

# ESD (MACHINE MODE) TEST REPORT

Company : RAIO Technology Inc.  
Model Name : RA8872  
Date Code : 1122-N  
Date Received : MAR 28, 2012  
Date Tested : MAR 30, 2012

## TESTING LABORATORY IS ACCREDITED BY:

IEC/IECQ 17025 certificate of independent test laboratory approval

 Certificate No. : T1091

ISO 9001 certificate is approved by TUV CERT certification body of TUV NORD Cert GmbH

## WE HEREBY CERTIFY THAT:

The test(s) shown in the attachment were conducted according to the indicating procedures. We assume full responsibility for the accuracy and completeness of these tests and vouch for the qualifications of all personnel performing them.

	Name	Signature	Date
Test Engineer	Brian Mao	<i>Brian Mao</i>	Mar 30, 2012
Manager	Even Lin	<i>Even Lin</i>	Mar 30, 2012

## **NOTE :**

1. This report will be invalid if reproduced in whole or in part.
2. This report refers only to the specimen(s) submitted to test, and is invalid if used separately.
3. This report is ONLY valid with the examination seal and signature of this institute.
4. The tested specimen(s) will only be preserved for thirty days from the date issued, if not collected by the applicant.
5. The failure criteria should be based on parametric and functional testing, the curve trace provided in this report is for reference only.





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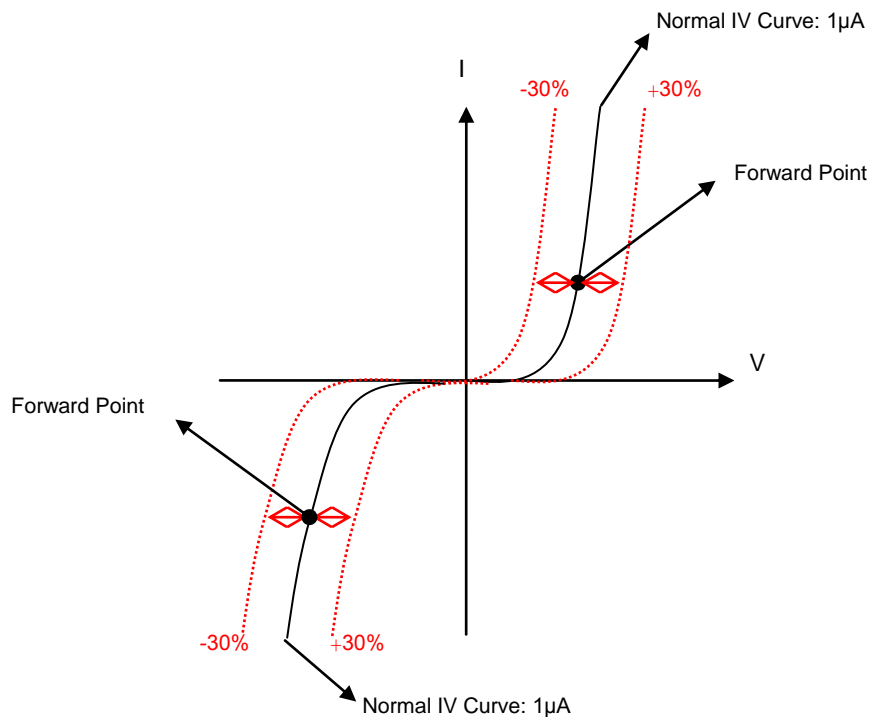
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## 1. GENERAL INFORMATION

### 1.1 DESCRIPTION OF UNIT

MANUFACTURER : RAIO Technology Inc.  
DEVICE NAME : RA8872  
DATE CODE : 1122-N  
PACKAGE / PIN COUNT : LQFP-100  
REFERENCE DOCUMENT : JEDEC EIA/JESD22-A115  
TEST VOLTAGE : 200V ~ 400V ( $\pm$ ), Step: 100V ( $\pm$ )  
SAMPLE QUANTITY : 18 ea  
FAILURE CRITERIA : FOR V CHANGE AT  $1\mu\text{A} \pm 30\%$

※ Failure Judgment: IV curve shift over  $1\mu\text{A} \pm 30\%$  at forward point.



## 2. ESD (MACHINE MODE) TEST

### 2.1 TEST EQUIPMENT

Test Equipment	Equipment Number	Tester
KEYTEK ZAPMASTER	#5	02011

### 2.2 LABORATORY AMBIENCE CONDITION

Temperature : 25±5°C

Relative humidity : 55%±10% (RH)

### 2.3 REFERENCE DOCUMENT

The test method refers to JEDEC EIA/JESD22-A115

### 2.4 TEST CONDITION

ALL – VSS (+)

ALL – VSS (-)

ALL – VCC (+)

ALL – VCC (-)

VCC – VSS (+)

VCC – VSS (-)

### 2.5 SUMMARY OF TEST

Test Model : MM	ESD Sensitivity Passed : ±300V		JEDEC Classification Class : <u>  B  </u>
Test condition	Sample Quantity	Passed Volts	Class A : < 200V.
ALL – VSS (+)	3	+400V	Class B : ≥ 200V , < 400V
ALL – VSS (-)	3	-400V	Class C : ≥ 400V
ALL – VCC (+)	3	+400V	
ALL – VCC (-)	3	-400V	
VCC – VSS (+)	3	+300V	
VCC – VSS (-)	3	-400V	

ALL:4-15,19-24,28-29,33-34,36-38,40-42,64-66, VCC:2,17-18,27,30,32,57,61,77,79-80  
 69-71,74,76,81-100 VSS:1,3,16,25,31,35,50-51,59,78

## 2.6 CONTENTS OF TEST

ALL – VSS (+)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
4	PASS	PASS	PASS	PASS	64	PASS	PASS	PASS	PASS
5	PASS	PASS	PASS	PASS	65	PASS	PASS	PASS	PASS
6	PASS	PASS	PASS	PASS	66	PASS	PASS	PASS	PASS
7	PASS	PASS	PASS	PASS	69	PASS	PASS	PASS	PASS
8	PASS	PASS	PASS	PASS	70	PASS	PASS	PASS	PASS
9	PASS	PASS	PASS	PASS	71	PASS	PASS	PASS	PASS
10	PASS	PASS	PASS	PASS	74	PASS	PASS	PASS	PASS
11	PASS	PASS	PASS	PASS	76	PASS	PASS	PASS	PASS
12	PASS	PASS	PASS	PASS	81	PASS	PASS	PASS	PASS
13	PASS	PASS	PASS	PASS	82	PASS	PASS	PASS	PASS
14	PASS	PASS	PASS	PASS	83	PASS	PASS	PASS	PASS
15	PASS	PASS	PASS	PASS	84	PASS	PASS	PASS	PASS
19	PASS	PASS	PASS	PASS	85	PASS	PASS	PASS	PASS
20	PASS	PASS	PASS	PASS	86	PASS	PASS	PASS	PASS
21	PASS	PASS	PASS	PASS	87	PASS	PASS	PASS	PASS
22	PASS	PASS	PASS	PASS	88	PASS	PASS	PASS	PASS
23	PASS	PASS	PASS	PASS	89	PASS	PASS	PASS	PASS
24	PASS	PASS	PASS	PASS	90	PASS	PASS	PASS	PASS
28	PASS	PASS	PASS	PASS	91	PASS	PASS	PASS	PASS
29	PASS	PASS	PASS	PASS	92	PASS	PASS	PASS	PASS
33	PASS	PASS	PASS	PASS	93	PASS	PASS	PASS	PASS
34	PASS	PASS	PASS	PASS	94	PASS	PASS	PASS	PASS
36	PASS	PASS	PASS	PASS	95	PASS	PASS	PASS	PASS
37	PASS	PASS	PASS	PASS	96	PASS	PASS	PASS	PASS
38	PASS	PASS	PASS	PASS	97	PASS	PASS	PASS	PASS
40	PASS	PASS	PASS	PASS	98	PASS	PASS	PASS	PASS
41	PASS	PASS	PASS	PASS	99	PASS	PASS	PASS	PASS
42	PASS	PASS	PASS	PASS	100	PASS	PASS	PASS	PASS

ALL – VSS (-)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
4		PASS	PASS	PASS	64		PASS	PASS	PASS
5		PASS	PASS	PASS	65		PASS	PASS	PASS
6		PASS	PASS	PASS	66		PASS	PASS	PASS
7		PASS	PASS	PASS	69		PASS	PASS	PASS
8		PASS	PASS	PASS	70		PASS	PASS	PASS
9		PASS	PASS	PASS	71		PASS	PASS	PASS
10		PASS	PASS	PASS	74		PASS	PASS	PASS
11		PASS	PASS	PASS	76		PASS	PASS	PASS
12		PASS	PASS	PASS	81		PASS	PASS	PASS
13		PASS	PASS	PASS	82		PASS	PASS	PASS
14		PASS	PASS	PASS	83		PASS	PASS	PASS
15		PASS	PASS	PASS	84		PASS	PASS	PASS
19		PASS	PASS	PASS	85		PASS	PASS	PASS
20		PASS	PASS	PASS	86		PASS	PASS	PASS
21		PASS	PASS	PASS	87		PASS	PASS	PASS
22		PASS	PASS	PASS	88		PASS	PASS	PASS
23		PASS	PASS	PASS	89		PASS	PASS	PASS
24		PASS	PASS	PASS	90		PASS	PASS	PASS
28		PASS	PASS	PASS	91		PASS	PASS	PASS
29		PASS	PASS	PASS	92		PASS	PASS	PASS
33		PASS	PASS	PASS	93		PASS	PASS	PASS
34		PASS	PASS	PASS	94		PASS	PASS	PASS
36		PASS	PASS	PASS	95		PASS	PASS	PASS
37		PASS	PASS	PASS	96		PASS	PASS	PASS
38		PASS	PASS	PASS	97		PASS	PASS	PASS
40		PASS	PASS	PASS	98		PASS	PASS	PASS
41		PASS	PASS	PASS	99		PASS	PASS	PASS
42		PASS	PASS	PASS	100		PASS	PASS	PASS

ALL – VCC (+)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
4		PASS	PASS	PASS	64		PASS	PASS	PASS
5		PASS	PASS	PASS	65		PASS	PASS	PASS
6		PASS	PASS	PASS	66		PASS	PASS	PASS
7		PASS	PASS	PASS	69		PASS	PASS	PASS
8		PASS	PASS	PASS	70		PASS	PASS	PASS
9		PASS	PASS	PASS	71		PASS	PASS	PASS
10		PASS	PASS	PASS	74		PASS	PASS	PASS
11		PASS	PASS	PASS	76		PASS	PASS	PASS
12		PASS	PASS	PASS	81		PASS	PASS	PASS
13		PASS	PASS	PASS	82		PASS	PASS	PASS
14		PASS	PASS	PASS	83		PASS	PASS	PASS
15		PASS	PASS	PASS	84		PASS	PASS	PASS
19		PASS	PASS	PASS	85		PASS	PASS	PASS
20		PASS	PASS	PASS	86		PASS	PASS	PASS
21		PASS	PASS	PASS	87		PASS	PASS	PASS
22		PASS	PASS	PASS	88		PASS	PASS	PASS
23		PASS	PASS	PASS	89		PASS	PASS	PASS
24		PASS	PASS	PASS	90		PASS	PASS	PASS
28		PASS	PASS	PASS	91		PASS	PASS	PASS
29		PASS	PASS	PASS	92		PASS	PASS	PASS
33		PASS	PASS	PASS	93		PASS	PASS	PASS
34		PASS	PASS	PASS	94		PASS	PASS	PASS
36		PASS	PASS	PASS	95		PASS	PASS	PASS
37		PASS	PASS	PASS	96		PASS	PASS	PASS
38		PASS	PASS	PASS	97		PASS	PASS	PASS
40		PASS	PASS	PASS	98		PASS	PASS	PASS
41		PASS	PASS	PASS	99		PASS	PASS	PASS
42		PASS	PASS	PASS	100		PASS	PASS	PASS

ALL – VCC (-)									
(UNIT:V)									
Test Pin	FAIL VOLTAGE	#1	#2	#3	Test Pin	FAIL VOLTAGE	#1	#2	#3
4		PASS	PASS	PASS	64		PASS	PASS	PASS
5		PASS	PASS	PASS	65		PASS	PASS	PASS
6		PASS	PASS	PASS	66		PASS	PASS	PASS
7		PASS	PASS	PASS	69		PASS	PASS	PASS
8		PASS	PASS	PASS	70		PASS	PASS	PASS
9		PASS	PASS	PASS	71		PASS	PASS	PASS
10		PASS	PASS	PASS	74		PASS	PASS	PASS
11		PASS	PASS	PASS	76		PASS	PASS	PASS
12		PASS	PASS	PASS	81		PASS	PASS	PASS
13		PASS	PASS	PASS	82		PASS	PASS	PASS
14		PASS	PASS	PASS	83		PASS	PASS	PASS
15		PASS	PASS	PASS	84		PASS	PASS	PASS
19		PASS	PASS	PASS	85		PASS	PASS	PASS
20		PASS	PASS	PASS	86		PASS	PASS	PASS
21		PASS	PASS	PASS	87		PASS	PASS	PASS
22		PASS	PASS	PASS	88		PASS	PASS	PASS
23		PASS	PASS	PASS	89		PASS	PASS	PASS
24		PASS	PASS	PASS	90		PASS	PASS	PASS
28		PASS	PASS	PASS	91		PASS	PASS	PASS
29		PASS	PASS	PASS	92		PASS	PASS	PASS
33		PASS	PASS	PASS	93		PASS	PASS	PASS
34		PASS	PASS	PASS	94		PASS	PASS	PASS
36		PASS	PASS	PASS	95		PASS	PASS	PASS
37		PASS	PASS	PASS	96		PASS	PASS	PASS
38		PASS	PASS	PASS	97		PASS	PASS	PASS
40		PASS	PASS	PASS	98		PASS	PASS	PASS
41		PASS	PASS	PASS	99		PASS	PASS	PASS
42		PASS	PASS	PASS	100		PASS	PASS	PASS



VCC – VSS (+)				
Test Pin	FAIL VOLTAGE	#1	#2	#3
				(UNIT: V)
2		PASS	PASS	PASS
17		PASS	PASS	PASS
18		PASS	PASS	400
27		PASS	400	400
30		PASS	PASS	PASS
32		PASS	PASS	400
57		PASS	PASS	PASS
61		PASS	PASS	PASS
77		PASS	PASS	PASS
79		PASS	PASS	PASS
80		PASS	PASS	PASS

VCC – VSS (-)				
Test Pin	FAIL VOLTAGE	#1	#2	#3
				(UNIT: V)
2		PASS	PASS	PASS
17		PASS	PASS	PASS
18		PASS	PASS	PASS
27		PASS	PASS	PASS
30		PASS	PASS	PASS
32		PASS	PASS	PASS
57		PASS	PASS	PASS
61		PASS	PASS	PASS
77		PASS	PASS	PASS
79		PASS	PASS	PASS
80		PASS	PASS	PASS