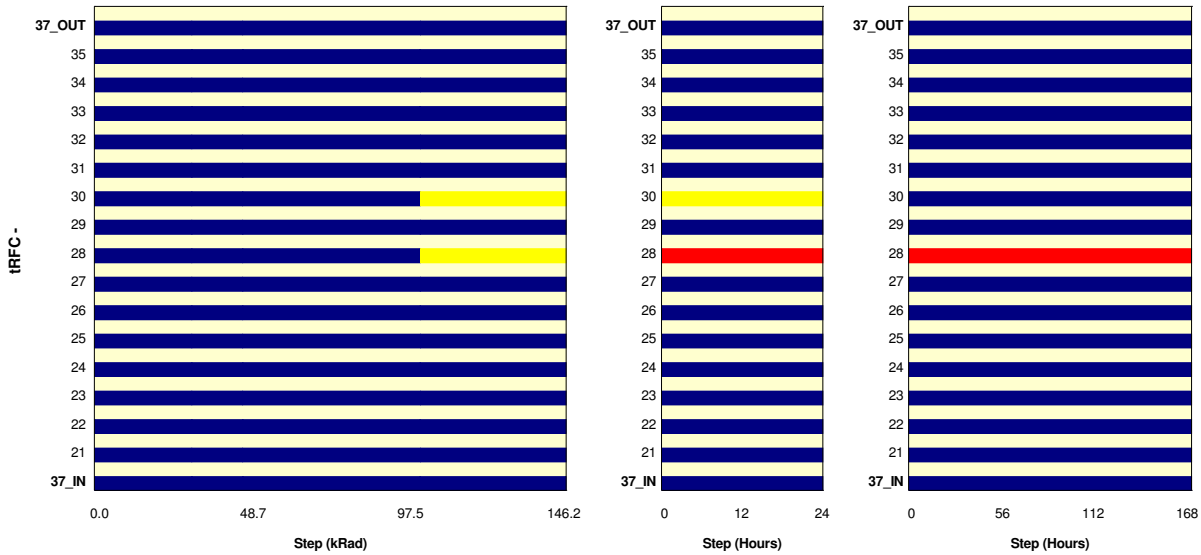
Measurements

tRC	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tRC	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : REFRESH to ACTIVATE or REFRESH : tRFC
Test conditions : go/no go (4Gb memory)
Unit :
No spec limit specified.



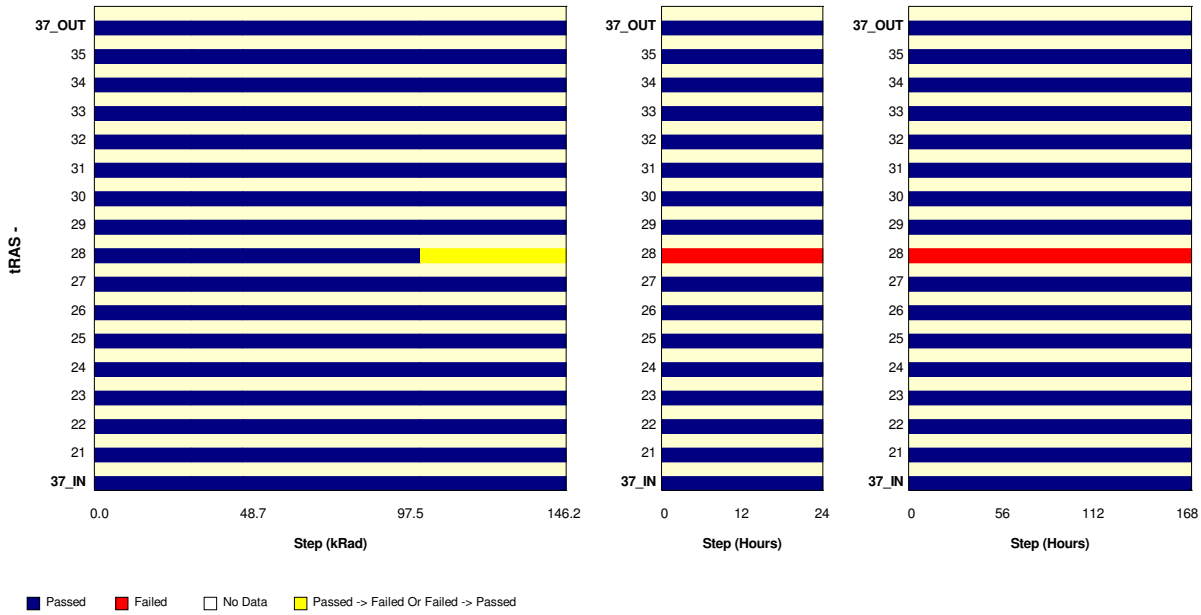
Measurements

tRFC	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	FAIL	PASS	PASS

Measurements

tRFC	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : ACTIVATE to PRECHARGE Command Period : tRAS
Test conditions : go/no go
Unit :
No spec limit specified.



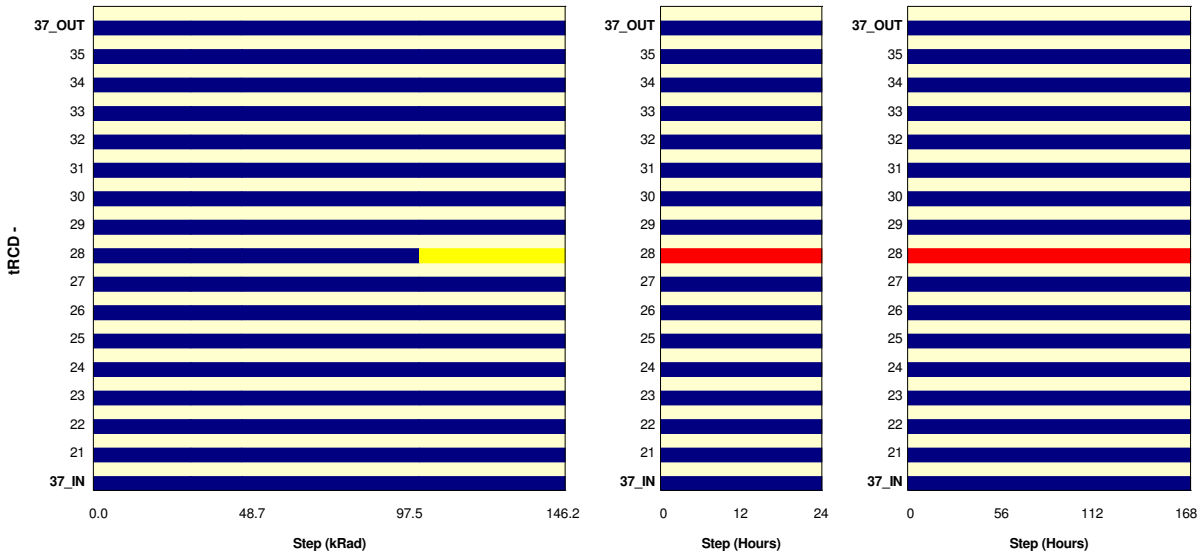
Measurements

tRAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tRAS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : ACTIVATE to internal Read or WRITE delay : tRCD
Test conditions : go/no go
Unit :
No spec limit specified.



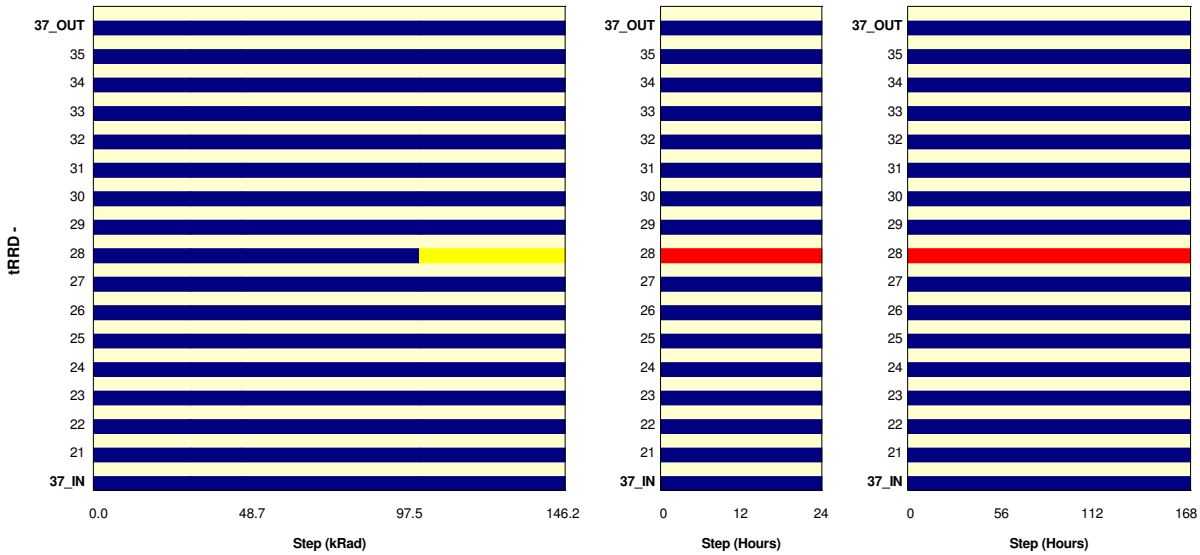
Measurements

tRCD	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tRCD	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : ACTIVATE to ACTIVATE min command period : tRRD
Test conditions : go/no go
Unit :
No spec limit specified.



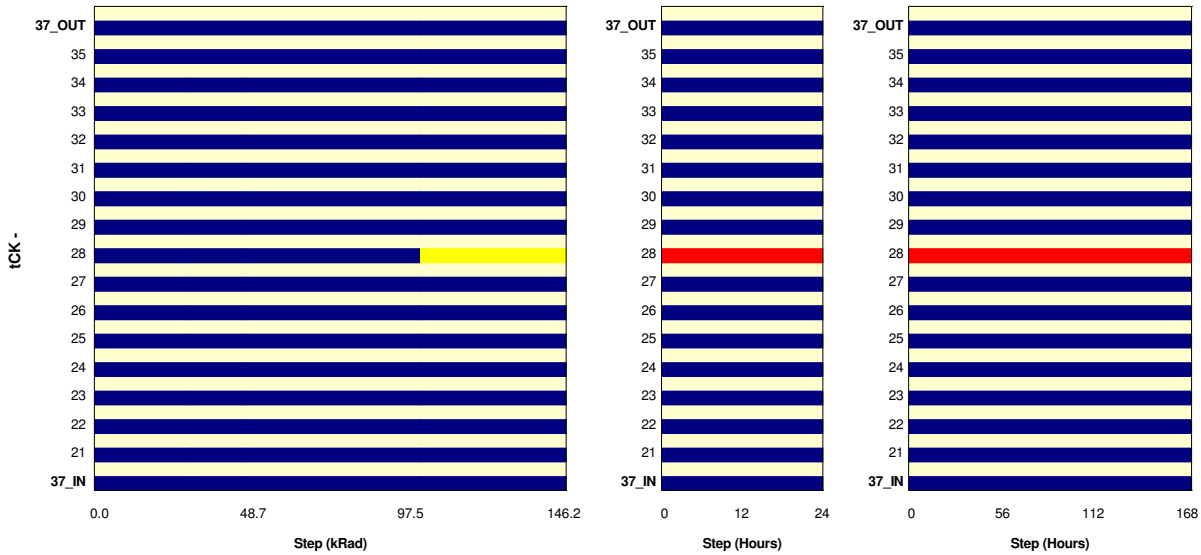
Measurements

tRRD	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tRRD	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Clock Cycle time : tCK
Test conditions : go/no go
Unit :
No spec limit specified.



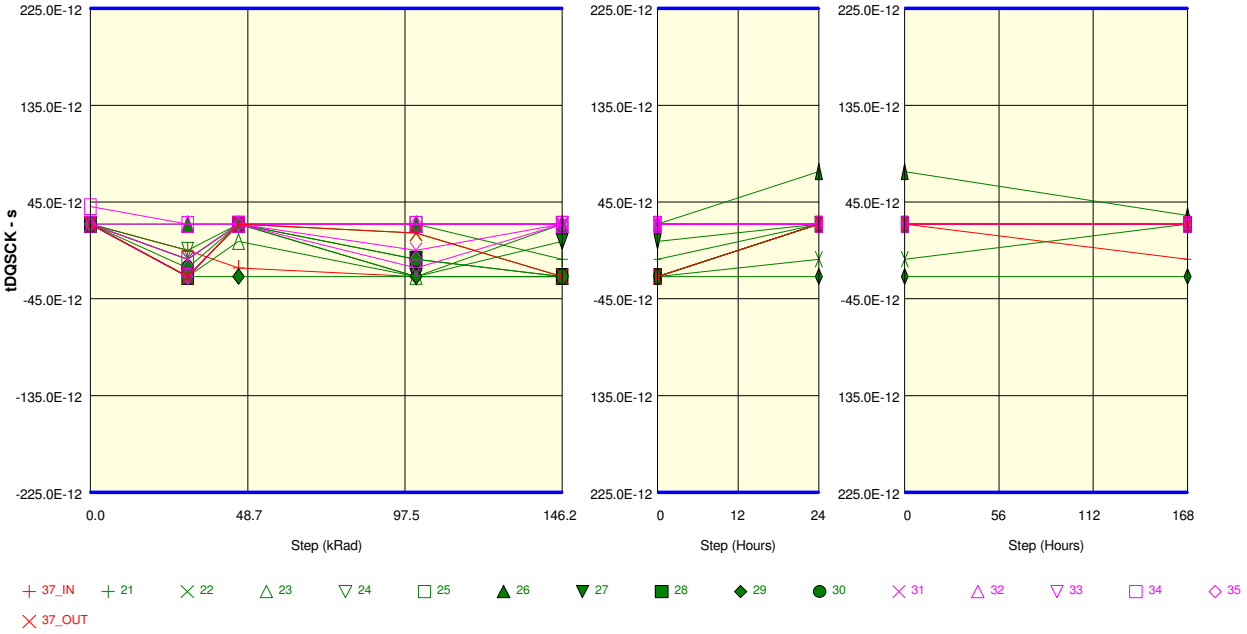
Measurements

tCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : DQS. DQS# rising to/from rising CK. CK# Upper Bits : tDQSCK
Test conditions : Search ; Note 3
Unit : s
Spec Limit Min : -225.0E-12
Spec Limit Max : 225.0E-12
Spec limits are represented in bold lines on the graphic.



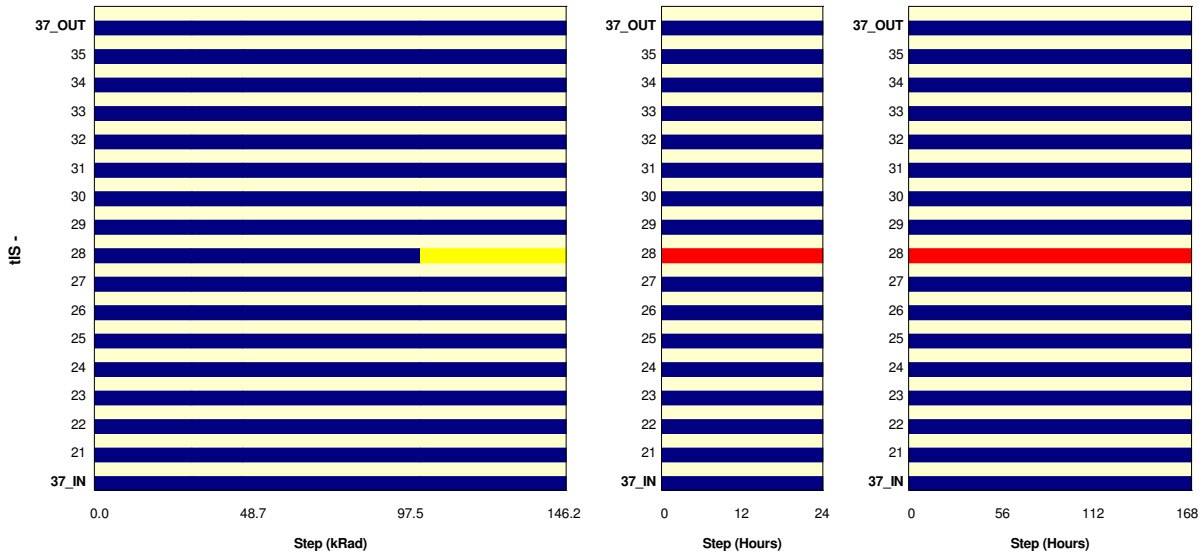
Measurements

tDQSCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	24.4E-12	0.0E+00	-16.3E-12	-24.4E-12	-24.4E-12	24.4E-12	-8.1E-12
37_OUT_REF	24.4E-12	-24.4E-12	24.4E-12	16.3E-12	-24.4E-12	24.4E-12	24.4E-12
ON samples							
21	24.4E-12	-24.4E-12	24.4E-12	24.4E-12	-8.1E-12	24.4E-12	24.4E-12
22	24.4E-12	-8.1E-12	24.4E-12	16.3E-12	-24.4E-12	-8.1E-12	24.4E-12
23	24.4E-12	-24.4E-12	8.1E-12	-24.4E-12	-24.4E-12	24.4E-12	24.4E-12
24	24.4E-12	0.0E+00	24.4E-12	-24.4E-12	24.4E-12	24.4E-12	24.4E-12
25	24.4E-12	-8.1E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12
26	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	73.1E-12	32.5E-12
27	24.4E-12	-24.4E-12	24.4E-12	-24.4E-12	8.1E-12	24.4E-12	24.4E-12
28	24.4E-12	-24.4E-12	24.4E-12	-8.1E-12	-24.4E-12	24.4E-12	24.4E-12
29	24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12
30	24.4E-12	-16.3E-12	24.4E-12	-8.1E-12	-24.4E-12	24.4E-12	24.4E-12
Statistics							
Min	24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12	-24.4E-12
Max	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	73.1E-12	32.5E-12
Average	24.4E-12	-13.0E-12	17.9E-12	-2.4E-12	-4.9E-12	21.1E-12	20.3E-12
Std Deviation	193.9E-21	15.1E-12	14.9E-12	21.2E-12	21.6E-12	23.9E-12	15.1E-12

Measurements

tDQSCK	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	24.4E-12	0.0E+00	-16.3E-12	-24.4E-12	-24.4E-12	24.4E-12	-8.1E-12
37_OUT_REF	24.4E-12	-24.4E-12	24.4E-12	16.3E-12	-24.4E-12	24.4E-12	24.4E-12
OFF samples							
31	24.4E-12	-8.1E-12	24.4E-12	0.0E+00	24.4E-12	24.4E-12	24.4E-12
32	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12
33	24.4E-12	-24.4E-12	24.4E-12	-16.3E-12	24.4E-12	24.4E-12	24.4E-12
34	40.6E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12
35	24.4E-12	-24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12
Statistics							
Min	24.4E-12	-24.4E-12	24.4E-12	-16.3E-12	24.4E-12	24.4E-12	24.4E-12
Max	40.6E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12	24.4E-12
Average	27.6E-12	-1.6E-12	24.4E-12	11.4E-12	24.4E-12	24.4E-12	24.4E-12
Std Deviation	6.5E-12	22.0E-12	335.9E-21	16.7E-12	335.9E-21	335.9E-21	335.9E-21

Parameter : Input Setup Time (fast slew rate) : tIS
Test conditions : go/no go ; CAS#; RAS#; CS#; WE# Note 2
Unit :
No spec limit specified.



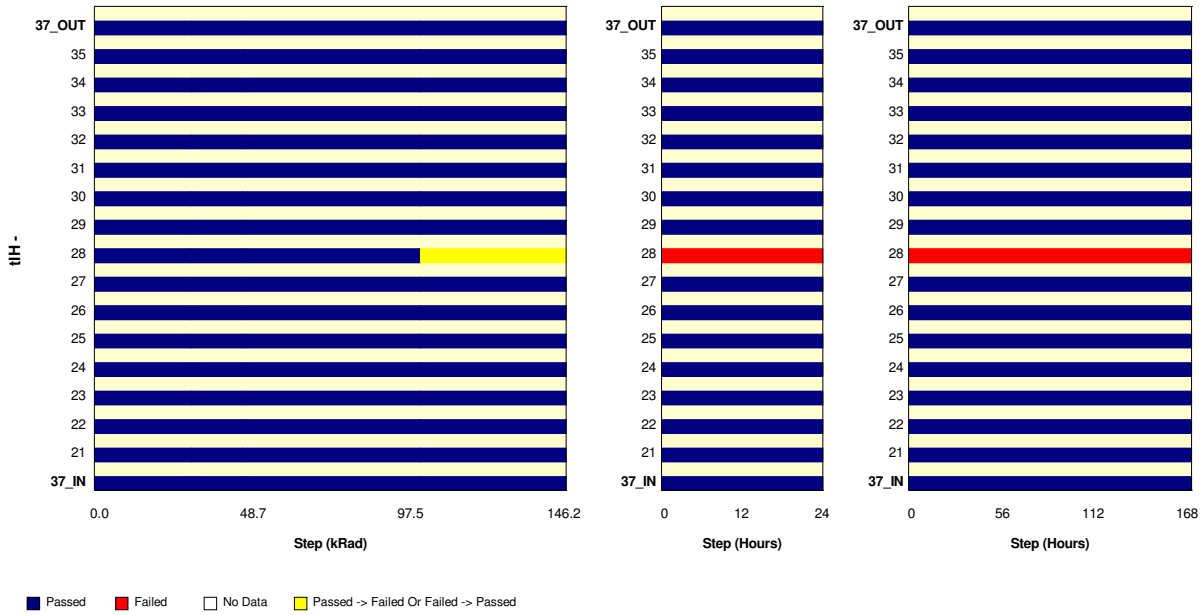
Measurements

tIS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tIS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Input Hold Time (fast slew rate) : tIH
Test conditions : go/no go ; CAS#; RAS#; CS#; WE# Note 2
Unit :
No spec limit specified.



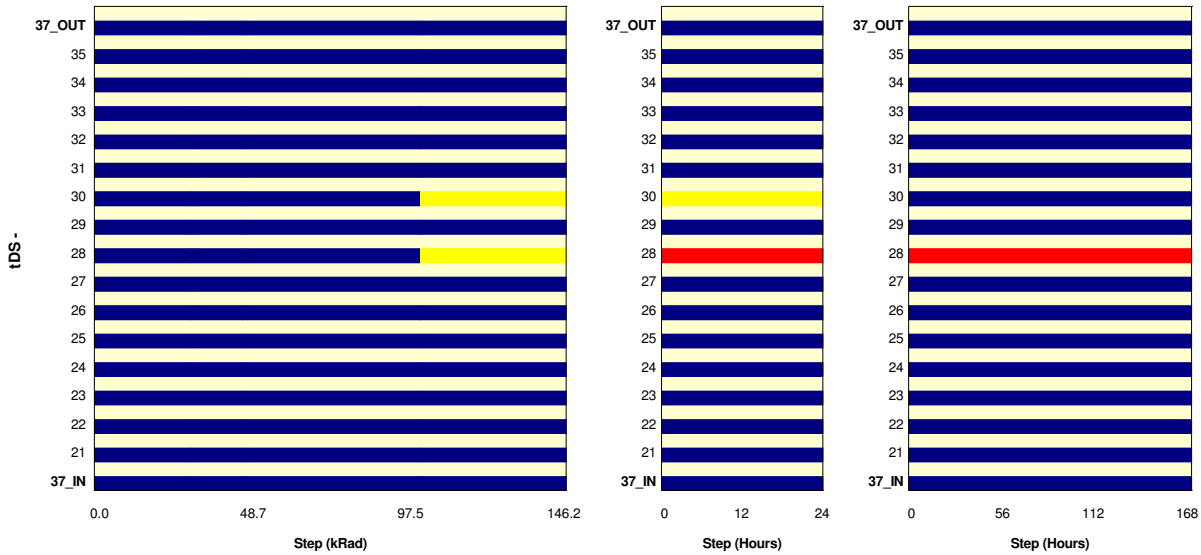
Measurements

tIH	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tIH	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Data-In Setup Time to DQS-In (DQ. DM) : tDS
Test conditions : go/no go Note 2
Unit :
No spec limit specified.



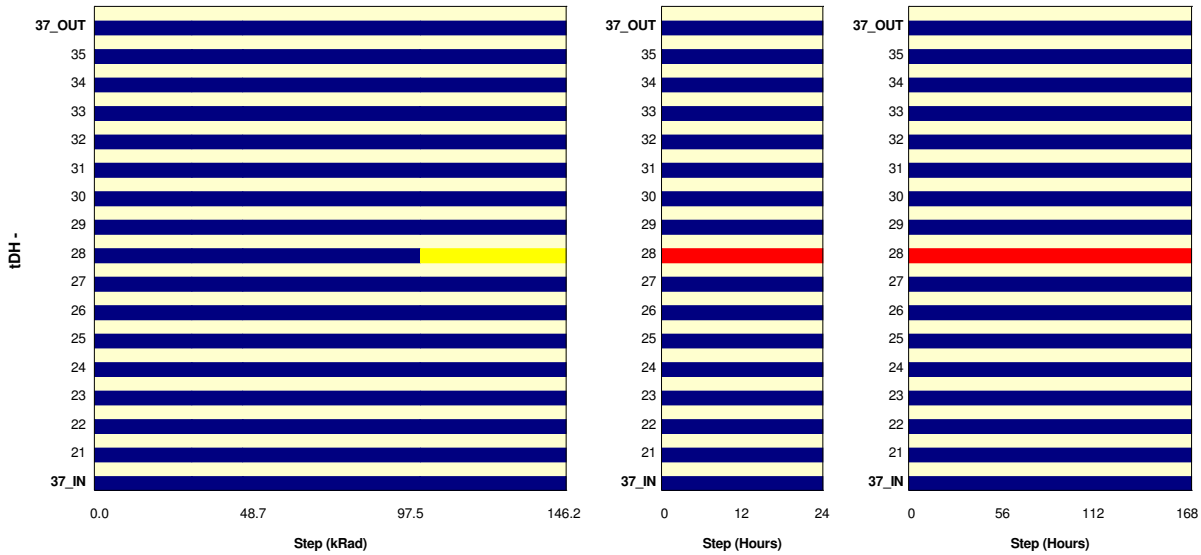
Measurements

tDS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	FAIL	PASS	PASS

Measurements

tDS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Data-In Hold Time to DQS-In (DQ. DM) : tDH
Test conditions : go/no go Note 2
Unit :
No spec limit specified.



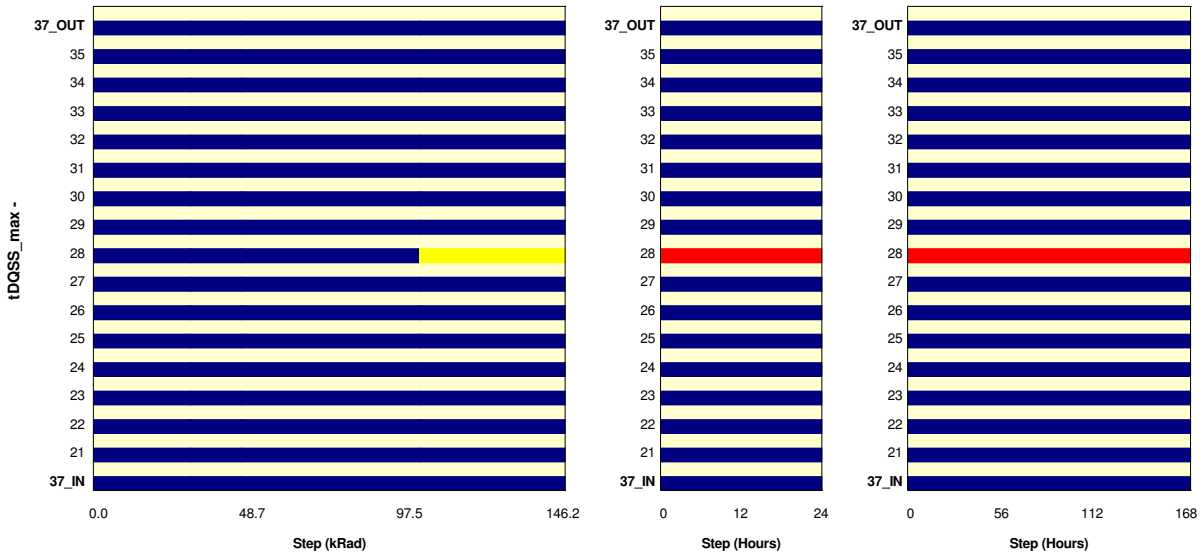
Measurements

tDH	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tDH	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : CLK to First Rising Edge of DQS-In : tDQSS_max
Test conditions : go/no go Note 4
Unit :
No spec limit specified.



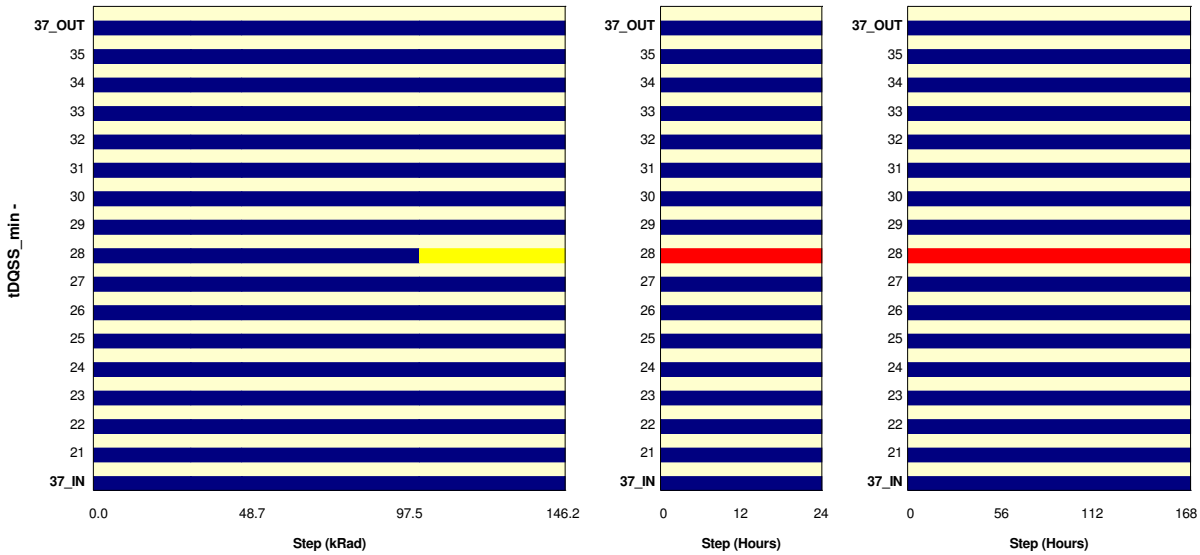
Measurements

tDQSS_max	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tDQSS_max	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : CLK to First Rising Edge of DQS-In : tDQSS_min
Test conditions : go/no go Note 4
Unit :
No spec limit specified.



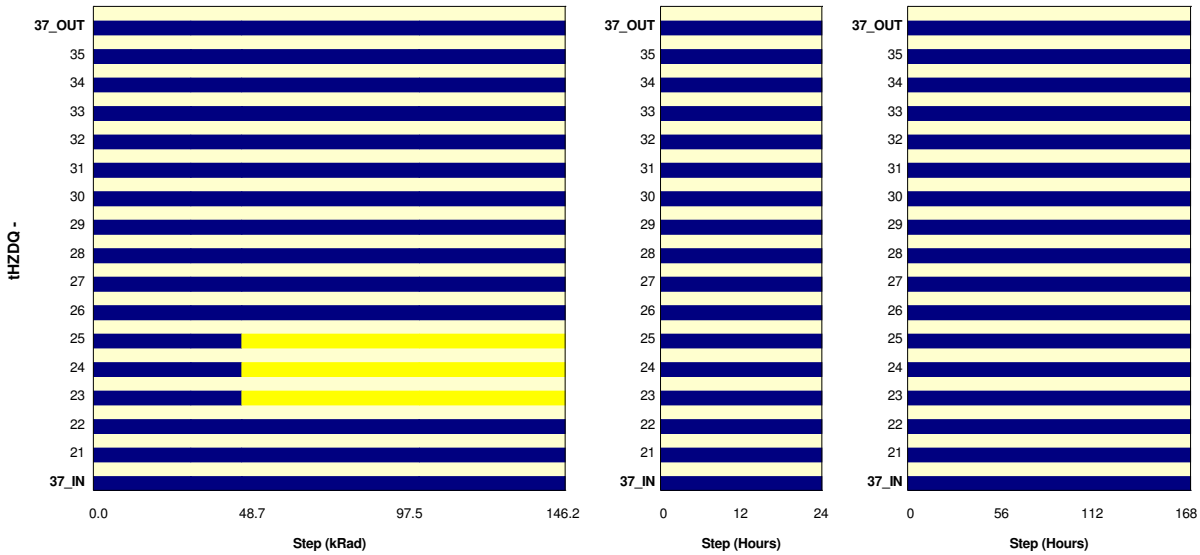
Measurements

tDQSS_min	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tDQSS_min	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Data-Out to High Impedance from CK/CK# : tHZDQ
Test conditions : go/no go Note 3
Unit :
No spec limit specified.



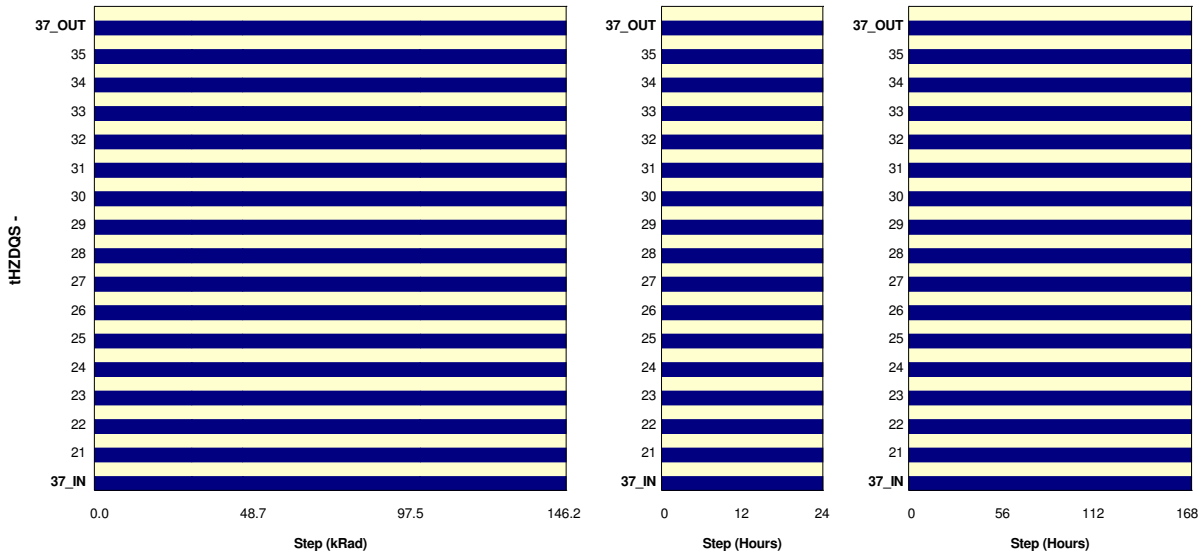
Measurements

tHZDQ	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	FAIL	PASS	PASS	PASS
24	PASS	PASS	PASS	FAIL	PASS	PASS	PASS
25	PASS	PASS	PASS	FAIL	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	PASS	PASS	PASS
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tHZDQ	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : DQS to High Impedance from CK/CK# : tHZDQS
Test conditions : go/no go Note 3
Unit :
No spec limit specified.



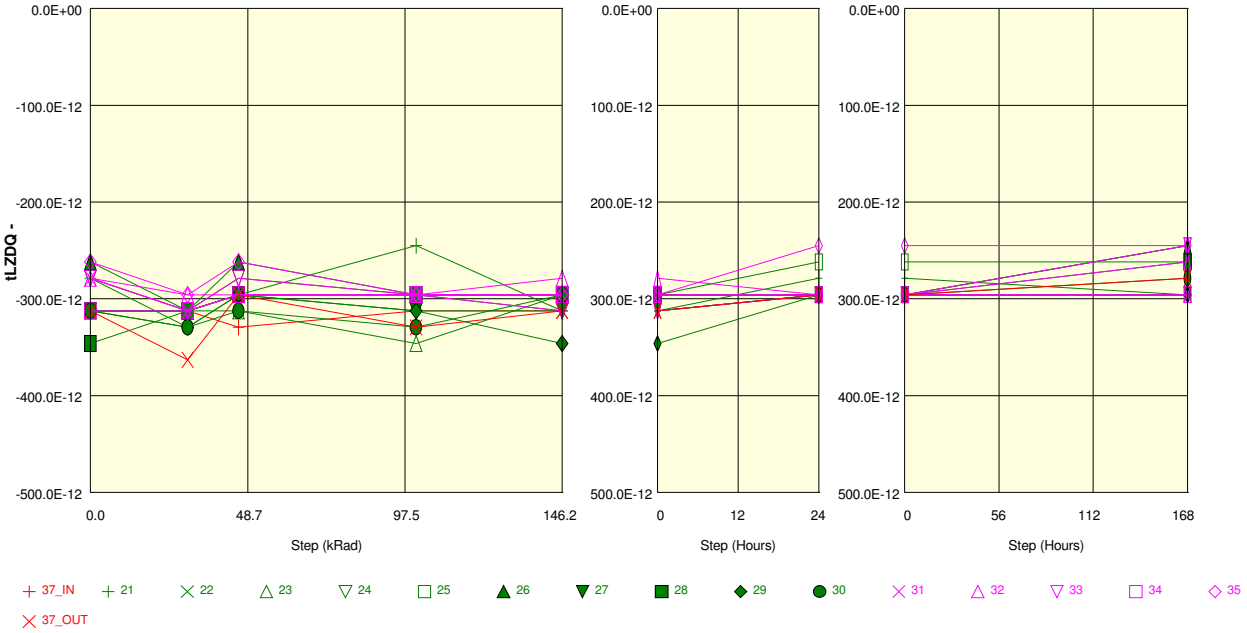
Measurements

tHZDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	PASS	PASS	PASS
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tHZDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : DQ to Low Impedance from CK/CK# : tLZDQ
Test conditions : go/no go Note 2
Unit :
No spec limit specified.



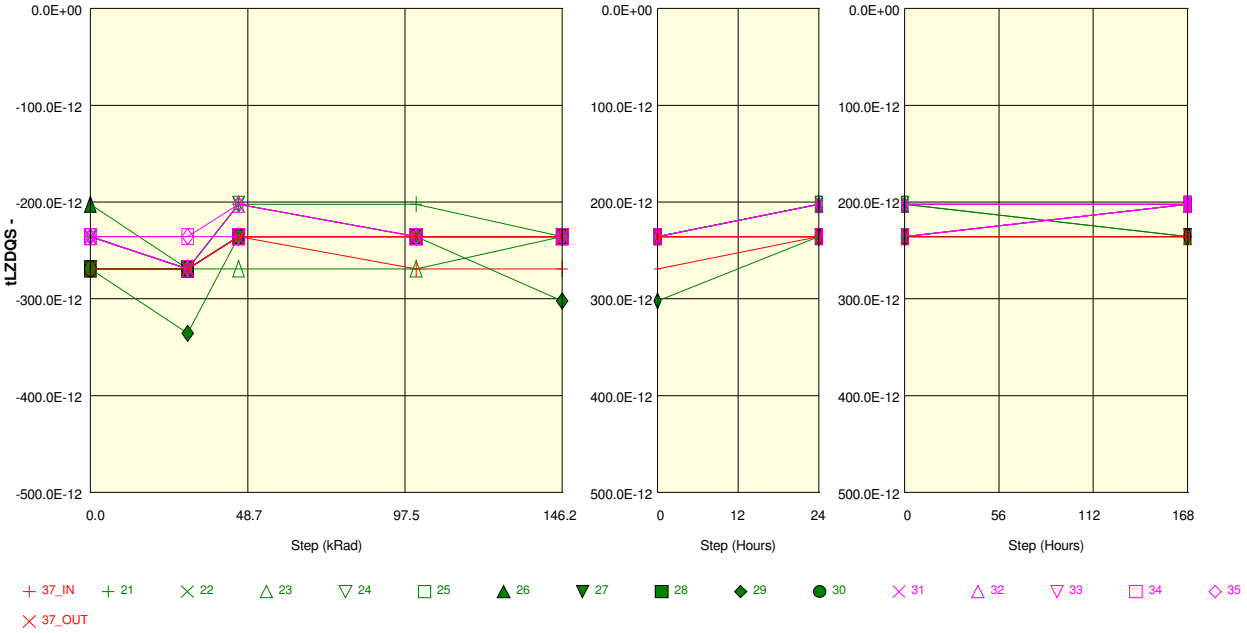
Measurements

tLZDQ	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-312.5E-12	-312.5E-12	-329.4E-12	-312.5E-12	-312.5E-12	-295.6E-12	-295.6E-12
37_OUT_REF	-312.5E-12	-363.1E-12	-295.6E-12	-329.4E-12	-312.5E-12	-295.6E-12	-278.8E-12
ON samples							
21	-278.8E-12	-329.4E-12	-295.6E-12	-245.0E-12	-312.5E-12	-278.8E-12	-295.6E-12
22	-312.5E-12	-312.5E-12	-295.6E-12	-295.6E-12	-312.5E-12	-295.6E-12	-295.6E-12
23	-312.5E-12	-312.5E-12	-312.5E-12	-346.3E-12	-295.6E-12	-295.6E-12	-295.6E-12
24	-278.8E-12	-312.5E-12	-278.8E-12	-295.6E-12	-295.6E-12	-295.6E-12	-245.0E-12
25	-312.5E-12	-312.5E-12	-295.6E-12	-295.6E-12	-295.6E-12	-261.9E-12	-261.9E-12
26	-261.9E-12	-312.5E-12	-261.9E-12	-295.6E-12	-295.6E-12	-295.6E-12	-245.0E-12
27	-312.5E-12	-312.5E-12	-295.6E-12	-312.5E-12	-312.5E-12	-295.6E-12	-295.6E-12
28	-346.3E-12	-312.5E-12	-295.6E-12	-295.6E-12	-295.6E-12	-295.6E-12	-261.9E-12
29	-312.5E-12	-329.4E-12	-295.6E-12	-312.5E-12	-346.3E-12	-295.6E-12	-295.6E-12
30	-312.5E-12	-329.4E-12	-312.5E-12	-329.4E-12	-295.6E-12	-295.6E-12	-278.8E-12
Statistics							
Min	-346.3E-12	-329.4E-12	-312.5E-12	-346.3E-12	-346.3E-12	-295.6E-12	-295.6E-12
Max	-261.9E-12	-312.5E-12	-261.9E-12	-245.0E-12	-295.6E-12	-261.9E-12	-245.0E-12
Average	-304.1E-12	-317.6E-12	-293.9E-12	-302.4E-12	-305.7E-12	-290.6E-12	-277.1E-12
Std Deviation	23.0E-12	7.7E-12	14.0E-12	25.3E-12	15.5E-12	10.8E-12	20.6E-12

Measurements

tLZDQ	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-312.5E-12	-312.5E-12	-329.4E-12	-312.5E-12	-312.5E-12	-295.6E-12	-295.6E-12
37_OUT_REF	-312.5E-12	-363.1E-12	-295.6E-12	-329.4E-12	-312.5E-12	-295.6E-12	-278.8E-12
OFF samples							
31	-278.8E-12	-312.5E-12	-295.6E-12	-295.6E-12	-295.6E-12	-295.6E-12	-295.6E-12
32	-278.8E-12	-295.6E-12	-295.6E-12	-295.6E-12	-278.8E-12	-295.6E-12	-261.9E-12
33	-278.8E-12	-312.5E-12	-278.8E-12	-295.6E-12	-312.5E-12	-295.6E-12	-245.0E-12
34	-312.5E-12	-312.5E-12	-295.6E-12	-295.6E-12	-295.6E-12	-295.6E-12	-295.6E-12
35	-261.9E-12	-295.6E-12	-261.9E-12	-295.6E-12	-295.6E-12	-245.0E-12	-245.0E-12
Statistics							
Min	-312.5E-12	-312.5E-12	-295.6E-12	-295.6E-12	-312.5E-12	-295.6E-12	-295.6E-12
Max	-261.9E-12	-295.6E-12	-261.9E-12	-295.6E-12	-278.8E-12	-245.0E-12	-245.0E-12
Average	-282.1E-12	-305.7E-12	-285.5E-12	-295.6E-12	-295.6E-12	-285.5E-12	-268.6E-12
Std Deviation	16.5E-12	8.3E-12	13.5E-12	3.8E-18	10.7E-12	20.2E-12	22.9E-12

Parameter : DQS/DQS# Low Impedance from CK/CK# : tLZDQS
Test conditions : go/no go Note 2
Unit :
No spec limit specified.



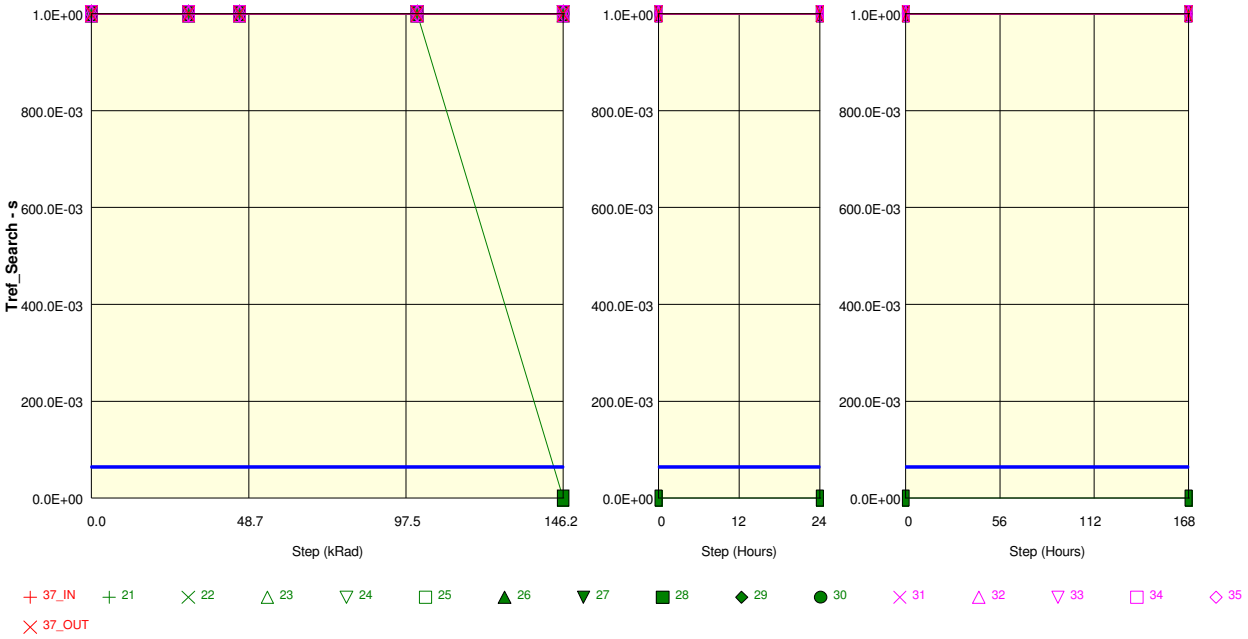
Measurements

tLZDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-268.9E-12	-268.9E-12	-235.6E-12	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12
37_OUT_REF	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12
ON samples							
21	-235.6E-12	-268.9E-12	-202.3E-12	-202.3E-12	-235.6E-12	-235.6E-12	-202.3E-12
22	-235.6E-12	-268.9E-12	-202.3E-12	-235.6E-12	-235.6E-12	-202.3E-12	-235.6E-12
23	-268.9E-12	-268.9E-12	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12
24	-235.6E-12	-268.9E-12	-202.3E-12	-235.6E-12	-235.6E-12	-202.3E-12	-202.3E-12
25	-235.6E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-202.3E-12	-235.6E-12
26	-202.3E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-202.3E-12	-202.3E-12
27	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12
28	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-202.3E-12
29	-268.9E-12	-335.5E-12	-235.6E-12	-235.6E-12	-302.2E-12	-235.6E-12	-235.6E-12
30	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12
Statistics							
Min	-268.9E-12	-335.5E-12	-268.9E-12	-268.9E-12	-302.2E-12	-235.6E-12	-235.6E-12
Max	-202.3E-12	-268.9E-12	-202.3E-12	-202.3E-12	-235.6E-12	-202.3E-12	-202.3E-12
Average	-248.9E-12	-275.6E-12	-229.0E-12	-235.6E-12	-242.3E-12	-222.3E-12	-222.3E-12
Std Deviation	22.1E-12	20.0E-12	20.0E-12	14.9E-12	20.0E-12	16.3E-12	16.3E-12

Measurements

tLZDQS	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	-268.9E-12	-268.9E-12	-235.6E-12	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12
37_OUT_REF	-268.9E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12
OFF samples							
31	-235.6E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-202.3E-12
32	-235.6E-12	-268.9E-12	-202.3E-12	-235.6E-12	-235.6E-12	-202.3E-12	-202.3E-12
33	-235.6E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-202.3E-12
34	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-202.3E-12
35	-235.6E-12	-235.6E-12	-202.3E-12	-235.6E-12	-235.6E-12	-202.3E-12	-202.3E-12
Statistics							
Min	-235.6E-12	-268.9E-12	-235.6E-12	-235.6E-12	-235.6E-12	-235.6E-12	-202.3E-12
Max	-235.6E-12	-235.6E-12	-202.3E-12	-235.6E-12	-235.6E-12	-202.3E-12	-202.3E-12
Average	-235.6E-12	-255.6E-12	-222.3E-12	-235.6E-12	-235.6E-12	-222.3E-12	-202.3E-12
Std Deviation	2.2E-18	16.3E-12	16.3E-12	2.2E-18	2.2E-18	16.3E-12	1.1E-18

Parameter : Refresh Interval : Tref_Search
Test conditions :
Unit : s
Spec Limit Min : 64.0E-03
Spec limits are represented in bold lines on the graphic.



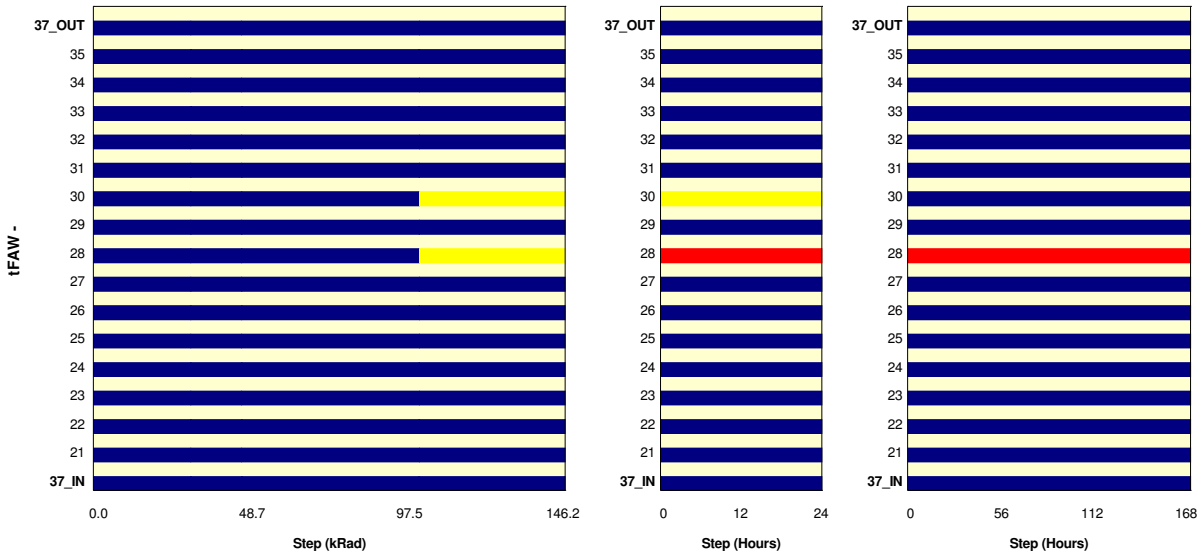
Measurements

Tref_Search	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
37_OUT_REF	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
ON samples							
21	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
22	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
23	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
24	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
25	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
26	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
27	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
28	1.0E+00	1.0E+00	1.0E+00	1.0E+00	**0.0E+00**	**0.0E+00**	**0.0E+00**
29	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
30	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
Statistics							
Min	1.0E+00	1.0E+00	1.0E+00	1.0E+00	0.0E+00	0.0E+00	0.0E+00
Max	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
Average	1.0E+00	1.0E+00	1.0E+00	1.0E+00	900.0E-03	900.0E-03	900.0E-03
Std Deviation	0.0E+00	0.0E+00	0.0E+00	0.0E+00	300.0E-03	300.0E-03	300.0E-03

Measurements

Tref_Search	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
37_OUT_REF	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
OFF samples							
31	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
32	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
33	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
34	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
35	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
Statistics							
Min	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
Max	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
Average	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00	1.0E+00
Std Deviation	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00

Parameter : Four Activate Window : tFAW
Test conditions : go/no go
Unit :
No spec limit specified.



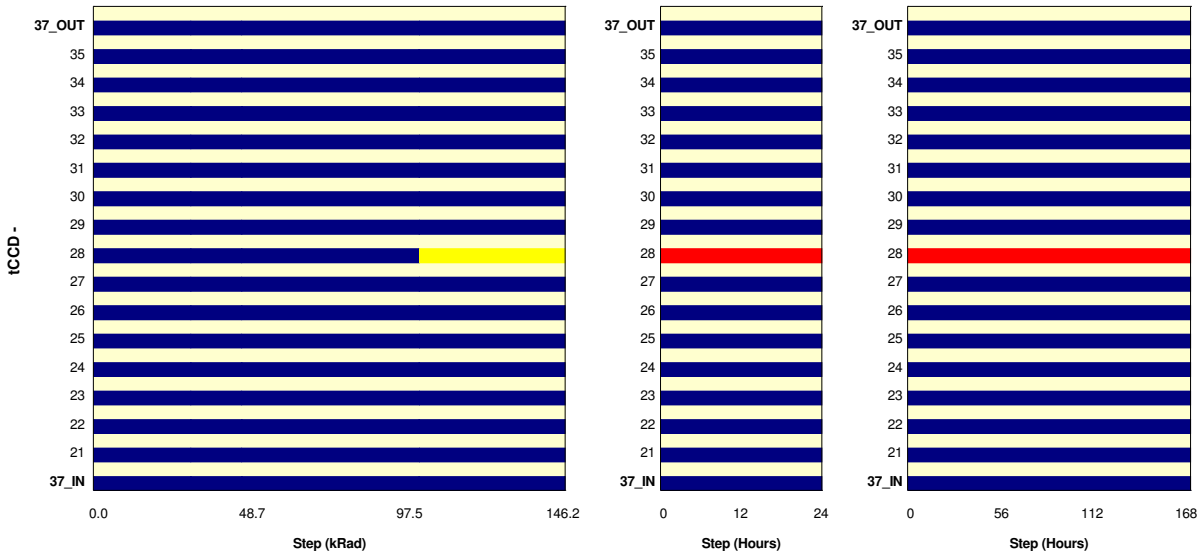
Measurements

tFAW	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	FAIL	PASS	PASS

Measurements

tFAW	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : CAS to CAS command delay : tCCD
Test conditions : go/no go
Unit :
No spec limit specified.



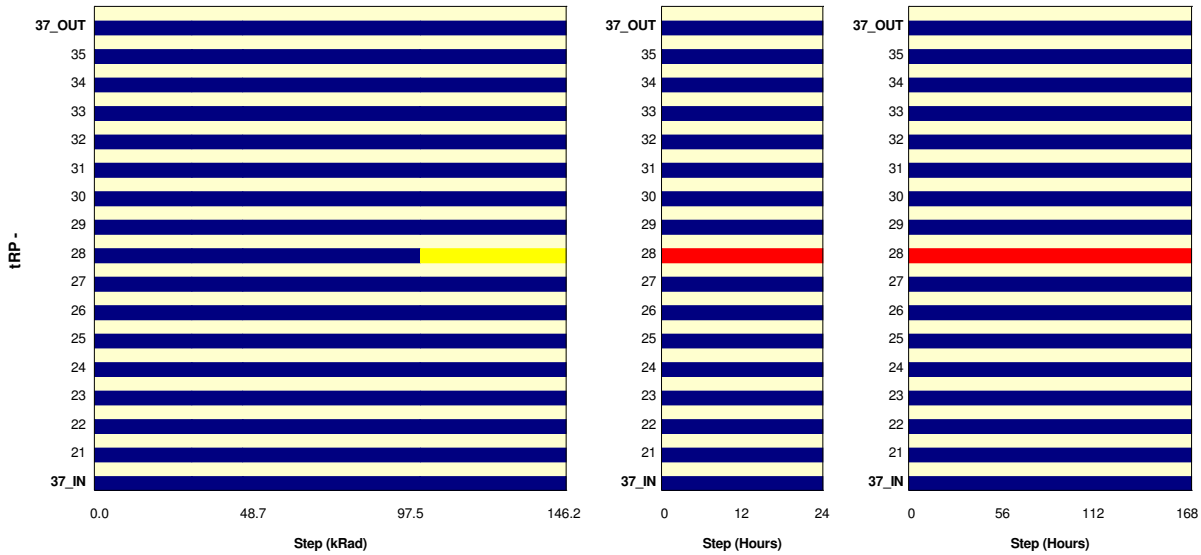
Measurements

tCCD	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tCCD	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : PECHARGE Command period : tRP
Test conditions : go/no go
Unit :
No spec limit specified.



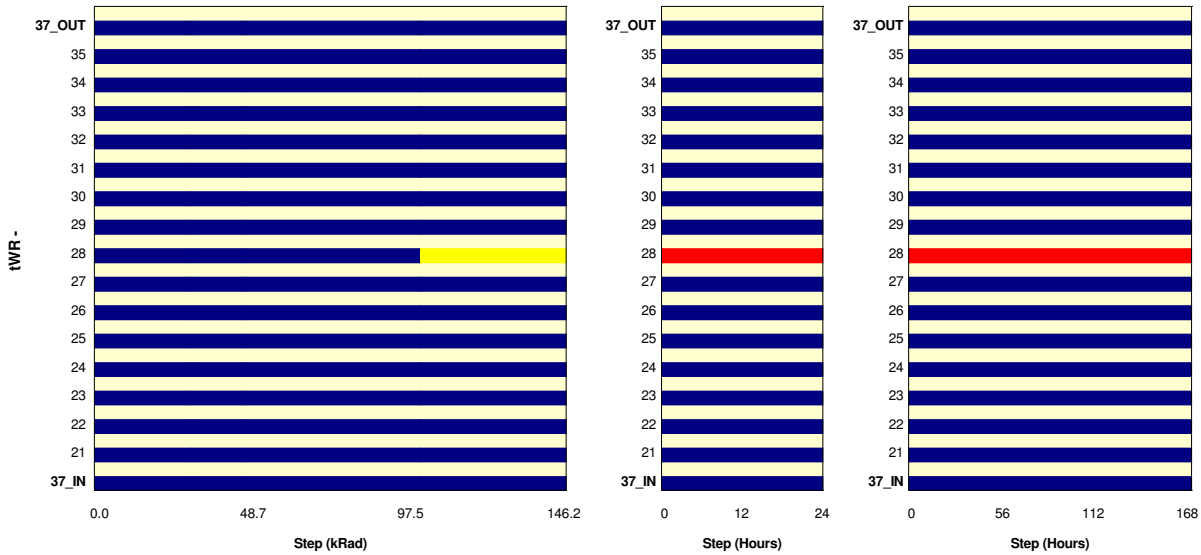
Measurements

tRP	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tRP	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Parameter : Write Recovery Time : tWR
Test conditions : go/no go
Unit :
No spec limit specified.



Measurements

tWR	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
ON samples							
21	PASS	PASS	PASS	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	PASS	PASS	PASS
25	PASS	PASS	PASS	PASS	PASS	PASS	PASS
26	PASS	PASS	PASS	PASS	PASS	PASS	PASS
27	PASS	PASS	PASS	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	FAIL	FAIL	FAIL
29	PASS	PASS	PASS	PASS	PASS	PASS	PASS
30	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Measurements

tWR	0 kRad	30.1 kRad	45.9 kRad	100.9 kRad	146.2 kRad	24 Hours	168 Hours
37_IN_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
37_OUT_REF	PASS	PASS	PASS	PASS	PASS	PASS	PASS
OFF samples							
31	PASS	PASS	PASS	PASS	PASS	PASS	PASS
32	PASS	PASS	PASS	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	PASS	PASS	PASS
35	PASS	PASS	PASS	PASS	PASS	PASS	PASS

Appendix 3: Batch 2 - CO60 irradiation certificate

Co^{60} IRRADIATION CERTIFICATE

Customer: HIR
FAO: Frédéric TILHAC

Case followed up by: CS

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

Reference : PV/ATR/GAMRAY-210/XX45/HIR/CS/1806
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	19.0	20.9	19.9
Relative humidity	%	49.9	77.4	63.3

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)
210-24	16/05/2018	221.1

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)
210-24	19/06/2018	0.0
	25/06/2018	30.1
	28/06/2018	45.9
	09/07/2018	100.9
	18/07/2018	146.2

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.

Appendix 4: Batch 1 - Dynamic bias mode Test report with in-situ measurements

TOTAL IONIZING DOSE TEST REPORT

Test type	In situ total ionizing dose
Part Reference	MT41K512M8RH-125 E
Tested function	DDR3L SDRAM
Chip manufacturer	Micron
Test Facility	UCL-HIF, Louvain-La-Neuve, Belgium, Hirex Engineering Toulouse
Test Date	08/06/2018
Customer	ESA

Esa Estec Purchase Order N° 4000112477/14/NL/HB dated December 4th, 2014

BCE 5524

Hirex reference:	HRX/TID/01585	Issue: 01	Date:	31/10/2018
Written by:	F. Lochon / F.X Guerre			
Authorized by:	F.X. Guerre	Study Manager		

DOCUMENTATION CHANGE NOTICE

Issue	Date	Page	Change Item	
01	31/10/2018	All	Original issue	

Contributors to this work:

Frédéric Lochon Hirex Engineering

TOTAL IONIZING DOSE TEST REPORT
on MT41K512M8RH-125 E
Micron

TABLE OF CONTENTS

LIST OF FIGURES:

LIST OF TABLES:

1 Introduction

This report presents the functional test results obtained on MT41K512M8RH-125 E DDR3 memory during beam exposure and annealing. A supervisor board (HIREX, reference: STB030A) connected to 2 DUT (Device Under Test) SODDIM boards, low speed and high speed, sends the test sequence commands to each DUT on the SODDIM boards and test data are transmitted via an Ethernet cable to the test monitoring laptop pc.

2 In-situ test system description

The following figure shows the test system overview for dynamic in-situ test.

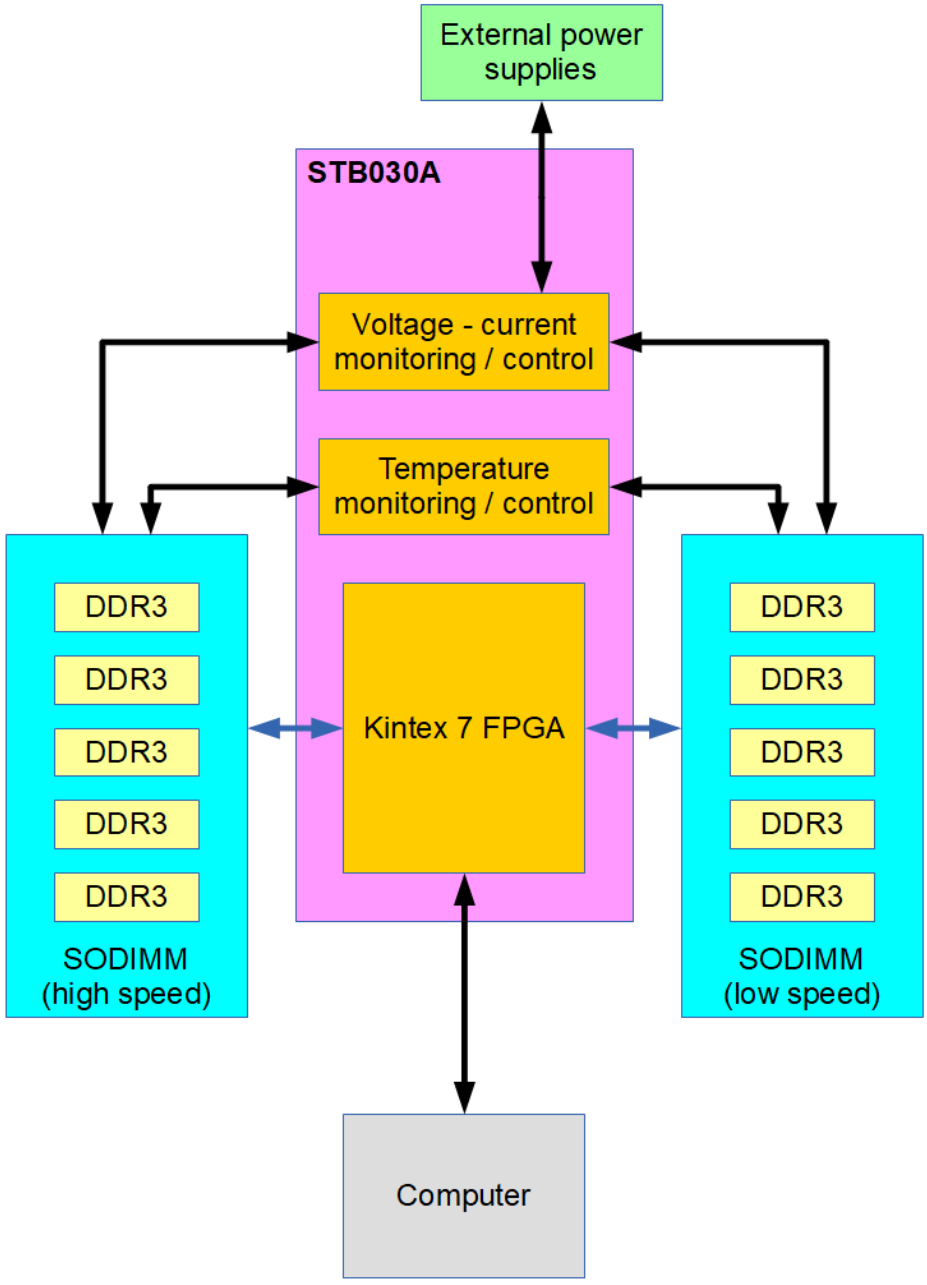


Figure 1 : In-situ test system overview

3 Test conditions

3.1 Test campaign

Campaign start date: 23/04/2018 15:30
Campaign end date: 08/06/2018 14:30

Steps	Dose (krad)	Time (hours)
Step1	193	858
Annealing 25°C		24
Annealing 100°C		168

3.2 Test flow

During exposure and the 2 subsequent annealings, two test modes have been implemented to read and write the entire memory plane:

Read sequence:

- Write 0xAA at initial on 10 samples
- Idle mode and Read at low speed 325 MHz every hour on 5 samples
- Idle mode and Read at high speed 700 MHz every hour 5 samples

Write sequence:

- Write 0xAA / at initial on 10 samples
- Idle mode and Read 0xAA, Write 0x55, Read 0x55, Write 0xAA at low speed 325 MHz every hour on 5 samples
- Idle mode and Read 0xAA, Write 0x55, Read 0x55, Write 0xAA at high speed 700 MHz every hour on 5 samples

3.3 Test samples

Four SODIMM boards have been used for this test with 5 DUTs mounted on each board. The board repartition was as follows

		Low Speed	High Speed
Read mode	STB030A 1	SODIMM 1	SODIMM 2
Write mode	STB030A 2	SODIMM 3	SODIMM 4

4 Test results

Results are transmitted via an Ethernet cable from each STB030A board to the laptop pc located outside the exposure room.

Results consist in:

- Read errors (every hour)
- UI monitoring and eventually temperature monitoring (every 300ms)

4.1 DUT bias SODDIM supply current

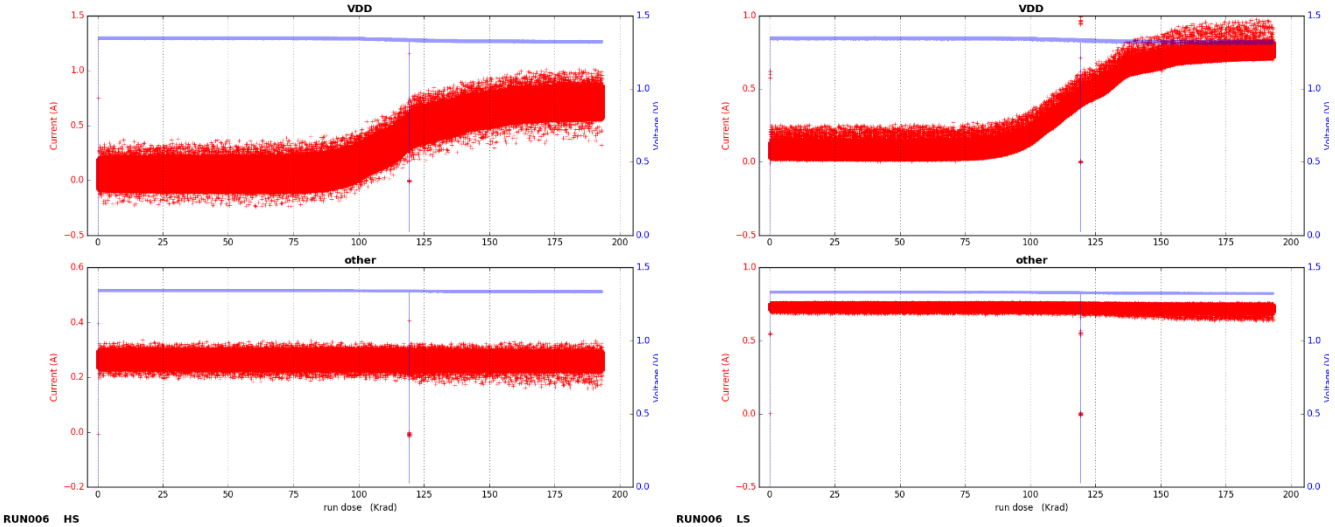
4.1.1 Read mode

Figure 2 present the SODIMMs supply currents for both High Speed (HS) and Low Speed (LS) test modules for the read mode. During the annealing at 85°C, DUTs did not pass the calibration during the entire annealing period. After annealing, DUTs started to pass the calibration while the temperature was cooling down and the corresponding supply currents are presented in Figure 3.
No memory recovered during annealing at 25°C 24 hours or when measured after the 85°C 168 hours annealing.

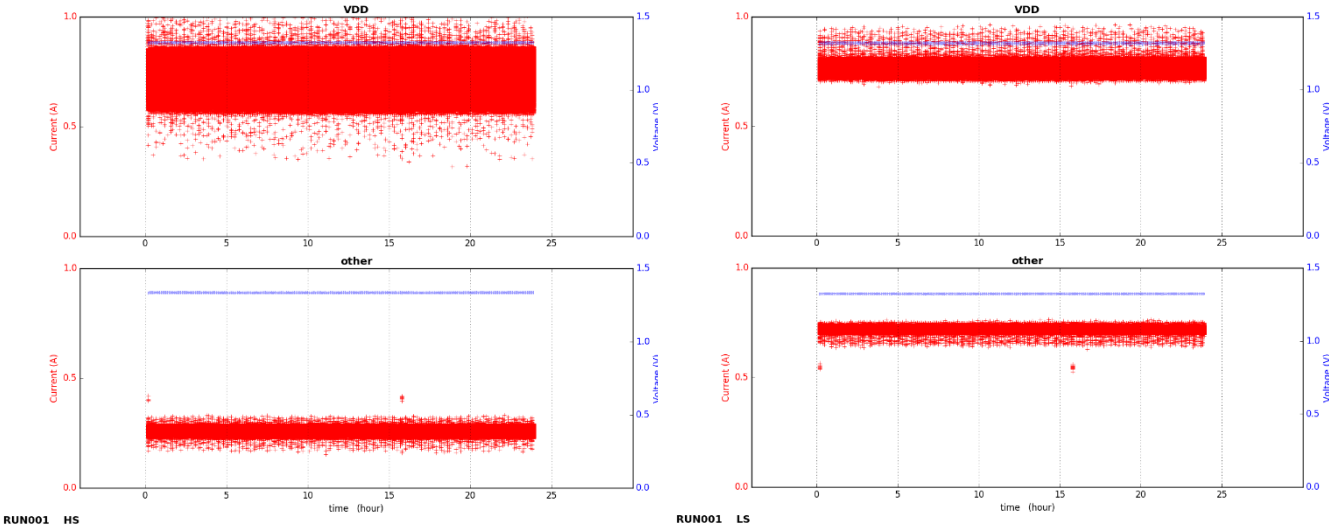
4.1.2 Write mode

Figure 4 present the SODIMMs supply currents for both High Speed (HS) and Low Speed (LS) test modules for the write mode. During the annealing at 85°C, DUTs did not pass the calibration during the entire annealing period. After annealing, DUTs started to pass the calibration while the temperature was cooling down and the corresponding supply currents are presented in Figure 5.
No memory recovered during annealing at 25°C 24 hours or when measured after the 85°C 168 hours annealing.

Step1 : Exposure



Annealing 25°C 24 hours



Annealing 85°C 168h

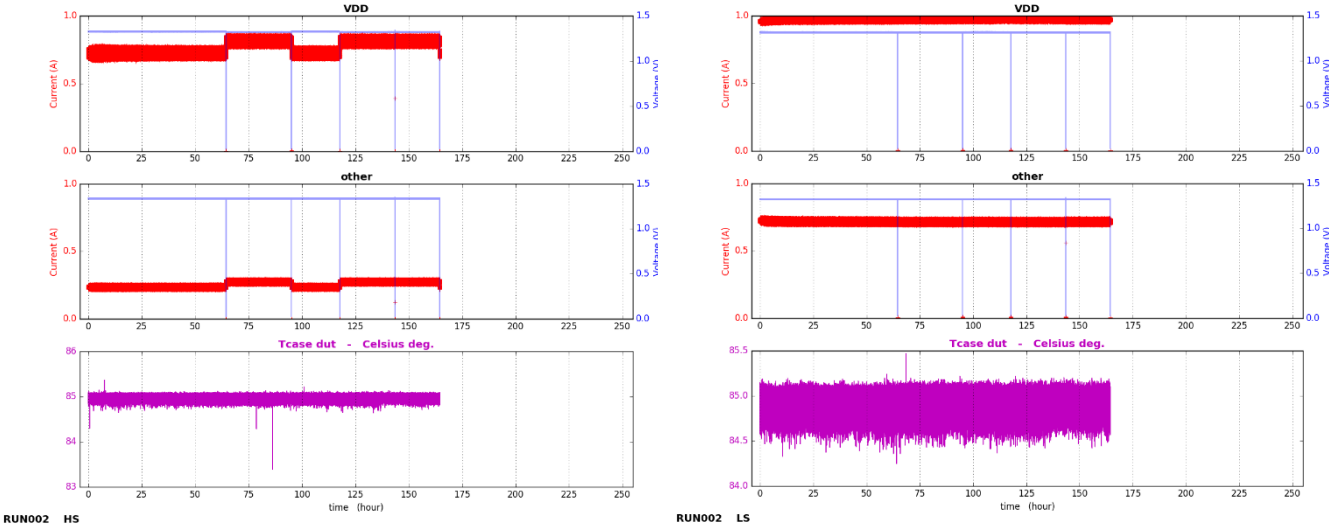


Figure 2 – Read mode, High Speed and Low Speed test modes, In situ monitoring

Post 85°C annealing

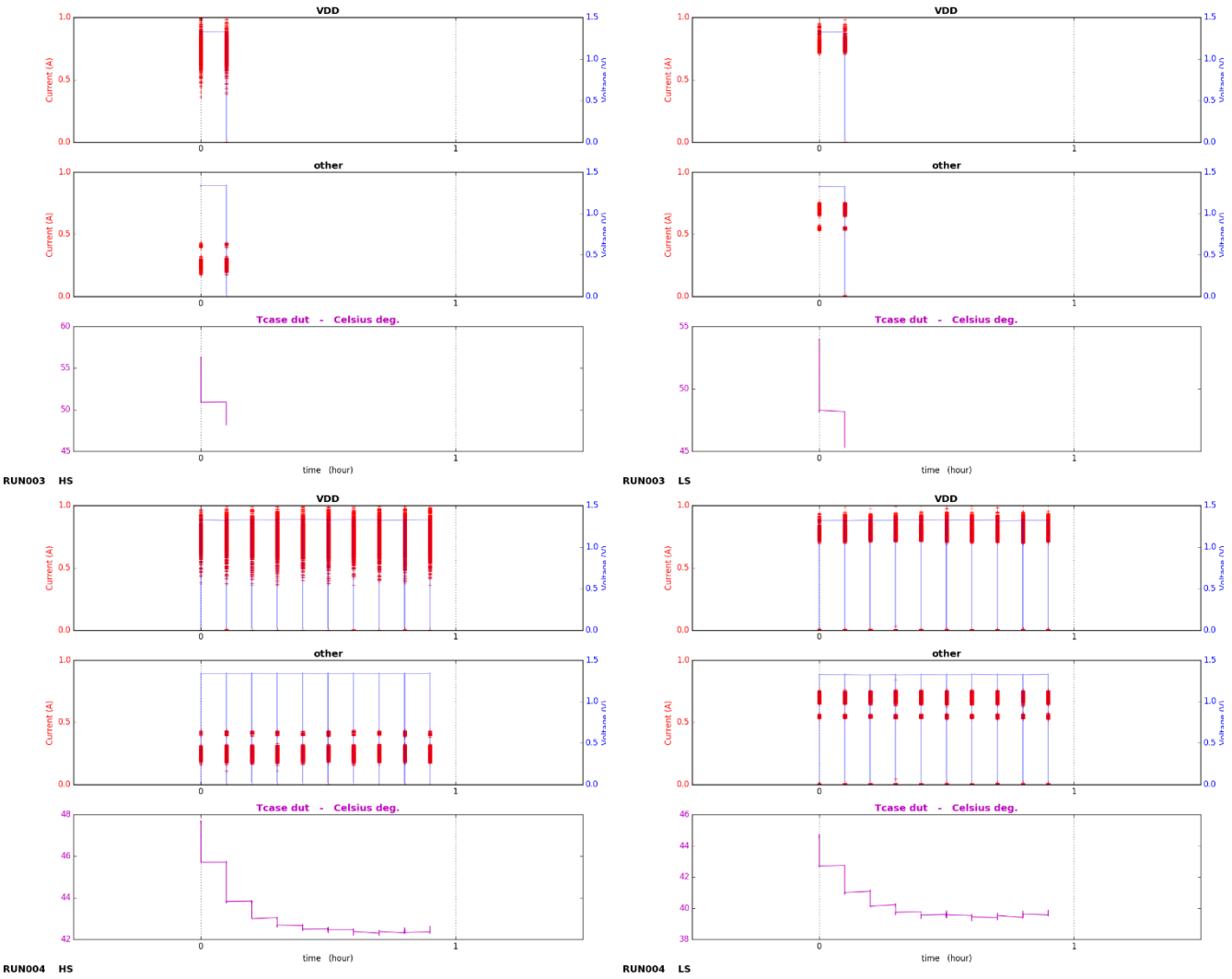
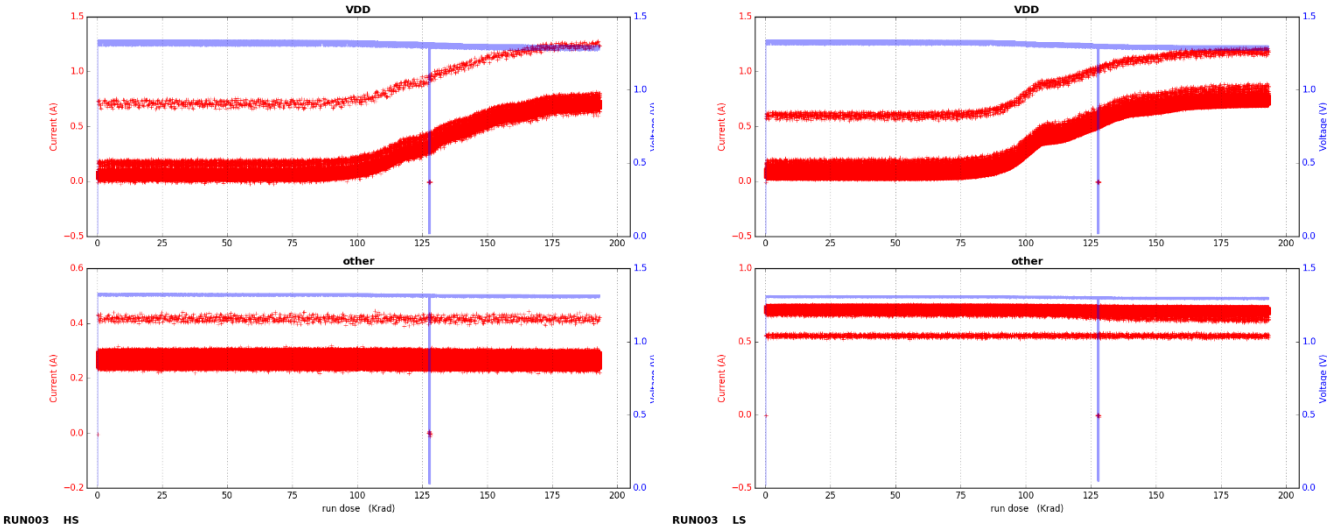
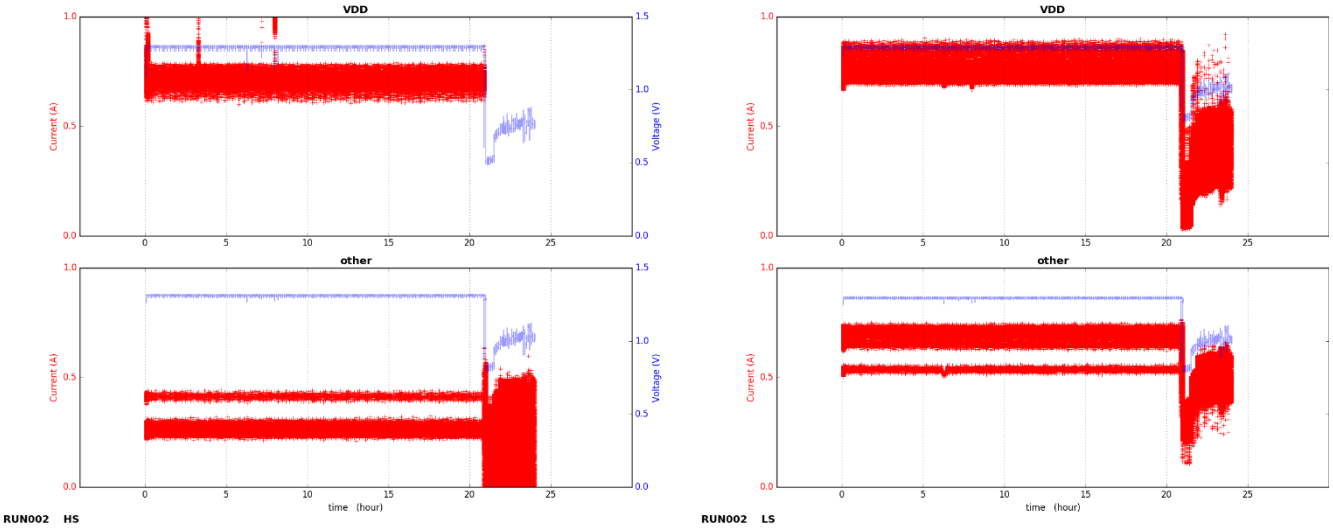


Figure 3 – Read mode, High Speed and Low Speed test modes, post annealing

Step1 : Exposure



Annealing 25°C 24 hours



Near the end of annealing at 25°C, an insulation default in the setup leads to a lower voltage applied to the DUTs.

Annealing 85°C 168h

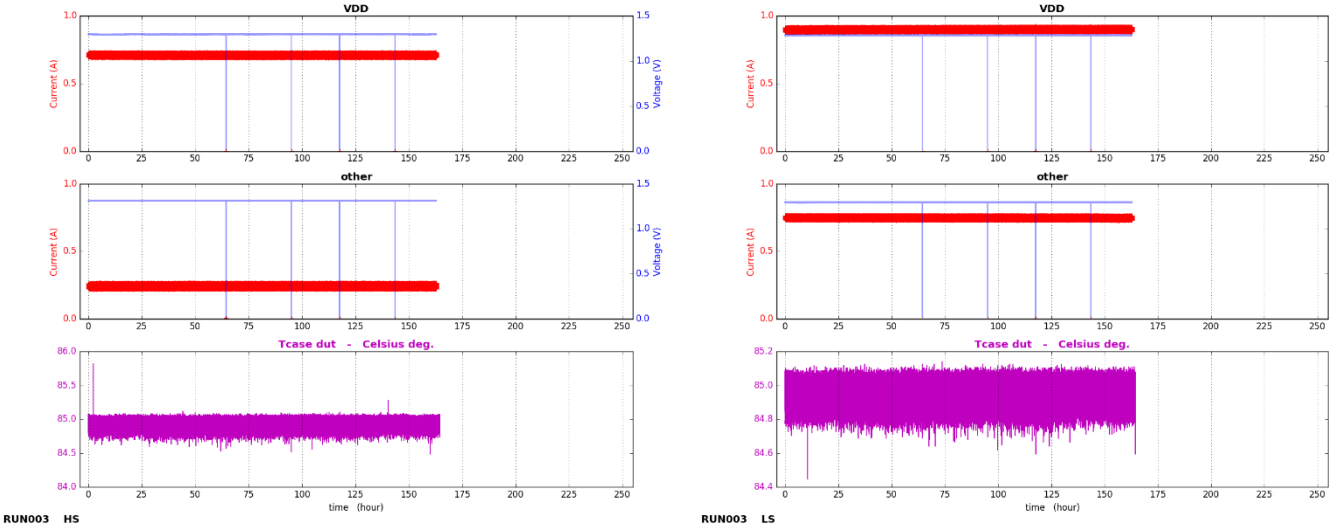


Figure 4 –Write mode, High Speed and Low Speed test modes, In situ monitoring

Post 85°C annealing

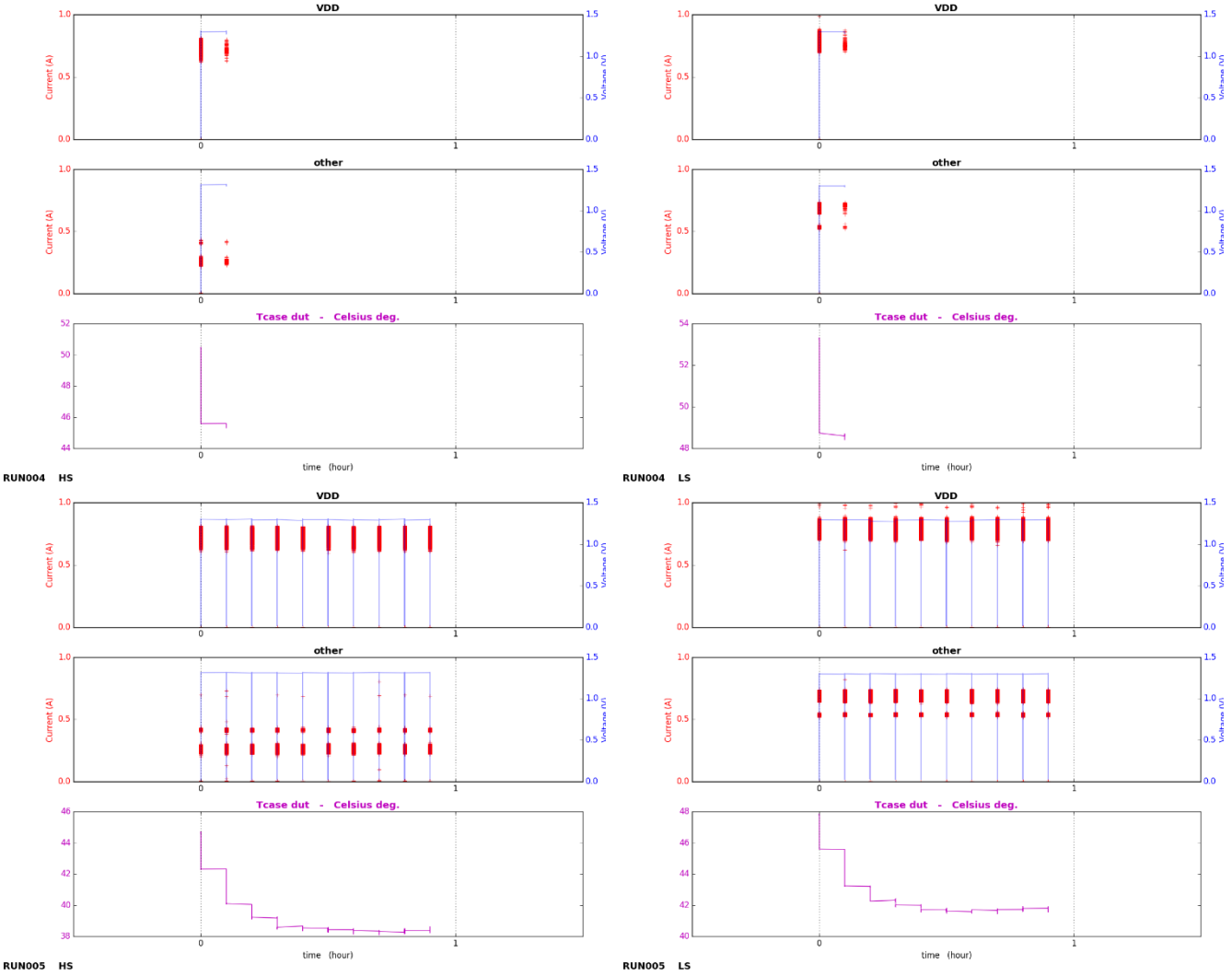


Figure 5 – Write mode, High Speed and Low Speed test modes, post annealing

4.2 Exposure Test results

Each memory present 8 banks of 65536 columns by 1024 rows.
For both read and write mode, the 5 DUTs are read in parallel and each memory plane is traversed by bank, column, row which means that bank0, column0, row 0 to row 1023 is read, then bank0, column1, row 0 to row 1023, etc.
Read is done by burst which corresponds to 8 words times 5 DUTs. Each time at least 1 word is in error among the 8 words time 5 DUTs, the burst is recorded.

4.2.1 Read mode

Figure 6 show the number of errors cumulated for all DUTs tested in parallel as a function of the dose received. Number of burst acquisitions per read step was set to 10000 in acquisition algorithm. Number of word error per DUT is then clamped to 80000.
When the number of word errors increase, rapidly only the errors detected in bank 0 will be recorded. Figure 7 shows the number of word errors in bank 0 as a function of the dose received for each DUT at high speed. Figure 8 shows for DUT1 and for each bank the start of error occurrence at high speed.

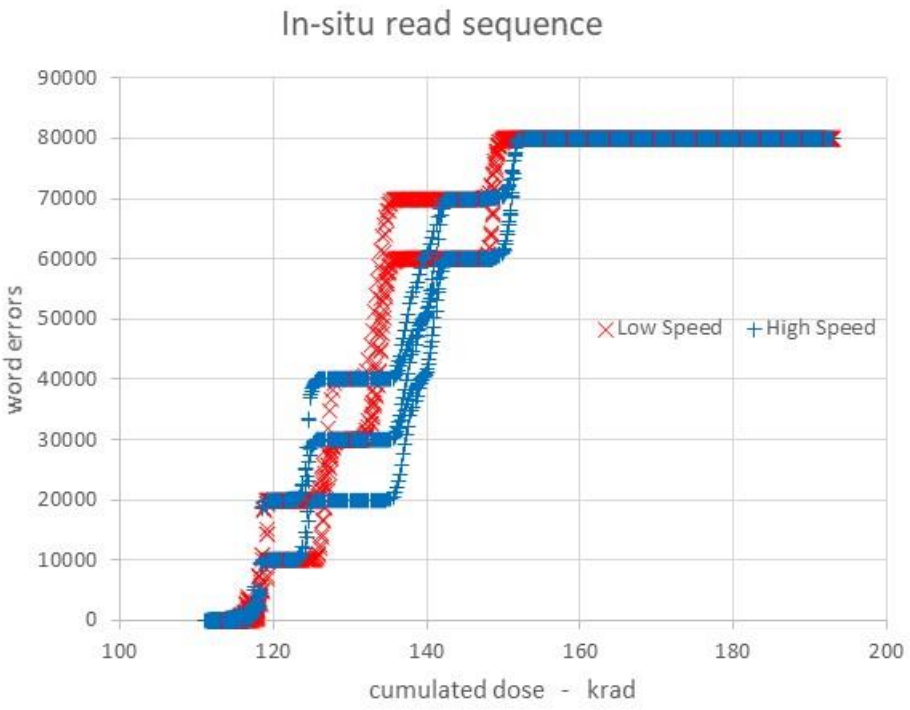


Figure 6- Number of word errors (5 DUTs)

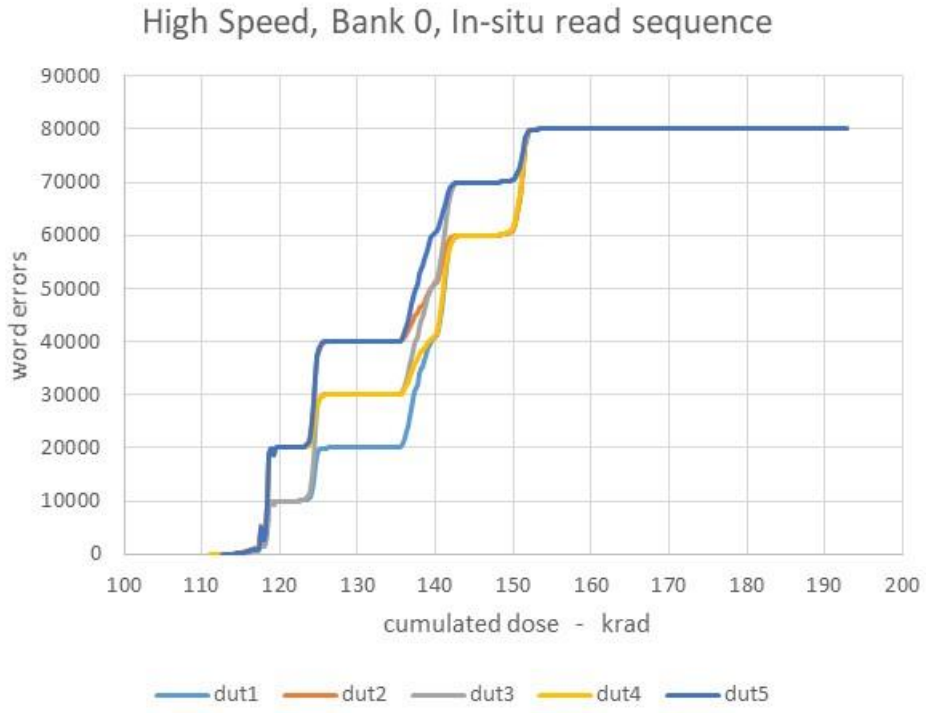


Figure 7- High Speed, number of word errors in bank 0 per DUT

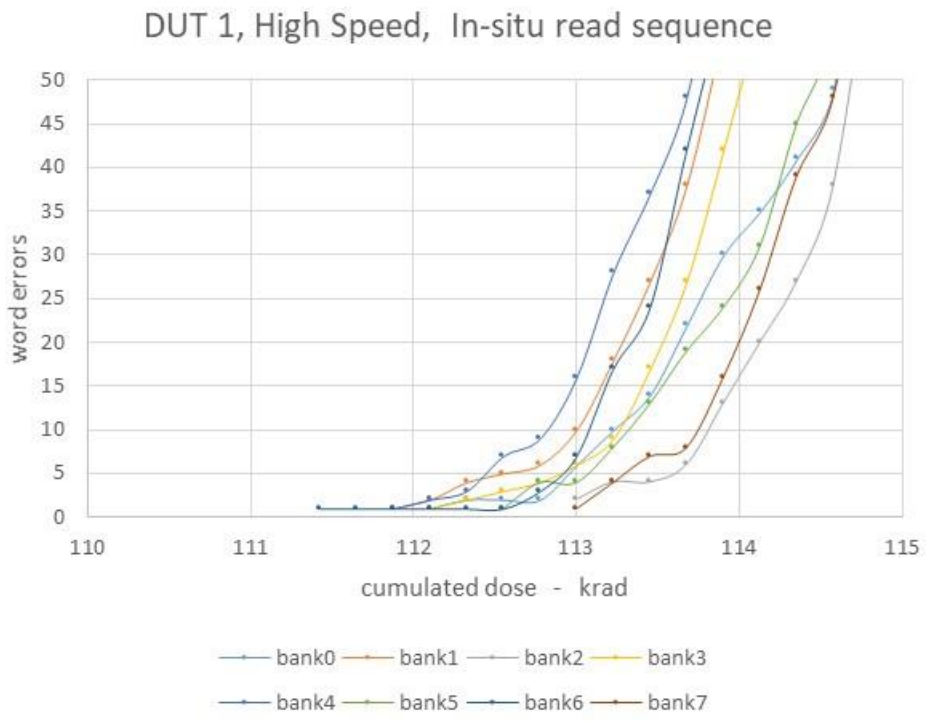


Figure 8 - High Speed DUT1, number of errors per bank (at the beginning of error occurrence)

The first word errors that occur in the 5 DUTs with high speed mode at a dose of about 111 krad are single bit word error.
At 116 krad, in bank0, with high speed mode, 260 words are single bit error while 14 are MBU2. Corresponding error mapping (column, row) is presented in Figure 9. In this figure, red arrows indicate the direction for new errors occurrence when dose is increased

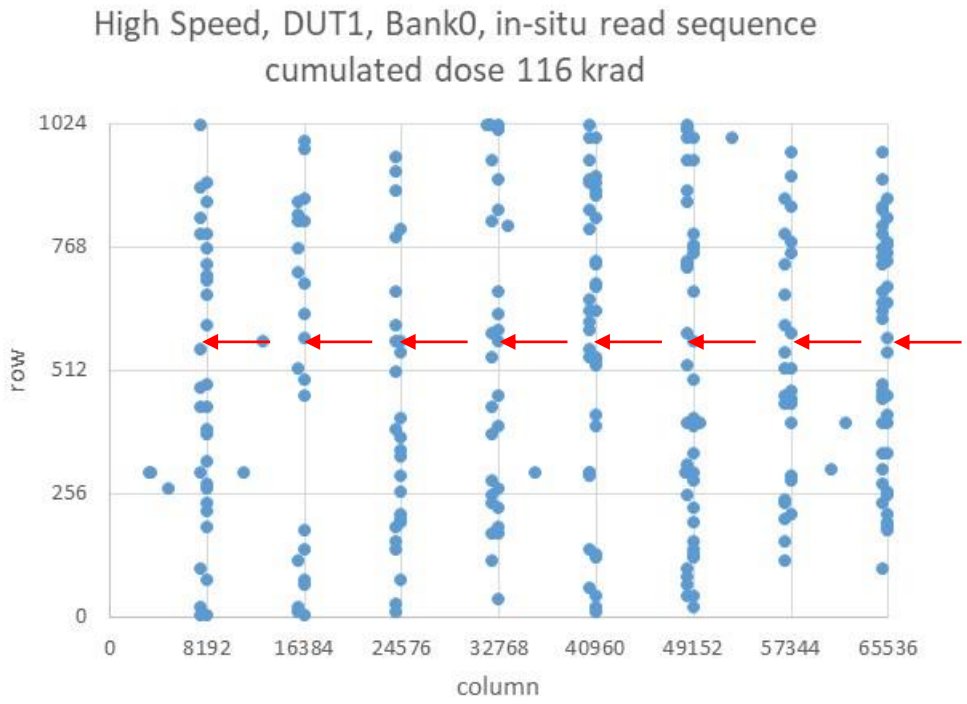


Figure 9 - High Speed DUT1, bank0, error mapping at a dose of 116krads

4.2.1 Write mode

Figure 10 show the number of errors cumulated for all DUTs tested in parallel as a function of the dose received. Number of burst acquisitions per read step was set to 10000 in acquisition algorithm. Number of word error per DUT is then clamped to 80000.
When the number of word errors increase, rapidly only the errors detected in bank 0 will be recorded. Figure 11 shows the number of word errors in bank 0 as a function of the dose received for each DUT at high speed. Figure 12 shows for DUT1 and for each bank the start of error occurrence at high speed.

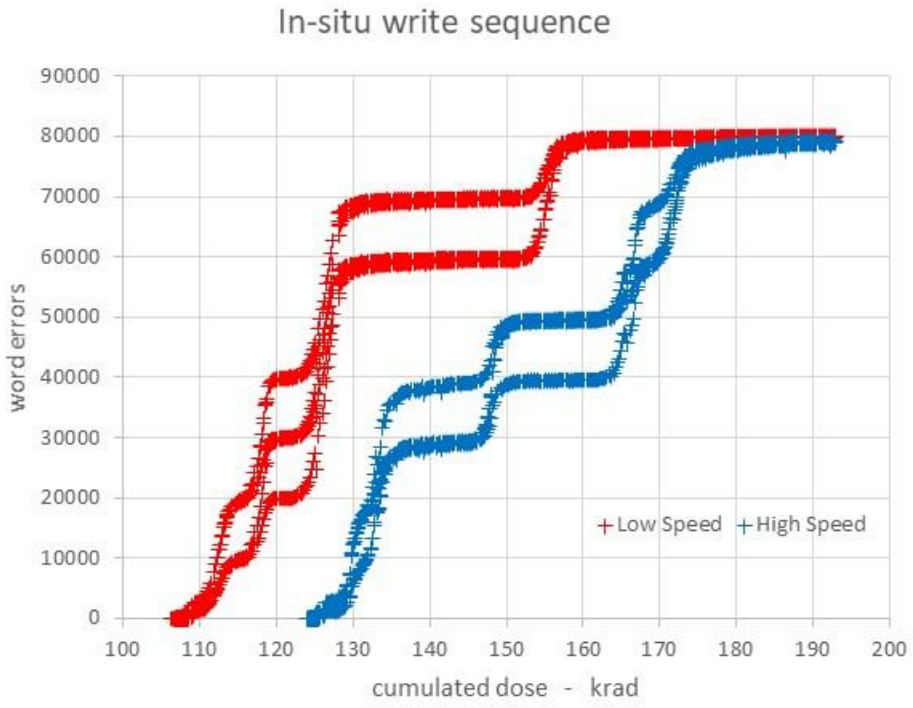


Figure 10- Number of word errors (5 DUTs)

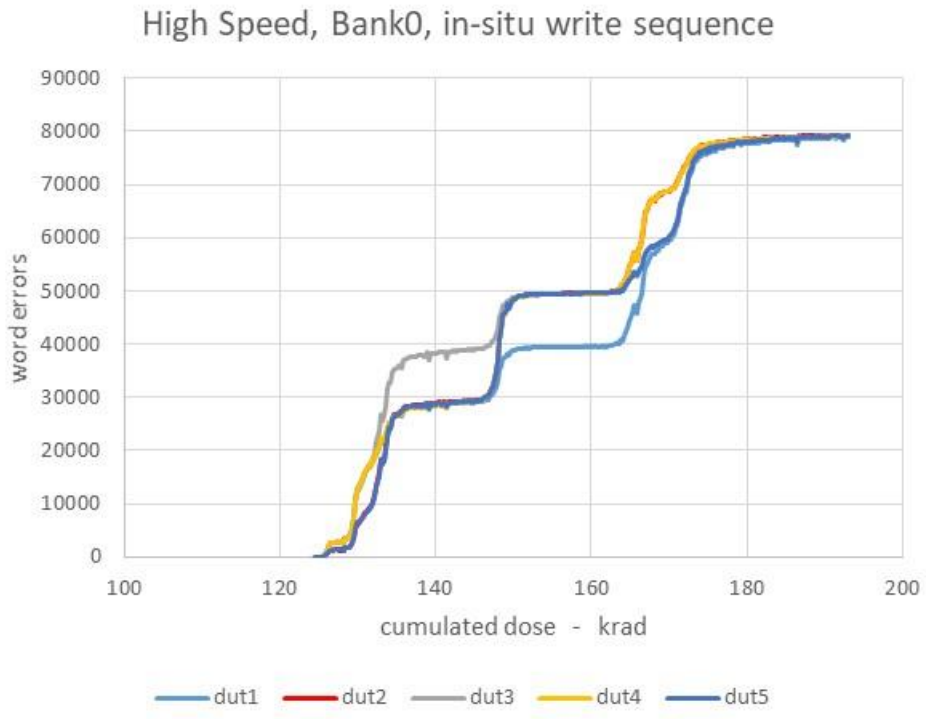


Figure 11- High Speed, number of word errors in bank 0 per DUT

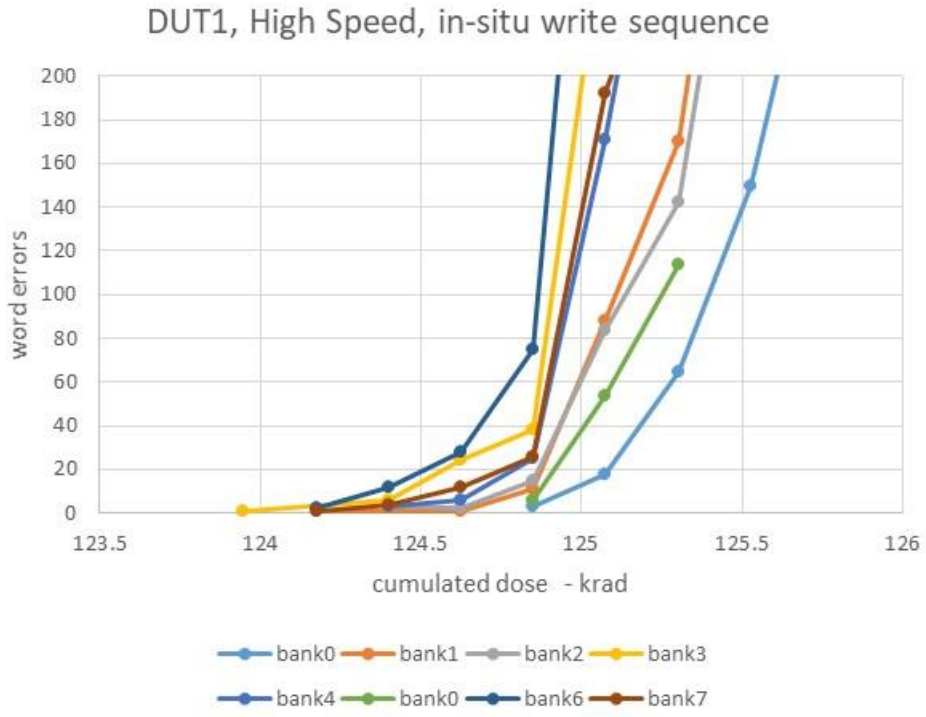


Figure 12 - High Speed DUT1, number of errors per bank (at the beginning of error occurrence)

The first word errors that occur in the 5 DUTs with high speed mode at a dose of about 124 krad are single bit word error.

At 126 krad, in bank0, with high speed mode, 1464 words are single bit error while 1 is MBU2. Corresponding error mapping (column, row) is presented in Figure 13. In this figure, red arrow indicates the direction for new errors occurrence when dose is increased

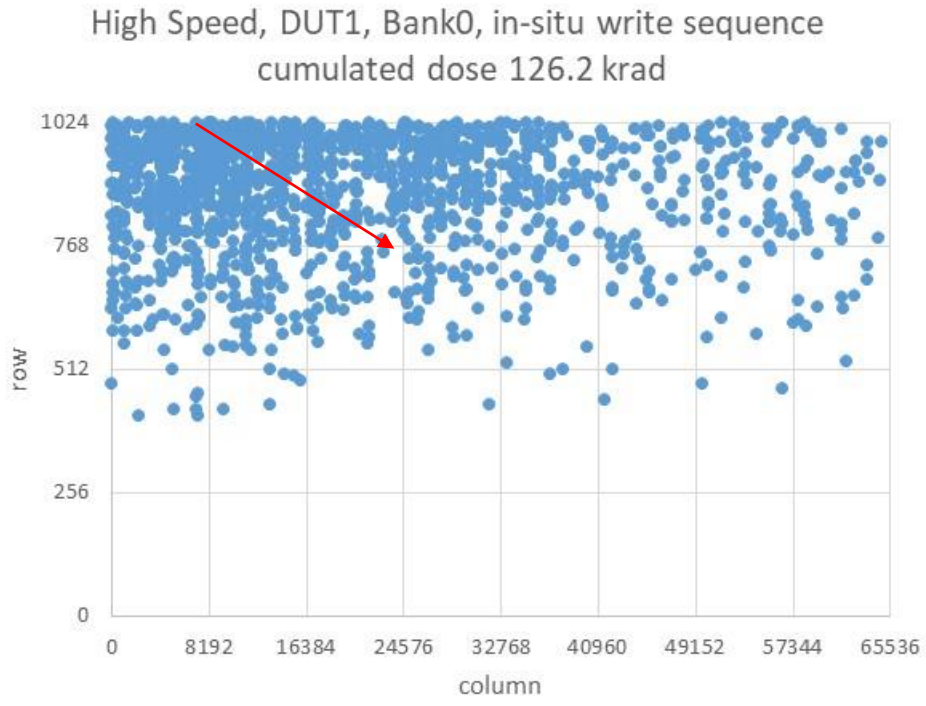


Figure 13 - High Speed, write mode, DUT1, bank0, error mapping at a dose of 126krads