

# TPS7H4003-SEP Neutron-Displacement Damage (NDD) Characterization



## ABSTRACT

This report presents the effect of neutron displacement damage (NDD) on the TPS7H4003-SEP device. The results show that all devices were fully functional and within production test limits after having been irradiated up to  $1 \times 10^{13}$  n/cm<sup>2</sup> [1-MeV(Si) equivalent]. A sample size of nine units was exposed to radiation testing per MIL-STD-883, Method 1017 for Neutron Irradiation, and an additional one device was used as a control unit and was not irradiated. All devices used in the experiment were from lot trace code 16C79JT and assembly lot 1519629 (wafer lot 1516360DM5, wafer #13). Electrical testing was performed at Texas Instruments before and after neutron irradiation using the initial test program for TPS7H403-SEP.

## Table of Contents

<b>1 Overview</b> .....	2
<b>2 Test Procedures</b> .....	3
<b>3 Facility</b> .....	4
<b>4 Results</b> .....	5
4.1 TPS7H4003-SEP Specification Compliance Matrix.....	5
<b>A Appendix: Test Results</b> .....	8

## List of Figures

Figure 2-1. TPS7H4010-SEP Device.....	3
---------------------------------------	---

## List of Tables

Table 1-1. Overview Information.....	2
Table 2-1. Neutron Irradiation Conditions.....	3
Table 4-1. Electrical Characteristics - Section 1.....	5
Table 4-2. Electrical Characteristics - Section 2.....	6
Table 4-3. Electrical Characteristics - Section 3.....	7

## Trademarks

All trademarks are the property of their respective owners.

## 1 Overview

The TPS7H4003-SEP is a radiation tolerant, 7-V, 18-A synchronous buck converter with integrated low resistance high-side and low-side MOSFETs in a thermally enhanced 44-pin Enhanced Plastic HTSSOP package. High efficiency and reduced component count are achieved through current mode control. The TPS7H4003-SEP can be configured in master-slave mode to provide up to 36-A of output current or with the SYNC2 pin, four devices can be configured in parallel to provide up to 72-A of output current without the need of an external clock.

General device information and testing conditions are listed in the TPS7H4003-SEP data sheet.

**Table 1-1. Overview Information**

TI Part Number	TPS7H4003-SEP
VID Number	V62/21609
Device Name	TPS7H4003MDDWSEP
Device Function	Synchronous buck converter
Die Name	RTPS7H4001A2IM
Technology	LBC7
Assembly Lot Number / Lot Trace Code	1519629 / 16C79JT
Unbiased Quantity Tested	9
Exposure Facility	VPT Rad
Neutron Fluence (1-MeV equivalent)	$1.0 \times 10^{12}$ , $5.0 \times 10^{12}$ , $1.0 \times 10^{13}$ n/cm <sup>2</sup>
Irradiation Temperature	Room temp
TI may provide technical, applications or design advice, quality characterization, and reliability data or service providing these items shall not expand or otherwise affect TI's warranties as set forth in the Texas Instruments Incorporated Standard Terms and Conditions of Sale for Semiconductor Products and no obligation or liability shall arise from Semiconductor Products and no obligation or liability shall arise from TI's provision of such items.	

## 2 Test Procedures

The TPS7H4010-SEP was electrically pre-tested using the production automated test equipment program.

General test procedures adhered to MIL-STD-883, Method 1017 for Neutron Irradiation of TPS7H4010-SEP. Neutron irradiation conditions are listed in [Table 2-1](#).

**Table 2-1. Neutron Irradiation Conditions**

GROUP	SAMPLE QTY	NEUTRON FLUENCE (n/cm <sup>2</sup> )	BIAS
A	3	$1.0 \times 10^{12}$	Unbiased
B	3	$5.0 \times 10^{12}$	Unbiased
C	3	$1.0 \times 10^{13}$	Unbiased



**Figure 2-1. TPS7H4010-SEP Device**

### 3 Facility

Neutron Dosimetry Test is done in Fast Neutron Irradiation (FNI) facility of The University of Massachusetts Lowell. It is designed to give a fast flux level =  $10^{11}$  n/cm<sup>2</sup>-s, with relatively low thermal fluence and gamma dose rates.

The neutron fluence for this irradiation was measured utilizing ASTM E-265. Reaction rates and fast neutron fluence were measured by radio-activation of Sulfur-32 and correlated to the measured reactor power level. All irradiation conditions required under ASTM 722 were met, including neutron fluence, distribution, and uncertainty. The average integrated neutron fluence, 1-MeV(Si) equivalent, reported in this document reflects these factors.

Detailed information of the radiation facility is available at the following link:

[https://www.uml.edu/docs/FNI%20Brochure\\_tcm18-90375.pdf](https://www.uml.edu/docs/FNI%20Brochure_tcm18-90375.pdf)

## 4 Results

There were no functional failures at any irradiation level. All parametric measurements remained well within all data sheet limits for all exposure levels (see [SLVSG41](#)). The full parameter list and graphs are found in [Appendix A](#).

### 4.1 TPS7H4003-SEP Specification Compliance Matrix

The TPS7H4003-SEP Specification Compliance Matrix is comprised of electrical, timing, and switching characteristics lists as shown in the following tables.

**Table 4-1. Electrical Characteristics - Section 1**

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT	TEST#	
<b>SUPPLY VOLTAGE (VIN AND PVIN PINS)</b>							
PVIN operating input voltage		3.0		7.0	V		
PVIN internal UVLO threshold	PVIN rising	2.425	2.50	2.575	V	23.0	
PVIN internal UVLO hysteresis	Load = 0 A	425	450	475	mV	23.2	
VIN operating input voltage		3.0		7.0	V		
VIN internal UVLO threshold	VIN rising	2.71	2.75	2.80	V	24.0	
VIN internal UVLO hysteresis		134	150	178	mV	24.2	
VIN shutdown supply current	VEN = 0 V		2.32	2.85	mA	4.1, 4.3	
VIN operating – non switching supply current	VSENSE = VBG		4	6	mA	4.0, 4.2	
<b>ENABLE AND UVLO (EN PIN)</b>							
Enable threshold	Rising	1.110	1.14	1.172	V	7.0, 7.6	
	Falling	1.080	1.11	1.148		7.1, 7.7	
Input current	VEN = 1.1 V	4.8	6.1	7.6	μ	7.3	
Hysteresis current	VEN = 1.3 V	2.4	3.0	3.9	μ	7.5	
<b>VOLTAGE REFERENCE</b>							
Internal voltage reference initial tolerance	0 A ≤ Iout ≤ 18 A, 25°C	0.598	0.605	0.613	V	3.8, 3.10	
Internal voltage reference	0 A ≤ Iout ≤ 18 A	-55°C	0.594	0.602	0.609	V	3.8, 3.10
		+125°C	0.599	0.607	0.614		3.8, 3.10
REFCAP voltage	REFCAP = 470 nF	1.189	1.209	1.228	V	3.2, 3.3, 3.4	
<b>MOSFET</b>							
High-side switch resistance <sup>(1)</sup>	PVIN = VIN = 3 V, lead length = 3 mm	-55°C		16	18	mΩ	8.0
		25°C		19	21		8.0
		125°C		23	27		8.0
	PVIN = VIN = 5 V, lead length = 3 mm	-55°C		14	16		8.1
		25°C		17	19		8.1
		125°C		20	23		8.1

**Table 4-1. Electrical Characteristics - Section 1 (continued)**

PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT	TEST#
Low-side switch resistance <sup>(1)</sup>	PVIN = VIN = 3 V, lead length = 3 mm	-55°C		7	11	mΩ	15.0
		25°C		9	12		1.0, 15.0
		125°C		13	17		15.0
	PVIN = VIN = 5 V, lead length = 3 mm	-55°C		6	10		15.1
		25°C		9	11		15.1
		125°C		12	15		15.1

(1) Measured at pins.

**Table 4-2. Electrical Characteristics - Section 2**

PARAMETER	TEST CONDITIONS		MIN	TYP	MAX	UNIT	TEST#
<b>ERROR AMPLIFIER</b>							
Error amplifier input offset voltage	VSENSE = 0.6 V		-2		2.55	mV	3.9,3.11
VSENSE pin input current	VSENSE = 0.6 V		-15		15	nA	3.5
Error amplifier transconductance (gm)	-2 μA < ICOMP < 2 μA, V(COMP) = 1 V		1150	1800	2400	μS	9.0,9.3
Error amplifier DC gain <sup>(1)</sup>	VSENSE = 0.6 V		10000			V/V	
Error amplifier source	V(COMP) = 1 V, 100-mV input overdrive		100	140	190	μA	9.2, 9.5
Error amplifier sink			100	140	190	μA	9.1, 9.4
<b>INTERNAL SWITCHING FREQUENCY</b>							
Internally set frequency	RT = Open	VIN = 3 V	444	473	515	kHz	21.1, 21.2
		VIN = 5 V	449	502	560		21.4, 21.5
Externally set frequency	RT = 1.07 MΩ (1%)	VIN = 3 V	80	98	125	kHz	5.0
		VIN = 5 V	80	100	125		11.0
	RT = 165 kΩ (1%)	VIN = 3 V	455	495	535		5.5
		VIN = 5 V	475	523	615		11.4
	RT = 73.2 kΩ (1%)	VIN = 3 V	689	850	1011		5.4
		VIN = 5 V	760	986	1212		11.2

(1) Ensured by design only. Not tested in production.

**Table 4-3. Electrical Characteristics - Section 3**

PARAMETER	TEST CONDITIONS	MIN	TYP	MAX	UNIT	TEST#
<b>EXTERNAL SYNCHRONIZATION</b>						
SYNC1/SYNC2 out low-to-high rise time (10%/90%)	Cload = 25 pF		70	180	ns	13.8, 13.12
SYNC1/SYNC2 out high-to-low fall time (90%/10%)	Cload = 25 pF		10	21	ns	13.9, 13.13
SYNC2 to SYNC1 rising edge phase shift		77	85	94	°	21.0, 21.3
SYNC1 falling edge delay <sup>(1)</sup>		165	180	185	°	13.24, 13.25
SYNC1/SYNC2 out high level threshold	IOH = 50 $\mu$ A	VIN – 0.3			V	13.18, 13.22
SYNC1/SYNC2 out low level threshold	IOL = 50 $\mu$ A	600			mV	13.16, 13.20
SYNC1 in frequency range	PVIN = VIN = 5 V	100		1000	kHz	22.2
SYNC1 in duty cycle range	Duty cycle of external clock	40		60	%	22.4
<b>PH (PH PIN)</b>						
Minimum on time	Measured at 10% to 90% of VIN IPH = 2 A, VIN = 5 V		190	235	ns	5.6
	Measured at 10% to 90% of VIN, IPH = 2 A, VIN = 5 V		190	225		11.6
<b>SOFT START AND TRACKING (SS/TR PIN)</b>						
SS charge current		1.5	2.5	3	$\mu$ A	9.6, 9.7
<b>POWER GOOD (PWRGD PIN)</b>						
VSENSE threshold	VSENSE falling (fault)	90	91		%VREF	12.0, 12.6
	VSENSE rising (good)		94	97		12.1, 12.7
	VSENSE rising (fault)		109	111		12.2, 12.8
	VSENSE falling (good)	103	106			12.3, 12.9
Output high leakage	VSENSE = VREF, V(PWRGD) = 5 V		30	181	nA	12.4, 12.10
Output low	I(PWRGD) = 2 mA	0.3			V	12.5, 12.11

(1) Bench verified. Not tested in production.

## **A Appendix: Test Results**

This appendix contains the detailed NDD test results.



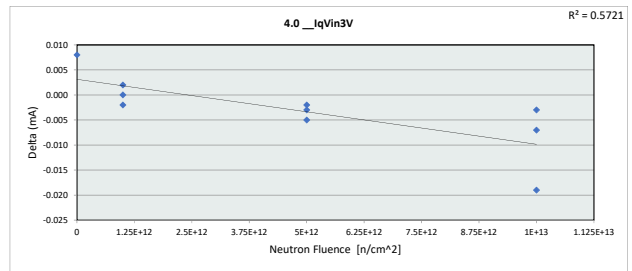
# NDD Report -TPS7H4003-SEP

Dec 2021

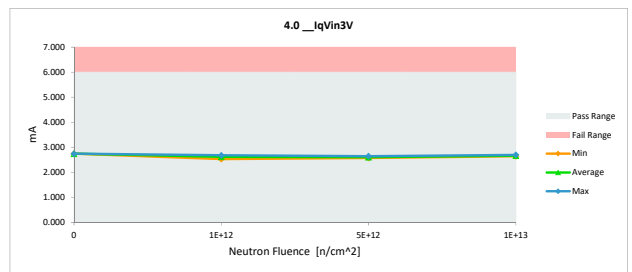
NDD Report -TPS7H4003-SEP

Dec 2021

4.0_IqVin3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mA	mA		
Max Limit	6	6		
Min Limit	0	0		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	2.531	2.529	-0.002
1E+12	2	2.645	2.647	0.002
1E+12	3	2.680	2.680	0.000
5E+12	4	2.615	2.610	-0.005
5E+12	5	2.575	2.573	-0.002
5E+12	6	2.645	2.642	-0.003
1E+13	7	2.660	2.653	-0.007
1E+13	8	2.651	2.648	-0.003
1E+13	9	2.713	2.694	-0.019
0	10	2.736	2.744	0.008
	Max	2.736	2.744	0.008
	Average	2.645	2.642	-0.003
	Min	2.531	2.529	-0.019
	Std Dev	0.061	0.061	0.007



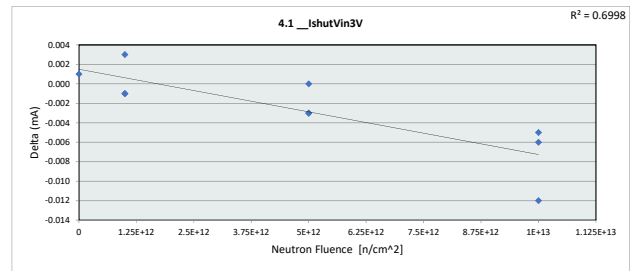
4.0_IqVin3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	6	mA		
Min Limit	0	mA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	0.000	0.000	0.000	0.000
Min	2.744	2.529	2.573	2.648
Average	2.744	2.619	2.608	2.665
Max	2.744	2.680	2.642	2.694
UL	6.000	6.000	6.000	6.000



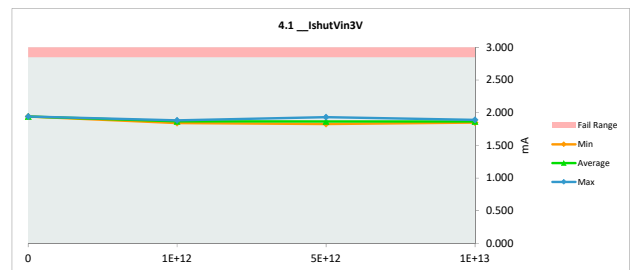
NDD Report -TPS7H4003-SEP

Dec 2021

4.1_IshutVin3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mA	mA		
Max Limit	2.85	2.85		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1.884	1.883	-0.001
1E+12	2	1.837	1.840	0.003
1E+12	3	1.879	1.878	-0.001
5E+12	4	1.827	1.827	0.000
5E+12	5	1.935	1.932	-0.003
5E+12	6	1.838	1.835	-0.003
1E+13	7	1.852	1.847	-0.005
1E+13	8	1.862	1.856	-0.006
1E+13	9	1.902	1.890	-0.012
0	10	1.940	1.941	0.001
	Max	1.940	1.941	0.003
	Average	1.876	1.873	-0.003
	Min	1.827	1.827	-0.012
	Std Dev	0.040	0.040	0.004



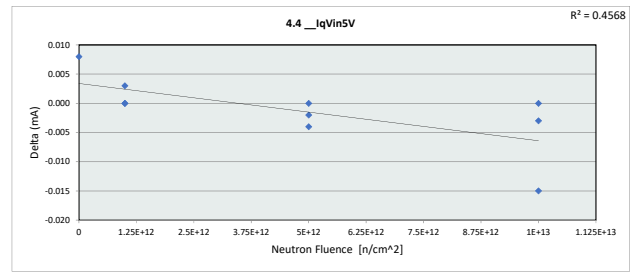
4.1_IshutVin3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	2.85	mA		
Min Limit		mA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	1.941	1.840	1.827	1.847
Average	1.941	1.867	1.865	1.864
Max	1.941	1.883	1.932	1.890
UL	2.850	2.850	2.850	2.850



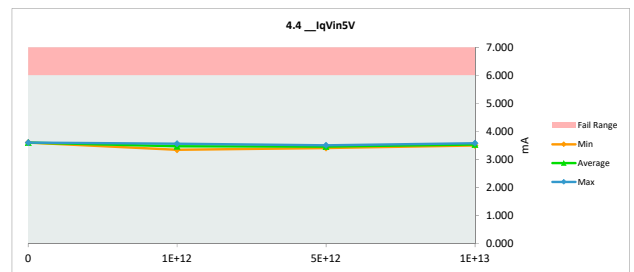
NDD Report -TPS7H4003-SEP

Dec 2021

4.4 IqVin5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mA	mA		
Max Limit	6	6		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	3.342	3.342	0.000
1E+12	2	3.503	3.506	0.003
1E+12	3	3.558	3.558	0.000
5E+12	4	3.469	3.465	-0.004
5E+12	5	3.403	3.403	0.000
5E+12	6	3.503	3.501	-0.002
1E+13	7	3.517	3.514	-0.003
1E+13	8	3.495	3.495	0.000
1E+13	9	3.590	3.575	-0.015
0	10	3.590	3.598	0.008
	Max	3.590	3.598	0.008
	Average	3.497	3.496	-0.001
	Min	3.342	3.342	-0.015
	Std Dev	0.078	0.078	0.006



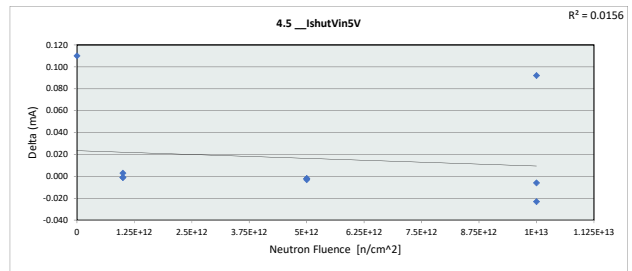
4.4 IqVin5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	6	mA		
Min Limit		mA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	3.598	3.342	3.403	3.495
Average	3.598	3.469	3.456	3.528
Max	3.598	3.558	3.501	3.575
UL	6.000	6.000	6.000	6.000



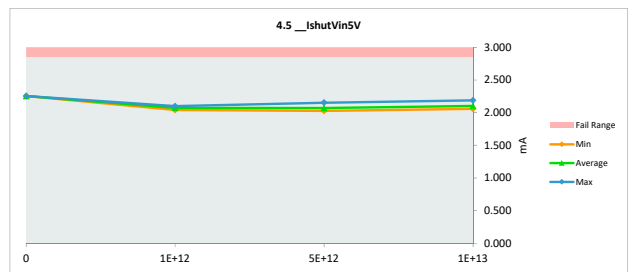
NDD Report -TPS7H4003-SEP

Dec 2021

4.5_IshutVin5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mA	mA		
Max Limit	2.85	2.85		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	2.102	2.101	-0.001
1E+12	2	2.038	2.041	0.003
1E+12	3	2.081	2.080	-0.001
5E+12	4	2.029	2.027	-0.002
5E+12	5	2.155	2.153	-0.002
5E+12	6	2.038	2.035	-0.003
1E+13	7	2.081	2.058	-0.023
1E+13	8	2.064	2.058	-0.006
1E+13	9	2.097	2.189	0.092
0	10	2.144	2.254	0.110
	Max	2.155	2.254	0.110
	Average	2.083	2.100	0.017
	Min	2.029	2.027	-0.023
	Std Dev	0.043	0.076	0.045



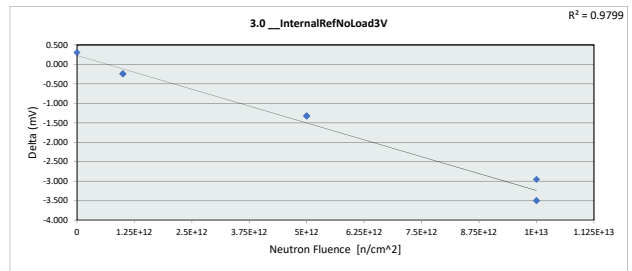
4.5_IshutVin5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	2.85	mA		
Min Limit		mA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	2.254	2.041	2.027	2.058
Average	2.254	2.074	2.072	2.102
Max	2.254	2.101	2.153	2.189
UL	2.850	2.850	2.850	2.850



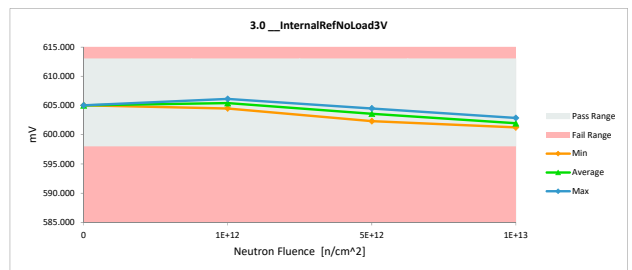
NDD Report -TPS7H4003-SEP

Dec 2021

3.0 InternalRefNoLoad3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mV	mV		
Max Limit	613	613		
Min Limit	598	598		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	605.841	605.598	-0.243
1E+12	2	606.385	606.141	-0.244
1E+12	3	604.753	604.513	-0.240
5E+12	4	603.666	602.343	-1.323
5E+12	5	605.297	603.970	-1.327
5E+12	6	605.841	604.513	-1.328
1E+13	7	604.210	601.257	-2.953
1E+13	8	605.297	601.800	-3.497
1E+13	9	606.385	602.885	-3.500
0	10	604.753	605.056	0.303
	Max	606.385	606.141	0.303
	Average	605.243	603.808	-1.435
	Min	603.666	601.257	-3.500
	Std Dev	0.905	1.659	1.420



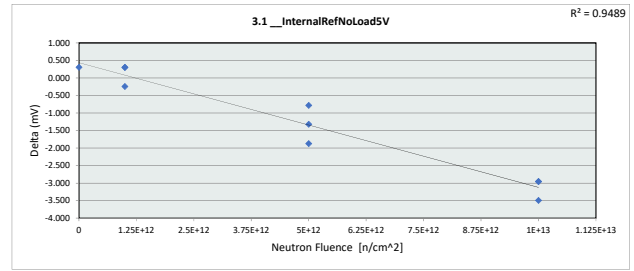
3.0 InternalRefNoLoad3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	613	mV		
Min Limit	598	mV		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	598.000	598.000	598.000	598.000
Min	605.056	604.513	602.343	601.257
Average	605.056	605.417	603.609	601.981
Max	605.056	606.141	604.513	602.885
UL	613.000	613.000	613.000	613.000



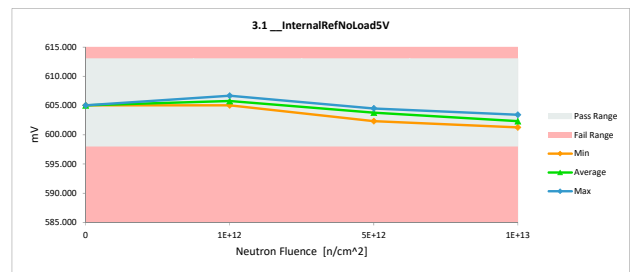
NDD Report -TPS7H4003-SEP

Dec 2021

3.1 InternalRefNoLoad5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mV	mV		
Max Limit	613	613		
Min Limit	598	598		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	605.841	605.598	-0.243
1E+12	2	606.385	606.684	0.299
1E+12	3	604.753	605.056	0.303
5E+12	4	603.666	602.343	-1.323
5E+12	5	605.297	604.513	-0.784
5E+12	6	606.385	604.513	-1.872
1E+13	7	604.753	601.257	-3.496
1E+13	8	605.297	602.343	-2.954
1E+13	9	606.385	603.428	-2.957
0	10	604.753	605.056	0.303
	Max	606.385	606.684	0.303
	Average	605.352	604.079	-1.272
	Min	603.666	601.257	-3.496
	Std Dev	0.905	1.693	1.480



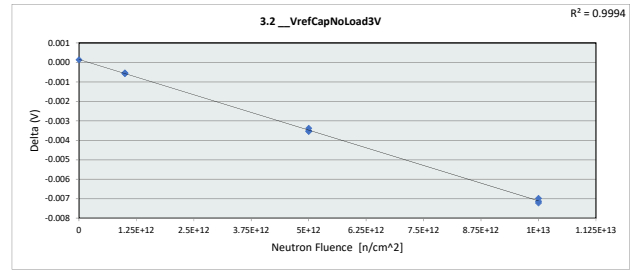
3.1 InternalRefNoLoad5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	613	mV		
Min Limit	598	mV		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	598.000	598.000	598.000	598.000
Min	605.056	605.056	602.343	601.257
Average	605.056	605.779	603.790	602.343
Max	605.056	606.684	604.513	603.428
UL	613.000	613.000	613.000	613.000



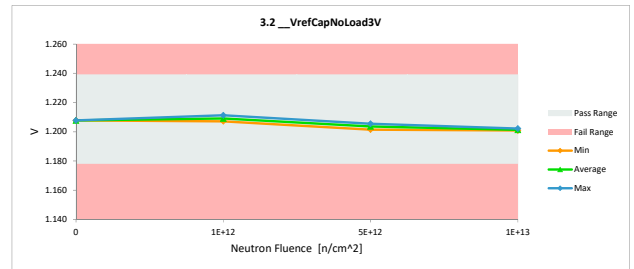
NDD Report -TPS7H4003-SEP

Dec 2021

3.2_VrefCapNoLoad3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit	1.239	1.239		
Min Limit	1.178	1.178		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1.209	1.209	-0.001
1E+12	2	1.212	1.211	-0.001
1E+12	3	1.208	1.207	-0.001
5E+12	4	1.205	1.202	-0.003
5E+12	5	1.208	1.204	-0.004
5E+12	6	1.209	1.206	-0.004
1E+13	7	1.208	1.201	-0.007
1E+13	8	1.208	1.201	-0.007
1E+13	9	1.209	1.202	-0.007
0	10	1.208	1.208	0.000
	Max	1.212	1.211	0.000
	Average	1.208	1.205	-0.003
	Min	1.205	1.201	-0.007
	Std Dev	0.002	0.004	0.003



3.2_VrefCapNoLoad3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	1.239	V		
Min Limit	1.178	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.178	1.178	1.178	1.178
Min	1.208	1.207	1.202	1.201
Average	1.208	1.209	1.204	1.201
Max	1.208	1.211	1.206	1.202
UL	1.239	1.239	1.239	1.239

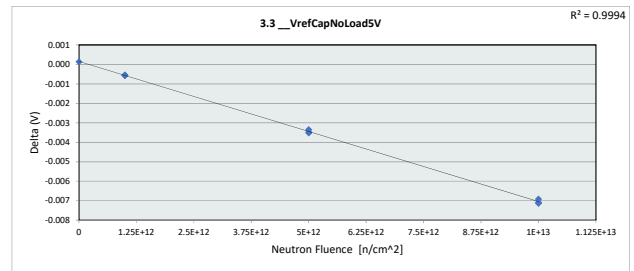




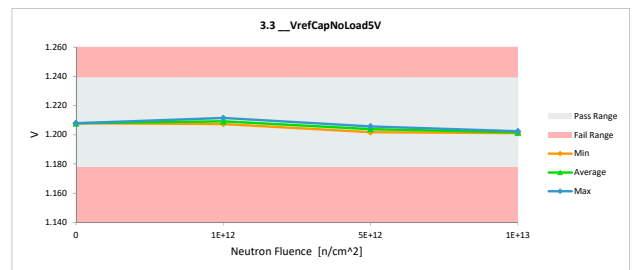
NDD Report -TPS7H4003-SEP

Dec 2021

3.3 VrefCapNoLoad5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit	1.239	1.239		
Min Limit	1.178	1.178		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1.209	1.209	-0.001
1E+12	2	1.212	1.211	-0.001
1E+12	3	1.208	1.207	-0.001
5E+12	4	1.205	1.202	-0.003
5E+12	5	1.208	1.204	-0.004
5E+12	6	1.209	1.206	-0.003
1E+13	7	1.208	1.201	-0.007
1E+13	8	1.208	1.201	-0.007
1E+13	9	1.210	1.202	-0.007
0	10	1.208	1.208	0.000
	Max	1.212	1.211	0.000
	Average	1.209	1.205	-0.003
	Min	1.205	1.201	-0.007
	Std Dev	0.002	0.004	0.003



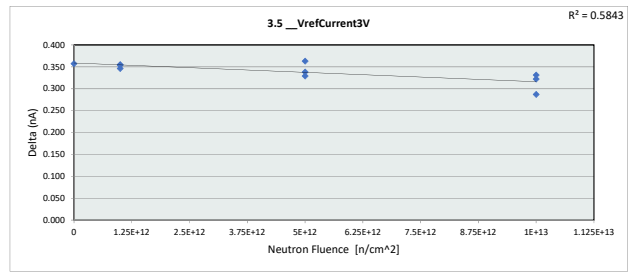
3.3_VrefCapNoLoad5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	1.239	V		
Min Limit	1.178	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.178	1.178	1.178	1.178
Min	1.208	1.207	1.202	1.201
Average	1.208	1.209	1.204	1.202
Max	1.208	1.211	1.206	1.202
UL	1.239	1.239	1.239	1.239



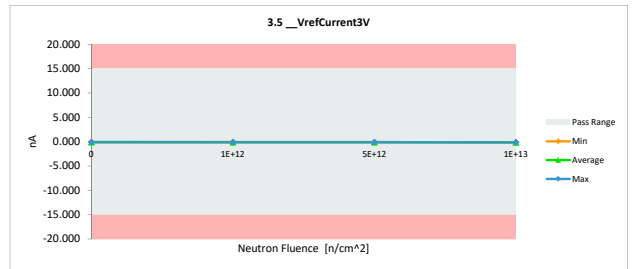
NDD Report -TPS7H4003-SEP

Dec 2021

3.5_VrefCurrent3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	nA	nA		
Max Limit	15	15		
Min Limit	-15	-15		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	-0.451	-0.105	0.346
1E+12	2	-0.466	-0.112	0.354
1E+12	3	-0.462	-0.107	0.355
5E+12	4	-0.458	-0.095	0.363
5E+12	5	-0.430	-0.092	0.338
5E+12	6	-0.460	-0.131	0.329
1E+13	7	-0.427	-0.140	0.287
1E+13	8	-0.453	-0.131	0.322
1E+13	9	-0.467	-0.136	0.331
0	10	-0.451	-0.094	0.357
	Max	-0.427	-0.092	0.363
	Average	-0.453	-0.114	0.338
	Min	-0.467	-0.140	0.287
	Std Dev	0.014	0.019	0.023



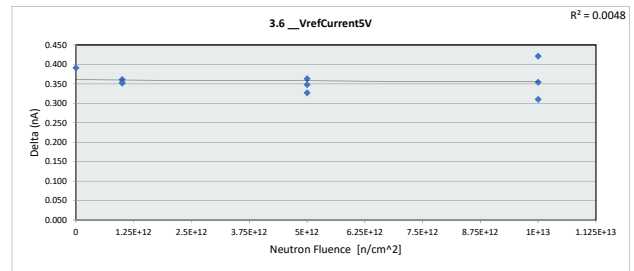
3.5_VrefCurrent3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	15	nA		
Min Limit	-15	nA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	-15.000	-15.000	-15.000	-15.000
Min	-0.094	-0.112	-0.131	-0.140
Average	-0.094	-0.108	-0.106	-0.136
Max	-0.094	-0.105	-0.092	-0.131
UL	15.000	15.000	15.000	15.000



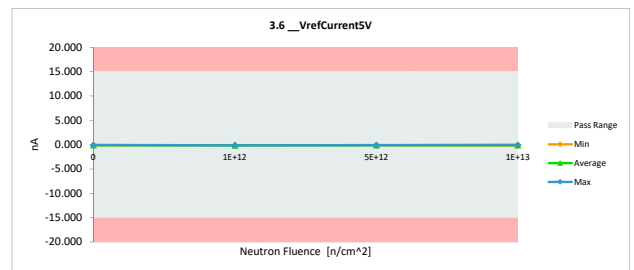
NDD Report -TPS7H4003-SEP

Dec 2021

3.6_VrefCurrent5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	nA	nA		
Max Limit	15	15		
Min Limit	-15	-15		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	-0.473	-0.120	0.353
1E+12	2	-0.479	-0.127	0.352
1E+12	3	-0.490	-0.129	0.361
5E+12	4	-0.467	-0.119	0.348
5E+12	5	-0.464	-0.101	0.363
5E+12	6	-0.458	-0.131	0.327
1E+13	7	-0.454	-0.033	0.421
1E+13	8	-0.467	-0.157	0.310
1E+13	9	-0.476	-0.122	0.354
0	10	-0.485	-0.094	0.391
	Max	-0.454	-0.033	0.421
	Average	-0.471	-0.113	0.358
	Min	-0.490	-0.157	0.310
	Std Dev	0.011	0.033	0.031



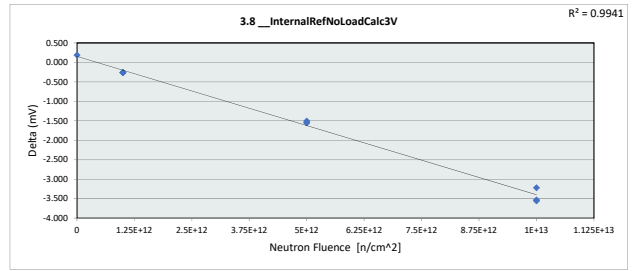
3.6_VrefCurrent5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	15	nA		
Min Limit	-15	nA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	-15.000	-15.000	-15.000	-15.000
Min	-0.094	-0.129	-0.131	-0.157
Average	-0.094	-0.125	-0.117	-0.104
Max	-0.094	-0.120	-0.101	-0.033
UL	15.000	15.000	15.000	15.000



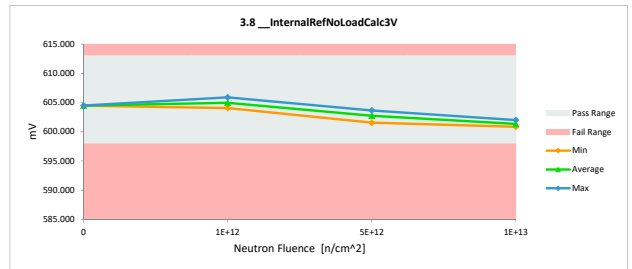
NDD Report -TPS7H4003-SEP

Dec 2021

3.8 InternalRefNoLoadCalc3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mV	mV		
Max Limit	613	613		
Min Limit	598	598		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	605.226	604.965	-0.261
1E+12	2	606.159	605.903	-0.256
1E+12	3	604.325	604.058	-0.267
5E+12	4	603.055	601.550	-1.505
5E+12	5	604.558	603.007	-1.551
5E+12	6	605.185	603.642	-1.543
1E+13	7	604.077	600.856	-3.221
1E+13	8	604.682	601.149	-3.533
1E+13	9	605.554	601.998	-3.556
0	10	604.292	604.476	0.184
	Max	606.159	605.903	0.184
	Average	604.711	603.160	-1.551
	Min	603.055	600.856	-3.556
	Std Dev	0.869	1.728	1.443



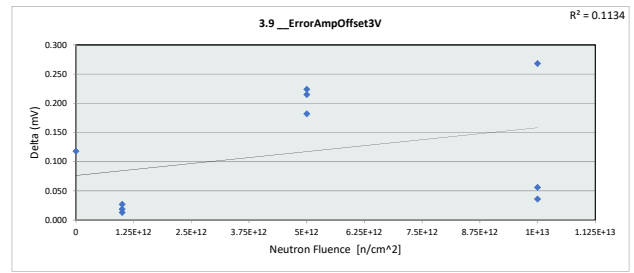
3.8 InternalRefNoLoadCalc3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	613	mV		
Min Limit	598	mV		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	598.000	598.000	598.000	598.000
Min	604.476	604.058	601.550	600.856
Average	604.476	604.975	602.733	601.334
Max	604.476	605.903	603.642	601.998
UL	613.000	613.000	613.000	613.000



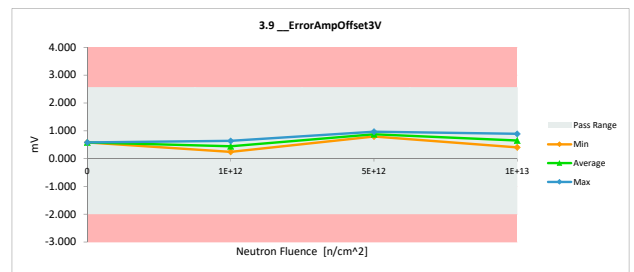
NDD Report -TPS7H4003-SEP

Dec 2021

3.9_ErrorAmpOffset3V				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	0.615	0.634	0.019
1E+12	2	0.226	0.239	0.013
1E+12	3	0.428	0.455	0.027
5E+12	4	0.611	0.793	0.182
5E+12	5	0.739	0.963	0.224
5E+12	6	0.656	0.871	0.215
1E+13	7	0.133	0.401	0.268
1E+13	8	0.615	0.651	0.036
1E+13	9	0.831	0.887	0.056
0	10	0.462	0.580	0.118
	Max	0.831	0.963	0.268
	Average	0.532	0.647	0.116
	Min	0.133	0.239	0.013
	Std Dev	0.220	0.235	0.098



3.9_ErrorAmpOffset3V				
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	-2.000	-2.000	-2.000	-2.000
Min	0.580	0.239	0.793	0.401
Average	0.580	0.443	0.876	0.646
Max	0.580	0.634	0.963	0.887
UL	2.550	2.550	2.550	2.550



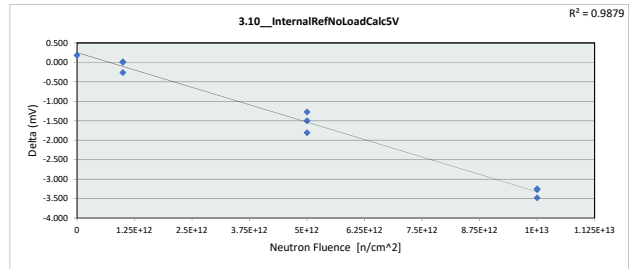
NDD Report -TPS7H4003-SEP

Dec 2021

3.10 InternalRefNoLoadCalcSV

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	mV	mV
Max Limit	613	613
Min Limit	598	598

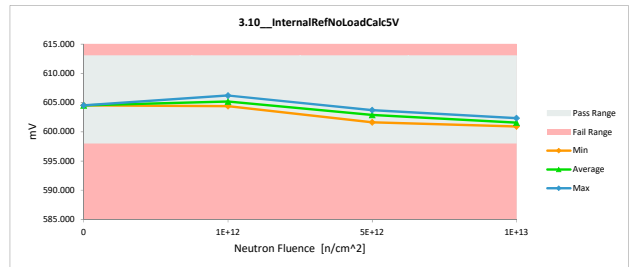
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	605.249	604.987	-0.262
1E+12	2	606.194	606.209	0.015
1E+12	3	604.380	604.384	0.004
5E+12	4	603.118	601.620	-1.498
5E+12	5	604.595	603.321	-1.274
5E+12	6	605.503	603.698	-1.805
1E+13	7	604.398	600.921	-3.477
1E+13	8	604.724	601.477	-3.247
1E+13	9	605.588	602.324	-3.264
0	10	604.330	604.513	0.183
Max		606.194	606.209	0.183
Average		604.808	603.345	-1.463
Min		603.118	600.921	-3.477
Std Dev		0.863	1.727	1.458



3.10 InternalRefNoLoadCalcSV

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	613 mV
Min Limit	598 mV

Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	598.000	598.000	598.000	598.000
Min	604.513	604.384	601.620	600.921
Average	604.513	605.193	602.880	601.574
Max	604.513	606.209	603.698	602.324
UL	613.000	613.000	613.000	613.000



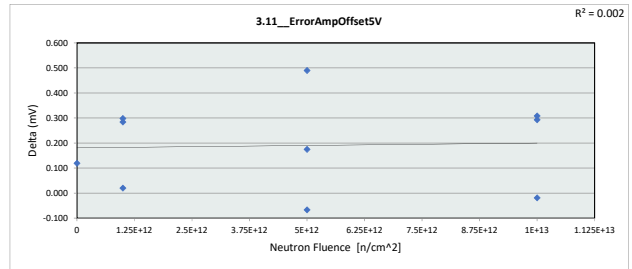
NDD Report -TPS7H4003-SEP

Dec 2021

**3.11\_ErrorAmpOffsetSV**

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	mV	mV
Max Limit	2.55	2.55
Min Limit	-2	-2

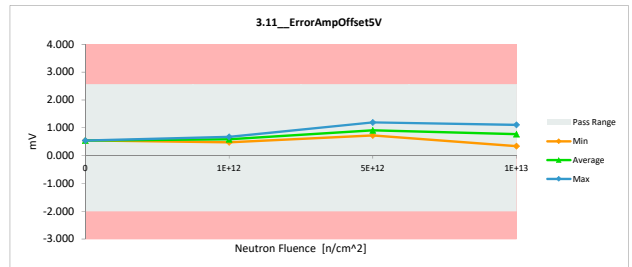
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	0.592	0.612	0.020
1E+12	2	0.191	0.475	0.284
1E+12	3	0.373	0.671	0.298
5E+12	4	0.548	0.723	0.175
5E+12	5	0.702	1.192	0.490
5E+12	6	0.882	0.815	-0.067
1E+13	7	0.355	0.336	-0.019
1E+13	8	0.573	0.866	0.293
1E+13	9	0.796	1.104	0.308
0	10	0.423	0.542	0.119
	Max	0.882	1.192	0.490
	Average	0.544	0.734	0.190
	Min	0.191	0.336	-0.067
	Std Dev	0.213	0.269	0.176



**3.11\_ErrorAmpOffsetSV**

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	2.55 mV
Min Limit	-2 mV

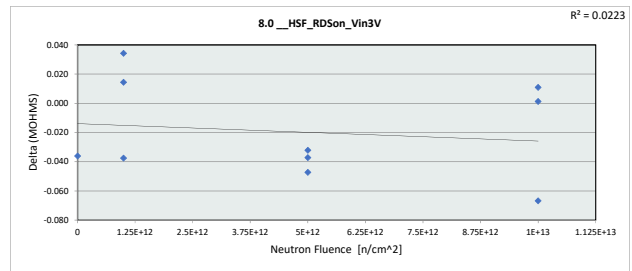
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	-2.000	-2.000	-2.000	-2.000
Min	0.542	0.475	0.723	0.336
Average	0.542	0.586	0.910	0.769
Max	0.542	0.671	1.192	1.104
UL	2.550	2.550	2.550	2.550



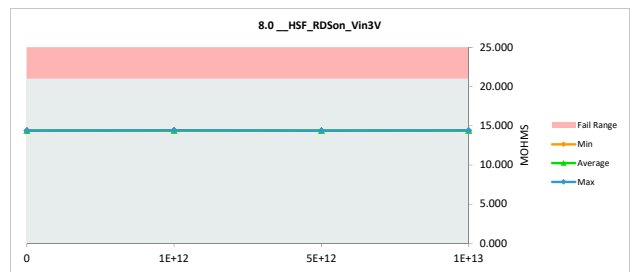
NDD Report -TPS7H4003-SEP

Dec 2021

8.0_HSF_RDson_Vin3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	MOHMS	MOHMS		
Max Limit	21	21		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	14.356	14.390	0.034
1E+12	2	14.401	14.416	0.014
1E+12	3	14.427	14.389	-0.038
5E+12	4	14.418	14.386	-0.032
5E+12	5	14.420	14.383	-0.037
5E+12	6	14.414	14.367	-0.047
1E+13	7	14.400	14.411	0.011
1E+13	8	14.433	14.366	-0.067
1E+13	9	14.400	14.401	0.001
0	10	14.416	14.380	-0.036
	Max	14.433	14.416	0.034
	Average	14.408	14.389	-0.020
	Min	14.356	14.366	-0.067
	Std Dev	0.022	0.017	0.032



8.0_HSF_RDson_Vin3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	21	MOHMS		
Min Limit		MOHMS		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	14.380	14.389	14.367	14.366
Average	14.380	14.398	14.379	14.393
Max	14.380	14.416	14.386	14.411
UL	21.000	21.000	21.000	21.000

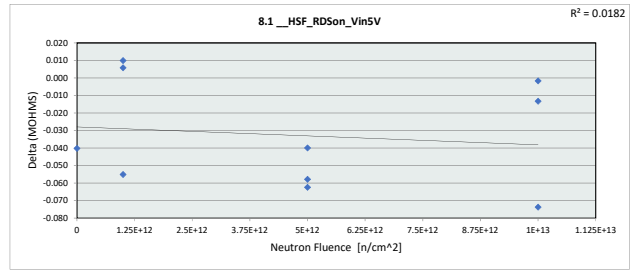




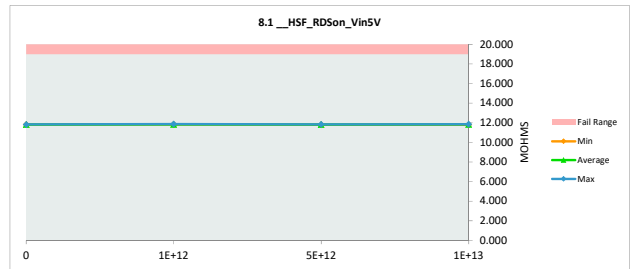
NDD Report -TPS7H4003-SEP

Dec 2021

8.1_HSF_RDson_Vin5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	MOHMS	MOHMS		
Max Limit	19	19		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	11.820	11.826	0.006
1E+12	2	11.846	11.856	0.010
1E+12	3	11.882	11.826	-0.055
5E+12	4	11.870	11.830	-0.040
5E+12	5	11.867	11.809	-0.058
5E+12	6	11.862	11.799	-0.062
1E+13	7	11.847	11.845	-0.002
1E+13	8	11.870	11.796	-0.074
1E+13	9	11.852	11.839	-0.013
0	10	11.863	11.822	-0.040
	Max	11.882	11.856	0.010
	Average	11.858	11.825	-0.033
	Min	11.820	11.796	-0.074
	Std Dev	0.017	0.019	0.031



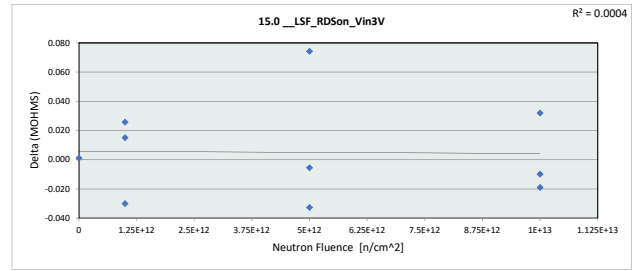
8.1_HSF_RDson_Vin5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	19	MOHMS		
Min Limit		MOHMS		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	11.822	11.826	11.799	11.796
Average	11.822	11.836	11.813	11.827
Max	11.822	11.856	11.830	11.845
UL	19.000	19.000	19.000	19.000



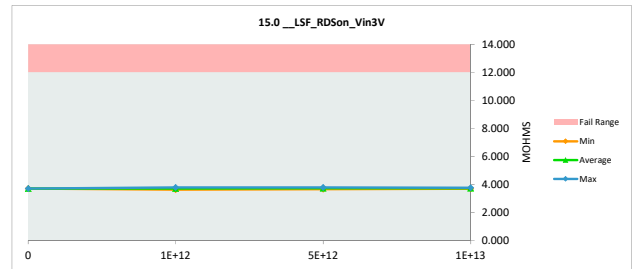
NDD Report -TPS7H4003-SEP

Dec 2021

15.0_LSF_RDson_Vin3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	MOHMS	MOHMS		
Max Limit	12	12		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	3.653	3.623	-0.030
1E+12	2	3.680	3.705	0.026
1E+12	3	3.770	3.785	0.015
5E+12	4	3.686	3.654	-0.033
5E+12	5	3.747	3.741	-0.006
5E+12	6	3.706	3.781	0.074
1E+13	7	3.722	3.712	-0.010
1E+13	8	3.728	3.760	0.032
1E+13	9	3.709	3.690	-0.019
0	10	3.702	3.703	0.001
	Max	3.770	3.785	0.074
	Average	3.710	3.715	0.005
	Min	3.653	3.623	-0.033
	Std Dev	0.034	0.053	0.033



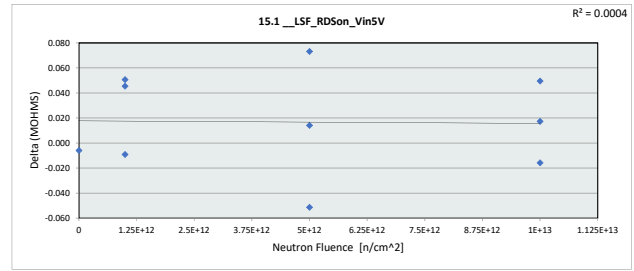
15.0_LSF_RDson_Vin3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	12	MOHMS		
Min Limit		MOHMS		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	3.703	3.623	3.654	3.690
Average	3.703	3.705	3.725	3.721
Max	3.703	3.785	3.781	3.760
UL	12.000	12.000	12.000	12.000



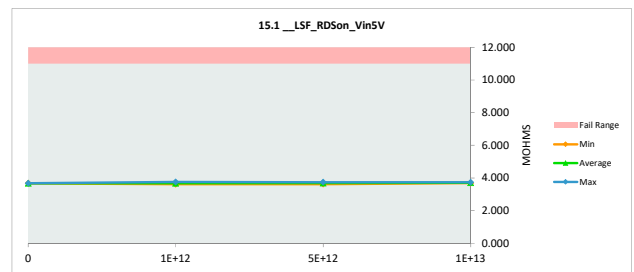
NDD Report -TPS7H4003-SEP

Dec 2021

15.1_LSF_RDson_Vin5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	MOHMS	MOHMS		
Max Limit	11	11		
Min Limit				
Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	3.632	3.623	-0.009
1E+12	2	3.630	3.675	0.045
1E+12	3	3.705	3.756	0.051
5E+12	4	3.680	3.629	-0.051
5E+12	5	3.683	3.697	0.014
5E+12	6	3.673	3.746	0.073
1E+13	7	3.705	3.689	-0.016
1E+13	8	3.695	3.744	0.049
1E+13	9	3.680	3.697	0.017
0	10	3.684	3.678	-0.006
	Max	3.705	3.756	0.073
	Average	3.677	3.693	0.017
	Min	3.630	3.623	-0.051
	Std Dev	0.026	0.046	0.038



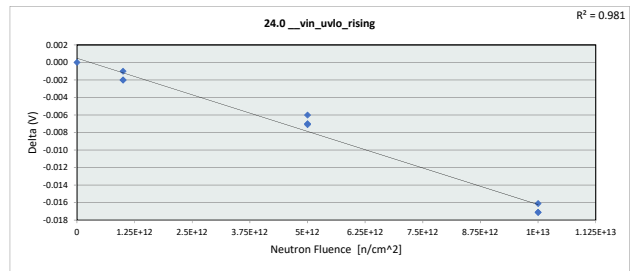
15.1_LSF_RDson_Vin5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	11	MOHMS		
Min Limit		MOHMS		
Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL				
Min	3.678	3.623	3.629	3.689
Average	3.678	3.685	3.691	3.710
Max	3.678	3.756	3.746	3.744
UL	11.000	11.000	11.000	11.000



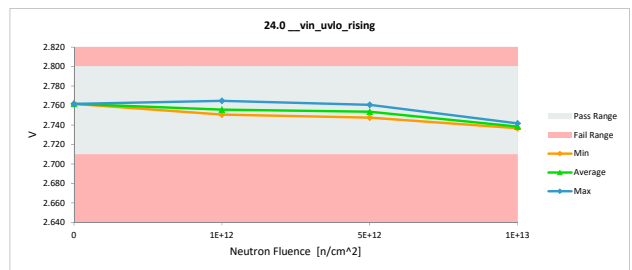
NDD Report -TPS7H4003-SEP

Dec 2021

24.0_vin_uvlo_rising				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit	2.8	2.8		
Min Limit	2.71	2.71		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	2.753	2.751	-0.002
1E+12	2	2.766	2.765	-0.001
1E+12	3	2.754	2.752	-0.002
5E+12	4	2.760	2.753	-0.007
5E+12	5	2.755	2.748	-0.007
5E+12	6	2.767	2.761	-0.006
1E+13	7	2.753	2.737	-0.016
1E+13	8	2.754	2.737	-0.017
1E+13	9	2.759	2.742	-0.017
0	10	2.762	2.762	0.000
	Max	2.767	2.765	0.000
	Average	2.758	2.751	-0.008
	Min	2.753	2.737	-0.017
	Std Dev	0.005	0.010	0.007



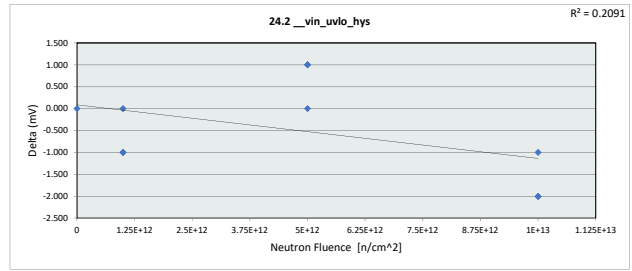
24.0_vin_uvlo_rising				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	2.8	V		
Min Limit	2.71	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	2.710	2.710	2.710	2.710
Min	2.762	2.751	2.748	2.737
Average	2.762	2.756	2.754	2.738
Max	2.762	2.765	2.761	2.742
UL	2.800	2.800	2.800	2.800



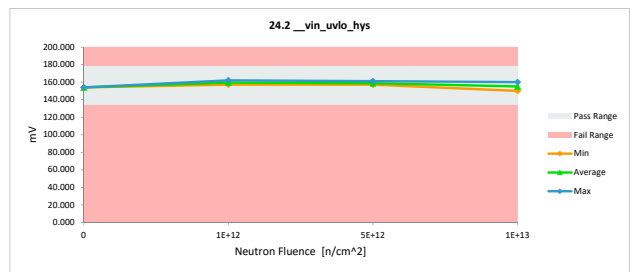
NDD Report -TPS7H4003-SEP

Dec 2021

24.2 _vin_uvlo_hys				
Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	158.158	157.157	-1.001
1E+12	2	162.162	162.162	0.000
1E+12	3	160.160	159.159	-1.001
5E+12	4	158.158	158.158	0.000
5E+12	5	156.156	157.157	1.001
5E+12	6	160.160	161.161	1.001
1E+13	7	161.161	160.160	-1.001
1E+13	8	152.152	150.150	-2.002
1E+13	9	157.157	155.155	-2.002
0	10	154.154	154.154	0.000
	Max	162.162	162.162	1.001
	Average	157.958	157.457	-0.501
	Min	152.152	150.150	-2.002
	Std Dev	3.158	3.595	1.081



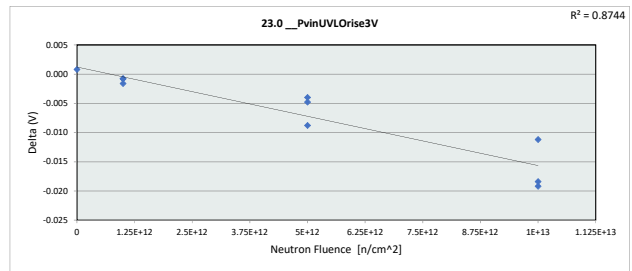
24.2 _vin_uvlo_hys				
Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL	134.000	134.000	134.000	134.000
Min	154.154	157.157	157.157	150.150
Average	154.154	159.493	158.825	155.155
Max	154.154	162.162	161.161	160.160
UL	178.000	178.000	178.000	178.000



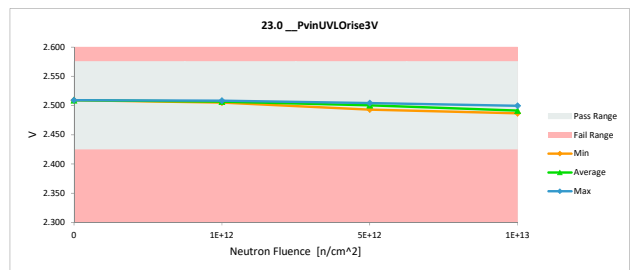
NDD Report -TPS7H4003-SEP

Dec 2021

23.0_PvinUVLorise3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit	2.575	2.575		
Min Limit	2.425	2.425		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	2.507	2.505	-0.002
1E+12	2	2.508	2.507	-0.001
1E+12	3	2.509	2.508	-0.001
5E+12	4	2.509	2.504	-0.005
5E+12	5	2.502	2.493	-0.009
5E+12	6	2.508	2.504	-0.004
1E+13	7	2.511	2.500	-0.011
1E+13	8	2.506	2.487	-0.019
1E+13	9	2.506	2.488	-0.018
0	10	2.508	2.509	0.001
	Max	2.511	2.509	0.001
	Average	2.507	2.501	-0.007
	Min	2.502	2.487	-0.019
	Std Dev	0.002	0.008	0.007



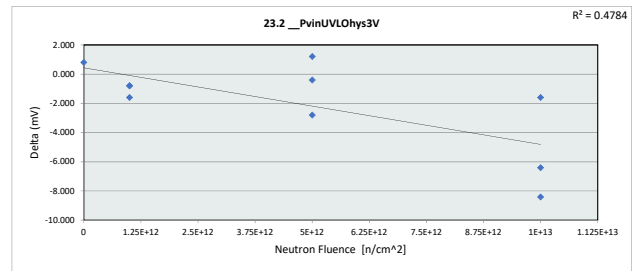
23.0_PvinUVLorise3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	2.575	V		
Min Limit	2.425	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	2.425	2.425	2.425	2.425
Min	2.509	2.505	2.493	2.487
Average	2.509	2.507	2.501	2.491
Max	2.509	2.508	2.504	2.500
UL	2.575	2.575	2.575	2.575



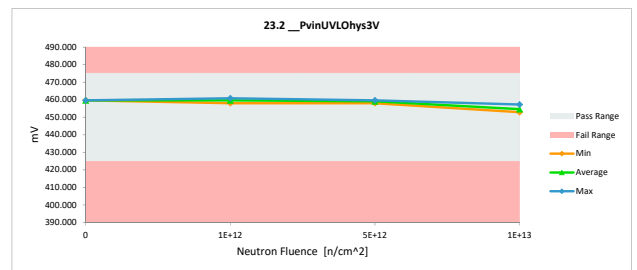
NDD Report -TPS7H4003-SEP

Dec 2021

23.2_PvinUVLOhys3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mV	mV		
Max Limit	475	475		
Min Limit	425	425		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	459.660	458.058	-1.602
1E+12	2	461.662	460.861	-0.801
1E+12	3	460.861	460.060	-0.801
5E+12	4	458.458	459.659	1.201
5E+12	5	460.861	458.058	-2.803
5E+12	6	460.060	459.659	-0.401
1E+13	7	458.859	457.258	-1.601
1E+13	8	461.261	452.853	-8.408
1E+13	9	460.060	453.654	-6.406
0	10	458.858	459.659	0.801
	Max	461.662	460.861	1.201
	Average	460.060	457.978	-2.082
	Min	458.458	452.853	-8.408
	Std Dev	1.101	2.721	3.071



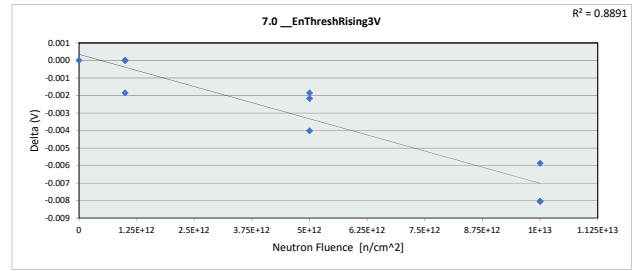
23.2_PvinUVLOhys3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	475	mV		
Min Limit	425	mV		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	425.000	425.000	425.000	425.000
Min	459.659	458.058	458.058	452.853
Average	459.659	459.660	459.125	454.588
Max	459.659	460.861	459.659	457.258
UL	475.000	475.000	475.000	475.000



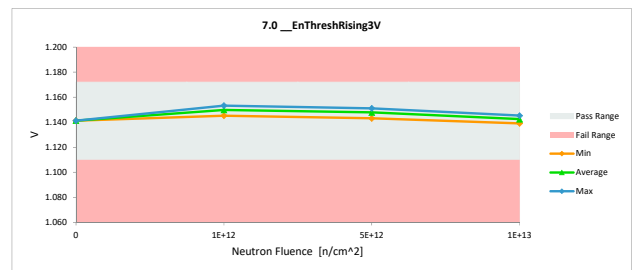
NDD Report -TPS7H4003-SEP

Dec 2021

7.0_EnThreshRising3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit	1.172	1.172		
Min Limit	1.11	1.11		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1.147	1.145	-0.002
1E+12	2	1.151	1.151	0.000
1E+12	3	1.153	1.153	0.000
5E+12	4	1.151	1.149	-0.002
5E+12	5	1.145	1.143	-0.002
5E+12	6	1.155	1.151	-0.004
1E+13	7	1.151	1.143	-0.008
1E+13	8	1.147	1.139	-0.008
1E+13	9	1.151	1.145	-0.006
0	10	1.141	1.141	0.000
	Max	1.155	1.153	0.000
	Average	1.149	1.146	-0.003
	Min	1.141	1.139	-0.008
	Std Dev	0.004	0.005	0.003



7.0_EnThreshRising3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	1.172	V		
Min Limit	1.11	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.110	1.110	1.110	1.110
Min	1.141	1.145	1.143	1.139
Average	1.141	1.150	1.148	1.142
Max	1.141	1.153	1.151	1.145
UL	1.172	1.172	1.172	1.172

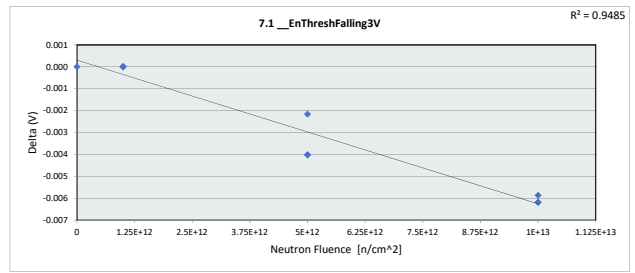




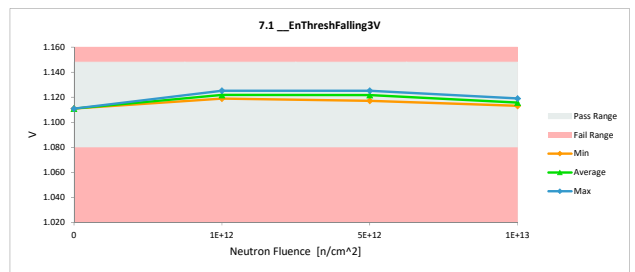
NDD Report -TPS7H4003-SEP

Dec 2021

7.1 EnThreshFalling3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit	1.148	1.148		
Min Limit	1.08	1.08		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1.119	1.119	0.000
1E+12	2	1.125	1.125	0.000
1E+12	3	1.121	1.121	0.000
5E+12	4	1.125	1.123	-0.002
5E+12	5	1.121	1.117	-0.004
5E+12	6	1.129	1.125	-0.004
1E+13	7	1.119	1.113	-0.006
1E+13	8	1.121	1.115	-0.006
1E+13	9	1.125	1.119	-0.006
0	10	1.111	1.111	0.000
	Max	1.129	1.125	0.000
	Average	1.122	1.119	-0.003
	Min	1.111	1.111	-0.006
	Std Dev	0.005	0.005	0.003



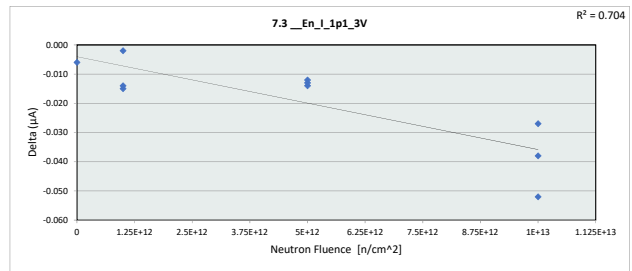
7.1_EnThreshFalling3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	1.148	V		
Min Limit	1.08	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.080	1.080	1.080	1.080
Min	1.111	1.119	1.117	1.113
Average	1.111	1.122	1.122	1.116
Max	1.111	1.125	1.125	1.119
UL	1.148	1.148	1.148	1.148



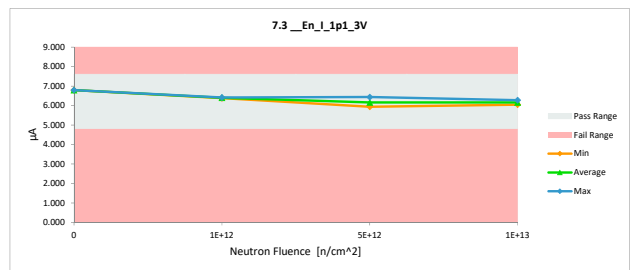
NDD Report -TPS7H4003-SEP

Dec 2021

7.3 _En_I_1p1_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	µA	µA		
Max Limit	7.6	7.6		
Min Limit	4.8	4.8		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	6.391	6.377	-0.014
1E+12	2	6.397	6.395	-0.002
1E+12	3	6.431	6.416	-0.015
5E+12	4	5.957	5.943	-0.014
5E+12	5	6.448	6.435	-0.013
5E+12	6	6.107	6.095	-0.012
1E+13	7	6.082	6.044	-0.038
1E+13	8	6.307	6.280	-0.027
1E+13	9	6.214	6.162	-0.052
0	10	6.802	6.796	-0.006
	Max	6.802	6.796	-0.002
	Average	6.314	6.294	-0.019
	Min	5.957	5.943	-0.052
	Std Dev	0.240	0.246	0.015



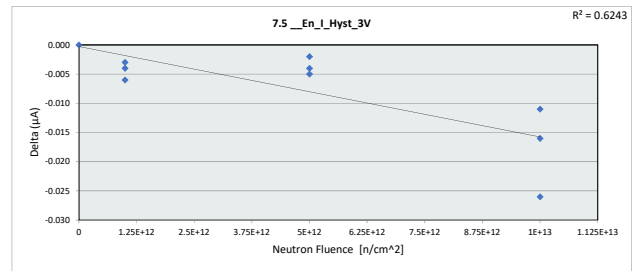
7.3 _En_I_1p1_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	7.6	µA		
Min Limit	4.8	µA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	4.800	4.800	4.800	4.800
Min	6.796	6.377	5.943	6.044
Average	6.796	6.396	6.158	6.162
Max	6.796	6.416	6.435	6.280
UL	7.600	7.600	7.600	7.600



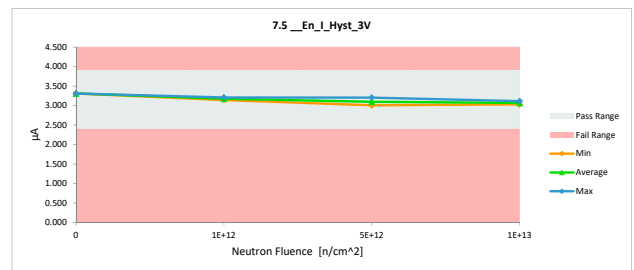
NDD Report -TPS7H4003-SEP

Dec 2021

7.5 En_I_Hyst_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	µA	µA		
Max Limit	3.9	3.9		
Min Limit	2.4	2.4		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	3.177	3.174	-0.003
1E+12	2	3.145	3.141	-0.004
1E+12	3	3.213	3.207	-0.006
5E+12	4	3.012	3.007	-0.005
5E+12	5	3.206	3.202	-0.004
5E+12	6	3.082	3.080	-0.002
1E+13	7	3.045	3.029	-0.016
1E+13	8	3.124	3.113	-0.011
1E+13	9	3.090	3.064	-0.026
0	10	3.312	3.312	0.000
	Max	3.312	3.312	0.000
	Average	3.141	3.133	-0.008
	Min	3.012	3.007	-0.026
	Std Dev	0.090	0.094	0.008



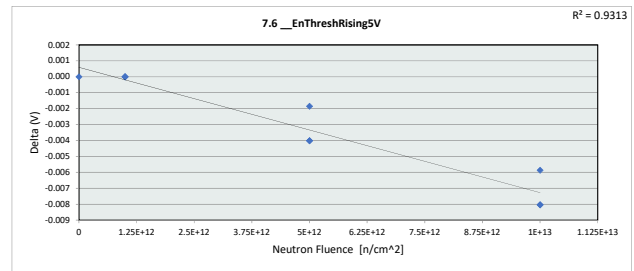
7.5 En_I_Hyst_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	3.9	µA		
Min Limit	2.4	µA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	2.400	2.400	2.400	2.400
Min	3.312	3.141	3.007	3.029
Average	3.312	3.174	3.096	3.069
Max	3.312	3.207	3.202	3.113
UL	3.900	3.900	3.900	3.900



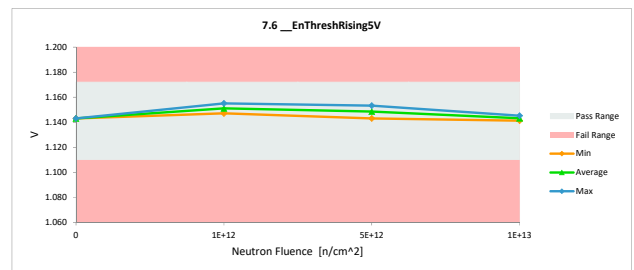
NDD Report -TPS7H4003-SEP

Dec 2021

7.6 EnThreshRising5V				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1.147	1.147	0.000
1E+12	2	1.151	1.151	0.000
1E+12	3	1.155	1.155	0.000
5E+12	4	1.151	1.149	-0.002
5E+12	5	1.147	1.143	-0.004
5E+12	6	1.157	1.153	-0.004
1E+13	7	1.151	1.143	-0.008
1E+13	8	1.147	1.141	-0.006
1E+13	9	1.153	1.145	-0.008
0	10	1.143	1.143	0.000
	Max	1.157	1.155	0.000
	Average	1.150	1.147	-0.003
	Min	1.143	1.141	-0.008
	Std Dev	0.004	0.005	0.003



7.6 __EnThreshRising5V				
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.110	1.110	1.110	1.110
Min	1.143	1.147	1.143	1.141
Average	1.143	1.151	1.149	1.143
Max	1.143	1.155	1.153	1.145
UL	1.172	1.172	1.172	1.172



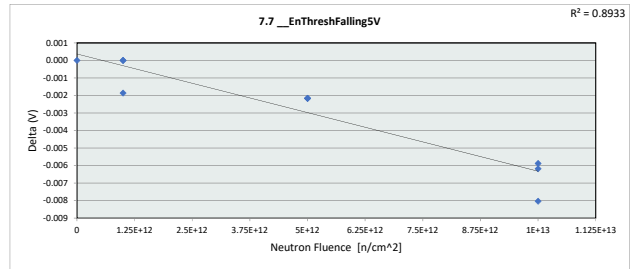
NDD Report -TPS7H4003-SEP

Dec 2021

**7.7 EnThreshFallingSV**

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	V	V
Max Limit	1.148	1.148
Min Limit	1.08	1.08

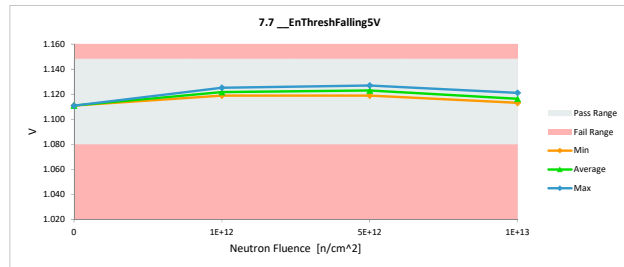
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1.119	1.119	0.000
1E+12	2	1.125	1.125	0.000
1E+12	3	1.123	1.121	-0.002
5E+12	4	1.125	1.123	-0.002
5E+12	5	1.121	1.119	-0.002
5E+12	6	1.129	1.127	-0.002
1E+13	7	1.121	1.113	-0.008
1E+13	8	1.121	1.115	-0.006
1E+13	9	1.127	1.121	-0.006
0	10	1.111	1.111	0.000
	Max	1.129	1.127	0.000
	Average	1.122	1.119	-0.003
	Min	1.111	1.111	-0.008
	Std Dev	0.005	0.005	0.003



**7.7 EnThreshFallingSV**

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	1.148
Min Limit	1.08

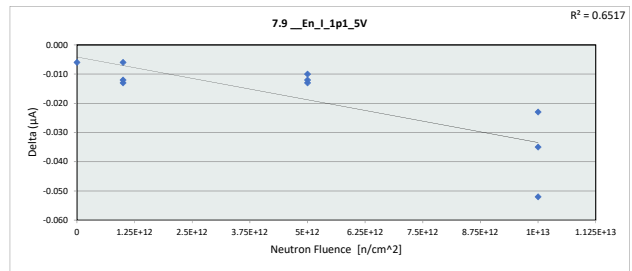
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.080	1.080	1.080	1.080
Min	1.111	1.119	1.119	1.113
Average	1.111	1.122	1.123	1.116
Max	1.111	1.125	1.127	1.121
UL	1.148	1.148	1.148	1.148



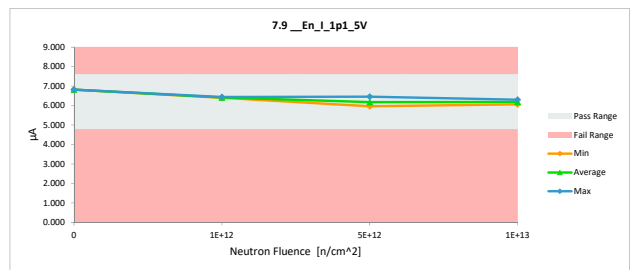
NDD Report -TPS7H4003-SEP

Dec 2021

7.9_En_I_1p1_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	µA	µA		
Max Limit	7.6	7.6		
Min Limit	4.8	4.8		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	6.409	6.397	-0.012
1E+12	2	6.422	6.416	-0.006
1E+12	3	6.451	6.438	-0.013
5E+12	4	5.975	5.963	-0.012
5E+12	5	6.468	6.455	-0.013
5E+12	6	6.127	6.117	-0.010
1E+13	7	6.101	6.066	-0.035
1E+13	8	6.326	6.303	-0.023
1E+13	9	6.234	6.182	-0.052
0	10	6.822	6.816	-0.006
	Max	6.822	6.816	-0.006
	Average	6.334	6.315	-0.018
	Min	5.975	5.963	-0.052
	Std Dev	0.240	0.246	0.015



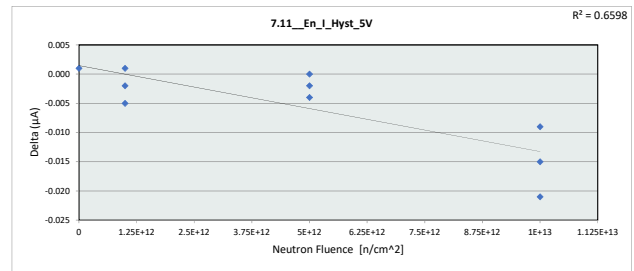
7.9_En_I_1p1_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	7.6	µA		
Min Limit	4.8	µA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	4.800	4.800	4.800	4.800
Min	6.816	6.397	5.963	6.066
Average	6.816	6.417	6.178	6.184
Max	6.816	6.438	6.455	6.303
UL	7.600	7.600	7.600	7.600



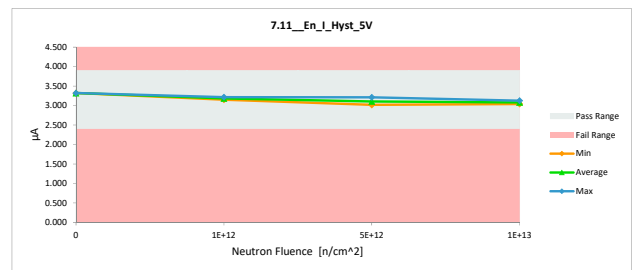
NDD Report -TPS7H4003-SEP

Dec 2021

7.11_En_I_Hyst_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	µA	µA		
Max Limit	3.9	3.9		
Min Limit	2.4	2.4		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	3.189	3.187	-0.002
1E+12	2	3.150	3.151	0.001
1E+12	3	3.222	3.217	-0.005
5E+12	4	3.021	3.017	-0.004
5E+12	5	3.214	3.212	-0.002
5E+12	6	3.090	3.090	0.000
1E+13	7	3.054	3.039	-0.015
1E+13	8	3.134	3.125	-0.009
1E+13	9	3.099	3.078	-0.021
0	10	3.320	3.321	0.001
	Max	3.320	3.321	0.001
	Average	3.149	3.144	-0.006
	Min	3.021	3.017	-0.004
	Std Dev	0.089	0.093	0.007



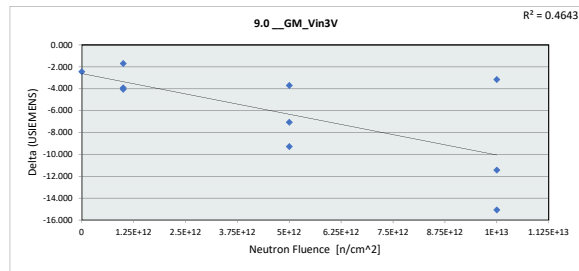
7.11_En_I_Hyst_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	3.9	µA		
Min Limit	2.4	µA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	2.400	2.400	2.400	2.400
Min	3.321	3.151	3.017	3.039
Average	3.321	3.185	3.106	3.081
Max	3.321	3.217	3.212	3.125
UL	3.900	3.900	3.900	3.900



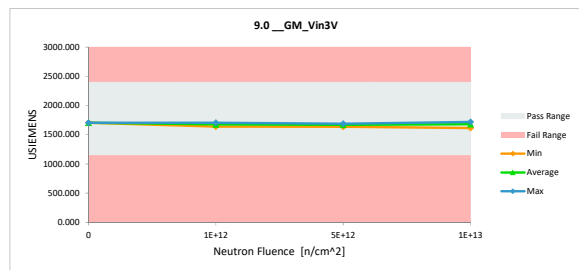
NDD Report -TPS7H4003-SEP

Dec 2021

9.0 GM_Vin3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	USIEMENS	USIEMENS		
Max Limit	2400	2400		
Min Limit	1150	1150		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1707.741	1706.042	-1.699
1E+12	2	1689.902	1685.986	-3.916
1E+12	3	1645.123	1641.064	-4.059
5E+12	4	1645.710	1638.647	-7.063
5E+12	5	1683.382	1679.683	-3.699
5E+12	6	1699.032	1689.757	-9.275
1E+13	7	1723.115	1719.948	-3.167
1E+13	8	1626.867	1615.441	-11.426
1E+13	9	1720.918	1705.857	-15.061
0	10	1707.558	1705.112	-2.446
	Max	1723.115	1719.948	-1.699
	Average	1684.935	1678.754	-6.181
	Min	1626.867	1615.441	-15.061
	Std Dev	34.166	35.092	4.418



9.0 GM_Vin3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	2400	USIEMENS		
Min Limit	1150	USIEMENS		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1150.000	1150.000	1150.000	1150.000
Min	1705.112	1641.064	1638.647	1615.441
Average	1705.112	1677.697	1689.362	1680.415
Max	1705.112	1706.042	1689.757	1719.948
UL	2400.000	2400.000	2400.000	2400.000

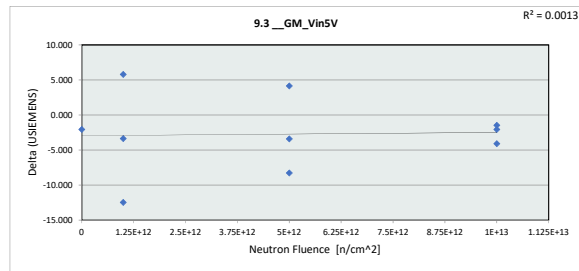




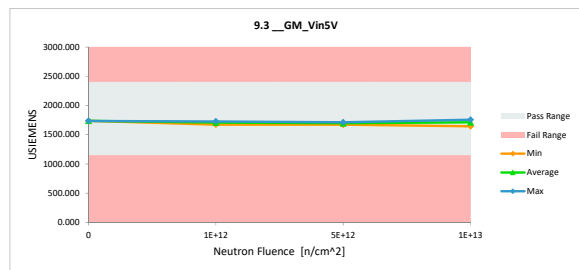
NDD Report -TPS7H4003-SEP

Dec 2021

9.3 GM_Vin5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	USIEMENS	USIEMENS		
Max Limit	2400	2400		
Min Limit	1150	1150		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1741.973	1729.501	-12.472
1E+12	2	1713.284	1719.066	5.782
1E+12	3	1678.058	1674.696	-3.362
5E+12	4	1670.034	1674.179	4.145
5E+12	5	1705.799	1702.398	-3.401
5E+12	6	1722.314	1714.034	-8.280
1E+13	7	1758.922	1756.864	-2.058
1E+13	8	1648.309	1646.833	-1.476
1E+13	9	1746.860	1742.777	-4.083
0	10	1739.709	1737.649	-2.060
	Max	1758.922	1756.864	5.782
	Average	1712.526	1709.800	-2.726
	Min	1648.309	1646.833	-12.472
	Std Dev	36.813	35.104	5.277



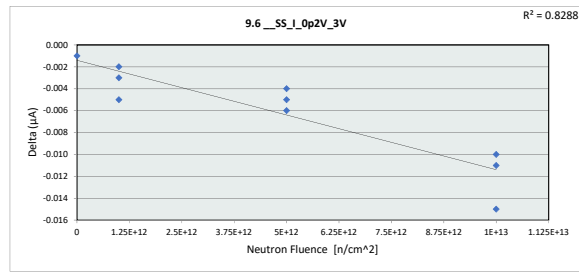
9.3 __GM_Vin5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	2400	USIEMENS		
Min Limit	1150	USIEMENS		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1150.000	1150.000	1150.000	1150.000
Min	1737.649	1674.696	1674.179	1646.833
Average	1737.649	1707.754	1696.870	1715.491
Max	1737.649	1729.501	1714.034	1756.864
UL	2400.000	2400.000	2400.000	2400.000



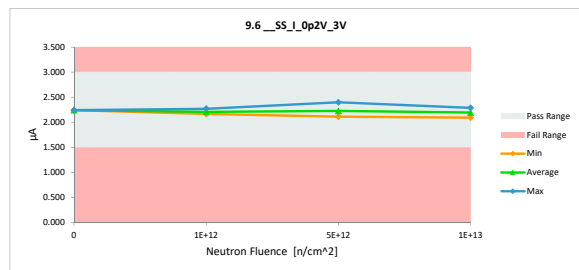
NDD Report -TPS7H4003-SEP

Dec 2021

9.6_SS_I_0p2V_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	µA	µA		
Max Limit	3	3		
Min Limit	1.5	1.5		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	2.273	2.270	-0.003
1E+12	2	2.169	2.167	-0.002
1E+12	3	2.189	2.184	-0.005
5E+12	4	2.116	2.112	-0.004
5E+12	5	2.405	2.400	-0.005
5E+12	6	2.173	2.167	-0.006
1E+13	7	2.211	2.201	-0.010
1E+13	8	2.105	2.094	-0.011
1E+13	9	2.304	2.289	-0.015
0	10	2.243	2.242	-0.001
	Max	2.405	2.400	-0.001
	Average	2.219	2.213	-0.006
	Min	2.105	2.094	-0.015
	Std Dev	0.091	0.091	0.004



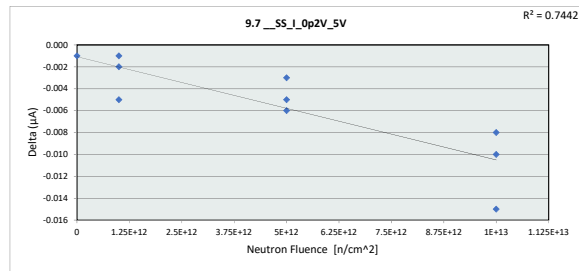
9.6_SS_I_0p2V_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	3	µA		
Min Limit	1.5	µA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.500	1.500	1.500	1.500
Min	2.242	2.167	2.112	2.094
Average	2.242	2.207	2.226	2.195
Max	2.242	2.270	2.400	2.289
UL	3.000	3.000	3.000	3.000



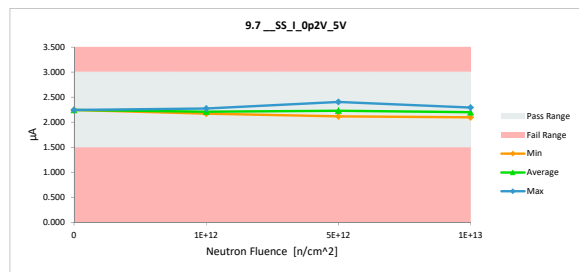
NDD Report -TPS7H4003-SEP

Dec 2021

9.7_SS_I_0p2V_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	µA	µA		
Max Limit	3	3		
Min Limit	1.5	1.5		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	2.278	2.276	-0.002
1E+12	2	2.173	2.172	-0.001
1E+12	3	2.194	2.189	-0.005
5E+12	4	2.121	2.118	-0.003
5E+12	5	2.411	2.406	-0.005
5E+12	6	2.178	2.172	-0.006
1E+13	7	2.216	2.208	-0.008
1E+13	8	2.110	2.100	-0.010
1E+13	9	2.310	2.295	-0.015
0	10	2.248	2.247	-0.001
	Max	2.411	2.406	-0.001
	Average	2.224	2.218	-0.006
	Min	2.110	2.100	-0.015
	Std Dev	0.091	0.091	0.004



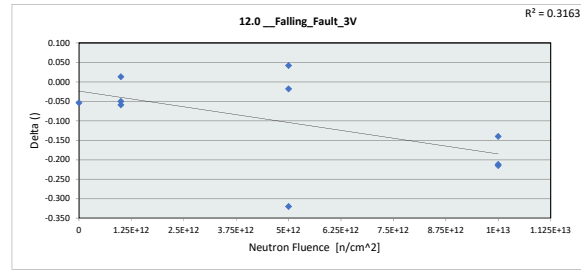
9.7_SS_I_0p2V_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	3	µA		
Min Limit	1.5	µA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	1.500	1.500	1.500	1.500
Min	2.247	2.172	2.118	2.100
Average	2.247	2.212	2.232	2.201
Max	2.247	2.276	2.406	2.295
UL	3.000	3.000	3.000	3.000



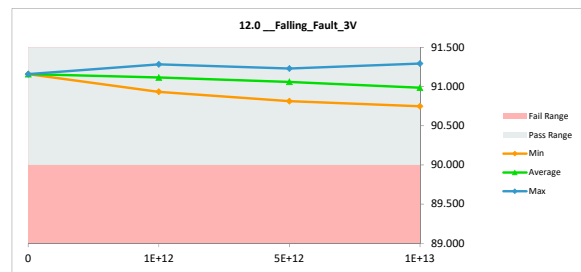
NDD Report -TPS7H4003-SEP

Dec 2021

12.0 _Falling_Fault_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit				
Min Limit	90	90		
Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	91.270	91.283	0.013
1E+12	2	91.188	91.129	-0.059
1E+12	3	90.983	90.933	-0.050
5E+12	4	91.153	91.135	-0.018
5E+12	5	91.133	90.813	-0.320
5E+12	6	91.188	91.230	0.042
1E+13	7	91.433	91.293	-0.140
1E+13	8	91.126	90.911	-0.215
1E+13	9	90.961	90.749	-0.212
0	10	91.212	91.158	-0.054
	Max	91.433	91.293	0.042
	Average	91.165	91.063	-0.101
	Min	90.961	90.749	-0.320
	Std Dev	0.135	0.197	0.116



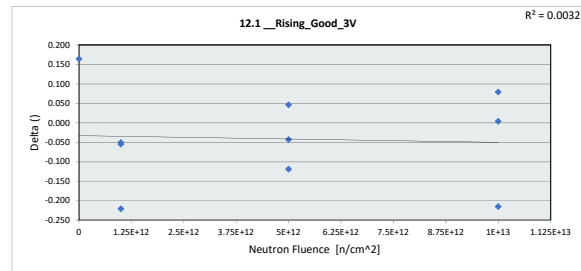
12.0 _Falling_Fault_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit				
Min Limit	90			
Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL	90.000	90.000	90.000	90.000
Min	91.158	90.933	90.813	90.749
Average	91.158	91.115	91.059	90.984
Max	91.158	91.283	91.230	91.293
UL				



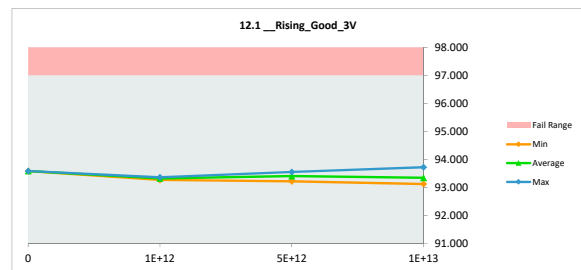
NDD Report -TPS7H4003-SEP

Dec 2021

12.1_Rising_Good_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	97	97		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	93.484	93.263	-0.221
1E+12	2	93.386	93.331	-0.055
1E+12	3	93.409	93.358	-0.051
5E+12	4	93.591	93.548	-0.043
5E+12	5	93.335	93.216	-0.119
5E+12	6	93.389	93.435	0.046
1E+13	7	93.641	93.720	0.079
1E+13	8	93.335	93.120	-0.215
1E+13	9	93.167	93.171	0.004
0	10	93.419	93.583	0.164
	Max	93.641	93.720	0.164
	Average	93.416	93.375	-0.041
	Min	93.167	93.120	-0.221
	Std Dev	0.134	0.195	0.123



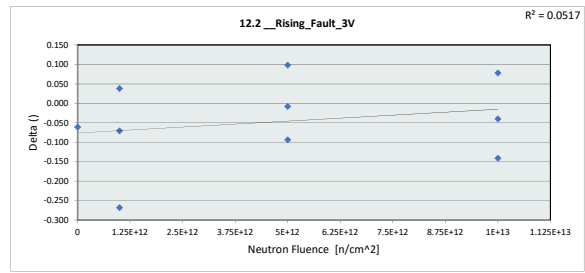
12.1_Rising_Good_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	97			
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	93.583	93.263	93.216	93.120
Average	93.583	93.317	93.400	93.337
Max	93.583	93.358	93.548	93.720
UL	97.000	97.000	97.000	97.000



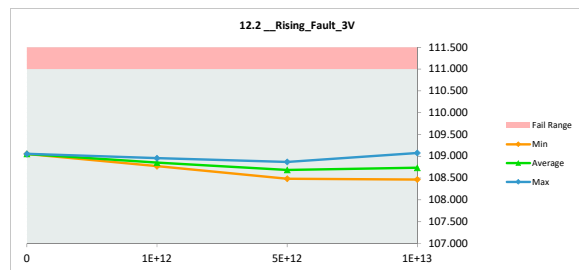
NDD Report -TPS7H4003-SEP

Dec 2021

12.2_Rising_Fault_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	111	111		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	108.917	108.955	0.038
1E+12	2	109.039	108.771	-0.268
1E+12	3	108.901	108.830	-0.071
5E+12	4	108.876	108.868	-0.008
5E+12	5	108.577	108.483	-0.094
5E+12	6	108.602	108.700	0.098
1E+13	7	109.116	109.076	-0.040
1E+13	8	108.801	108.660	-0.141
1E+13	9	108.388	108.466	0.078
0	10	109.114	109.053	-0.061
	Max	109.116	109.076	0.098
	Average	108.833	108.786	-0.047
	Min	108.388	108.466	-0.268
	Std Dev	0.243	0.214	0.109



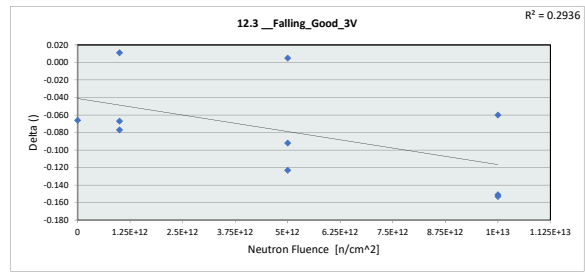
12.2_Rising_Fault_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	111			
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	109.053	108.771	108.483	108.466
Average	109.053	108.852	108.684	108.734
Max	109.053	108.955	108.868	109.076
UL	111.000	111.000	111.000	111.000



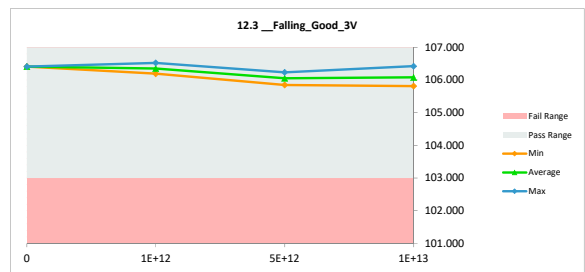
NDD Report -TPS7H4003-SEP

Dec 2021

12.3 Falling_Good_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit				
Min Limit	103	103		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	106.512	106.523	0.011
1E+12	2	106.413	106.336	-0.077
1E+12	3	106.256	106.189	-0.067
5E+12	4	106.230	106.235	0.005
5E+12	5	105.938	105.846	-0.092
5E+12	6	106.192	106.069	-0.123
1E+13	7	106.481	106.421	-0.060
1E+13	8	106.153	106.002	-0.151
1E+13	9	105.965	105.812	-0.153
0	10	106.475	106.409	-0.066
	Max	106.512	106.523	0.011
	Average	106.262	106.184	-0.077
	Min	105.938	105.812	-0.153
	Std Dev	0.208	0.246	0.056



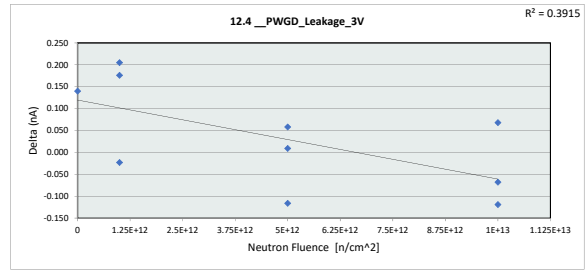
12.3 Falling_Good_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit				
Min Limit	103			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	103.000	103.000	103.000	103.000
Min	106.409	106.189	105.846	105.812
Average	106.409	106.349	106.050	106.078
Max	106.409	106.523	106.235	106.421
UL				



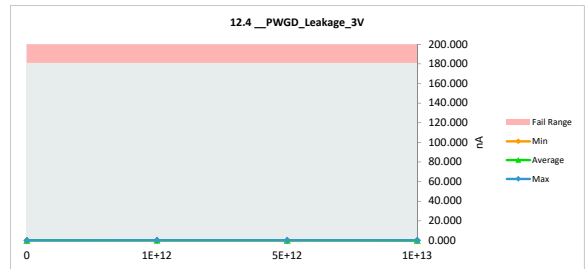
NDD Report -TPS7H4003-SEP

Dec 2021

12.4_PWGD_Leakage_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	nA	nA		
Max Limit	181	181		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	-0.080	0.125	0.205
1E+12	2	0.125	0.102	-0.023
1E+12	3	-0.083	0.093	0.176
5E+12	4	0.248	0.132	-0.116
5E+12	5	0.084	0.093	0.009
5E+12	6	-0.001	0.057	0.058
1E+13	7	0.209	0.090	-0.119
1E+13	8	-0.043	0.025	0.068
1E+13	9	0.185	0.117	-0.068
0	10	-0.048	0.092	0.140
	Max	0.248	0.132	0.205
	Average	0.060	0.093	0.033
	Min	-0.083	0.025	-0.119
	Std Dev	0.126	0.032	0.117



12.4_PWGD_Leakage_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	181	nA		
Min Limit		nA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	0.092	0.093	0.057	0.025
Average	0.092	0.107	0.094	0.077
Max	0.092	0.125	0.132	0.117
UL	181.000	181.000	181.000	181.000

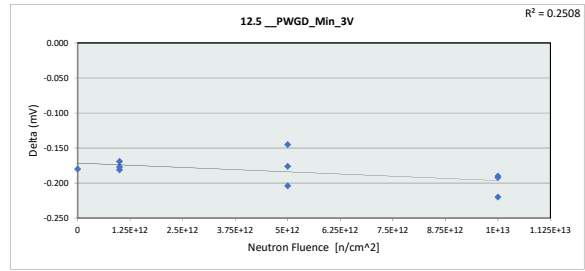




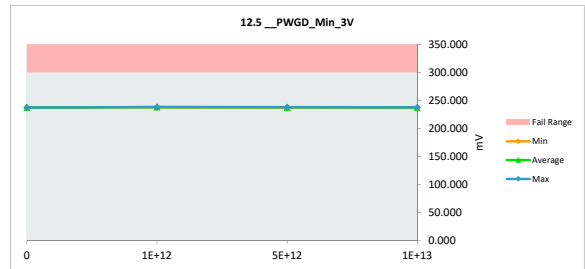
NDD Report -TPS7H4003-SEP

Dec 2021

12.5_PWGD_Min_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mV	mV		
Max Limit	300	300		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	237.846	237.669	-0.177
1E+12	2	238.201	238.032	-0.169
1E+12	3	237.921	237.740	-0.181
5E+12	4	237.729	237.584	-0.145
5E+12	5	237.923	237.747	-0.176
5E+12	6	237.143	236.939	-0.204
1E+13	7	237.714	237.524	-0.190
1E+13	8	237.160	236.968	-0.192
1E+13	9	237.651	237.431	-0.220
0	10	237.092	236.912	-0.180
	Max	238.201	238.032	-0.145
	Average	237.638	237.455	-0.183
	Min	237.092	236.912	-0.220
	Std Dev	0.381	0.390	0.020



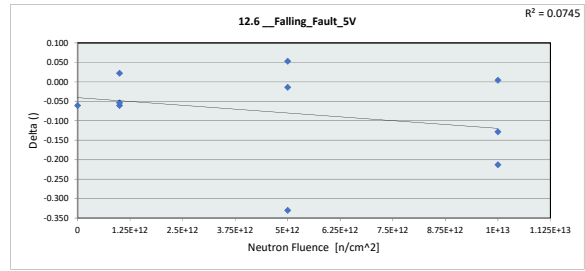
12.5_PWGD_Min_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	300	mV		
Min Limit		mV		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	236.912	237.669	236.939	236.968
Average	236.912	237.814	237.423	237.308
Max	236.912	238.032	237.747	237.524
UL	300.000	300.000	300.000	300.000



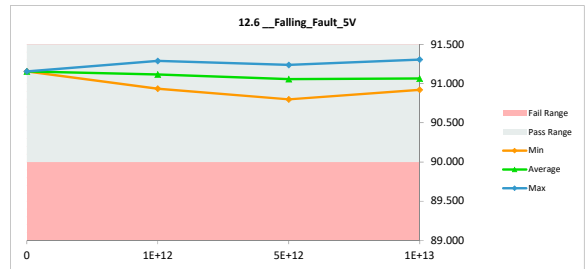
NDD Report -TPS7H4003-SEP

Dec 2021

12.6 __Falling_Fault_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit				
Min Limit	90	90		
Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	91.265	91.287	0.022
1E+12	2	91.187	91.126	-0.061
1E+12	3	90.987	90.933	-0.054
5E+12	4	91.147	91.133	-0.014
5E+12	5	91.128	90.798	-0.330
5E+12	6	91.183	91.236	0.053
1E+13	7	91.433	91.305	-0.128
1E+13	8	91.132	90.919	-0.213
1E+13	9	90.961	90.965	0.004
0	10	91.215	91.154	-0.061
	Max	91.433	91.305	0.053
	Average	91.164	91.086	-0.078
	Min	90.961	90.798	-0.330
	Std Dev	0.134	0.173	0.117



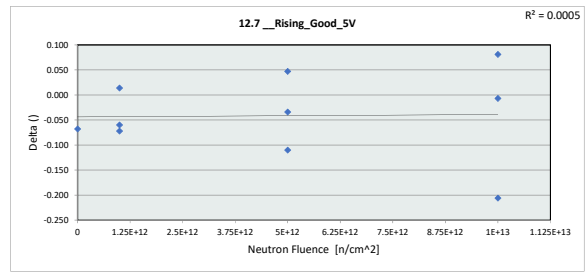
12.6 __Falling_Fault_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit				
Min Limit	90			
Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL	90.000	90.000	90.000	90.000
Min	91.154	90.933	90.798	90.919
Average	91.154	91.115	91.056	91.063
Max	91.154	91.287	91.236	91.305
UL				



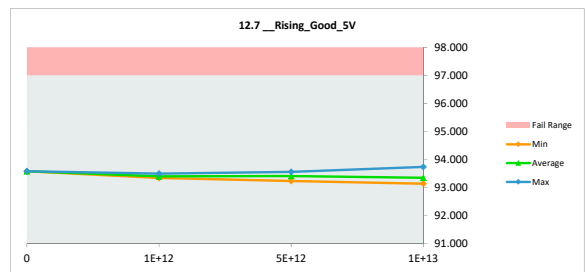
NDD Report -TPS7H4003-SEP

Dec 2021

12.7_Rising_Good_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	97	97		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	93.475	93.489	0.014
1E+12	2	93.395	93.335	-0.060
1E+12	3	93.419	93.347	-0.072
5E+12	4	93.587	93.553	-0.034
5E+12	5	93.337	93.227	-0.110
5E+12	6	93.389	93.436	0.047
1E+13	7	93.647	93.728	0.081
1E+13	8	93.335	93.129	-0.206
1E+13	9	93.175	93.168	-0.007
0	10	93.645	93.577	-0.068
	Max	93.647	93.728	0.081
	Average	93.440	93.399	-0.042
	Min	93.175	93.129	-0.206
	Std Dev	0.151	0.193	0.082



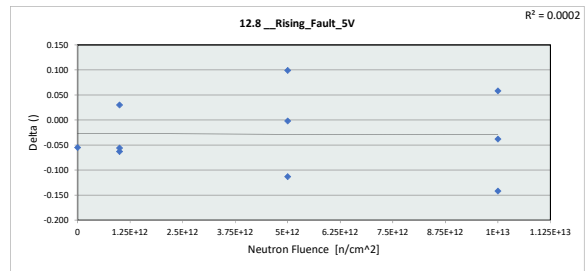
12.7_Rising_Good_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	97			
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	93.577	93.335	93.227	93.129
Average	93.577	93.390	93.405	93.342
Max	93.577	93.489	93.553	93.728
UL	97.000	97.000	97.000	97.000



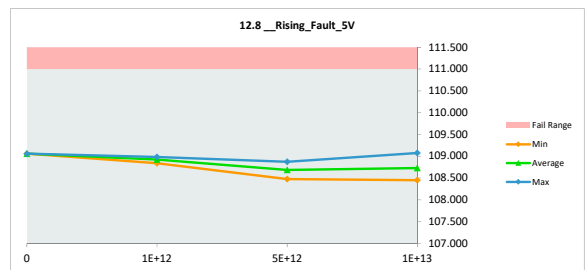
NDD Report -TPS7H4003-SEP

Dec 2021

12.8_Rising_Fault_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	111	111		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	108.920	108.950	0.030
1E+12	2	109.045	108.982	-0.063
1E+12	3	108.894	108.838	-0.056
5E+12	4	108.876	108.874	-0.002
5E+12	5	108.590	108.477	-0.113
5E+12	6	108.606	108.705	0.099
1E+13	7	109.114	109.076	-0.038
1E+13	8	108.803	108.661	-0.142
1E+13	9	108.393	108.451	0.058
0	10	109.113	109.058	-0.055
	Max	109.114	109.076	0.099
	Average	108.835	108.807	-0.028
	Min	108.393	108.451	-0.142
	Std Dev	0.240	0.226	0.075



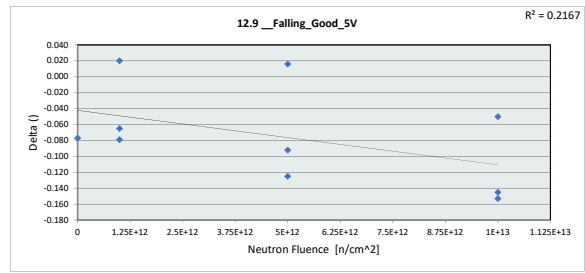
12.8_Rising_Fault_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	111			
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	109.058	108.838	108.477	108.451
Average	109.058	108.923	108.685	108.729
Max	109.058	108.982	108.874	109.076
UL	111.000	111.000	111.000	111.000



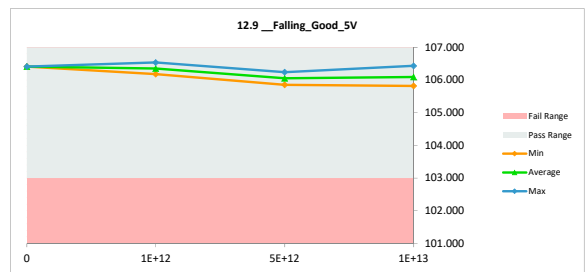
NDD Report -TPS7H4003-SEP

Dec 2021

12.9 Falling_Good_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit				
Min Limit	103	103		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	106.514	106.534	0.020
1E+12	2	106.407	106.342	-0.065
1E+12	3	106.260	106.181	-0.079
5E+12	4	106.221	106.237	0.016
5E+12	5	105.942	105.850	-0.092
5E+12	6	106.190	106.065	-0.125
1E+13	7	106.481	106.431	-0.050
1E+13	8	106.166	106.021	-0.145
1E+13	9	105.968	105.815	-0.153
0	10	106.484	106.407	-0.077
	Max	106.514	106.534	0.020
	Average	106.263	106.188	-0.075
	Min	105.942	105.815	-0.153
	Std Dev	0.207	0.247	0.059



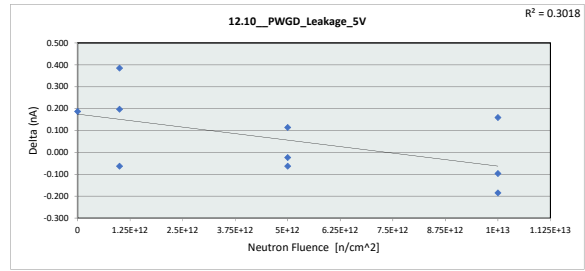
12.9 Falling_Good_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit				
Min Limit	103			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	103.000	103.000	103.000	103.000
Min	106.407	106.181	105.850	105.815
Average	106.407	106.352	106.051	106.089
Max	106.407	106.534	106.237	106.431
UL				



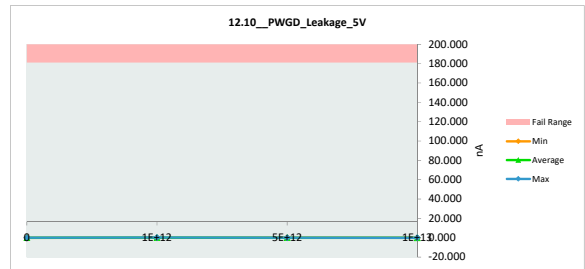
NDD Report -TPS7H4003-SEP

Dec 2021

12.10_PWGD_Leakage_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	nA	nA		
Max Limit	181	181		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	-0.157	0.228	0.385
1E+12	2	0.120	0.057	-0.063
1E+12	3	-0.219	-0.022	0.197
5E+12	4	0.158	0.095	-0.063
5E+12	5	0.078	0.055	-0.023
5E+12	6	-0.051	0.063	0.114
1E+13	7	0.162	-0.023	-0.185
1E+13	8	-0.104	0.055	0.159
1E+13	9	0.134	0.038	-0.096
0	10	-0.135	0.052	0.187
	Max	0.162	0.228	0.385
	Average	-0.001	0.060	0.061
	Min	-0.219	-0.023	-0.185
	Std Dev	0.147	0.070	0.175



12.10_PWGD_Leakage_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	181	nA		
Min Limit		nA		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	0.052	-0.022	0.055	-0.023
Average	0.052	0.088	0.071	0.023
Max	0.052	0.228	0.095	0.055
UL	181.000	181.000	181.000	181.000



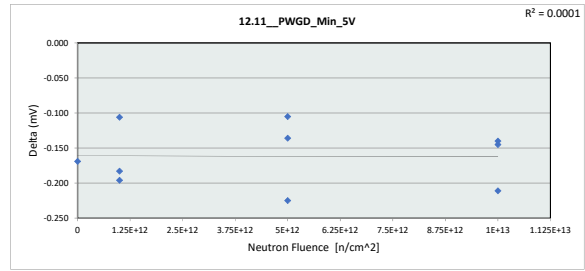
NDD Report -TPS7H4003-SEP

Dec 2021

12.11\_PWGD\_Min\_5V

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	mV	mV
Max Limit	300	300
Min Limit		

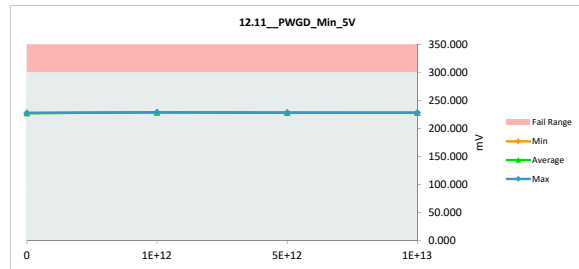
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	228.400	228.294	-0.106
1E+12	2	228.784	228.601	-0.183
1E+12	3	228.393	228.197	-0.196
5E+12	4	228.317	228.212	-0.105
5E+12	5	228.420	228.195	-0.225
5E+12	6	227.644	227.508	-0.136
1E+13	7	228.247	228.036	-0.211
1E+13	8	227.632	227.487	-0.145
1E+13	9	228.052	227.912	-0.140
0	10	227.556	227.387	-0.169
	Max	228.784	228.601	-0.105
	Average	228.144	227.983	-0.162
	Min	227.556	227.387	-0.225
	Std Dev	0.411	0.402	0.042



12.11\_PWGD\_Min\_5V

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	300 mV
Min Limit	mV

Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min		227.387	228.197	227.508
Average		227.387	228.364	227.972
Max		227.387	228.601	228.212
UL		300.000	300.000	300.000



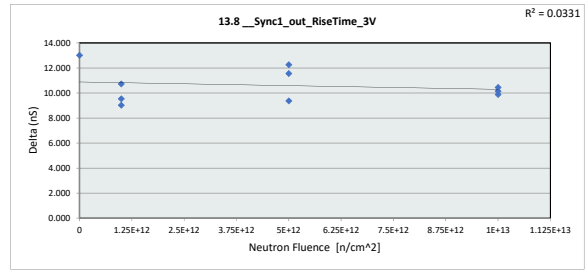
NDD Report -TPS7H4003-SEP

Dec 2021

13.8\_Sync1\_out\_RiseTime\_3V

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	nS	nS
Max Limit	180	180
Min Limit		

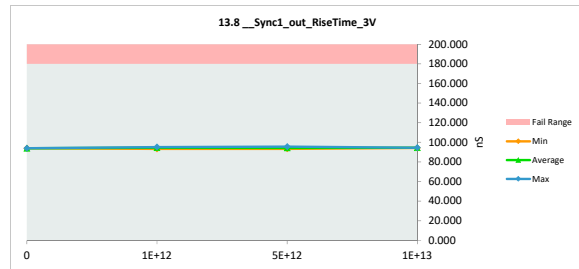
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	84.324	95.052	10.728
1E+12	2	85.719	95.258	9.539
1E+12	3	84.251	93.279	9.028
5E+12	4	86.296	95.664	9.368
5E+12	5	81.189	93.449	12.260
5E+12	6	82.251	93.808	11.557
1E+13	7	84.357	94.509	10.152
1E+13	8	83.799	94.245	10.446
1E+13	9	84.722	94.599	9.877
0	10	81.036	94.046	13.010
	Max	86.296	95.664	13.010
	Average	83.794	94.391	10.596
	Min	81.036	93.279	9.028
	Std Dev	1.777	0.780	1.306



13.8\_Sync1\_out\_RiseTime\_3V

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	180
Min Limit	nS

Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	94.046	93.279	93.449	94.245
Average	94.046	94.530	94.307	94.451
Max	94.046	95.258	95.664	94.599
UL	180.000	180.000	180.000	180.000



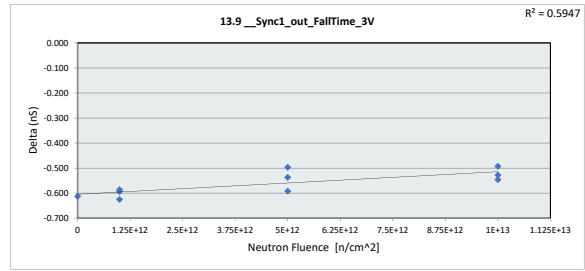


NDD Report -TPS7H4003-SEP

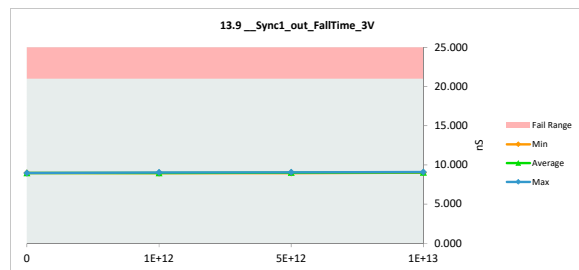
Dec 2021

13.9_Sync1_out_FallTime_3V		
Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	nS	nS
Max Limit	21	21
Min Limit		

Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	9.578	8.953	-0.625
1E+12	2	9.640	9.054	-0.586
1E+12	3	9.541	8.947	-0.594
5E+12	4	9.610	9.073	-0.537
5E+12	5	9.540	9.043	-0.497
5E+12	6	9.564	8.972	-0.592
1E+13	7	9.643	9.097	-0.546
1E+13	8	9.551	9.023	-0.528
1E+13	9	9.571	9.078	-0.493
0	10	9.595	8.982	-0.613
	Max	9.643	9.097	-0.493
	Average	9.583	9.022	-0.561
	Min	9.540	8.947	-0.625
	Std Dev	0.038	0.055	0.047



13.9_Sync1_out_FallTime_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	21	nS		
Min Limit		nS		
Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL				
Min		8.982	8.947	8.972
Average		8.982	8.985	9.029
Max		8.982	9.054	9.073
UL		21.000	21.000	21.000



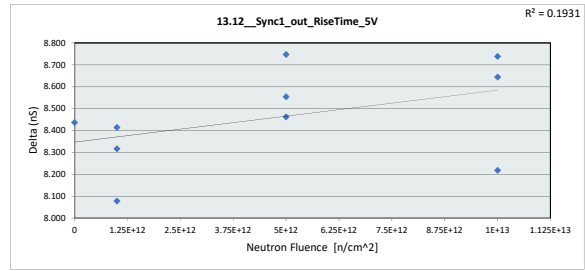
NDD Report -TPS7H4003-SEP

Dec 2021

13.12\_Sync1\_out\_RiseTime\_5V

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	nS	nS
Max Limit	180	180
Min Limit		

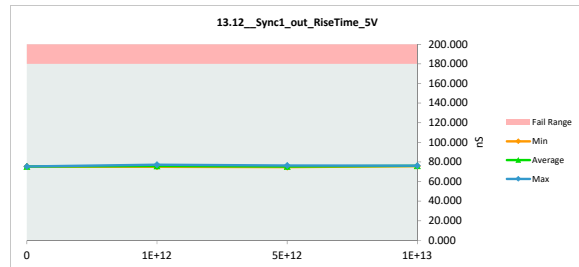
Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	67.415	75.493	8.078
1E+12	2	68.772	77.186	8.414
1E+12	3	66.848	75.165	8.317
5E+12	4	67.872	76.426	8.554
5E+12	5	66.004	74.751	8.747
5E+12	6	66.656	75.118	8.462
1E+13	7	67.535	75.753	8.218
1E+13	8	67.458	76.196	8.738
1E+13	9	67.583	76.227	8.644
0	10	66.921	75.358	8.437
Max		68.772	77.186	8.747
Average		67.306	75.767	8.461
Min		66.004	74.751	8.078
Std Dev		0.753	0.738	0.219



13.12\_Sync1\_out\_RiseTime\_5V

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	180
Min Limit	nS

Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL				
Min		75.358	75.165	74.751
Average		75.358	75.948	75.432
Max		75.358	77.186	76.426
UL		180.000	180.000	180.000



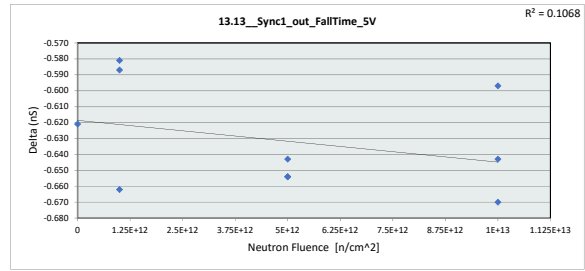
NDD Report -TPS7H4003-SEP

Dec 2021

13.13\_Sync1\_out\_FallTime\_5V

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	nS	nS
Max Limit	21	21
Min Limit		

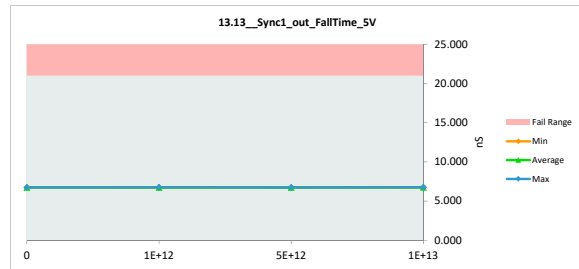
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	7.331	6.750	-0.581
1E+12	2	7.352	6.765	-0.587
1E+12	3	7.402	6.740	-0.662
5E+12	4	7.380	6.737	-0.643
5E+12	5	7.408	6.754	-0.654
5E+12	6	7.397	6.743	-0.654
1E+13	7	7.418	6.775	-0.643
1E+13	8	7.415	6.745	-0.670
1E+13	9	7.379	6.782	-0.597
0	10	7.375	6.754	-0.621
	Max	7.418	6.782	-0.581
	Average	7.386	6.755	-0.631
	Min	7.331	6.737	-0.670
	Std Dev	0.028	0.015	0.033



13.13\_Sync1\_out\_FallTime\_5

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	21 nS
Min Limit	nS

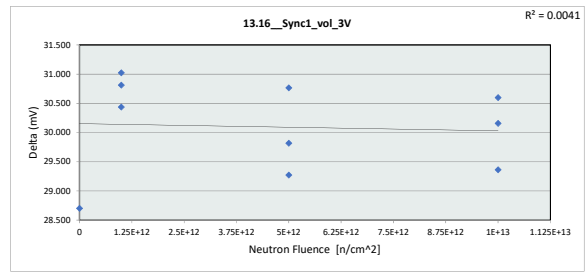
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min		6.754	6.740	6.737
Average		6.754	6.752	6.745
Max		6.754	6.765	6.754
UL		21.000	21.000	21.000



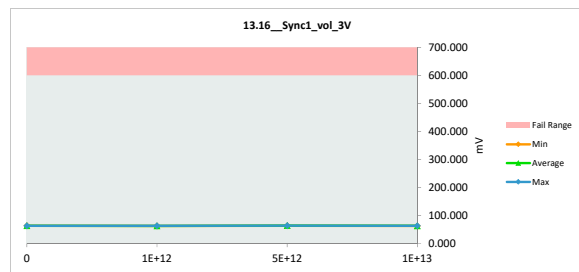
NDD Report -TPS7H4003-SEP

Dec 2021

13.16_Sync1_vol_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mV	mV		
Max Limit	600	600		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	31.462	62.483	31.021
1E+12	2	31.354	62.166	30.812
1E+12	3	32.442	62.878	30.436
5E+12	4	33.510	63.327	29.817
5E+12	5	32.286	63.052	30.766
5E+12	6	33.936	63.207	29.271
1E+13	7	32.555	62.711	30.156
1E+13	8	33.541	62.903	29.362
1E+13	9	31.479	62.076	30.597
0	10	34.176	62.878	28.702
	Max	34.176	63.327	31.021
	Average	32.674	62.768	30.094
	Min	31.354	62.076	28.702
	Std Dev	1.062	0.416	0.777



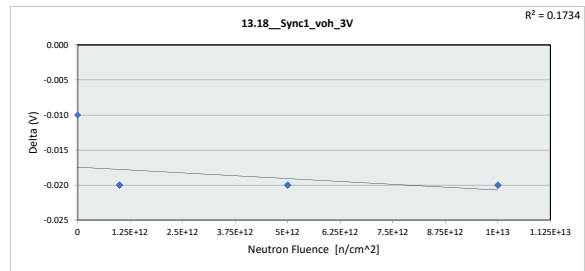
13.16_Sync1_vol_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	600	mV		
Min Limit		mV		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min		62.878	62.166	63.052
Average		62.878	62.509	63.195
Max		62.878	62.878	63.327
UL		600.000	600.000	600.000



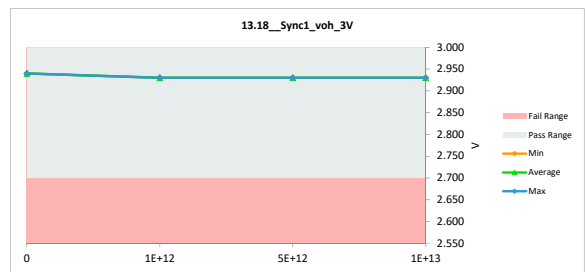
NDD Report -TPS7H4003-SEP

Dec 2021

13.18_Sync1_voh_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit				
Min Limit	2.7	2.7		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	2.950	2.930	-0.020
1E+12	2	2.950	2.930	-0.020
1E+12	3	2.950	2.930	-0.020
5E+12	4	2.950	2.930	-0.020
5E+12	5	2.950	2.930	-0.020
5E+12	6	2.950	2.930	-0.020
1E+13	7	2.950	2.930	-0.020
1E+13	8	2.950	2.930	-0.020
1E+13	9	2.950	2.930	-0.020
0	10	2.950	2.940	-0.010
	Max	2.950	2.940	-0.010
	Average	2.950	2.931	-0.019
	Min	2.950	2.930	-0.020
	Std Dev	0.000	0.003	0.003



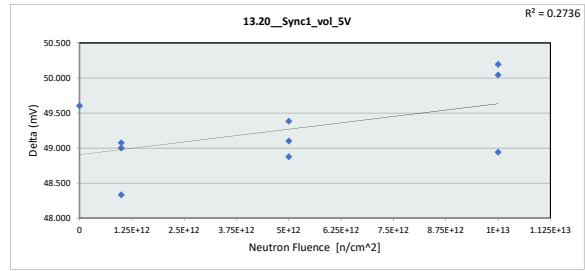
13.18_Sync1_voh_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit		V		
Min Limit	2.7	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	2.700	2.700	2.700	2.700
Min	2.940	2.930	2.930	2.930
Average	2.940	2.930	2.930	2.930
Max	2.940	2.930	2.930	2.930
UL				



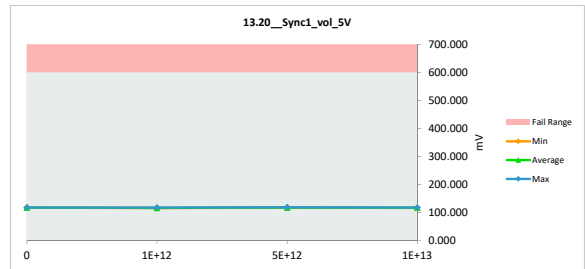
NDD Report -TPS7H4003-SEP

Dec 2021

13.20_Sync1_vol_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	mV	mV		
Max Limit	600	600		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	66.970	116.045	49.075
1E+12	2	66.486	115.488	49.002
1E+12	3	68.671	117.003	48.332
5E+12	4	68.834	118.218	49.384
5E+12	5	67.860	116.961	49.101
5E+12	6	68.839	117.715	48.876
1E+13	7	68.256	117.195	48.939
1E+13	8	66.585	116.628	50.043
1E+13	9	65.560	115.754	50.194
0	10	67.448	117.051	49.603
	Max	68.839	118.218	50.194
	Average	67.551	116.806	49.255
	Min	65.560	115.488	48.332
	Std Dev	1.132	0.853	0.563



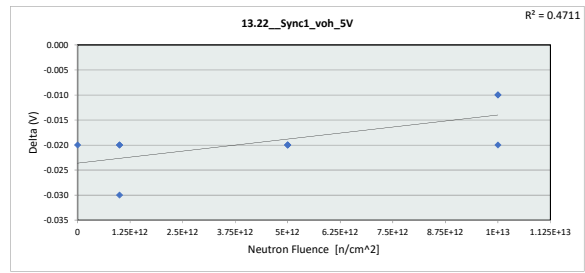
13.20_Sync1_vol_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	600	mV		
Min Limit		mV		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min	117.051	115.488	116.961	115.754
Average	117.051	116.179	117.631	116.526
Max	117.051	117.003	118.218	117.195
UL	600.000	600.000	600.000	600.000



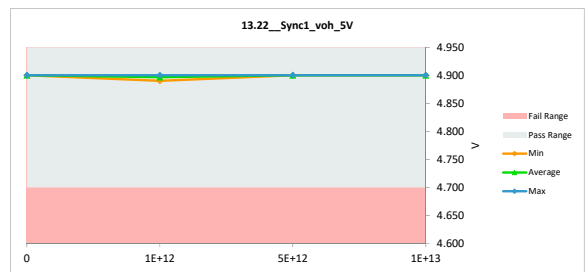
NDD Report -TPS7H4003-SEP

Dec 2021

13.22_Sync1_voh_5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	V	V		
Max Limit				
Min Limit	4.7	4.7		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	4.920	4.900	-0.020
1E+12	2	4.920	4.890	-0.030
1E+12	3	4.920	4.900	-0.020
5E+12	4	4.920	4.900	-0.020
5E+12	5	4.920	4.900	-0.020
5E+12	6	4.920	4.900	-0.020
1E+13	7	4.920	4.900	-0.020
1E+13	8	4.910	4.900	-0.010
1E+13	9	4.910	4.900	-0.010
0	10	4.920	4.900	-0.020
	Max	4.920	4.900	-0.010
	Average	4.918	4.899	-0.019
	Min	4.910	4.890	-0.030
	Std Dev	0.004	0.003	0.006



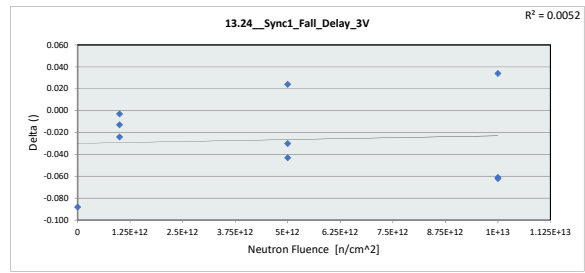
13.22_Sync1_voh_5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	V			
Min Limit	4.7	V		
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	4.700	4.700	4.700	4.700
Min	4.900	4.890	4.900	4.900
Average	4.900	4.897	4.900	4.900
Max	4.900	4.900	4.900	4.900
UL				



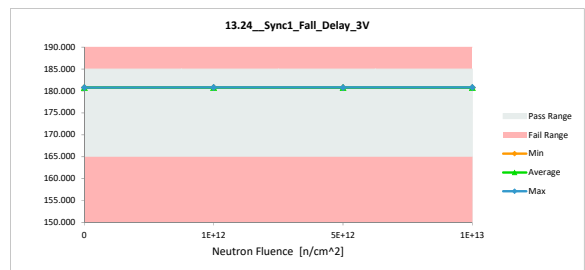
NDD Report -TPS7H4003-SEP

Dec 2021

13.24_Sync1_Fall_Delay_3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	185	185		
Min Limit	165	165		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	180.816	180.813	-0.003
1E+12	2	180.793	180.769	-0.024
1E+12	3	180.807	180.794	-0.013
5E+12	4	180.790	180.760	-0.030
5E+12	5	180.833	180.790	-0.043
5E+12	6	180.718	180.742	0.024
1E+13	7	180.799	180.833	0.034
1E+13	8	180.810	180.749	-0.061
1E+13	9	180.841	180.779	-0.062
0	10	180.864	180.776	-0.088
	Max	180.864	180.833	0.034
	Average	180.807	180.780	-0.027
	Min	180.718	180.742	-0.088
	Std Dev	0.039	0.028	0.039



13.24_Sync1_Fall_Delay_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	185			
Min Limit	165			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	165.000	165.000	165.000	165.000
Min	180.776	180.769	180.742	180.749
Average	180.776	180.792	180.764	180.787
Max	180.776	180.813	180.790	180.833
UL	185.000	185.000	185.000	185.000

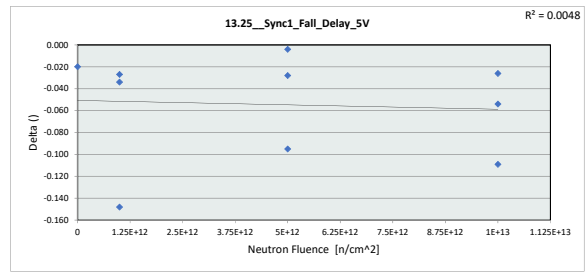




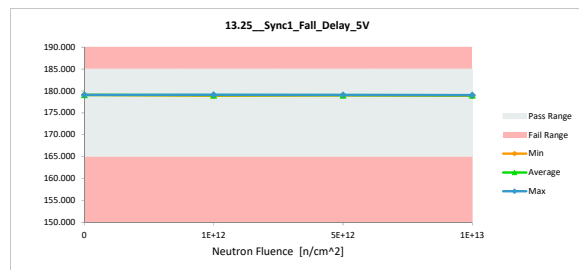
NDD Report -TPS7H4003-SEP

Dec 2021

13.25_Sync1_Fall_Delay_5V				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	179.093	179.066	-0.027
1E+12	2	179.076	178.928	-0.148
1E+12	3	179.162	179.128	-0.034
5E+12	4	179.118	179.090	-0.028
5E+12	5	179.076	178.981	-0.095
5E+12	6	179.052	179.048	-0.004
1E+13	7	179.125	179.071	-0.054
1E+13	8	179.028	178.919	-0.109
1E+13	9	179.102	179.076	-0.026
0	10	179.107	179.087	-0.020
	Max	179.162	179.128	-0.004
	Average	179.094	179.039	-0.054
	Min	179.028	178.919	-0.148
	Std Dev	0.038	0.072	0.047



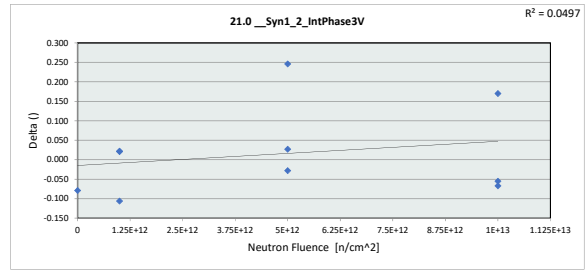
13.25_Sync1_Fall_Delay_5V				
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	165.000	165.000	165.000	165.000
Min	179.087	178.928	178.981	178.919
Average	179.087	179.041	179.040	179.022
Max	179.087	179.128	179.090	179.076
UL	185.000	185.000	185.000	185.000



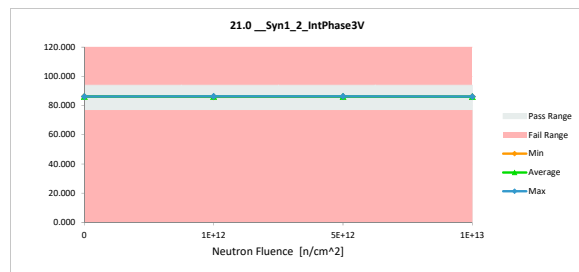
NDD Report -TPS7H4003-SEP

Dec 2021

21.0_Syn1_2_IntPhase3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	94	94		
Min Limit	77	77		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	86.269	86.291	0.022
1E+12	2	86.132	86.026	-0.106
1E+12	3	86.256	86.277	0.021
5E+12	4	86.026	86.053	0.027
5E+12	5	86.290	86.262	-0.028
5E+12	6	85.973	86.219	0.246
1E+13	7	85.982	86.152	0.170
1E+13	8	86.176	86.121	-0.055
1E+13	9	86.169	86.102	-0.067
0	10	86.316	86.237	-0.079
	Max	86.316	86.291	0.246
	Average	86.159	86.174	0.015
	Min	85.973	86.026	-0.106
	Std Dev	0.128	0.096	0.113



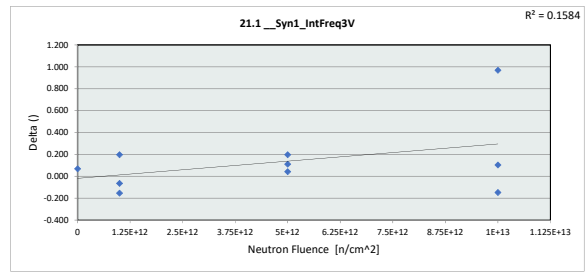
21.0_Syn1_2_IntPhase3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	94			
Min Limit	77			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	77.000	77.000	77.000	77.000
Min	86.237	86.026	86.053	86.102
Average	86.237	86.198	86.178	86.125
Max	86.237	86.291	86.262	86.152
UL	94.000	94.000	94.000	94.000



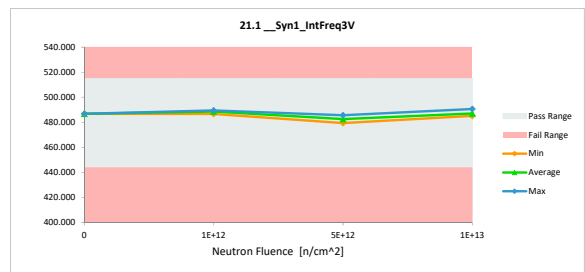
NDD Report -TPS7H4003-SEP

Dec 2021

21.1_Syn1_IntFreq3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	515	515		
Min Limit	444	444		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	489.630	489.476	-0.154
1E+12	2	489.563	489.499	-0.064
1E+12	3	486.477	486.674	0.197
5E+12	4	479.325	479.368	0.043
5E+12	5	485.515	485.626	0.111
5E+12	6	482.382	482.579	0.197
1E+13	7	484.594	485.563	0.969
1E+13	8	485.023	485.127	0.104
1E+13	9	490.711	490.564	-0.147
0	10	486.692	486.760	0.068
	Max	490.711	490.564	0.969
	Average	485.991	486.124	0.132
	Min	479.325	479.368	-0.154
	Std Dev	3.489	3.380	0.320



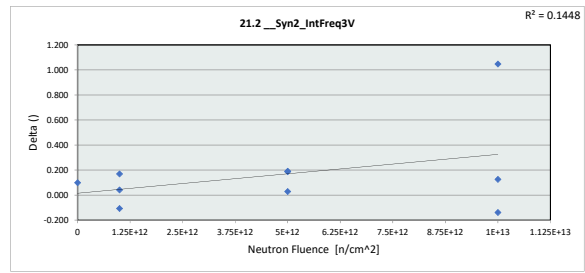
21.1_Syn1_IntFreq3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	515			
Min Limit	444			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	444.000	444.000	444.000	444.000
Min	486.760	486.674	479.368	485.127
Average	486.760	488.550	482.524	487.085
Max	486.760	489.499	485.626	490.564
UL	515.000	515.000	515.000	515.000



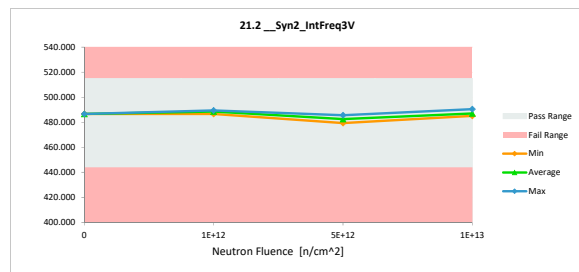
NDD Report -TPS7H4003-SEP

Dec 2021

21.2_Syn2_IntFreq3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	515	515		
Min Limit	444	444		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	489.544	489.437	-0.107
1E+12	2	489.433	489.475	0.042
1E+12	3	486.455	486.624	0.169
5E+12	4	479.297	479.326	0.029
5E+12	5	485.449	485.640	0.191
5E+12	6	482.322	482.509	0.187
1E+13	7	484.517	485.564	1.047
1E+13	8	484.943	485.069	0.126
1E+13	9	490.641	490.502	-0.139
0	10	486.600	486.699	0.099
	Max	490.641	490.502	1.047
	Average	485.920	486.085	0.164
	Min	479.297	479.326	-0.139
	Std Dev	3.472	3.381	0.331



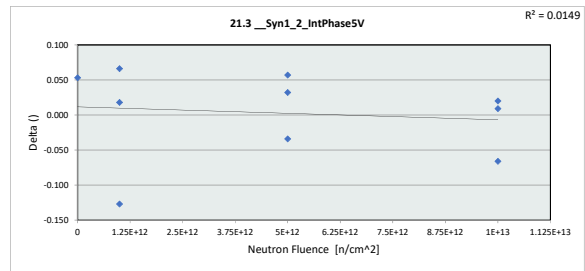
21.2_Syn2_IntFreq3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	515			
Min Limit	444			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	444.000	444.000	444.000	444.000
Min	486.699	486.624	479.326	485.069
Average	486.699	488.512	482.492	487.045
Max	486.699	489.475	485.640	490.502
UL	515.000	515.000	515.000	515.000



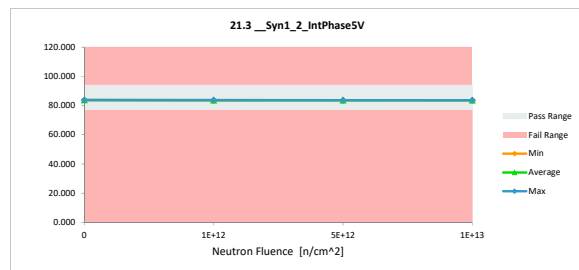
NDD Report -TPS7H4003-SEP

Dec 2021

21.3_Syn1_2_IntPhase5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	94	94		
Min Limit	77	77		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	83.729	83.795	0.066
1E+12	2	83.688	83.561	-0.127
1E+12	3	83.827	83.845	0.018
5E+12	4	83.696	83.728	0.032
5E+12	5	83.708	83.674	-0.034
5E+12	6	83.635	83.692	0.057
1E+13	7	83.703	83.723	0.020
1E+13	8	83.645	83.579	-0.066
1E+13	9	83.729	83.738	0.009
0	10	83.763	83.816	0.053
	Max	83.827	83.845	0.066
	Average	83.712	83.715	0.003
	Min	83.635	83.561	-0.127
	Std Dev	0.056	0.094	0.061



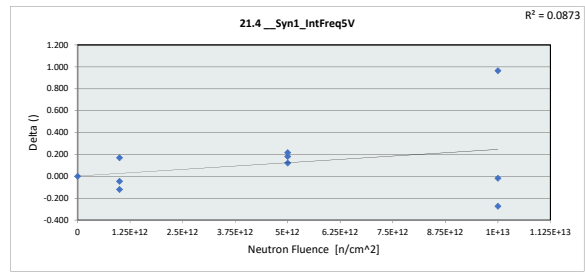
21.3_Syn1_2_IntPhase5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	94			
Min Limit	77			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	77.000	77.000	77.000	77.000
Min	83.816	83.561	83.674	83.579
Average	83.816	83.734	83.698	83.680
Max	83.816	83.845	83.728	83.738
UL	94.000	94.000	94.000	94.000



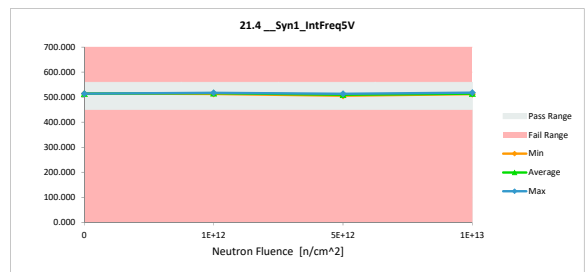
NDD Report -TPS7H4003-SEP

Dec 2021

21.4_Syn1_IntFreq5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	560	560		
Min Limit	449	449		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	517.598	517.478	-0.120
1E+12	2	517.279	517.234	-0.045
1E+12	3	513.054	513.224	0.170
5E+12	4	505.616	505.737	0.121
5E+12	5	513.703	513.919	0.216
5E+12	6	509.256	509.437	0.181
1E+13	7	511.598	512.562	0.964
1E+13	8	513.309	513.292	-0.017
1E+13	9	518.568	518.295	-0.273
0	10	514.691	514.691	0.000
	Max	518.568	518.295	0.964
	Average	513.467	513.587	0.120
	Min	505.616	505.737	-0.273
	Std Dev	3.975	3.830	0.333



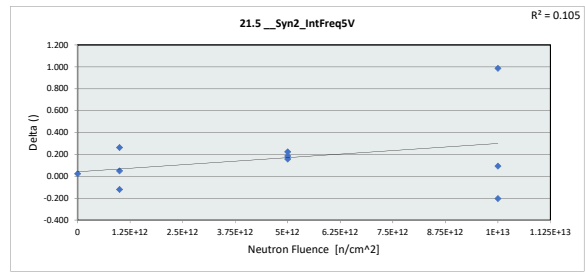
21.4_Syn1_IntFreq5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	560			
Min Limit	449			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	449.000	449.000	449.000	449.000
Min	514.691	513.224	505.737	512.562
Average	514.691	515.979	509.698	514.716
Max	514.691	517.478	513.919	518.295
UL	560.000	560.000	560.000	560.000



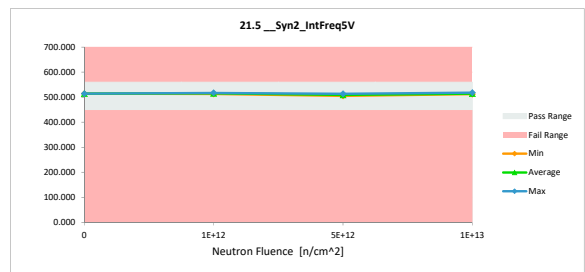
NDD Report -TPS7H4003-SEP

Dec 2021

21.5_Syn2_IntFreq5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	560	560		
Min Limit	449	449		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	517.450	517.331	-0.119
1E+12	2	517.057	517.107	0.050
1E+12	3	512.823	513.086	0.263
5E+12	4	505.450	505.608	0.158
5E+12	5	513.523	513.747	0.224
5E+12	6	509.075	509.261	0.186
1E+13	7	511.451	512.437	0.986
1E+13	8	513.094	513.187	0.093
1E+13	9	518.383	518.180	-0.203
0	10	514.509	514.532	0.023
	Max	518.383	518.180	0.986
	Average	513.282	513.448	0.166
	Min	505.450	505.608	-0.203
	Std Dev	3.970	3.835	0.324



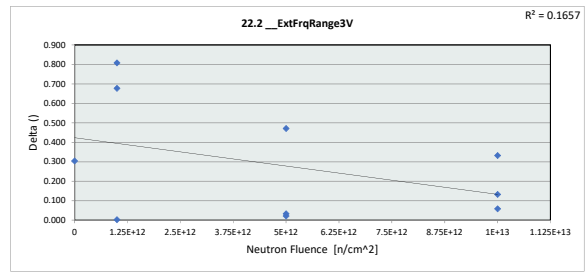
21.5_Syn2_IntFreq5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	560			
Min Limit	449			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	449.000	449.000	449.000	449.000
Min	514.532	513.086	505.608	512.437
Average	514.532	515.841	509.539	514.601
Max	514.532	517.331	513.747	518.180
UL	560.000	560.000	560.000	560.000



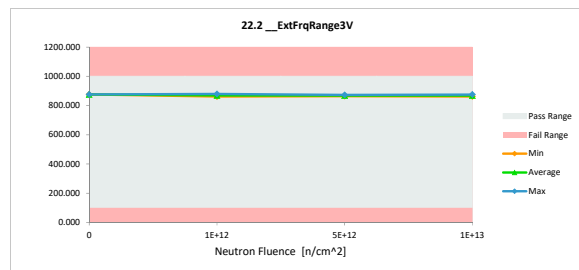
NDD Report -TPS7H4003-SEP

Dec 2021

22.2_ExtFrqRange3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	1000	1000		
Min Limit	100	100		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	878.317	879.125	0.808
1E+12	2	868.271	868.273	0.002
1E+12	3	861.511	862.188	0.677
5E+12	4	864.410	864.881	0.471
5E+12	5	866.886	866.907	0.021
5E+12	6	872.570	872.603	0.033
1E+13	7	862.299	862.631	0.332
1E+13	8	875.754	875.886	0.132
1E+13	9	866.840	866.898	0.058
0	10	875.908	876.212	0.304
	Max	878.317	879.125	0.808
	Average	869.277	869.560	0.284
	Min	861.511	862.188	0.002
	Std Dev	5.999	6.010	0.289



22.2_ExtFrqRange3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	1000			
Min Limit	100			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	100.000	100.000	100.000	100.000
Min	876.212	862.188	864.881	862.631
Average	876.212	869.862	868.130	868.472
Max	876.212	879.125	872.603	875.886
UL	1000.000	1000.000	1000.000	1000.000

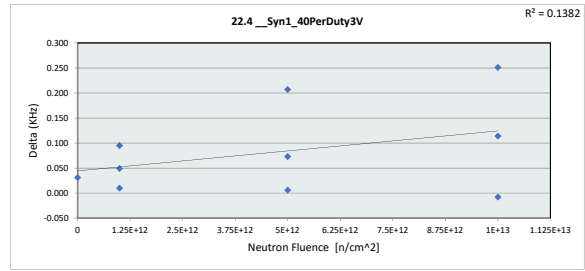




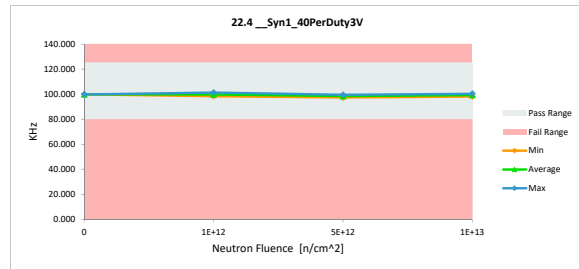
NDD Report -TPS7H4003-SEP

Dec 2021

22.4_Syn1_40PerDuty3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	KHz	KHz		
Max Limit	125	125		
Min Limit	80	80		
Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	101.229	101.324	0.095
1E+12	2	99.703	99.752	0.049
1E+12	3	98.473	98.483	0.010
5E+12	4	98.481	98.688	0.207
5E+12	5	97.361	97.434	0.073
5E+12	6	99.585	99.591	0.006
1E+13	7	98.142	98.256	0.114
1E+13	8	100.429	100.421	-0.008
1E+13	9	99.227	99.478	0.251
0	10	99.873	99.904	0.031
	Max	101.229	101.324	0.251
	Average	99.250	99.333	0.083
	Min	97.361	97.434	-0.008
	Std Dev	1.155	1.137	0.087



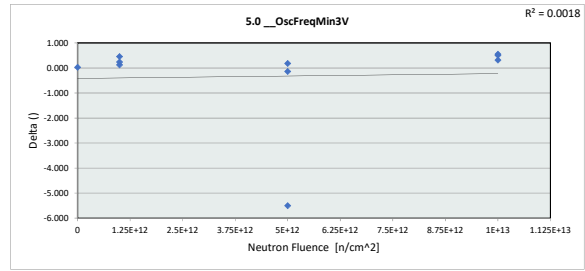
22.4_Syn1_40PerDuty3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	125	KHz		
Min Limit	80	KHz		
Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL	80.000	80.000	80.000	80.000
Min	99.904	98.483	97.434	98.256
Average	99.904	99.853	98.571	99.385
Max	99.904	101.324	99.591	100.421
UL	125.000	125.000	125.000	125.000



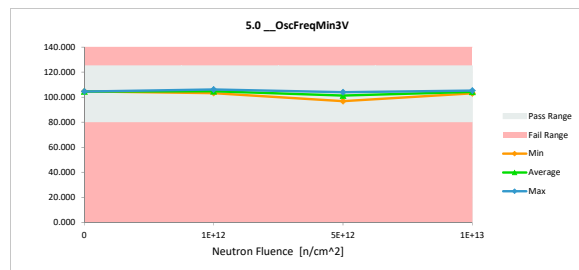
NDD Report -TPS7H4003-SEP

Dec 2021

5.0_OscFreqMin3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit	125	125		
Max Limit	80	80		
Min Limit				
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	105.989	106.223	0.234
1E+12	2	104.236	104.690	0.454
1E+12	3	103.224	103.345	0.121
5E+12	4	102.851	103.030	0.179
5E+12	5	102.341	96.841	-5.500
5E+12	6	104.140	104.001	-0.139
1E+13	7	102.843	103.156	0.313
1E+13	8	104.823	105.331	0.508
1E+13	9	103.811	104.359	0.548
0	10	104.594	104.618	0.024
	Max	105.989	106.223	0.548
	Average	103.885	103.559	-0.326
	Min	102.341	96.841	-5.500
	Std Dev	1.104	2.562	1.831



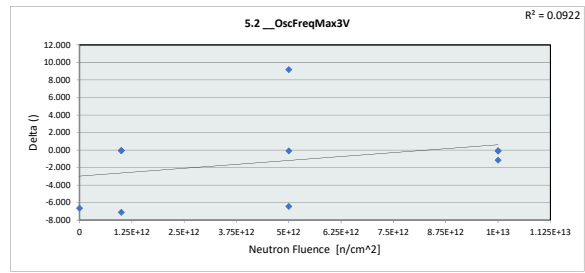
5.0_OscFreqMin3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	125			
Min Limit	80			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	80.000	80.000	80.000	80.000
Min	104.618	103.345	96.841	103.156
Average	104.618	104.753	101.291	104.282
Max	104.618	106.223	104.001	105.331
UL	125.000	125.000	125.000	125.000



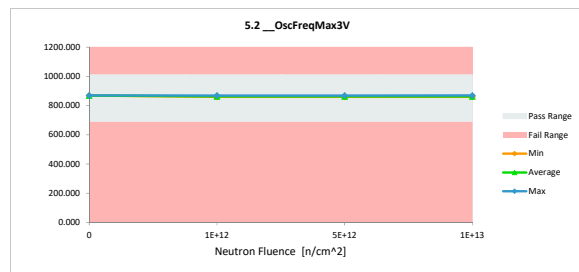
NDD Report -TPS7H4003-SEP

Dec 2021

5.2_OscFreqMax3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	1011	1011		
Min Limit	689	689		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	876.022	868.913	-7.109
1E+12	2	859.601	859.515	-0.086
1E+12	3	859.583	859.538	-0.045
5E+12	4	859.598	859.505	-0.093
5E+12	5	865.991	859.557	-6.434
5E+12	6	859.639	868.826	9.187
1E+13	7	859.583	859.510	-0.073
1E+13	8	870.019	868.864	-1.155
1E+13	9	859.615	859.510	-0.105
0	10	875.499	868.869	-6.630
	Max	876.022	868.913	9.187
	Average	864.515	863.261	-1.254
	Min	859.583	859.505	-7.109
	Std Dev	6.914	4.826	4.783



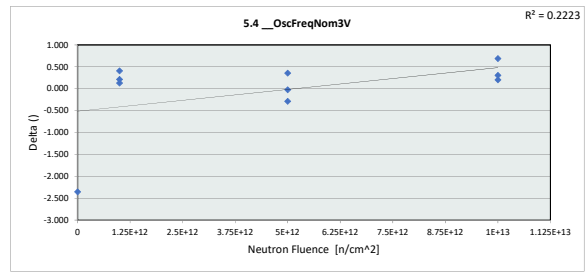
5.2_OscFreqMax3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	1011			
Min Limit	689			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	689.000	689.000	689.000	689.000
Min	868.869	859.515	859.505	859.510
Average	868.869	862.655	862.629	862.628
Max	868.869	868.913	868.826	868.864
UL	1011.000	1011.000	1011.000	1011.000



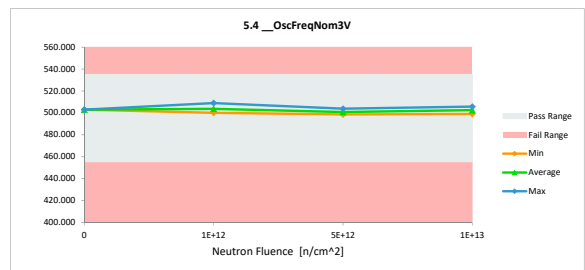
NDD Report -TPS7H4003-SEP

Dec 2021

5.4 OscFreqNom3V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	535	535		
Min Limit	455	455		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	508.515	508.922	0.407
1E+12	2	501.986	502.200	0.214
1E+12	3	499.878	500.006	0.128
5E+12	4	499.808	499.784	-0.024
5E+12	5	498.929	498.642	-0.287
5E+12	6	503.371	503.727	0.356
1E+13	7	498.700	499.005	0.305
1E+13	8	505.440	505.643	0.203
1E+13	9	501.928	502.617	0.689
0	10	505.279	502.926	-2.353
	Max	508.515	508.922	0.689
	Average	502.383	502.347	-0.036
	Min	498.700	498.642	-2.353
	Std Dev	3.250	3.221	0.854



5.4 OscFreqNom3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	535			
Min Limit	455			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	455.000	455.000	455.000	455.000
Min	502.926	500.006	498.642	499.005
Average	502.926	503.709	500.718	502.422
Max	502.926	508.922	503.727	505.643
UL	535.000	535.000	535.000	535.000

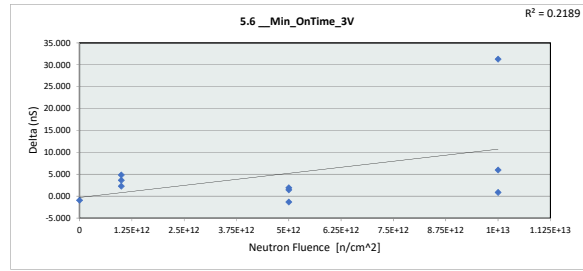


NDD Report -TPS7H4003-SEP

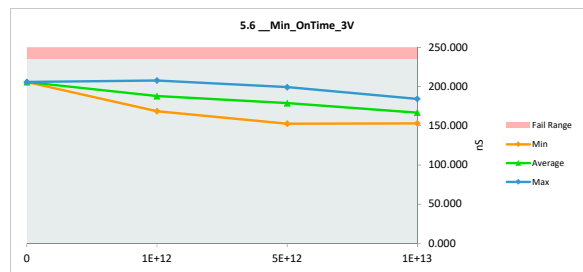
Dec 2021

5.6_Min_OnTime_3V		
Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	nS	nS
Max Limit	235	235
Min Limit		

Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	184.705	186.995	2.290
1E+12	2	202.792	207.664	4.872
1E+12	3	164.840	168.489	3.649
5E+12	4	150.542	152.491	1.949
5E+12	5	185.901	184.573	-1.328
5E+12	6	197.664	199.120	1.456
1E+13	7	152.005	152.891	0.886
1E+13	8	152.868	184.175	31.307
1E+13	9	157.025	163.031	6.006
0	10	206.610	205.693	-0.917
	Max	206.610	207.664	31.307
	Average	175.495	180.512	5.017
	Min	150.542	152.491	-1.328
	Std Dev	22.457	20.515	9.522



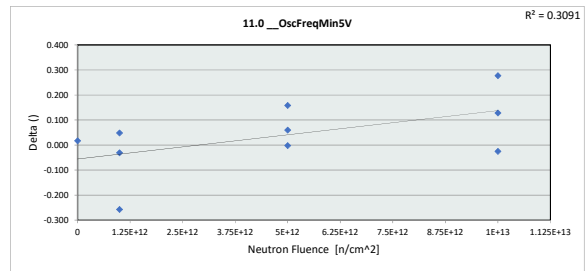
5.6_Min_OnTime_3V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	235	nS		
Min Limit	nS			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL				
Min		205.693	168.489	152.491
Average		205.693	187.716	178.728
Max		205.693	207.664	199.120
UL		235.000	235.000	235.000



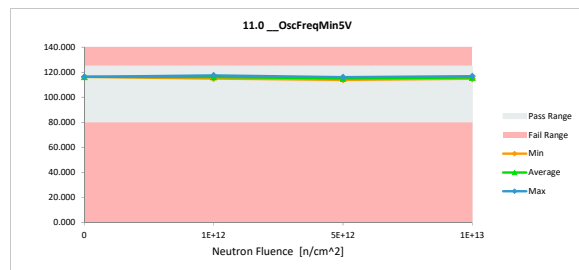
NDD Report -TPS7H4003-SEP

Dec 2021

11.0_OscFreqMin5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	125	125		
Min Limit	80	80		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	117.672	117.415	-0.257
1E+12	2	116.106	116.154	0.048
1E+12	3	114.939	114.908	-0.031
5E+12	4	114.922	115.080	0.158
5E+12	5	113.828	113.888	0.060
5E+12	6	116.008	116.006	-0.002
1E+13	7	114.543	114.671	0.128
1E+13	8	116.777	116.752	-0.025
1E+13	9	115.636	115.913	0.277
0	10	116.300	116.317	0.017
	Max	117.672	117.415	0.277
	Average	115.673	115.710	0.037
	Min	113.828	113.888	-0.257
	Std Dev	1.140	1.061	0.141



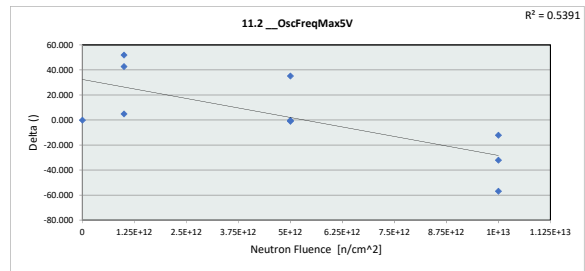
11.0_OscFreqMin5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	125			
Min Limit	80			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	80.000	80.000	80.000	80.000
Min	116.317	114.908	113.888	114.671
Average	116.317	116.159	114.991	115.779
Max	116.317	117.415	116.006	116.752
UL	125.000	125.000	125.000	125.000



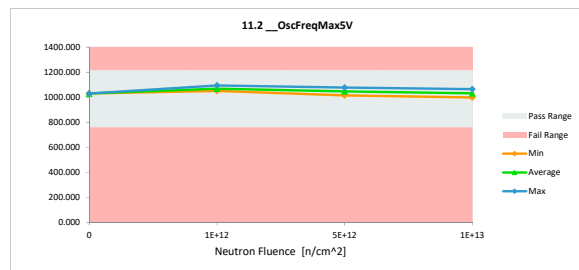
NDD Report -TPS7H4003-SEP

Dec 2021

11.2_OscFreqMax5V				
Test Site	Junkins/Dallas	Junkins/Dallas		
Tester	FEST36412	FEST36408		
Test Number	EB545301	EB545301		
Unit				
Max Limit	1212	1212		
Min Limit	760	760		
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	1019.643	1062.316	42.673
1E+12	2	1045.188	1050.019	4.831
1E+12	3	1041.706	1093.646	51.940
5E+12	4	1041.650	1076.800	35.150
5E+12	5	1014.812	1014.536	-0.276
5E+12	6	1049.861	1048.859	-1.002
1E+13	7	1087.228	1030.385	-56.843
1E+13	8	1030.476	998.335	-32.141
1E+13	9	1076.866	1064.782	-12.084
0	10	1030.560	1030.395	-0.165
	Max	1087.228	1093.646	51.940
	Average	1043.799	1047.007	3.208
	Min	1014.812	998.335	-56.843
	Std Dev	23.103	29.062	33.476



11.2_OscFreqMax5V				
Test Site	Junkins/Dallas			
Tester	FEST36412			
Test Number	EB545301			
Max Limit	1212			
Min Limit	760			
Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	760.000	760.000	760.000	760.000
Min	1030.395	1050.019	1014.536	998.335
Average	1030.395	1068.660	1046.732	1031.167
Max	1030.395	1093.646	1076.800	1064.782
UL	1212.000	1212.000	1212.000	1212.000



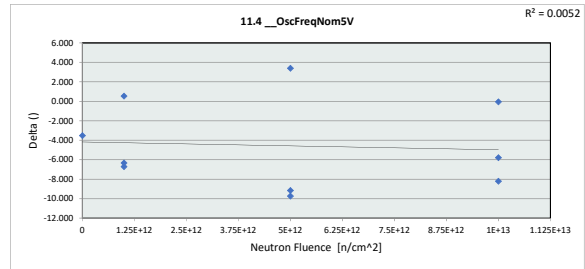
NDD Report -TPS7H4003-SEP

Dec 2021

11.4\_OscFreqNom5V

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit		
Max Limit	615	615
Min Limit	475	475

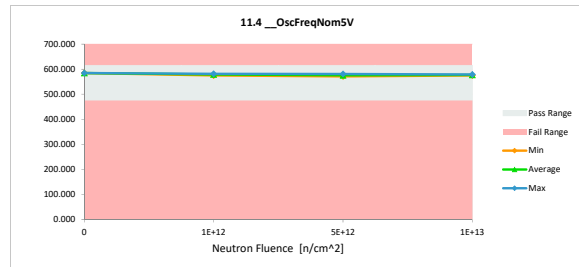
Neutron Fluence [n/cm <sup>2</sup> ]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	588.113	581.408	-6.705
1E+12	2	581.075	574.739	-6.336
1E+12	3	580.138	580.677	0.539
5E+12	4	577.641	581.036	3.395
5E+12	5	580.825	571.085	-9.740
5E+12	6	585.092	575.939	-9.153
1E+13	7	577.670	577.620	-0.050
1E+13	8	584.560	578.765	-5.795
1E+13	9	583.095	574.882	-8.213
0	10	588.090	584.565	-3.525
Max		588.113	584.565	3.395
Average		582.630	578.072	-4.558
Min		577.641	571.085	-9.740
Std Dev		3.819	4.003	4.488



11.4\_OscFreqNom5V

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	615
Min Limit	475

Neutron Fluence [n/cm <sup>2</sup> ]	0	1E+12	5E+12	1E+13
LL	475.000	475.000	475.000	475.000
Min	584.565	574.739	571.085	574.882
Average	584.565	578.941	576.020	577.089
Max	584.565	581.408	581.036	578.765
UL	615.000	615.000	615.000	615.000





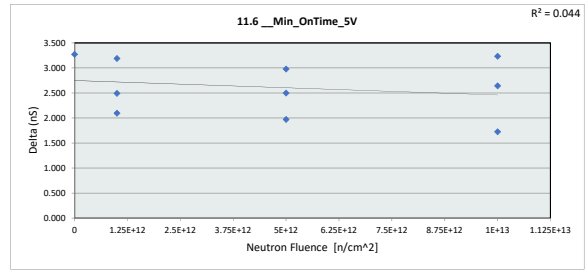
NDD Report -TPS7H4003-SEP

Dec 2021

11.6\_Min\_OnTime\_5V

Test Site	Junkins/Dallas	Junkins/Dallas
Tester	FEST36412	FEST36408
Test Number	EB545301	EB545301
Unit	nS	nS
Max Limit	225	225
Min Limit		

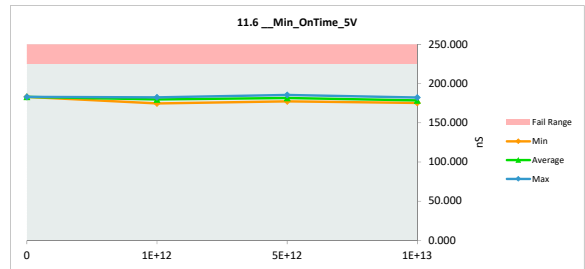
Neutron Fluence [n/cm^2]	Serial #	PreNDD-DS	PostNDD-DS	Delta
1E+12	1	179.969	182.065	2.096
1E+12	2	172.021	174.514	2.493
1E+12	3	179.193	182.382	3.189
5E+12	4	174.708	177.207	2.499
5E+12	5	178.769	181.746	2.977
5E+12	6	183.468	185.439	1.971
1E+13	7	172.603	175.245	2.642
1E+13	8	176.556	178.281	1.725
1E+13	9	178.934	182.167	3.233
0	10	179.641	182.912	3.271
	Max	183.468	185.439	3.271
	Average	177.586	180.196	2.610
	Min	172.021	174.514	1.725
	Std Dev	3.581	3.634	0.556



11.6\_Min\_OnTime\_5V

Test Site	Junkins/Dallas
Tester	FEST36412
Test Number	EB545301
Max Limit	225
Min Limit	nS

Neutron Fluence [n/cm^2]	0	1E+12	5E+12	1E+13
LL				
Min	182.912	174.514	177.207	175.245
Average	182.912	179.654	181.464	178.564
Max	182.912	182.382	185.439	182.167
UL	225.000	225.000	225.000	225.000



## IMPORTANT NOTICE AND DISCLAIMER

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

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

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

TI's products are provided subject to [TI's Terms of Sale](#) or other applicable terms available either on [ti.com](http://ti.com) or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

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

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265  
Copyright © 2022, Texas Instruments Incorporated