



**National Semiconductor Corporation
Radiation Effects Laboratory
South Portland, Maine 04106**

ANALOG TOTAL DOSE RADIATION REPORT

Customer: Rad Qual

Part Type: RM136AH2.5RQMLV

Input Bias Circuit: 9988 IR

Dose Rate: 51.702 rad(Si)/sec

Test Program Used: RL136A1HXA

Tester: L.Collins

Wafer Run Number: JM046X24

Wafer Number: 3

Package Type: HT046003

Production Lot #: 183061C019

IPI #: N/A

Disposition: PASSES

Summary:

Passes Room Temp @: 100k

Part Out of Room Temp Spec @: N/A (no devices failed)

Functional Failed @: N/A (no devices failed functionally)

Parameters over Limit:

Review By: Mike Maher

Reviewed By QA: Mike Maher – October 21, 2004

Note:

These parts may be dose rate sensitive in a space environment and demonstrate enhanced low dose rate effect.

Standard Test Flow Sheet For Rad Testing
Customer Special Attachment
Rad Hard Linear

Comment:
Comment:

NSID# RM136AH2.5RQMLV LOT# 183061C019 IPI# N/A

Test Program: RL136A1HXA

Machine: LTX 01-3 Operator: D0226 Bias Board: 9988 IR

Start Time: 12:40 P.M Finish Time: 2:11 P.M

Start Date: 21/Oct/04 Finish Date: 21/Oct/04 QA: October 21, 2004

Control Units s/n: #1001 #1002

Duts : #1003 #1004 #1005 #1006 #1007 #1008

Location Step	Operation Mtd/Cond	Qty In	Qty Out	Var	Mech	Rej	FF
PASS	Pre - Rad Read/Rec. Tp1	6	6	0	0	0	0
	<i>Irradiation</i> <i>3k</i> <i>Level</i>	6	6	0	0	N/A	N/A
PASS	Post Rad Read/Rec. Tp2	6	6	0	0	0	0
	<i>Irradiation</i> <i>10k</i> <i>Level</i>	6	6	0	0	N/A	N/A
PASS	Post Rad Read/Rec. Tp3	6	6	0	0	0	0

Standard Test Flow Sheet For Rad Testing
Customer Special Attachment
Rad Hard Linear

Comment:

Comment:

Comment:

Comment:

NSID# RM136AH2.5RQMLV

LOT# 183061C019

IPI# N/A

Location Step	Operation Mtd/Cond	Qty In	Qty Out	Var	Mech	Rej	FF
	<i>Irradiation</i>	6	6	0	0		
	<i>30k</i>					N/A	N/A
	<i>Level</i>						
PASS	Post Rad Read/Rec. Tp4	6	6	0	0	0	0
	<i>Irradiation</i>	6	6	0	0		
	<i>50k</i>					N/A	N/A
	<i>Level</i>						
PASS	Post Rad Read/Rec. Tp5	6	6	0	0	0	0
	<i>Irradiation</i>	6	6	0	0		
	<i>80k</i>					N/A	N/A
	<i>Level</i>	6	6	0	0	0	0
PASS	Post Rad Read/Rec. Tp6						
	<i>Irradiation</i>	6	6	0	0		
	<i>100k</i>					N/A	N/A
	<i>Level</i>						
PASS	Post Rad Read/Rec. Tp7	6	6	0	0	0	0

Note: All irradiation's are done per MAS-5010

Ok

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DEVICE	1001	BIN	1	HEAD 3	12:40 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.5 UA	3.0	2.591 V
4.0	2.06 MV	5.0		2.482 V		
DEVICE	1002	BIN	1	HEAD 3	12:41 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.3 UA	3.0	2.589 V
4.0	2.12 MV	5.0		2.481 V		
DEVICE	1003	BIN	1	HEAD 3	12:41 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.426 V	2.0		-10.6 UA	3.0	2.587 V
4.0	2.19 MV	5.0		2.478 V		
DEVICE	1004	BIN	1	HEAD 3	12:41 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.428 V	2.0		-10.5 UA	3.0	2.589 V
4.0	2.28 MV	5.0		2.481 V		
DEVICE	1005	BIN	1	HEAD 3	12:42 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.6 UA	3.0	2.590 V
4.0	1.96 MV	5.0		2.482 V		
DEVICE	1006	BIN	1	HEAD 3	12:42 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.49 V
1.0	2.432 V	2.0		-10.4 UA	3.0	2.593 V
4.0	2.06 MV	5.0		2.484 V		
DEVICE	1007	BIN	1	HEAD 3	12:42 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.5 UA	3.0	2.590 V
4.0	2.05 MV	5.0		2.482 V		
DEVICE	1008	BIN	1	HEAD 3	12:43 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.431 V	2.0		-10.3 UA	3.0	2.591 V
4.0	2.13 MV	5.0		2.483 V		

3k

183061C019

DEVICE	1001	BIN	1	HEAD 3	12:55 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.430 V	2.0	-10.4 UA	3.0	2.591 V	
4.0	2.02 MV	5.0	2.482 V			
DEVICE	1002	BIN	1	HEAD 3	12:55 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.429 V	2.0	-10.3 UA	3.0	2.589 V	
4.0	2.28 MV	5.0	2.481 V			
DEVICE	1003	BIN	1	HEAD 3	12:55 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.426 V	2.0	-10.5 UA	3.0	2.587 V	
4.0	2.20 MV	5.0	2.478 V			
DEVICE	1004	BIN	1	HEAD 3	12:55 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.429 V	2.0	-10.3 UA	3.0	2.589 V	
4.0	2.15 MV	5.0	2.480 V			
DEVICE	1005	BIN	1	HEAD 3	12:55 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.430 V	2.0	-10.5 UA	3.0	2.591 V	
4.0	2.09 MV	5.0	2.482 V			
DEVICE	1006	BIN	1	HEAD 3	12:56 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.432 V	2.0	-10.3 UA	3.0	2.593 V	
4.0	2.14 MV	5.0	2.484 V			
DEVICE	1007	BIN	1	HEAD 3	12:56 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.430 V	2.0	-10.4 UA	3.0	2.591 V	
4.0	2.09 MV	5.0	2.482 V			
DEVICE	1008	BIN	1	HEAD 3	12:56 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.431 V	2.0	-10.2 UA	3.0	2.591 V	
4.0	2.23 MV	5.0	2.483 V			

10k

183061C019

DEVICE	1001	BIN	1	HEAD 3	01:06 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.4 UA	3.0	2.591 V
4.0	2.12 MV	5.0		2.482 V		
DEVICE	1002	BIN	1	HEAD 3	01:06 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.2 UA	3.0	2.589 V
4.0	1.92 MV	5.0		2.480 V		
DEVICE	1003	BIN	1	HEAD 3	01:07 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.426 V	2.0		-10.4 UA	3.0	2.587 V
4.0	2.35 MV	5.0		2.478 V		
DEVICE	1004	BIN	1	HEAD 3	01:07 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.3 UA	3.0	2.589 V
4.0	2.13 MV	5.0		2.480 V		
DEVICE	1005	BIN	1	HEAD 3	01:07 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.5 UA	3.0	2.591 V
4.0	2.13 MV	5.0		2.482 V		
DEVICE	1006	BIN	1	HEAD 3	01:07 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.49 V
1.0	2.432 V	2.0		-10.3 UA	3.0	2.593 V
4.0	2.20 MV	5.0		2.484 V		
DEVICE	1007	BIN	1	HEAD 3	01:07 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.4 UA	3.0	2.591 V
4.0	2.19 MV	5.0		2.482 V		
DEVICE	1008	BIN	1	HEAD 3	01:07 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.431 V	2.0		-10.2 UA	3.0	2.591 V
4.0	2.05 MV	5.0		2.483 V		

30k

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DEVICE	1001	BIN	1	HEAD 3	01:20 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.4 UA	3.0	2.591 V
4.0	2.00 MV	5.0		2.482 V		
DEVICE	1002	BIN	1	HEAD 3	01:20 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.2 UA	3.0	2.589 V
4.0	2.04 MV	5.0		2.481 V		
DEVICE	1003	BIN	1	HEAD 3	01:21 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.426 V	2.0		-10.4 UA	3.0	2.587 V
4.0	2.35 MV	5.0		2.478 V		
DEVICE	1004	BIN	1	HEAD 3	01:21 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.428 V	2.0		-10.3 UA	3.0	2.589 V
4.0	2.31 MV	5.0		2.480 V		
DEVICE	1005	BIN	1	HEAD 3	01:21 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.5 UA	3.0	2.590 V
4.0	2.40 MV	5.0		2.481 V		
DEVICE	1006	BIN	1	HEAD 3	01:21 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.432 V	2.0		-10.3 UA	3.0	2.592 V
4.0	2.32 MV	5.0		2.484 V		
DEVICE	1007	BIN	1	HEAD 3	01:22 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.4 UA	3.0	2.590 V
4.0	2.24 MV	5.0		2.482 V		
DEVICE	1008	BIN	1	HEAD 3	01:22 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.431 V	2.0		-10.2 UA	3.0	2.591 V
4.0	2.24 MV	5.0		2.483 V		

50k

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DEVICE	1001	BIN	1	HEAD 3	01:35 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.4 UA	3.0	2.591 V
4.0	2.12 MV	5.0		2.482 V		
DEVICE	1002	BIN	1	HEAD 3	01:35 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.2 UA	3.0	2.589 V
4.0	2.04 MV	5.0		2.480 V		
DEVICE	1003	BIN	1	HEAD 3	01:35 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.425 V	2.0		-10.4 UA	3.0	2.587 V
4.0	2.51 MV	5.0		2.478 V		
DEVICE	1004	BIN	1	HEAD 3	01:35 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.428 V	2.0		-10.3 UA	3.0	2.589 V
4.0	2.47 MV	5.0		2.480 V		
DEVICE	1005	BIN	1	HEAD 3	01:36 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.5 UA	3.0	2.590 V
4.0	2.44 MV	5.0		2.481 V		
DEVICE	1006	BIN	1	HEAD 3	01:36 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.432 V	2.0		-10.3 UA	3.0	2.592 V
4.0	2.28 MV	5.0		2.484 V		
DEVICE	1007	BIN	1	HEAD 3	01:36 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.4 UA	3.0	2.590 V
4.0	2.25 MV	5.0		2.482 V		
DEVICE	1008	BIN	1	HEAD 3	01:36 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.431 V	2.0		-10.2 UA	3.0	2.591 V
4.0	2.19 MV	5.0		2.483 V		

80k

183061C019

DEVICE	1001	BIN	1	HEAD 3	01:53 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.3 UA	3.0	2.591 V
4.0	2.06 MV	5.0		2.482 V		
DEVICE	1002	BIN	1	HEAD 3	01:53 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.2 UA	3.0	2.589 V
4.0	2.25 MV	5.0		2.480 V		
DEVICE	1003	BIN	1	HEAD 3	01:53 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.425 V	2.0		-10.3 UA	3.0	2.587 V
4.0	2.77 MV	5.0		2.477 V		
DEVICE	1004	BIN	1	HEAD 3	01:53 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.428 V	2.0		-10.3 UA	3.0	2.589 V
4.0	2.57 MV	5.0		2.480 V		
DEVICE	1005	BIN	1	HEAD 3	01:54 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.429 V	2.0		-10.4 UA	3.0	2.590 V
4.0	2.60 MV	5.0		2.481 V		
DEVICE	1006	BIN	1	HEAD 3	01:54 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.432 V	2.0		-10.2 UA	3.0	2.592 V
4.0	2.60 MV	5.0		2.484 V		
DEVICE	1007	BIN	1	HEAD 3	01:54 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.430 V	2.0		-10.3 UA	3.0	2.590 V
4.0	2.48 MV	5.0		2.481 V		
DEVICE	1008	BIN	1	HEAD 3	01:54 PM	10/21/2004
700.0	300	800.0		0 DGR	50.0	2.48 V
1.0	2.431 V	2.0		-10.2 UA	3.0	2.591 V
4.0	2.31 MV	5.0		2.483 V		

100k**183061C019**

DEVICE	1001	BIN	1	HEAD 3	02:09 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.430 V	2.0	-10.4 UA	3.0	2.591 V	
4.0	2.04 MV	5.0	2.482 V			
DEVICE	1002	BIN	1	HEAD 3	02:09 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.429 V	2.0	-10.3 UA	3.0	2.589 V	
4.0	2.15 MV	5.0	2.481 V			
DEVICE	1003	BIN	1	HEAD 3	02:09 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.425 V	2.0	-10.3 UA	3.0	2.587 V	
4.0	2.73 MV	5.0	2.477 V			
DEVICE	1004	BIN	1	HEAD 3	02:10 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.428 V	2.0	-10.3 UA	3.0	2.589 V	
4.0	2.68 MV	5.0	2.480 V			
DEVICE	1005	BIN	1	HEAD 3	02:10 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.429 V	2.0	-10.5 UA	3.0	2.590 V	
4.0	2.47 MV	5.0	2.481 V			
DEVICE	1006	BIN	1	HEAD 3	02:10 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.432 V	2.0	-10.2 UA	3.0	2.592 V	
4.0	2.48 MV	5.0	2.483 V			
DEVICE	1007	BIN	1	HEAD 3	02:10 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.429 V	2.0	-10.4 UA	3.0	2.590 V	
4.0	2.51 MV	5.0	2.481 V			
DEVICE	1008	BIN	1	HEAD 3	02:11 PM	10/21/2004
700.0	300	800.0	0 DGR	50.0	2.48 V	
1.0	2.431 V	2.0	-10.2 UA	3.0	2.591 V	
4.0	2.56 MV	5.0	2.483 V			